CLINTON FOUNDATION

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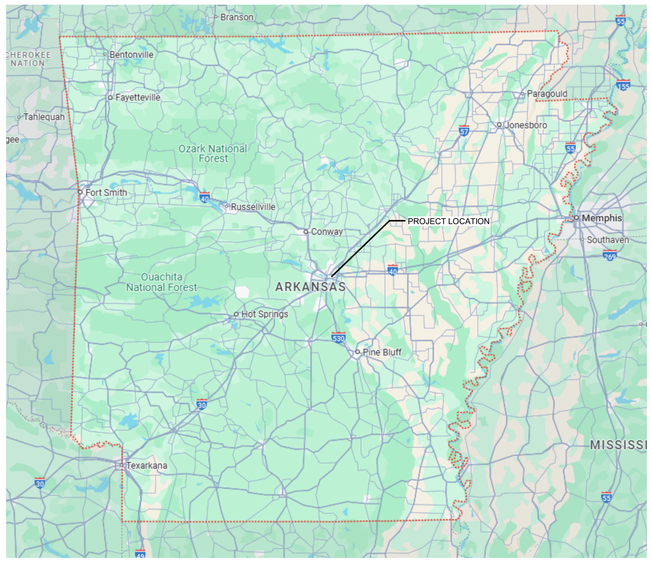
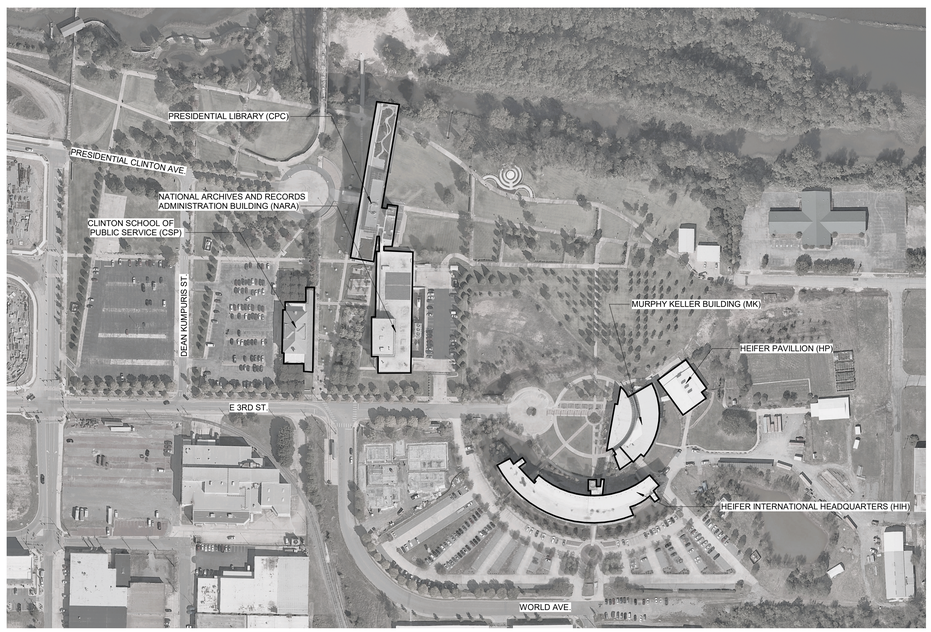


1200 PRESIDENT CLINTON AVE. LITTLE ROCK, AR 72201



CAMPUS MAP

CLINTON SUSTAINABLE ENERGY DISTRICT - DRAWING TABLE OF CONTENTS		
PACKAGE NUMBER	DISCIPLINES	DESCRIPTION
1	[G,M]	SANITARY SEWER DIVERSION CREDITS
2	[G,S,M,ATC,E]	ENERGY UPGRADES

CLINTON SUSTAINABLE ENERGY DISTRICT - BUILDING LIST	
BUILDING DESIGNATION	BUILDING NAME
CPC	CLINTON PRESIDENTIAL LIBRARY
NARA	NARA BUILDING
CSPS	CLINTON SCHOOL OF PUBLIC SERVICE
HP	HEIFER PAVILION
MK	MURPHY KELLER BUILDING
HIH	HEIFER INTERNATIONAL HEADQUARTERS

APPLICABLE CODES AND STANDARDS

- ARKANSAS FIRE CODE 2021
- ARKANSAS BUILDING CODE 2021
- ARKANSAS MECHANICAL CODE 2021
- ARKANSAS ELECTRICAL CODE 2020
- ARKANSAS FUEL GAS CODE 2018
- ARKANSAS ENERGY CODE 2009
- ARKANSAS PLUMBING CODE 2018
- NATIONAL ARCHIVES AND RECORDS ADMINISTRATION 1571 - ARCHIVAL STORAGE STANDARDS

SITE CONDITIONS (CPC):

SEISMIC:

RISK CATEGORY: II
SITE CLASS: C
S_s: 0.480
S_1: 0.179
S_{DS}: 0.384
S_{D1}: 0.193

SITE CONDITIONS (HIH):

SEISMIC:

RISK CATEGORY: III
SITE CLASS: C
S_s: 0.463
S_1: 0.176
S_{DS}: 0.370
S_{D1}: 0.191

NOTE: SITE CONDITIONS PER ORIGINAL STRUCTURAL DRAWINGS AND SPEC BOOKS

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
G000

CLINTON SUSTAINABLE ENERGY DISTRICT - DRAWING INDEX

PACKAGE 2

SHEET NUMBER	SHEET TITLE	CURRENT DRAWING
G000	TITLE SHEET	95% CD REVIEW
G001	SHEET LIST	95% CD REVIEW
S001	STRUCTURAL NOTES	95% CD REVIEW
S201	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - STRUCTURAL	95% CD REVIEW
S202	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - GENERATORS	95% CD REVIEW
S203	HEIFER INT. CENTRAL UTILITY PLANT	95% CD REVIEW
S204	SIT PLAN - ANCHOR BLOCK LAYOUT	95% CD REVIEW
M000	LEGENDS AND GENERAL NOTES - MECHANICAL	95% CD REVIEW
M001	SCHEDULES - PIPE VALVE FITTINGS - MECHANICAL	95% CD REVIEW
M002	EQUIPMENT SCHEDULES - MECHANICAL	95% CD REVIEW
M003	EQUIPMENT SCHEDULES - MECHANICAL	95% CD REVIEW
M004	EQUIPMENT SCHEDULES - MECHANICAL	95% CD REVIEW
M200	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL DEMOLITION	95% CD REVIEW
M201	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL	95% CD REVIEW
M202	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHW AND HW PUMPS - PERSPECTIVE VIEW	95% CD REVIEW
M203	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER YARD PLAN - MECHANICAL	95% CD REVIEW
M210	NARA BUILDING - BASEMENT FLOOR PLAN ARCHIVES - MECHANICAL DEMOLITION	95% CD REVIEW
M211	NARA BUILDING - BASEMENT FLOOR PLAN ARCHIVES - MECHANICAL	95% CD REVIEW
M212	NARA BUILDING - BASEMENT FLOOR PLAN MUSEUM - MECHANICAL DEMOLITION	95% CD REVIEW
M213	NARA BUILDING - BASEMENT FLOOR PLAN MUSEUM - MECHANICAL	95% CD REVIEW
M220	HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL DEMOLITION	95% CD REVIEW
M221	HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL	95% CD REVIEW
M222	HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL	95% CD REVIEW
M223	HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - HEAT EXCHANGER - MECHANICAL	95% CD REVIEW
M224	HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - NATURAL GAS - MECHANICAL	95% CD REVIEW
M300	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M301	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M302	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M303	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M304	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M305	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M306	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M307	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M308	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - MAKEUP WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M309	WILLIAM J. CLINTON CENTRAL UTILITY PLANT - MAKEUP WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M320	HEIFER INT. CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M321	HEIFER INT. CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M322	HEIFER INT. CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M323	HEIFER INT. CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M324	HEIFER INT. CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION	95% CD REVIEW
M325	HEIFER INT. CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL	95% CD REVIEW
M326	HEIFER INT. CENTRAL UTILITY PLANT - PIPING DIAGRAMS - MECHANICAL DEMOLITION	95% CD REVIEW
M327	HEIFER INT. CENTRAL UTILITY PLANT - PIPING DIAGRAMS - MECHANICAL	95% CD REVIEW
M400	CLINTON SUSTAINABLE ENERGY DISTRICT - OVERALL SITE PLAN	95% CD REVIEW
M401	CLINTON SUSTAINABLE ENERGY DISTRICT - FUTURE DISTRICT CONNECTION	95% CD REVIEW
M402	CLINTON SUSTAINABLE ENERGY DISTRICT - WILLIAM J. CLINTON CONNECTION	95% CD REVIEW
M403	CLINTON SUSTAINABLE ENERGY DISTRICT - HEIFER INT. CONNECTION	95% CD REVIEW
M500	DETAILS - MECHANICAL	95% CD REVIEW
M501	DETAILS - MECHANICAL	95% CD REVIEW
M502	DETAILS - MECHANICAL	95% CD REVIEW
M503	FABRICATED HPCH SKID DETAIL - MECHANICAL	95% CD REVIEW
M504	FABRICATED CPC HW PUMP SKID DETAIL - MECHANICAL	95% CD REVIEW
M505	FABRICATED CPC CHW PUMP SKID DETAIL - MECHANICAL	95% CD REVIEW
M506	FABRICATED HIH PUMP SKID DETAIL - MECHANICAL	95% CD REVIEW

CLINTON SUSTAINABLE ENERGY DISTRICT - DRAWING INDEX

PACKAGE 2

SHEET NUMBER	SHEET TITLE	CURRENT DRAWING
ATC000	LEGENDS AND GENERAL NOTES - CONTROLS	95% CD REVIEW
ATC001	PIPE AND DUCTWORK SYMBOLS AND GENERAL NOTES - CONTROLS	95% CD REVIEW
ATC002	SCHEDULES - CONTROLS	95% CD REVIEW
ATC003	NETWORK ARCHITECTURE DIAGRAM	95% CD REVIEW
ATC004	NETWORK ARCHITECTURE DIAGRAM	95% CD REVIEW
ATC005	DASHBOARD GRAPHICS	95% CD REVIEW
ATC100	CLINTON PRESIDENTIAL CENTER CHILLED WATER PLANT CONTROL DIAGRAM	95% CD REVIEW
ATC101	HEIFER INTERNATIONAL HEADQUARTERS CHILLED WATER PLANT CONTROL DIAGRAM	95% CD REVIEW
ATC102	DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC103	DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC104	DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC105	CLINTON PRESIDENTIAL CENTER STAND-ALONE CHILLED WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC106	HEIFER INTERNATION STAND-ALONE CHILLED WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC107	CLINTON PRESIDENTIAL CENTER BUILDING CHILLED WATER ENTRY CONTROL DIAGRAM AND SEQUENCES	95% CD REVIEW
ATC108	HEIFER INTERNATIONAL HEADQUARTERS BUILDING CHILLED WATER ENTRY CONTROL DIAGRAM AND SEQUENCES	95% CD REVIEW
ATC110	CLINTON PRESIDENTIAL CENTER TOWER WATER SYSTEM CONTROL DIAGRAM	95% CD REVIEW
ATC111	CLINTON PRESIDENTIAL CENTER TOWER WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC112	CLINTON PRESIDENTIAL CENTER TOWER WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC113	HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER SYSTEM CONTROL DIAGRAM	95% CD REVIEW
ATC114	HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC200	CLINTON PRESIDENTIAL CENTER HEATING WATER PLANT CONTROL DIAGRAM	95% CD REVIEW
ATC201	HEIFER INTERNATIONAL HEADQUARTERS HEATING WATER PLANT CONTROL DIAGRAM	95% CD REVIEW
ATC202	DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC203	DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC204	DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES	95% CD REVIEW
ATC205	CLINTON PRESIDENTIAL CENTER BUILDING HEATING WATER ENTRY CONTROL DIAGRAM AND SEQUENCES	95% CD REVIEW
ATC206	HEIFER INTERNATIONAL HQ BUILDING HEATING WATER ENTRY CONTROL DIAGRAM AND SEQUENCES	95% CD REVIEW
ATC300	CLINTON PRESIDENTIAL CENTER HPCH REFRIGERANT PURGE SYSTEM	95% CD REVIEW
ATC301	CLINTON PRESIDENTIAL CENTER GENERATOR DIAGRAM	95% CD REVIEW
ATC302	HEIFER RAINWATER COLLECTION SYSTEM CONTROL DIAGRAM AND SEQUENCE	95% CD REVIEW
ATC303	CLIMA-CHECK OVERALL DETAILS	95% CD REVIEW
ATC304	CLINTON PRESIDENTIAL CENTER CLIMA-CHECK CH-1-CPC AND CH-2-CPC DETAILS	95% CD REVIEW
ATC305	CLINTON PRESIDENTIAL CENTER CLIMA-CHECK HPCH-1-CPC DETAILS	95% CD REVIEW
ATC306	HEIFER INTERNATIONAL HEADQUARTERS CH-1-HIH CLIMA-CHECK DETAILS	95% CD REVIEW
ATC400	DETAILS - CONTROLS	95% CD REVIEW
ATC401	DETAILS - CONTROLS	95% CD REVIEW
E000	LEGENDS AND GENERAL NOTES - ELECTRICAL	95% CD REVIEW
		95% CD REVIEW
E100	CLINTON SUSTAINABLE ENERGY DISTRICT - ELECTRICAL	95% CD REVIEW
E201	WILLIAM J- CLINTON UTILITY PLANT - BASEMENT FLOOR PLAN - ELECTRICAL RENOVATION	95% CD REVIEW
E221	HEIFER INTL CENTRAL UTILITY PLANT - FIRST FLOOR PLAN - ELECTRICAL RENOVATION	95% CD REVIEW
E401	CSED - PARTIAL SITE PLAN - ELECTRICAL RENOVATION	95% CD REVIEW
E402	HEIFER INTL - PARTIAL SITE PLAN - ELECTRICAL RENOVATION	95% CD REVIEW
E501	OVERALL ONE-LINE DIAGRAM - ELECTRICAL RENOVATION	95% CD REVIEW
E600	CLINTON LIBRARY BLDG - PANEL SCHEDULES - ELECTRICAL	95% CD REVIEW
E602	HEIFER INTL BLDG - PANEL SCHEDULES - ELECTRICAL	95% CD REVIEW
E603	MURPHY KELER BLDG - PANEL SCHEDULES - ELECTRICAL	95% CD REVIEW
E604	CLINTON SCHOOL ELECTRICAL YARD - PANEL SCHEDULES - ELECTRICAL	95% CD REVIEW
E605	LIGHTING ELECTRICAL YARD - PANEL SCHEDULES - ELECTRICAL	95% CD REVIEW

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

SHEET LIST

SHEET NUMBER:

G001

STRUCTURAL DESIGN CRITERIA

PER INTERNATIONAL BUILDING CODE **(IBC 2021)**

1. SEISMIC DESIGN:
   RISK CATEGORY:
   IMPORTANCE FACTOR:
   MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_S = 0.xxx S_1 = 0.xxx
   SITE CLASS:
   SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 0.xxx, S_{D1} = 0.xxx
   SEISMIC DESIGN CATEGORY: x
   BASIC SEISMIC FORCE RESISTING SYSTEM: STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
   SEISMIC BASE SHEAR: V = XX
   SEISMIC RESPONSE COEFFICIENTS: C_S = 0.xxx
   RESPONSE MODIFICATION FACTOR: R =x.x, Cd = x.x
   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE (ELFP)

2. SNOW LOAD
   GROUND SNOW LOAD: P_g = xx PSF (ASCE 7)
   EXPOSURE COEFFICIENT, C_e = xx
   THERMAL FACTOR, C_t = xx
   IMPORTANCE FACTOR FOR SNOW, I = xx
   ROOF SLOPE FACTOR, C_s =xx
   FLAT ROOF SNOW LOAD, P_f = xx PSF (USE MIN 0.xx PSF W/ RAIN ON SNOW SURCHARGE)

3. WIND LOAD
   DESIGN ULTIMATE WIND SPEED: xxx MPH
   RISK CATEGORY: x
   EXPOSURE CATEGORY: x
   INTERNAL PRESSURE COEFFICIENTS: GCpi = ±0.18
   VELOCITY PRESSURE: q_h = xx PSF

   COMPONENTS AND CLADDING DESIGN WIND PRESSURES

ROOF UPLIFT	
ZONE(2)	NET UPLIFT(1) (PSF)
1	x
2	x
3	x
02	x
03	x

1. NET UPLIFT DOES NOT INCLUDE SELF-WT OF JOISTS.
2. REFERENCE ASCE 7 FOR SPECIFIC ZONE LOCATIONS AND EXTENTS.
3. BASED ON EFFECTIVE AREA OF 100 FT

WALL PRESSURES	
ZONE(2)	NET PRESSURE(1) (PSF)
4	x
5	x

4. FLOOR LOADS:
   DEAD LOAD: XXXX
   SLAB/METAL DECK: XXXX
   MECH/ELEC: XXXX
   CEILING: XXXX

   LIVE LOAD: XXXX
   OFFICE: XXXX
   MEETING: XXXX
   CORRIDORS: XXXX
   MECH/ELEC: XXXX
   STORAGE: XXXX
   PARTITIONS: XXXX

5. ROOF LOADS: XXXX
   DEAD LOAD: XXXX
   ROOFING/INSULATION: XXXX
   METAL/DECK: XXXX
   MECH/ELEC: XXXX
   CEILING: XXXX

   LIVE LOAD: 20 PSF (UNREDUCIBLE)

6. DESIGN SOIL CRITERIA AS FOLLOWS:
   THE FOUNDATION FOR THIS STRUCTURE HAS BEEN DESIGNED BASED UPON THE RECOMMENDATIONS OF THE SOIL AND FOUNDATION INVESTIGATION FOR THIS SITE BY

GENERAL INFORMATION

1. SUBSTITUTION OF EXPANSION OR ADHESIVE ANCHORS FOR EMBEDDED ANCHORS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO PLACING OF CONCRETE CONTAINING THE ANCHORS.
2. WEIGHTS OF EQUIPMENT SHOWN ON THE STRUCTURAL PLANS ARE FOR UNITS SPECIFIED BY THE MECHANICAL ENGINEER. CONTRACTOR SHALL VERIFY WEIGHTS AND ANY SUBSTITUTIONS THAT RESULT IN INCREASED WEIGHT SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
3. THE CONTRACTOR SHALL INSURE THAT NO CONSTRUCTION LOAD EXCEEDS THE DESIGN LIVE LOADS INDICATED ON THE STRUCTURAL DRAWINGS AND THAT THESE LOADS ARE NOT PLACED ON THE STRUCTURAL MEMBERS PRIOR TO THE TIME THAT ALL FRAMING MEMBERS AND THEIR CONNECTIONS ARE IN PLACE.
4. THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. OPENINGS AND PENETRATIONS NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
5. PRIOR TO FABRICATION AND/OR ERECTION OF ANY MATERIALS, THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER OF RECORD OR THE ARCHITECT IMMEDIATELY UPON DISCOVERY.
6. THE GENERAL CONTRACTOR SHALL VERIFY THE SITE CONDITIONS INCLUDING UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD OF ANY CONDITIONS ENCOUNTERED CONTRADICTORY TO THOSE SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS.
7. THE GENERAL CONTRACTOR SHALL COORDINATE THE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL WORK WITH THE STRUCTURAL CONTRACT DOCUMENTS AND SHALL REPORT ANY SUSPECTED DISCREPANCIES OR OMISSIONS TO THE ARCHITECT IMMEDIATELY.THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INCLUDE SHOP DRAWINGS, VENDOR DRAWINGS NOR ANY MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR OR SUBCONTRACTORS.
8. REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES SHALL MEAN THE LATEST STANDARD, CODE,SPECIFICATION OR TENTATIVE SPECIFICATION ADOPTED AND PUBLISHED AT THE DATE OF TAKING BIDS UNLESS SPECIFICALLY STATED OTHERWISE.

ADHESIVE SET ANCHORS, REINFORCING BARS, & DOWEL NOTES

1. USE HILTI'S HY270 SYSTEM, DEWALT'S AC100+ GOLD SYSTEM OR APPROVED EQUAL FOR ATTACHMENT TO HOLLOW AND GROUT-FILLED MASONRY UNITS.
2. USE HILTI'S HY200 SYSTEM, DEWALT'S AC200+ SYSTEM OR APPROVED EQUAL FOR ATTACHMENT INTO SOLID SURFACES ONLY. (E.G., SOLID CONCRETE)
3. FOR REBAR AND DOWEL EMBEDMENT, USE HY200 ADHESIVE, DEWALT'S AC200+ SYSTEM OR APPROVED EQUAL AS NOTED ABOVE.
4. USE HILTI'S THREADED RODS OR APPROVED EQUAL UNLESS SPECIFICALLY NOTED OTHERWISE. SUBSTITUTION OF A-36 ALL-THREAD ROD WILL **NOT** BE ALLOWED. RODS ANCHORING INTO UNREINFORCED MASONRY SHALL BE BENT AT 22 1/2° ANGLE UNO.
5. WHERE BASE MATERIAL IS HOLLOW BLOCK, BRICK OR OTHER MATERIAL CONTAINING POCKETS OR VOIDS, A SCREEN TUBE, PER MANUFACTURERS RECOMMENDATIONS, SHALL BE EMPLOYED IN THESE CONDITIONS.
6. FOLLOW MANUFACTURERS REQUIREMENTS FOR MINIMUM DEPTH OF BASE MATERIAL, MINIMUM EDGE DISTANCES, AND MINIMUM BOLT/BAR SPACING.
7. UNLESS SPECIFIED OTHERWISE, ANCHORS SHALL BE EMBEDDED IN THE APPROPRIATE SUBSTRATE WITH A MINIMUM EMBEDMENT OF 8 TIMES THE NOMINAL ANCHOR DIAMETER OR THE EMBEDMENT DEPTH REQUIRED TO SUPPORT THE INTENDED LOAD.
8. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REINFORCING. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW SHALL BE SUBMITTED BY THE CONTRACTOR FOR ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. PROVIDE CONTINUOUS SPECIAL INSPECTION FOR ALL ADHESIVES AND MECHANICAL ANCHORS PER THE PRODUCT'S APPLICABLE ICC-ES OR IAPMO-ES EVALUATION REPORT (ICC-ES ESR). CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.

A. CONCRETE ANCHORS
   I. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION.
   II. ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION.

B. MASONRY ANCHORS
   I. ANCHORAGE TO SOLID-GROUTED CONCRETE MASONR
      - MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR AC106.
      - ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58.
   II. ANCHORAGE TO HOLLOW CONCRETE MASONRY/UNREINFORCED CLAY BRICK MASONRY
      - MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC106
      - ADHESIVE ANCHORS WITH SCREEN TUBES SHALL BE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC58 OR AC60, AS APPROPRIATE.

FOUNDATION NOTES

1. REFER TO "DESIGN SOIL CRITERIA" UNDER "STRUCTURAL DESIGN CRITERIA" IN THESE GENERAL NOTES FOR BEARING VALUES AND REFERENCED GEOTECHNICAL REPORT.
2. ALL SOIL PREPARATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS GIVEN IN THE REFERENCED GEOTECHNICAL REPORT.
3. UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPOIRT STRIP AREA OF ALL GRAVEL, SURFACE VEGETATION, TOPSOIL, AND ANY DEBRIS. REMOVE ALL EXISTING STRUCTURES, FOUNDATIONS, AND BELOW GRADE SITE FEATURES. AFTER STRIPPING AND MAKING REQUIRED CUTS, EXPOSED SUBGRADE SHOULD BE PROOF ROLLED WITH A 25 TON TANDEM-AXLE DUMP TRUCK. OVER EXCAVATE AND STABILIZE ANY SOFT OR UNSTABLE AREAS DISCOVERED BY PROOF ROLLING.
4. THE GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING PROOF ROLLING AND SHALL INSPECT THE SUBGRADE PRIOR TO ANY FILL OPERATIONS. ALL COMPACTED FILL SHALL BE CONTINUOUSLY INSPECTED BY THE OWNER'S SELECTED INDEPENDENT TESTING LABORATORY.
5. IF THE SOIL AT THE BEARING ELEVATIONS SHOWN IS OF QUESTIONABLE BEARING VALUE, THE STRUCTURAL ENGINEER OF RECORD OR ARCHITECT SHALL BE NOTIFIED IMMEDIATELY.
6. UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT WHERE FILL MATERIAL IS REQUIRED OVER IN-SITU SUBGRADE, SCARIFY SUBGRADE TO A MINIMUM DEPTH OF 9" AND ADJUST MOISTURE CONTENT TO EQUAL OPTIMUM MOISTURE CONTENT. COMPACT SCARIFIED SUBGRADE USING THE SAME REQUIREMENTS LISTED BELOW FOR COMPACTED STRUCTURAL FILL.
7. ALL FILL MATERIAL UNDER STRUCTURE SHALL COMPLY WITH REQUIREMENTS STATED IN GEOTECHNICAL REPORT UNLESS SPECIFICALLY NOTED OTHERWISE. AS A MINIMUM, ALL FILL MATERIAL UNDER STRUCTURE SHALL BE SANDY CLAY OR CLAYEY SAND EXHIBITING A LIQUID LIMIT LESS THAN 35. FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8" AND COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF MODIFIEDPROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) AT OR SLIGHTLY WET OF OPTIMUM MOISTURE CONTENT. IN PLACE MOISTURE AND DENSITY OF EACH LIFT SHALL BE DETERMINED BY IN-SITU FIELD TESTS PRIOR TO PLACING ADDITIONAL FILL.
8. AFTER FOOTING EXCAVATIONS ARE COMPLETED AND BEFORE PLACING CONCRETE, THE EXCAVATED AREAS SHALL BE INSPECTED AND APPROVED BY THE OWNER'S SELECTED INDEPENDENT TESTING LABORATORY.
9. PROVIDE A MINIMUM OF A 4" CLEAN FREE DRAINING GRANULAR SUB-BASE FILL BELOW ALL INTERIOR SLABS-ON-GRADE UNLESS NOTED OR DETAILED OTHERWISE. SUB-BASE SHALL MEET GRADATION REQUIREMENTS OF ASTM C-33 SIZE NO. 67 UNLESS SPECIFICALLY NOTED OTHERWISE.
10. A 15-MIL MINIMUM POLYETHYLENE FILM VAPOR RETARDER, MEETING THE REQUIREMENTS IN THE SPECIFICATIONS, SHALL BE PLACED BELOW ALL INTERIOR SLABS-ON-GRADE UNLESS SPECIFICALLY NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE NOTES

1. CONCRETE DESIGN AND DETAILING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301, LATEST EDITIONS.
2. MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
   A. CONTINUOUS FOOTINGS, SPREAD FOOTINGS ----- 3000 PSI
   B. SLAB-ON-GRADE ----- 3000 PSI
   C. EXTERIOR AIR-ENTRAINED SLAB-ON-GRADE ----- 4000 PSI
   D. FOUNDATION WALLS ----- 4000 PSI
   E. CONCRETE PEDESTALS/PILASTERS ----- 4000 PSI
3. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 NEW AND DEFORMED. SEE LAP SCHEDULE, UNLESS NOTED OR DETAILED OTHERWISE.
4. CONTRACTOR SHALL PROVIDE REINFORCING SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. WRITTEN DESCRIPTION OF REINFORCEMENT WITHOUT ADEQUATE SECTIONS, ELEVATIONS AND DETAILS IS NOT ACCEPTABLE.
5. SUBMIT WRITTEN REPORTS OF EACH PROPOSED MIX DESIGN FOR EACH CLASS OF CONCRETE WITH CONCRETE CYLINDER TEST RESULTS AT LEAST 15 DAYS PRIOR TO START OF WORK.
6. ALL CONCRETE THAT WILL BE EXPOSED TO THE WEATHER SHALL HAVE 3% TO 5% AIR ENTRAINMENT.
7. ARRANGEMENT & BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL LATEST EDITION.
8. REINFORCING STEEL SHALL BE NEW & ALL BARS SHALL BE DEFORMED.
9. PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC. FOR SUPPORTING REINFORCING STEEL IN THE PROPER POSITION WHILE PLACING CONCRETE. DO NOT "WET STICK" DOWELS.
10. ALL WELDED WIRE REINFORCING SHALL BE LAPPED A MIN OF 6" AT THE SIDES AND ENDS.
11. MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT AT SURFACES NOT EXPOSED DIRECTLY TO WEATHER OR GROUND SHALL BE 3/4" FOR SLABS, JOISTS, AND WALLS AND 1 1/2" FOR BEAM STIRRUPS, COLUMN TIES, OR SPIRALS UNO.
12. MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT AT SURFACES WHICH WILL BE EXPOSED TO THE WEATHER OR BE IN CONTACT WITH THE GROUND SHALL BE 2" FOR BARS LARGER THAN #5 & 1 1/2" FOR #5 OR SMALLER BARS UNO. PROVIDE 3" COVER BELOW AND AT ENDS OF FOOTING BARS UNO.
13. LOCATIONS AND SIZES OF OPENINGS, SLEEVES, ETC, REQUIRED FOR OTHER TRADES MUST BE VERIFIED BY THESE TRADES BEFORE PLACING CONCRETE.
14. ALL SLOTS, SLEEVES, TRENCHES, AND OTHER EMBEDDED ITEMS SHALL BE SET AND SECURED AGAINST MOVEMENT BEFORE THE CONCRETE IS PLACED. SEE ARCHITECTURAL, ELECTRICAL, MECHANICAL, PLUMBING, AND VENDOR DRAWINGS FOR SIZES AND LOCATIONS. COORDINATE LOCATIONS, SPACINGS, AND SIZES WITH THE STRUCTURAL ENGINEER OF RECORD PRIOR TO PLACING CONCRETE.
15. AS PART OF THE SUBMITTAL PROCESS, THE ELECTRICAL AND MECHANICAL CONTRACTOR(S) SHALL SUBMIT A PROPOSED ROUTING PLAN FOR ALL PIPES, CONDUITS, OR OTHER DEVICES TO BE EMBEDDED IN THE CONCRETE. THE SUBMITTAL SHALL SHOW SPECIFIC SIZES AND LOCATIONS OF ALL PROPOSED EMBED ITEMS REFERENCING PROXIMITY TO BEAM, COLUMN, AND SLAB EDGES. NO ITEMS SHALL BE ALLOWED TO BE EMBEDDED IN THE CONCRETE WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD.
16. CONDUITS & PIPES EMBEDDED IN CONCRETE SLABS MAY BE NO LARGER THAN 1/3 THE SLAB THICKNESS (BASED ON THE MAXIMUM OUTSIDE DIAMETER) AND SHALL HAVE A CENTER-TO-CENTER SPACING NO LESS THAN THREE (3) CONDUIT DIAMETERS REGARDLESS OF DIAMETER. THE MINIMUM CLEAR SPACING BETWEEN CONDUITS OR REINFORCING SHALL BE 1".
17. NO MORE THAN FOUR CONDUITS MAY BE PLACED ADJACENT TO EACH OTHER WITHOUT PRIOR APPROVAL IN WRITING FROM THE STRUCTURAL ENGINEER OF RECORD.
18. NO ALUMINUM CONDUITS, DEVICES, OR FIXTURES MAY BE EMBEDDED INTO THE CONCRETE SO THAT THE ALUMINUM IS IN DIRECT CONTACT WITH THE CONCRETE.
19. CORNER BARS SHALL BE PROVIDED FOR ALL HORIZONTAL REINFORCING BARS AT THE INTERSECTIONS AND CORNERS OF ALL STRIP FOOTINGS, BEAMS, AND WALLS UNLESS NOTED OTHERWISE. CORNER BARS SHALL BE OF THE SAME SIZE AND GRADE AS THE HORIZONTAL REINFORCING THEY CONNECT. MINIMUM LAP LENGTHS SHALL BE AS INDICATED IN THE CORNER BAR DETAIL UNLESS NOTED OTHERWISE.
20. FOR SLAB-ON-GRADE PROVIDE SAW-CUT CONTROL JOINTS AT INTERVALS OF 15'-0" OC MAX ACROSS THE WIDTH OF THE SLAB. REFER TO STRUCTURAL DRAWINGS FOR TYPICAL CONTROL JOINT LAYOUT AND DETAILS.
21. SAW-CUTS SHALL BE MADE AS SOON AS THE CONCRETE CAN SUPPORT THE SAW WITHOUT DAMAGING THE SURFACE (EIGHT (8) HOURS MAX FROM THE START OF THE CONCRETE PLACEMENT).
22. ALL STRUCTURAL CONCRETE EXPOSED TO VIEW TO BE SMOOTH FORMED FINISHED WITH 3/4" CHAMFERS AT ALL EXPOSED EDGES.

CONCRETE HOOK DEVELOPMENT LENGTHS

BAR SIZE	f 'c = 5000	f 'c = 4000	f 'c = 3000
#11	24"	27"	31"
#10	22"	24"	28"
#9	19"	22"	25"
#8	17"	19"	22"
#7	15"	17"	19"
#6	13"	15"	17"
#5	11"	12"	14"
#4	9"	10"	11"

* TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE.

CONCRETE LAP SPLICE SCHEDULE

BAR SIZE	f 'c = 5000		f 'c = 4000		f 'c = 3000	
	TOP BARS*	OTHER BARS	TOP BARS*	OTHER BARS	TOP BARS*	OTHER BARS
#11	101"	78"	113"	87"	131"	101"
#10	91"	70"	102"	79"	118"	91"
#9	81"	63"	91"	70"	105"	81"
#8	72"	55"	80"	62"	93"	72"
#7	63"	49"	70"	54"	81"	63"
#6	43"	33"	48"	37"	56"	43"
#5	36"	28"	40"	31"	47"	36"
#4	29"	22"	32"	25"	37"	29"

* LAP SPLICE LENGTHS ARE TYP UNLESS DETAILED OR NOTED OTHERWISE.

SPECIAL INSPECTION ITEMS

1. SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER ACCORDING TO SECTION 1704 OF **IBC 2012**. THE APPROVED SPECIAL INSPECTOR SHALL DEMONSTRATE COMPETENCE FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR SHALL SEND REPORTS TO THE OWNER, THE BUILDING OFFICIAL, THE ARCHITECT, THE STRUCTURAL ENGINEER OF RECORD, AND THE CONTRACTOR. THE SPECIAL INSPECTOR SHALL BRING NON-CONFORMING ITEMS TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR AND NOTE ALL SUCH ITEMS IN THE REPORTS. ANY UNRESOLVED ITEM ABOUT TO BE COVERED BY THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S CONSTRUCTION MANAGER AS WELL AS THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER OR NOT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE SPECIAL INSPECTION AGENCY REGARDING INDIVIDUAL INSPECTIONS FOR ITEMS LISTED ON THE SCHEDULE AND AS NOTED ON THE BUILDING DEPARTMENT APPROVED PLANS. ADEQUATE NOTICE AND ACCESS TO APPROVED PLANS SHALL BE PROVIDED SO THAT THE SPECIAL INSPECTOR HAS TIME TO BECOME FAMILIAR WITH THE PROJECT.
2. THIS SECTION INCLUDES ADMINISTRATIVE AND PROCEDURAL REQUIREMENTS NECESSARY FOR COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE, CHAPTER 17, STRUCTURAL TESTS AND SPECIAL INSPECTIONS.
3. THE OWNER WILL ENGAGE ONE OR MORE QUALIFIED SPECIAL INSPECTORS AND/OR TESTING AGENCIES TO CONDUCT STRUCTURAL TESTS AND SPECIAL INSPECTIONS SPECIFIED IN THE SPECIFICATION AND RELATED SECTIONS AND AS MAYBE SPECIFIED IN OTHER DIVISIONS OF THESE SPECIFICATIONS.
4. STRUCTURAL TESTING AND SPECIAL INSPECTION SERVICES ARE REQUIRED TO VERIFY COMPLIANCE WITH REQUIREMENTS SPECIFIED OR INDICATED. THESE SERVICES DO NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH OTHER CONSTRUCTION DOCUMENT REQUIREMENTS.
   A. SPECIFIC QUALITY-ASSURANCE AND -CONTROL REQUIREMENTS FOR INDIVIDUAL CONSTRUCTION ACTIVITIES ARE SPECIFIED IN THE SECTIONS THAT SPECIFY THOSE ACTIVITIES. REQUIREMENTS IN THOSE SECTIONS MAY ALSO COVER PRODUCTION OF STANDARD PRODUCTS.
   B. SPECIFIED TESTS, INSPECTIONS, AND RELATED ACTIONS DO NOT LIMIT CONTRACTOR'S OTHER QUALITY ASSURANCE AND -CONTROL PROCEDURES THAT FACILITATE COMPLIANCE WITH THE CONSTRUCTION DOCUMENT REQUIREMENTS.
   C. REQUIREMENTS FOR CONTRACTOR TO PROVIDE QUALITY - ASSURANCE AND - CONTROL SERVICES REQUIRED BY ENGINEER, OWNER, OR AUTHORITIES HAVING JURISDICTION ARE NOT LIMITED BY PROVISIONS OF THIS SECTION.
5. EARTHWORK (PER SECTION 1705.6).
6. PILE FOUNDATIONS (PER SECTION 1705.7).
7. PIER FOUNDATIONS (PER SECTION 1705.8).
8. CONCRETE PLACEMENT (PER SECTION 1705.3)
9. MASONRY (PER SECTION 1705.4)
10. STRUCTURAL STEEL (PER SECTION 1705.2).
   A. SHOP FABRICATION OF STEEL MEMBERS.
   B. STEEL MATERIAL ID MARKINGS & CONFORMANCE TO ASTM STANDARDS.
   C. ALL STRUCTURAL WELDING PER AWS D1.1, EXCEPT AS FOLLOWS:
      I. THE SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING WELDING OF THE FOLLOWING ITEMS, PROVIDED THE MATERIALS, QUALIFICATIONS OF WELDING PROCEDURES AND WELDERS ARE VERIFIED PRIOR TO THE START OF WORK; PERIODIC INSPECTION ARE MADE OF THE WORK IN PROGRESS; AND A VISUAL INSPECTION OF ALL WELDS IS MADE PRIOR TO COMPLETION.
      II. SINGLE PASS FILLET WELDS NOT EXCEEDING 5/16" SIZE.
      III. FLOOR AND ROOF DECK WELDING.
      IV. WELDED STUDS WHEN USED FOR STRUCTURAL DIAPHRAGM OR COMPOSITE SYSTEMS.
      V. WELDED SHEET STEEL FOR COLD-FORMED FRAMING MEMBERS SUCH AS WALL STUDS AND JOISTS.
   D. PERIODIC INSPECTION OF ALL HIGH STRENGTH BOLT INSTALLATIONS AND VERIFICATION THAT IDENTIFICATION MARKS FOR HIGH STRENGTH BOLT, NUTS AND WASHERS CONFORM TO APPLICABLE ASTM STANDARDS.
   E. PERIODIC INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.
   F. METAL DECK DIAPHRAGM CONNECTIONS AND CONNECTIONS TO SUPPORTING STEEL FRAME MEMBERS.
11. WOOD TRUSSES AND WOOD FRAMING (PER SECTION 1705.5 & 1705.10).
12. ADDITIONALLY, COMPLIANCE IS REQUIRED WITH FIELD QUALITY CONTROL PROVISIONS OF THE FOLLOWING SPECIFICATION SECTIONS:
   A. FOOTING BOTTOMS AND EARTHWORK: SECTION 31 2000.
   B. DRIVEN STEEL PIPE PILES: SECTION 31 6200.
   C. DRILLED PIERS: 31 6329.
   D. CONCRETE: SECTION 03 3000.
   E. MASONRY CONSTRUCTION: SECTION 04 2000.
   F. STRUCTURAL STEEL: SECTION 05 1200.
   G. WOOD FRAMING: SECTION 06 1000.
   H. WOOD TRUSSES: SECTION 06 1760.

EXISTING CONSTRUCTION

1. BEFORE FABRICATION AND ERECTION OF ANY MATERIALS, FIELD VERIFY ALL EXISTING ELEVATIONS, DIMENSIONS, AND CONDITIONS AS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANICIES TO THE ARCHITECT & ENGINEER OF RECORD AT ONCE.

SUBMITTAL PROCEDURES

1. TRANSMIT SUBMITTALS SUFFICIENTLY IN ADVANCE OF RELATED CONSTRUCTION ACTIVITIES TO AVOID UNNECESSARY DELAY. THE STRUCTURAL ENGINEER OF RECORD MAY WITHHOLD ACTION ON A SUBMITTAL REQUIRING COORDINATION WITH OTHER SUBMITTALS UNTIL ALL RELATED SUBMITTALS ARE RECEIVED.
2. SUBMIT DIGITAL COPIES THROUGH THE ARCHITECT FOR THE "SHOP DRAWINGS" REVIEW.
3. CONTRACTOR SHALL COMPLY WITH DIVISION ONE SECTION - "SUBMITTALS"
4. NO REPRODUCTIONS OF THE CONSTRUCTION DOCUMENTS ARE ACCEPTABLE FOR USE AS SHOP DRAWINGS.
5. ACTION STAMP: THE STRUCTURAL ENGINEER OF RECORD WILL STAMP EACH SUBMITTAL WITH A UNIFORM ACTION STAMP TO INDICATE THE ACTION TAKEN IN ONE OF FOUR OPTIONS LISTED BELOW:

APPROVED . . . . . WORK COVERED BY THE SUBMITTAL COMPLIES WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

APPROVED AS NOTED. . . . . WORK COVERED BY THE SUBMITTAL MAY PROCEED PROVIDED IT COMPLIES WITH NOTATIONS OR CORRECTIONS ON THE SUBMITTAL AND REQUIREMENTS OF THE CONTRACT DOCUMENTS

REVISE AND RESUBMIT . . . . . WORK COVERED BY THE SUBMITTAL DOES NOT COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND MUST BE CHANGED TO COMPLY AND RESUBMIT THE ENTIRE SUBMITTAL.

REJECTED . . . . . WORK COVERED BY THE SUBMITTAL IS TOTALLY UNACCEPTABLE AND MAY NOT PROCEED.

UNISTRUT NOTES

1. UNISTRUT SUPPORT SYSTEM IS DESIGNED AND PROVIDED BY UNISTRUT SUPPLIER.
2. STAMPED AND SIGNED SHOP DRAWINGS AND CALCULATIONS MUST BE SUBMITTED FOR REVIEW TO ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.
3. CONTRACTOR TO COORDINATE BETWEEN STRUCTURAL DRAWINGS AND UNISTRUT DRAWINGS AND REPORT ANY SUSPECTED DISCREPANCIES OR OMISSIONS TO THE ARCHITECT AND STRUCTURAL ENGINEER IMMEDIATELY.

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CERTIFICATE OF AUTHORIZATION
ENFRA TME, LLC
No. 279
ARKANSAS
CORPORATE SEAL

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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

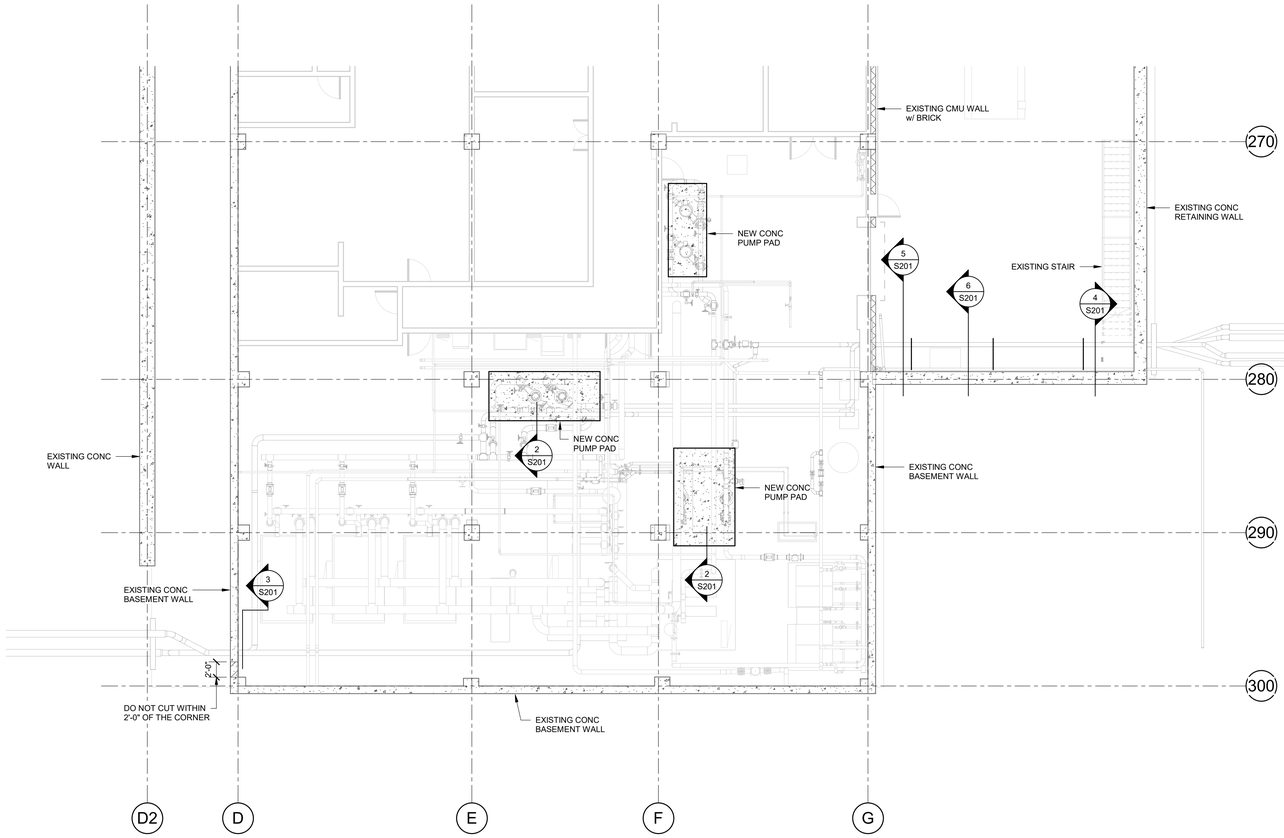
MARK	DATE	DESCRIPTION

ISSUE DATE: 11-20-25

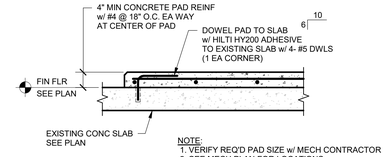
PROJECT NUMBER: 561470540

SHEET TITLE:
STRUCTURAL NOTES

SHEET NUMBER:
S001

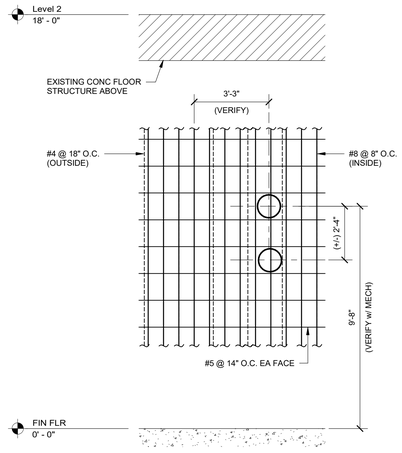


1 BASEMENT FLOOR PLAN - STRUCTURAL RENOVATION
1/8" = 1'-0"

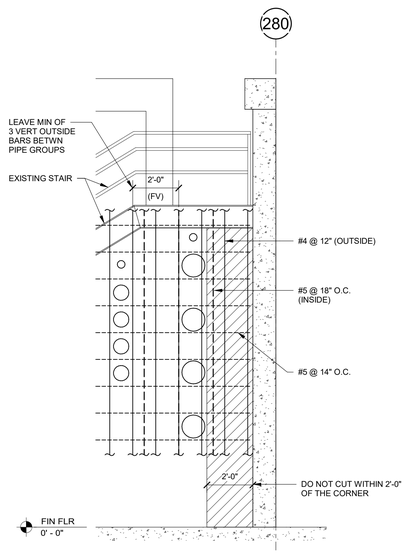


2 TYP INTERIOR HOUSEKEEPING PAD
3/4" = 1'-0"

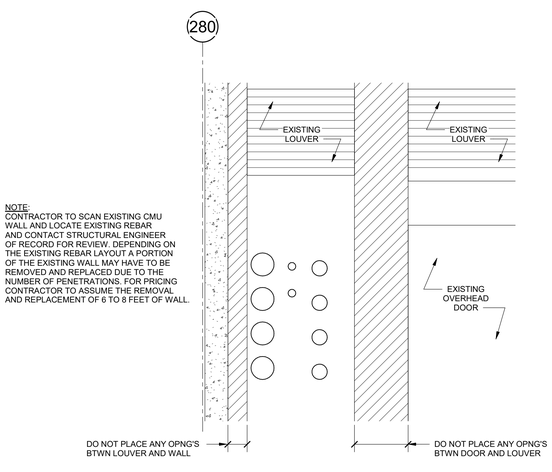
NOTES:
1. LAYOUT SHOWN IS BASED ON EXISTING DRAWINGS
2. EXISTING WALL TO BE SCANNED (X-RAY) TO VERIFY EXACT EXISTING REBAR LAYOUT.
3. SCAN REPORT TO BE SENT TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW PRIOR TO CORE DRILLING. REPORT TO INCLUDE PICTURES OF WALL INDICATING THE EXISTING REBAR (INSIDE AND OUTSIDE FACE) ALONG w/ DIMENSIONS BETWEEN BARS.
4. THE INTENT OF THE LAYOUT IS TO ONLY CUT 1 VERT #8 BAR.
5. LAYOUT MAY VARY BASED ON SCAN.



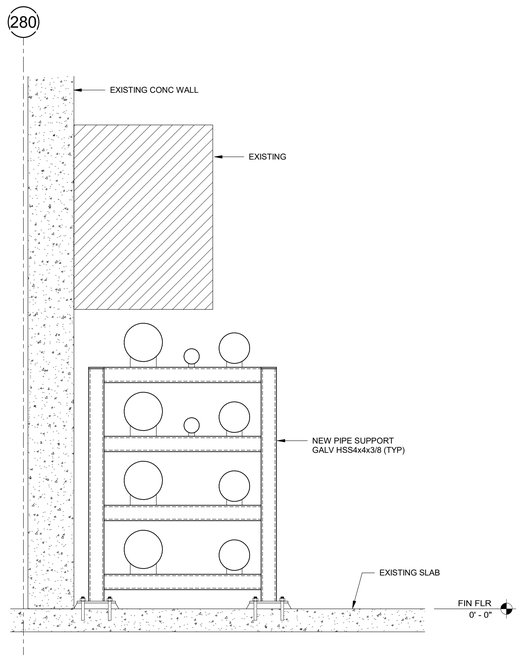
3 ELEVATION AT PIPE PENETRATIONS
3/8" = 1'-0"



4 FOUNDATION ELEVATION
3/8" = 1'-0"



5 ELEVATION AT EXISTING CMU WALL
3/8" = 1'-0"



6 ELEVATION AT EXISTING CMU WALL
3/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

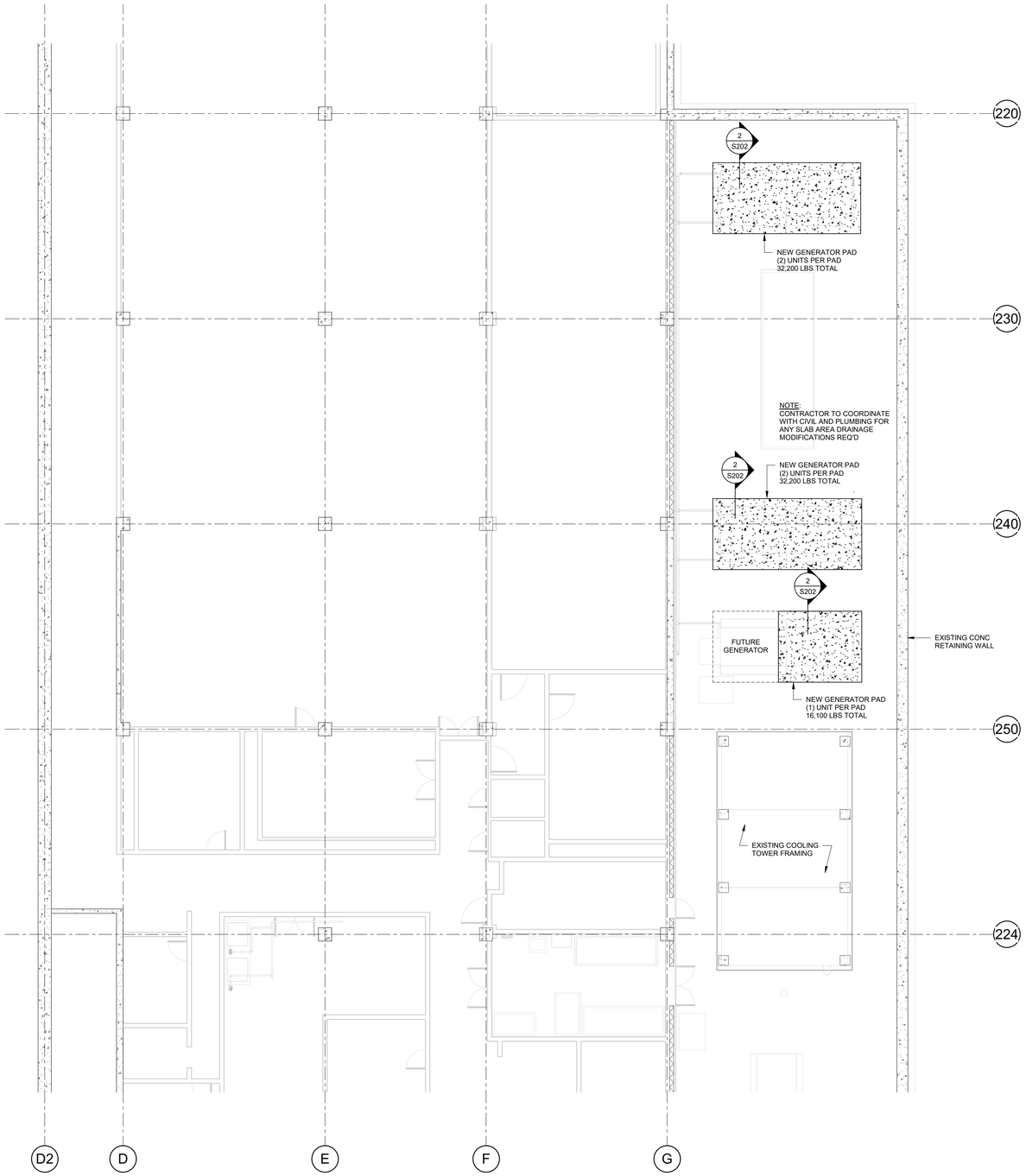
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

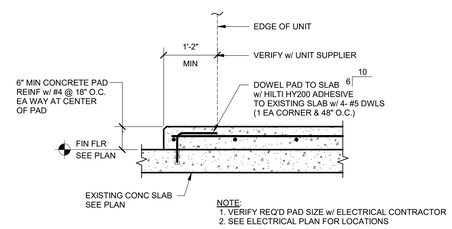
ISSUE DATE:	11-20-25
PROJECT NUMBER:	561470540

SHEET TITLE:
WILLIAM J. CLINTON
CENTRAL UTILITY
PLANT - STRUCTURAL

SHEET NUMBER:
S201



1 BASEMENT FLOOR PLAN - STRUCTURAL RENOVATION
1/8" = 1'-0"



2 HOUSEKEEPING PAD AT GENERATOR
3/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-25
PROJECT NUMBER:	561470540

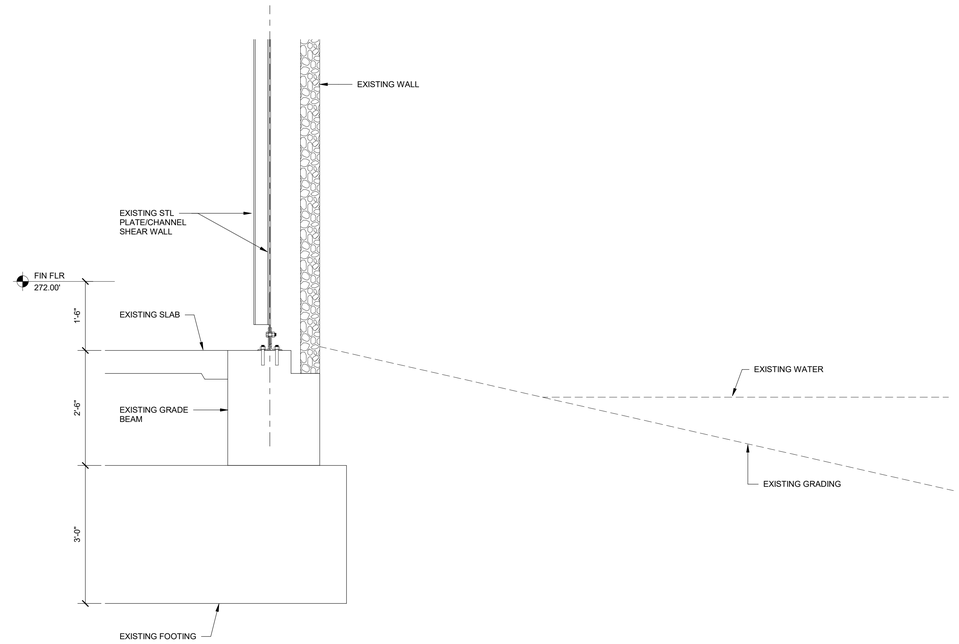
SHEET TITLE:

WILLIAM J. CLINTON
CENTRAL UTILITY
PLANT - GENERATORS

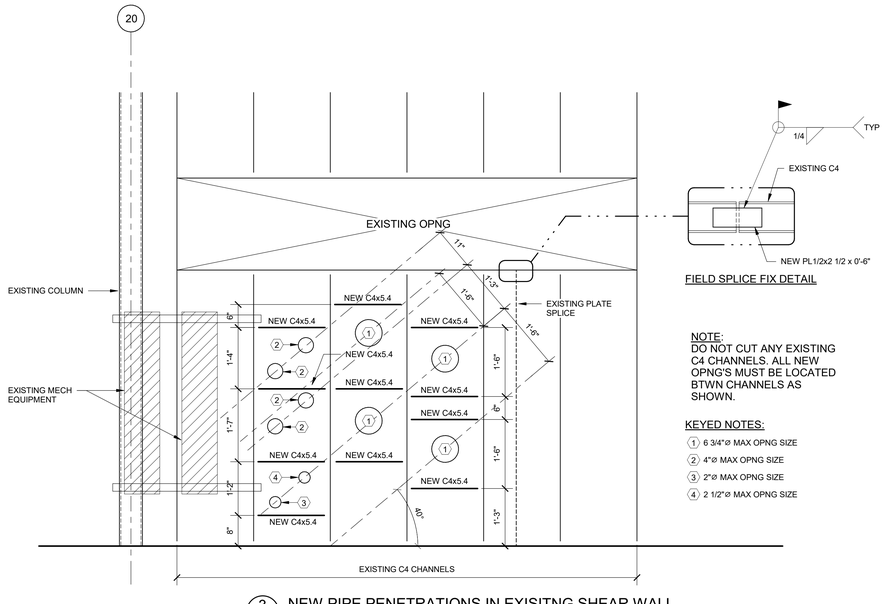
SHEET NUMBER:

S202

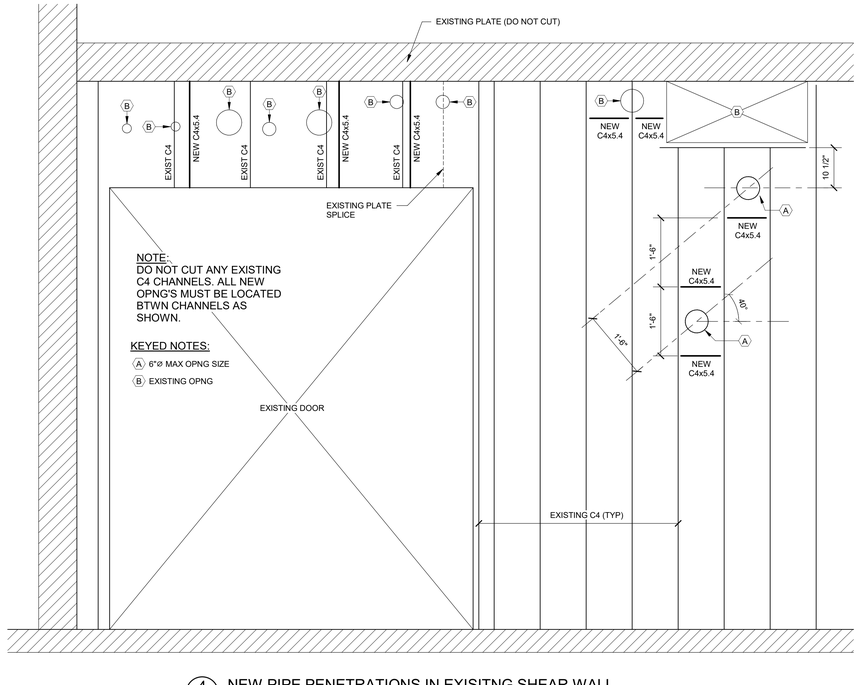
1 FIRST FLOOR PLAN - STRUCTURAL RENOVATION
3/16" = 1'-0"



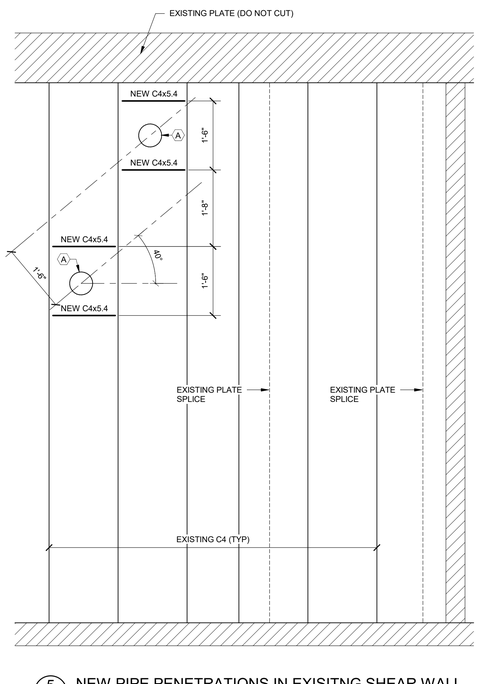
2 SECTION AT EXISTING WALL AND FOOTING
3/4" = 1'-0"



3 NEW PIPE PENETRATIONS IN EXISITNG SHEAR WALL
3/4" = 1'-0"



4 NEW PIPE PENETRATIONS IN EXISITNG SHEAR WALL
3/4" = 1'-0"



5 NEW PIPE PENETRATIONS IN EXISITNG SHEAR WALL
3/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

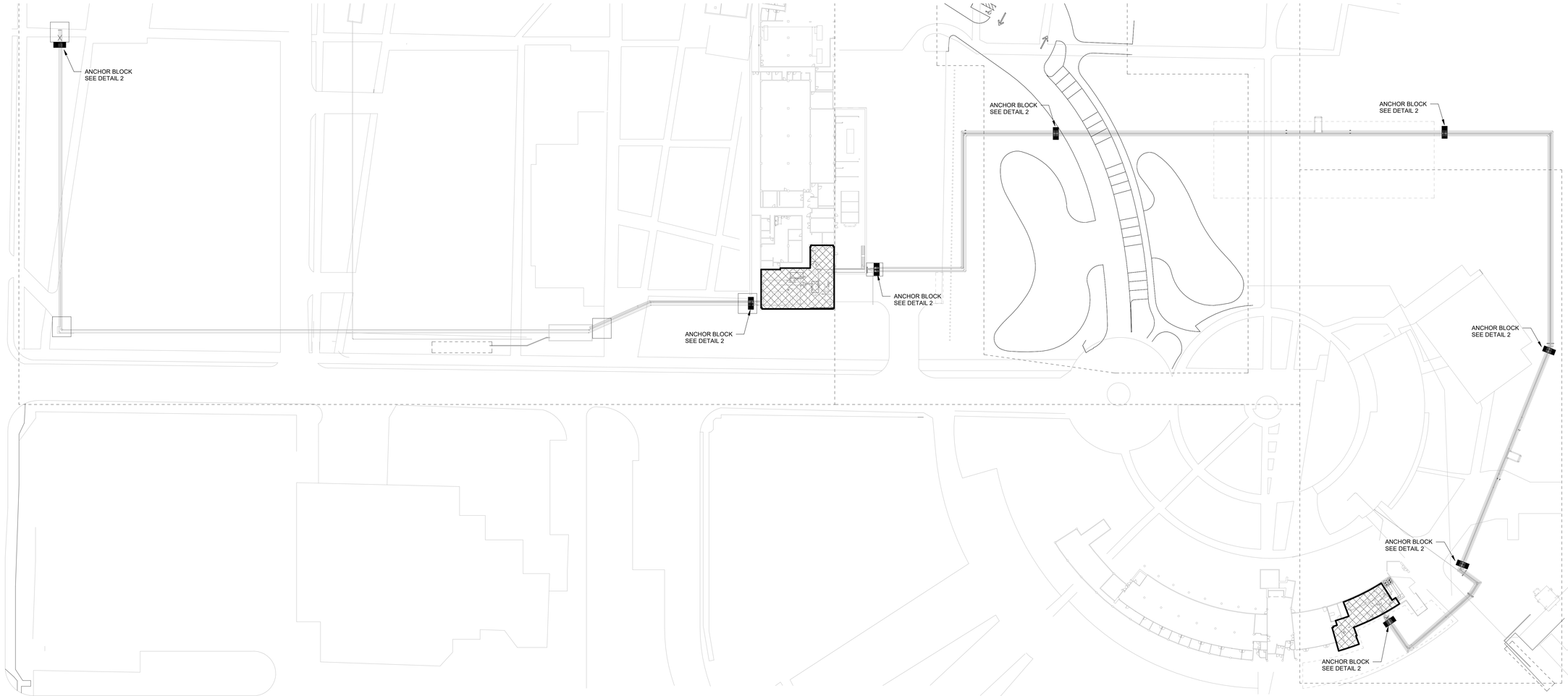
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

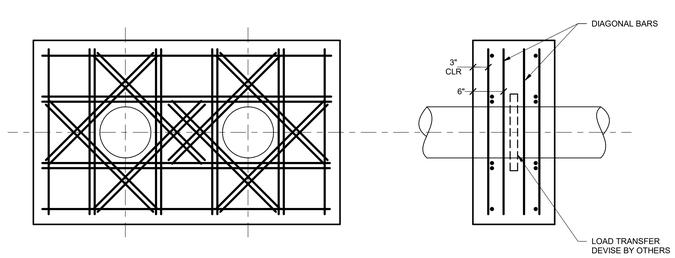
ISSUE DATE:	11-20-25
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. CENTRAL UTILITY PLANT

SHEET NUMBER:
S203



1 STRUCTURAL SITE PLAN
1" = 50'-0"



2 IN-LINE ANCHOR BLOCK
1" = 1'-0"

ENFRA
TME, LLC | ENGINEERING

1 ALLIED DRIVE, BUILDING 2
SUITE 2600
LITTLE ROCK, AR 72202
Phone: (501) 666-6776
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CERTIFICATE OF AUTHORIZATION
ENFRA TME, LLC No. 279 ARKANSAS
CORPORATE SEAL

95% REVIEW SET
NOT FOR CONSTRUCTION
NOT FOR CONSTRUCTION
ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-25
PROJECT NUMBER:	561470540

SHEET TITLE:

SITE PLAN - ANCHOR BLOCK LAYOUT

SHEET NUMBER:

S204

GENERAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
ATC	AUTOMATED TEMPERATURE CONTROL
BHP	BRAKE HORSEPOWER
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
DIA	DIAMETER
DN	DOWN
DTL	DETAIL
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
FT	FEET
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
HP	HORSEPOWER
HVAC	HEATING, VENTILATING & AIR CONDITIONING
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
MAX	MAXIMUM
MBH	THOUSANDS BRITISH THERMAL UNITS PER HOUR
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OF/CI	OWNER FURNISHED / CONTRACTOR INSTALLED
OPD	OPPOSED BLADE DAMPER
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RM	ROOM
SA	SUPPLY AIR
SEN	SENSIBLE
SP	STATIC PRESSURE
TFD	TO FLOOR DRAIN
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDERCUT DOOR
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VTR	VENT THRU ROOF

EQUIPMENT DESIGNATION

AC	AIR CURTAIN
AHU	AIR HANDLING UNIT
AF	AIR FILTER
AP	ACCESS PANEL
ADS	AIR / DIRT SEPARATOR
B	BOILER
PMP	PUMP
CU	CONDENSING UNIT
DDC	DIRECT DIGITAL CONTROL
DP	DIFFERENTIAL PRESSURE SWITCH
ERU	ENERGY RECOVERY UNIT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EH	ELECTRIC HEATER
ET	EXPANSION TANK OR EXHAUST TERMINAL
FD	
FEP	FIELD EQUIPMENT PANEL
FSD	COMBINATION FIRE/SMOKE DAMPER
FLA	FULL LOAD AMPS
H	HUMIDIFIER
L	LOUVER
MCA	MINIMUM CIRCUIT AMPACITY
RAF	RETURN FAN
RG	RETURN GRILLE
SD	SMOKE DAMPER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
ST	SUPPLY TERMINAL
TG	TRANSFER GRILLE
UH	UNIT HEATER
VAV	VARIABLE AIR VOLUME BOX
VD	MANUAL VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE

ABOVEGROUND PIPING INSULATION

SERVICE	PIPE SIZE	INSULATION TYPE	INSULATION THICKNESS (INCHES)
CHILLED WATER AND BRINE 45 DEG F AND BELOW	12" AND SMALLER	POLYISOCYANURATE	2"
HEATING WATER, 200 DEG F AND BELOW	ALL	MINERAL-FIBER, PREFORMED PIPE, TYPE I	2"
REFRIGERANT SUCTION AND HOT-GAS PIPING AND FLEXIBLE TUBING	1 5/8" AND SMALLER	FLEXIBLE ELASTOMERIC	3/4"
REFRIGERANT SUCTION AND HOT-GAS PIPING AND FLEXIBLE TUBING	1 5/8" AND SMALLER	MINERAL-FIBER, PREFORMED PIPE, TYPE I	1"
DOMESTIC COLD WATER AND MAKE-UP WATER	ALL	GLASS-FIBER	1/2" INTERIOR 1" EXTERIOR

FOR OUTDOOR PIPING, INCREASE INSULATION THICKNESS BY 1" NOTES:

1. INTERIOR EXPOSED INSULATION TO BE INSTALLED WITH A PVC JACKET.
2. EXTERIOR EXPOSED INSULATION TO BE INSTALLED WITH AN ALUMINUM JACKET.

BELOWGROUND PIPING INSULATION

SERVICE	PIPE SIZE	INSULATION TYPE	INSULATION THICKNESS (INCHES)
HEATING WATER, 200 DEG F AND BELOW	ALL	PRE-INSULATED STEEL PIPE	1-1/2"

ONE LINE PIPE SYMBOLS

MU	MAKE-UP WATER
CW	DOMESTIC COLD WATER
NPCW	NON-POTABLE DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
SW	SOFT WATER
RO	REVERSE OSMOSIS WATER
TWS	TOWER WATER SUPPLY
TWR	TOWER WATER RETURN
EQ	TOWER EQUALIZER
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
S12	STEAM SUPPLY (PRESSURE NOTED)
CR	CONDENSATE RETURN
PCR	PUMPED CONDENSATE RETURN
HPC	HIGH PRESSURE CONDENSATE
BFW	BOILER FEEDWATER
D	DRAIN
G	NATURAL GAS
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
V	VENT
CA	COMPRESSED AIR
VAC	VACUUM
RP	REFRIGERANT PURGE
BSS	BASIN SWEEPER SUPPLY
BSR	BASIN SWEEPER RETURN
	BALL VALVE WITH HANDLE
	BALL VALVE WITH ELECTRIC ACTUATOR
	BALL VALVE WITH PNEUMATIC ACTUATOR
	BUTTERFLY VALVE WITH HANDLE
	BUTTERFLY VALVE WITH GEAR OPERATOR
	BUTTERFLY VALVE WITH ELECTRIC ACTUATOR
	BUTTERFLY VALVE WITH PNEUMATIC ACTUATOR
	GATE VALVE
	OS & Y GATE VALVE
	CONTROL VALVE (2-WAY) ELECTRIC
	CONTROL VALVE (2-WAY) PNEUMATIC
	CONTROL VALVE (3-WAY) ELECTRIC
	CONTROL VALVE (3-WAY) PNEUMATIC
	GLOBE VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE (SWING CHECK)
	CHECK VALVE (BUTTERFLY CHECK)
	TRIPLE DUTY VALVE

ONE LINE PIPE SYMBOLS

	FLOW LIMITING VALVE
	CALIBRATED BALANCING VALVE
	PLUG VALVE
	STOP-CHECK VALVE (NRV)
	FLOAT VALVE
	NEEDLE VALVE
	WYE-STRAINER
	WYE-STRAINER WITH DRAIN VALVE (BALL)
	WYE-STRAINER WITH DRAIN VALVE (GATE)
SD	SUCTION DIFFUSER
	UNION
	FLANGE
	FLEXIBLE PIPE CONNECTOR
A	AIR VENT (A - AUTO, H - HAND)
	PRESSURE RELIEF VALVE
	PRESSURE RELIEF VALVE (STEAM)
	PRESSURE AND TEMPERATURE TAP
	PRESSURE GAUGE
	PRESSURE GAUGE W/ SIPHON
P	PRESSURE SENSOR
DP	DIFFERENTIAL PRESSURE SENSOR
	INSERTION WELL
	THERMOMETER W/ INSERTION WELL
T	TEMPERATURE SENSOR
	PIPE GUIDE
	ELBOW
	TEE, SIDE CONNECTION
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	RISE OR DROP IN PIPE
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CAPPED OUTLET
	CAPPED PIPE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	STEAM TRAP
	STEAM TRAP (DRIP LEG)
	UNIVERSAL STEAM TRAP STATION
FM	FLOW METER (INLINE)
FM	FLOW METER (INSERTION)
FM	FLOW METER (ANNUBAR)
TFD	PIPE TO FLOOR DRAIN
EMS	EMERGENCY MANAGEMENT SYSTEM INSERTION WELL

TWO LINE PIPE SYMBOLS

	BUTTERFLY VALVE - LEVER OPERATOR
	BUTTERFLY VALVE - WORM GEAR OPERATOR
	BUTTERFLY VALVE - ACTUATOR
	CHECK VALVE - SWING CHECK
	CHECK VALVE - SILENT OR WAFER
	GATE VALVE - NON RISING STEM
	GATE VALVE - OUTSIDE STEM AND YOKE
	GLOBE VALVE
	STRAINER - Y

DEMOLITION AND RENOVATION SYMBOLS

	EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN
	NEW EQUIPMENT
	POINT OF CONNECTION TO EXISTING
	TERMINATION OF DEMOLITION
	DUCT/PIPE TO BE REMOVED
	EXISTING DUCT/PIPE TO REMAIN
	NEW DUCT/PIPE

DUCTWORK SYMBOLS

T	THERMOSTAT
	THERMOSTAT WIRING
H	HUMIDISTAT
TS	TEMPERATURE SENSOR
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT
EA	EXHAUST AIR DUCT
CFM	CUBIC FEET PER MINUTE
EMS	ENERGY MANAGEMENT SYSTEM
ATC	AUTOMATIC TEMP CONTROLS
CO2	CARBON DIOXIDE
PPM	PARTS PER MILLION
ø	ROUND DIAMETER
	FLAT OVAL (MAJOR/MINOR)
	MANUAL VOLUME DAMPER
M	MOTORIZED VOLUME DAMPER
FD	FIRE DAMPER (FD)
FD	VERTICAL FIRE DAMPER (FD)
S	SMOKE DAMPER
S FD/S	COMBINATION FIRE / SMOKE DAMPER (FD/S)
	POD STYLE AIR FLOW MEASURING STATION
M	GRID STYLE AIR FLOW MEASURING STATION
	COMBINATION AIR FLOW MEASURING STATION
20/12	RECTANGULAR DUCT (WIDTH/DEPTH)
	ROUND DUCT OFFSET
RISE	CHANGE IN ELEVATION (RISE, FALL)
	FLEXIBLE DUCT
	SUPPLY DUCT UP
	RETURN DUCT UP
	EXHAUST DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT DOWN
	EXHAUST DUCT DOWN
	CEILING DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
AP	ACCESS PANEL
AP	ACCESS PANEL IN ROUND OR OVAL DUCT
X -X - 000	TYPE - THROW - AIRFLOW
X- 000	TYPE - AIRFLOW

GENERAL NOTES:

1. ALL WORK IS TO CONFORM TO THE CURRENTLY ADOPTED STATE CODES AND LOCAL ORDINANCES.

2. BY NECESSITY, THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIC REFERENCE PRODUCTS, THE SOLUTION OF WHICH HAS IMPACTED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC). IF ALTERNATE MANUFACTURERS, FUEL SOURCES, SIZES, OR MODEL NUMBERS ARE SUBMITTED OR BID, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES PRIOR TO BID. THE SUBSTITUTING CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL PAY FOR CHANGES REQUIRED TO OTHER TRADES IF ALTERNATE EQUIPMENT IS BID OR INSTALLED AT THE CONTRACTORS OPTION.

3. ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRIC RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING, OR COMPONENT. CONTRACTOR SHALL NOT SCALE DRAWINGS. EQUIPMENT SCHEDULES SHALL TAKE PRECEDENCE OVER CONFLICTING DRAWING INFORMATION. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY CONTRACT DOCUMENTS. REFER TO, STRUCTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION.

4. EXCEPT WHERE MODIFIED BY SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION.

5. EXACT LOCATION OF ALL EQUIPMENT AND PIPING SHALL BE COORDINATED WITH OTHER TRADES. CEILING MOUNTED SPRINKLER, LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS.

6. ALL SYSTEMS SHALL BE INSTALLED AS PER SPECIFICATIONS AND GOVERNING CODES.

7. INFORMATION AND COMPONENTS SHOWN ON PIPING DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE-VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.

8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES, ELECTRICAL, STRUCTURAL, CIVIL ETC. SEE STRUCTURAL DRAWINGS FOR BUILDING DETAILS AND DIMENSIONS. REFER TO CIVIL PLANS FOR ALL UTILITY CONNECTION POINTS OUTSIDE THE BUILDING.

9. REFER TO SPECIFICATIONS OR SCHEDULES ON DRAWINGS FOR ACCEPTABLE MANUFACTURERS AND MODELS OF EQUIPMENT, AND PROPER APPLICATIONS OF SAME

10. REFER TO SHEET M001 FOR PIPING, VALVE, AND FITTING REQUIREMENTS FOR ALL MECHANICAL PIPING SYSTEMS.

11. EXISTING INFORMATION SHOWN WAS GATHERED FROM "AS BUILT" DRAWINGS AND JOB SITE VISITS. EVERY ATTEMPT HAS BEEN MADE TO SHOW EXISTING SERVICES CORRECTLY. HOWEVER CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ALL NECESSARY ADJUSTMENTS IN THE FIELD AT NO EXTRA COST TO THE OWNER/ARCHITECT/ENGINEER.

12. ◯ WHERE THIS SYMBOL OCCURS ON THE DRAWINGS, REFERENCE SHOULD BE MADE TO THE KEYED NOTES ON THAT SAME SHEET AND THE CORRESPONDING NUMBER OF NOTE.

13. THE CONTRACTOR SHALL, PRIOR TO THE START OF ANY WORK UNDER THIS CONTRACT, VISIT JOB SITE TO VERIFY SIZE, ELEVATION, LOCATION, ETC., OF ANY EXISTING PIPING NOTED, SHOWN OR IMPLIED, TO WHICH NEW PIPING IS RELATED OR CONNECTED.

14. CUT WALLS, FLOORS OR CEILINGS AS REQUIRED TO INSTALL NEW PIPING. ALL FURRING AND REPAIRING SHALL BE BY THE GENERAL CONTRACTOR. COORDINATE REQUIREMENTS WITH GENERAL CONTRACTOR.

15. NO STRUCTURAL MEMBERS MAY BE CUT OR MODIFIED WITHOUT THE WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER.

16. WHERE EXISTING FIXTURES AND EQUIPMENT ARE REMOVED AND NOT REPLACED, REMOVE PIPING BACK TO MAIN AND CAP.

17. REWORK EXISTING PIPING AS REQUIRED TO INSTALL NEW EQUIPMENT.

18. EXISTING PIPE TO WHICH NEW PIPE IS CONNECTED SHALL BE RODDED, FLUSHED AND CLEANED FROM POINT OF CONNECTIONS TO MAIN OUTSIDE BUILDING.

19. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, DOCUMENTS, FEES, SERVICES AND UTILITY FEES REQUIRED TO DO THE WORK OF THIS CONTRACT.

20. MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES FOR ALL FIXTURES AND EQUIPMENT.

21. ALL LOCATIONS OF EXISTING EQUIPMENT, DUCTWORK, ACCESSORIES, ETC ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT FIELD CONDITIONS.

22. INTERRUPTION OF BUILDING SERVICES AND UTILITIES SHOULD BE MINIMIZED WHEN POSSIBLE AND COORDINATED WITH OWNER.

23. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE EXISTING BUILDING, EQUIPMENT AND SYSTEMS RESULTING FROM CONSTRUCTION.

24. REFER TO PIPING DIAGRAM FOR EXTENT OF WORK. CONTRACTOR IS RESPONSIBLE FOR COORDINATION BETWEEN FLOOR PLANS AND PIPING DIAGRAMS FOR ALL SCOPE OF WORK.

25. PRIOR TO CONNECTING ANY EXISTING SYSTEM TO THE NEW DISTRICT SYSTEM, CHEMICALLY TEST AND OBSERVE WATER QUALITY (TURBIDITY) OF THE EXISTING SYSTEM. FLUSH AND CLEAN THE EXISTING SYSTEMS UNTIL WATER QUALITY REQUIREMENTS (AS DETERMINED BY CHEMICAL TREATMENT PROVIDER) ARE ACHIEVED.

26. SITE CONTRACTOR REQUIRED TO PERFORM A CHEMICAL WATER FLUSH PRIOR TO CONNECTING NEW PIPING TO DISTRICT SYSTEM.

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CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

LEGENDS AND GENERAL NOTES - MECHANICAL

SHEET NUMBER:

M000

COUNTRY OF ORIGIN RESTRICTIONS:	NONE (POSSIBLE LIST OF COUNTRIES FOR PIPE)
ASME B31.9 WELD BRANCH CONNECTIONS ACCEPTED?:	YES; 232114 PIPE ONLY (SADDLE ON / STUB IN / FISH MOUTH)
COPPER T-DRILL ACCEPTED?:	YES

PVF SCHEDULE

SYSTEM	AREA	SIZE (INCHES)			PIPE				FITTINGS			FLANGES		BRANCH CONNECTIONS	INDIVIDUAL PIPE HANGERS / SUPPORTS	
					MATERIAL	GRADE	WALL	MANUFACTURER	MATERIAL	CONNECTION	MANUFACTURER	TYPE	GASKET		HORIZONTAL	VERTICAL
DOMESTIC WATER (POTABLE) MAKEUP WATER (NON-POTABLE)	UNDERGROUND	1/2	< =	4	COPPER	HARD / SOFT ASTM B88	TYPE K	-	COPPER	5% Ag BRAZE	NIBCO					
		4	< =	-	DUCTILE IRON	CEMENT LINED AWWA C151	BY AHJ	-	DUCTILE IRON MJ	MEGA LUG RESTRAINT 1100/1700 WITH SS HARDWARE	-			TEE		
		4	< =	-	PVC	AWWA C900	DR 18	-		MEGA LUG RESTRAINT 2000PV/1500TD WITH SS HARDWARE	-					
	ABOVEGROUND	1/2	< =	4	COPPER	HARD ASTM B88	TYPE L	-	COPPER	LF STERLING SOLDER	NIBCO	COMPANION (NIBCO 672)	GARLOCK 3760-U	TEE	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
										PRESS	VIEGA / APOLLO	COPPER PRESS				
										5% Ag BRAZE	NIBCO	COMPANION (NIBCO 672)				
		2-1/2	< =	-	STAINLESS STEEL	GRADE 304 WELDED, ASTM A312	SCH. 10	-	SCH. 10 304 STAINLESS STEEL	VICTAULIC 807 / 877 PAINTED	VICTAULIC	VICTAULIC 445				PLATED RISER CLAMP
SANITARY VENT SANITARY WASTE STORM DRAINSTORM DRAIN OVERFLOW	UNDERGROUND (> 110°F)	2	< =	15	CAST IRON	SERVICE WEIGHT	SV	CHARLOTTE	CAST IRON HUB & SPIGOT	QUIK-TITE GASKET	CHARLOTTE					
	UNDERGROUND	-	< =	-	PVC	SOLID CORE ASTM D1784, D1785, D2665	SCH. 40	CHARLOTTE	DWV PVC	PRIMER: ASTM F656 CEMENT: ASTM D2564	CHARLOTTE					
	ABOVEGROUND	-	< =	-												
	ABOVEGROUND (PLENUM)	1-1/2	< =	15	CAST IRON	HUBLESS		CHARLOTTE	CAST IRON NH	STD NH COUPLINGS ASTM C1277	CHARLOTTE				PLATED CLEVIS	PLATED RISER CLAMP
NATURAL GAS	UNDERGROUND	3/4	< =	2"	MDPE	PE 2708 IPS	SDR 11	-	MDPE SDR 11 IPS	COMPRESSION, CON-STAB ID SEAL	CONTINENTAL INDUSTRIES			TEE		
		3/4"	< =	4						BUTT FUSION	-					
	ABOVEGROUND (SENSING LINES)	1/4	< =	1/2	COPPER	HARD ASTM B88	``	-	COPPER	SOLDER	NIBCO		NON-ASBESTOS	TEE	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
										PRESS	VIEGA / APOLLO					
										FLARE	NIBCO					
	ABOVEGROUND	1/2	< =	4	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	CARBON STEEL	PRESS - HNBR GASKET	VIEGA / APOLLO	PRESS - HNBR GASKET	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		1/2	``	2					3000# FORGED STEEL	SOCKET WELD	-	SOCKET WELD				
									150# MALLEABLE IRON	THREAD		THREAD				
		2-1/2	< =	-					STD CARBON STEEL	BUTT WELD		SLIP-ON / WELD-NECK				
HEATING WATER	UNDERGROUND	2-1/2	< =	24	PRE-INSULATED CARBON STEEL CARRIER PIPE WITH HDPE JACKET	BLACK ERW, ASTM A53	STD	-	FACTORY PRE-FABRICATED AND PRE-INSULATED	BUTT WELD	-	SLIP-ON (2)	NON-ASBESTOS	FORGED STEEL OUTLET		
		30	< =	-		API 5L - PSL 2, GRADE B / X42						B16.47 WELD NECK, SERIES A				
CHILLED WATER TOWER WATER	UNDERGROUND	2-1/2	< =	24	PRE-INSULATED CARBON STEEL CARRIER PIPE WITH HDPE JACKET	BLACK ERW, ASTM A53	STD	-	FACTORY PRE-FABRICATED AND PRE-INSULATED	BUTT WELD	-	SLIP-ON (2)	NON-ASBESTOS	FORGED STEEL OUTLET		
		30	< =	-		API 5L - PSL 2, GRADE B / X42						B16.47 WELD NECK, SERIES A				
		4	< =	72	POLYETHYLENE	HDPE, IPS	SDR 11	-	HDPE	BUTT FUSION	-	FUSION STUB END	NON-ASBESTOS	TEE		
CHILLED WATER HEATING WATER TOWER WATER	ABOVEGROUND	1/4	<=	1/2	COPPER	```	TYPE L	-	COPPER	SOLDER	NIBCO	COMPANION (NIBCO 672)	NON-ASBESTOS	TEE	PLATED CLEVIS	PLATED RISER CLAMP
		1/4	< =	4	COPPER	```	TYPE L	-	COPPER	SOLDER	NIBCO	COMPANION (NIBCO 672)	NON-ASBESTOS	TEE	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
										PRESS	VIEGA / APOLLO	COPPER PRESS				
										5% Ag BRAZE	NIBCO	COMPANION (NIBCO 672)				
		2-1/2	< =	12	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	PAINTED DUCTILE IRON (1)	VICTAULIC 107, PAINTED	VICTAULIC	VICTAULIC 45, PLAIN	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		14	< =	24						VICTAULIC 177, PAINTED						
										VICTAULIC W07, PAINTED		VICTAULIC W45, PLAIN				
		2-1/2	< =	24	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	STD CARBON STEEL (1)	BUTT WELD	-	SLIP-ON (2)	NON-ASBESTOS	TEE; SADDLE ON (UP TO LINE SIZE) (PER ASME 31.9)	PLATED CLEVIS	PLATED RISER CLAMP
REFRIGERANT RELIEF	ABOVEGROUND	1/2	< =	2	COPPER	HARD ASTM B88	TYPE L	-	COPPER	5%Ag BRAZE, SOLDER	NIBCO	COMPANION (NIBCO 672)	SPIRAL WOUND (3)	TEE	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
		1/2	< =	2	CARBON STEEL	BLACK ERW, ASTM A53	STD		3000# FORGED STEEL	THREAD / SOCKET WELD	-	SOCKET WELD		FORGED STEEL OUTLET		PLATED RISER CLAMP
		2-1/2	< =	-					STD CARBON STEEL	BUTT WELD	-	SLIP-ON				
COOLING TOWER DRAIN	ABOVEGROUND	-	< =	-	PVC	SOLID CORE ASTM D1784, D1785, D2665	SCH. 40	CHARLOTTE	DWV PVC	PRIMER: ASTM F656 CEMENT: ASTM D2564	CHARLOTTE					
COMPRESSED AIR	ABOVEGROUND	1/2	<=	2	COPPER	HARD ASTM B88	TYPE L	-	COPPER	5% Ag BRAZE	NIBCO			TEE	COPPER COATED CLEVIS	COPPER PLATED RISER

NOTES:

1. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE UP
2. SOCKET WELD OR WELD NECK FOR
3. FLEXITALLIC STYLE CGI, 304 SS WINDING, FLEXICAB FILLER, CARBON STEEL RINGS. PROVIDE WTIH HEAT THREATED BOLTS (B7) CONNECTION TO LUG BUTTERFLY
4. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE DOWN
5. ALL EXTERIOR ABOVE GROUND PIPING PVC PIPING TO BE FINISHED WITH UV RESISTANT PAINT
6. PIPE TO BE COATED WITH SHERWIN WILLIAMS PIPECLAD 2000 EQUIVALENT FUSION-BONDED EPOXY, A POLYKEN #1027 EQUIVALENT LIQUID ADHESIVE, AND A COVALENCE WPCT EQUIVALENT WRAP.
7. ALL UNDERGROUND WELDS TO BE INSPECTED, EXAMINED, AND TESTED PER ASME B31.3CHAPTER VI STANDARDS FOR RADIOGRAPHY/X-RAY. EXTENT OF RADIOGRAPHY TO BE 100% RADIOGRAPHY.
8. DO NOT USE PIPING WITH HIGH CHLORIDE SYSTEMS

HDPE PIPING NOTES:

1. USE 316 STAINLESS BOLTS, 304 STAINLESS NUTS, DUCTILE IRON
2. TORQUEING PROCEDURE SHOULD INCLUDE A MIN. OF THREE (3) TORQUING SESSION.
   a. A SESSION INCLUDES BOTH PERFORMING ADEQUATE TORQUE ON THE PIPE, AND LETTING THE PIPE REST FOR NATURAL STRETCH/SETTLING.

PVF SCHEDULE CONTINUED

SYSTEM	AREA / CONNECTION	SIZE (INCHES)			VALVES				SPECIALTIES						MISC. ACCESSORIES	ANCHORS
					SHUT-OFF	CHECK	BALANCING	STRAINER	DIELECTRIC	PRESSURE GAUGE	GAUGE COCK	THERMOMETER	THERMOWELL	P&T PLUG		DROP-IN
DOMESTIC WATER MAKEUP	UNDERGROUND	4	< =	-											WATTS TRANSITION RISER (TR)	HILTI HDI HILTI HDI-P
	ABOVEGROUND	1/2	< =	2	NIBCO PC585-80-LF (1)	NIBCO PC413-Y-LF	B&G CIRCUIT SETTER	WATTS LF777SI	NIPPLE							
		2-1/2	< =	6	NIBCO LD2000-3 (3)	NIBCO W-920-W-LF		WATTS 77F-DI-125		TRERICE 600CB	NIBCO T-585-80-LF	TRERICE SX9 1 XXX 05 (SOLAR THERM) XXX = STEM LENGTH	LF BRASS	LF BRASS		
					NIBCO GD4765-3 (3)	NIBCO G-920-W-LF										
NATURAL GAS (30-PSIG & UNDER)	ABOVEGROUND	1/2	< =	3/4	HOMESTEAD 601			KECKLEY GA-7		TRERICE 760 BLOW PRESSURE TRERICE 600CB(HIGH PRESSURE)					THREAD SEALANT: OATEY MEGALOC	
		1	< =	10	HOMESTEAD 602											
NATURAL GAS (30-PSIG TO 125-PSIG)	ABOVEGROUND	1/2	< =	2	KECKLEY BVSCSWFCSRGSL										THREAD SEALANT: OATEY MEGALOC	
		1	< =	10	KECKLEY BVF2RF4FCSRGSL											
CHILLED WATER HEATING WATER TOWER WATER MAKEUP WATER SYSTEM PRESSURE <=150 PSIG	PRESS	1/4	< =	2	NIBCO PC-585-70	NIBCO PF-413Y		WATTS LF777SI	NIPPLE						THREAD SEALANT: OATEY MEGALOC	
	GROOVE CONNECTION	2-1/2	< =	6	VICTAULIC V-XXX-761SE-2	VICTAULIC 716		KECKLEY A-7 125#		TRERICE 700LFB 40 02 L A XXX WITH 870-1 SNUBBER (AT PUMPS) XXX = PRESSURE CODE CHW / HW = 200 TW = 100 TW SUCTION = 30/30	NIBCO T-585-70	TRERICE SX9 1 XXX 05 (SOLAR THERM) XXX = STEM LENGTH	TRERICE BRASS (4)	TRERICE D3770 (1-1/2" LONG) D3770 WITH D3753 ACCESSORY (3" LONG)		
		8	< =	12	VICTAULIC V-XXX-761SE-3											
		14	< =	24	VICTAULIC W-XXX-1582-20	VICTAULIC W715										
		30	< =	-	VICTAULIC W709											
	FLANGE CONNECTION	2-1/2	< =	6	NIBCO LD2000-3	NIBCO W-920-W-LF										
		8	< =	20	NIBCO LD2000-5											
		24	=	24	NIBCO LD2000-5											
		30	< =	-	NIBCO LD1000-5											
	UNDERGROUND	4	<=	72	PRATT GROUNDHOG W/ OPERATOR & STEM EXTENSION											
REFRIGERANT RELIEF	-	-	< =	-	NIBCO T-585-70-HC (DRAIN ONLY)										FLEX CONNECTOR: METRAFLEX SSTT OR SSTC	

NOTES:

1. FOR INSULATED LINES, ORDER WITH NIBSEAL HANDLES
2. ORDER WITH SCREEN FOR STEAM SERVICE
3. PROVIDE CHAINWHEEL OPERATOR FOR VALVES NPS 4 AND LARGER 96" ABOVE FLOOR.
4. ATC CONTRACTOR RESPONSIBLE FOR TEMPERATURE SENSOR THERMOWELLS 1/3 X D < STEM LENGTH < 1/2 X D

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CORPORATE SEAL

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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

SCHEDULES - PIPE VALVE FITTINGS - MECHANICAL

SHEET NUMBER:

M001

HEAT PUMP CHILLER HEATER SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	OPERATING WEIGHT (LBS)	REFRIGERANT TYPE	REFRIGERANT QUANTITY (LBS)	EVAPORATOR										CONDENSER										ELECTRICAL						REMARKS
							CAPACITY (TONS)	DESIGN WATER FLOW RATE (GPM)	MIN. WATER FLOW RATE (GPM)	MAX. WATER FLOW RATE (GPM)	WATER EWT / LWT (DEG F)	DESIGN PRESSURE DROP (FT. WATER)	MIN PRESSURE DROP (FT. WATER)	MAX PRESSURE DROP (FT. WATER)	NO. OF PASSES	FOULING FACTOR	HEAT OF REJECTION (MBH)	DESIGN WATER FLOW RATE (GPM)	MIN. WATER FLOW RATE (GPM)	MAX WATER FLOW RATE (GPM)	WATER EWT / LWT (DEG F)	DESIGN PRESSURE DROP (FT. WATER)	MIN PRESSURE DROP (FT. WATER)	MAX PRESSURE DROP (FT. WATER)	NO. OF PASSES	FOULING FACTOR	TOTAL DEMAND (KW)	MOTOR LOCKED ROTOR AMPS (LRA)	MAXIMUM MOTOR CURRENT (RLA)	MIN CIRCUIT AMPACITY (MCA)	MAXIMUM OVERCURRENT PROTECTION (MOCP)	VOLTS / PHASE	
HPCH-1-CPC	WATER FURNANCE TRUCLIMATE 700	CPC CEP	CHW & HW SYSTEMS	5,500	R-513A	170	100.5	242	140	630	52/42	5.20	1.74	35.20	1	0.00	1,685.6	340	140	630	130/140	14.2	2.40	48.60	1	0.00	17	20	240	300	500	460 / 3	VARIABLE SPEED SCREW COMPRESSOR; 316 STAINLESS STEEL BRAZED PLATE HEAT EXCHANGERS; SOUND ATTENUATION KIT; TOUCHSCREEN INTERFACE; BACNET CONNECTIVITY; ELECTRONIC EXPANSION VALVE

PUMP SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	WATER FLOW RATE (GPM)	TOTAL HEAD (FT. WATER)	ROTATION (RPM)	MINIMUM EFFICIENCY (%)	MOTOR SIZE		ELECTRICAL		REMARKS
									BHP	MHP	VOLTS	PHASE	
CHWP-HPCH-1-CPC	ARMSTRONG 4300 4x4x6	CEP	CHILLED WATER	VERITICAL INLINE - SPLIT COUPLED	300	25	1,800	77.0	2.46	5	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
HWP-HPCH-1-CPC	ARMSTRONG 4300 4x4x6	CEP	HEATING WATER	VERITICAL INLINE - SPLIT COUPLED	340	30	1,800	76.5	3.37	5	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BCHW-1-CPC	ARMSTRONG 4300 8x8x11.5	CEP	CHILLED WATER	VERITICAL INLINE - SPLIT COUPLED	1,500	90	1,800	81.6	41.8	50	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BCHW-2-CPC	ARMSTRONG 4300 8x8x11.5	CEP	CHILLED WATER	VERITICAL INLINE - SPLIT COUPLED	1,500	90	1,800	81.6	41.8	50	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BHW-1-CPC	ARMSTRONG 4300 5x5x11.5	CEP	HEATING WATER	VERITICAL INLINE - SPLIT COUPLED	600	90	1,800	75.7	18.0	25	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BHW-2-CPC	ARMSTRONG 4300 5x5x11.5	CEP	HEATING WATER	VERITICAL INLINE - SPLIT COUPLED	600	90	1,800	75.7	18.0	25	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BCHW-1-HIH	ARMSTRONG 4300 4x4x10	CEP	CHILLED WATER	VERITICAL INLINE - SPLIT COUPLED	360	75	1,800	70.72	9.6	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BCHW-2-HIH	ARMSTRONG 4300 4x4x10	CEP	CHILLED WATER	VERITICAL INLINE - SPLIT COUPLED	360	75	1,800	70.72	9.6	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BHW-1-HIH	ARMSTRONG 4300 4x4x10	CEP	HEATING WATER	VERITICAL INLINE - SPLIT COUPLED	300	75	1,800	71.79	7.9	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION
PMP-BHW-2-HIH	ARMSTRONG 4300 4x4x10	CEP	HEATING WATER	VERITICAL INLINE - SPLIT COUPLED	300	75	1,800	71.79	7.9	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12.12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STANCHION

VARIABLE FREQUENCY DRIVE SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	HARMONIC MITIGATION	ENCLOSURE	VFD BYPASS	MOTOR RATED HORSEPOWER	VFD RATED HORSEPOWER	EFFICIENCY (%)	VOLTS	PHASE	MAX. OUTPUT CURRENT (AMPS)	REMARKS
VFD-CHWP-HPCH-1-CPC	ABB ACH580	CPC PLANT	HPCH-1 CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	YES	5	5	98	480	3	7.6	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-HWP-HPCH-1-CPC	ABB ACH580	CPC PLANT	HPCH-1 HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	YES	5	5	98	480	3	7.6	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-1-CPC	ABB ACH580	CPC PLANT	CPC CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	50	50	98	480	3	52	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-2-CPC	ABB ACH580	CPC PLANT	CPC CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	50	50	98	480	3	52	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-1-CPC	ABB ACH580	CPC PLANT	CPC HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	25	25	98	480	3	27	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-2-CPC	ABB ACH580	CPC PLANT	CPC HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	25	25	98	480	3	3.5	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-1-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-2-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-1-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-2-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION. PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75' FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BACNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.

* DENOTES VARIABLE FREQUENCY DRIVE IS OF DIFFERENT HORSEPOWER THAN MOTOR HORSEPOIWER.

NATURAL GAS PRESSURE REGULATOR SCHEDULE

DESIGNATION	TYPE	REFERENCE PRODUCT	LOCATION	SERVES	DESIGN CAPACITY (SCFH)	MAX INLET PRESSURE (PSIG)	MIN INLET PRESSURE (PSIG)	OUTLET (SET) PRESSURE (PSIG)	DROOP (%)	SCFH @ INLET PRESSURE	OVERPRESSURE SETPOINT (PSIG)	INLET LINE SIZE (IN)	MAX SPL (Dba)	REMARKS
GPRV-NG-GEN-1&2-CPC	PILOT OPERATED REGULATOR	FISHER TYPE EZLOSX	CPC	GEN-1&2	11,000	60	10	5.0	< 5	50,000 @ 10 PSIG 208,000 @ 60 PSIG	15	2.0	-	WROUGHT CARBON STEEL BODY; CLASS 150 FLANGES; NITRILE VALVE SEAT; PROVIDE WITH TYPE 61L OR TYPE 6352 PILOT WITH 0-10 PSIG OPERATING RANGE; PROVIDE WITH TRAVEL INDICATOR AND TYPE BM1 SLAM-SHUT MANOMETRIC SENSING DEVICE WITH MANUAL RESET AND 4-19 PSIG SPRING RANGE; PROVIDE WITH SPARE PARTS
GPRV-NG-GEN-3&4-CPC	PILOT OPERATED REGULATOR	FISHER TYPE EZLOSX	CPC	GEN-3&4	11,000	60	10	5.0	< 5	50,000 @ 10 PSIG 208,000 @ 60 PSIG	15	2.0	-	WROUGHT CARBON STEEL BODY; CLASS 150 FLANGES; NITRILE VALVE SEAT; PROVIDE WITH TYPE 61L OR TYPE 6352 PILOT WITH 0-10 PSIG OPERATING RANGE; PROVIDE WITH TRAVEL INDICATOR AND TYPE BM1 SLAM-SHUT MANOMETRIC SENSING DEVICE WITH MANUAL RESET AND 4-19 PSIG SPRING RANGE; PROVIDE WITH SPARE PARTS
GPRV-NG-GEN-5-CPC	PILOT OPERATED REGULATOR	FISHER TYPE EZLOSX	CPC	GEN-5	11,000	60	10	5.0	< 5	50,000 @ 10 PSIG 208,000 @ 60 PSIG	15	2.0	-	WROUGHT CARBON STEEL BODY; CLASS 150 FLANGES; NITRILE VALVE SEAT; PROVIDE WITH TYPE 61L OR TYPE 6352 PILOT WITH 0-10 PSIG OPERATING RANGE; PROVIDE WITH TRAVEL INDICATOR AND TYPE BM1 SLAM-SHUT MANOMETRIC SENSING DEVICE WITH MANUAL RESET AND 4-19 PSIG SPRING RANGE; PROVIDE WITH SPARE PARTS
GPRV-NG-CPC	DIRECT ACTING - SPRING - DIAPHRAGM REGULATOR	FISHER TYPE CSB604FET	CPC	CPC & NARA	11,500	60	10	0.5 (14" w.c.)	< 10	13,000 @ 10 PSIG 60,000 @ 60 PSIG	15	2.0	-	WROUGHT CARBON STEEL BODY; CLASS 150 FLANGES; NITRILE VALVE SEAT; PROVIDE WITH TYPE VSX8 OVERPRESSURE SLAM-SHUT DEVICE.

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CORPORATE SEAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:

EQUIPMENT SCHEDULES - MECHANICAL

SHEET NUMBER:

M002

INLINE ELECTROMAGNETIC FLOW MEASURING DEVICES

DESIGNATION	SHIPPED WITH PUMP SKID	REFERENCE PRODUCT	SERVES	TYPE	METER BODY	CONNECTION TYPE	METER SIZE	LINE SIZE	MIN FLOW RATE SCALING (GPM)	MAX FLOW RATE SCALING (GPM)	ACCURACY (%)	ELECTRICAL REQUIREMENTS	ELECTRODE MATERIAL	LINER MATERIAL	REMARKS
FM-CHW-CH-1-CPC	☐	BADGER M2000	CH-1-CPC EVAPORATOR	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	2,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-CH-2-CPC	☐	BADGER M2000	CH-2-CPC EVAPORATOR	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	2,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-CH-3-CPC	☐	BADGER M2000	CH-3-CPC EVAPORATOR	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	2,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-MIN-FLOW-CPC	☐	BADGER M2000	CPC CHW PLANT MIN FLOW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	500	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-BLDG-CPC	☑	BADGER M2000	CPC BUILDING CHW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	8"	8"	0	3,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-HPCH-1-CPC	☑	BADGER M2000	HPCH-1 CHW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	4"	4"	0	1,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-HW-HPCH-1-CPC	☑	BADGER M2000	HPCH-1 HW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	4"	4"	0	1,500	± 0.2%	120 VAC	HASTELLOY C	PTFE	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-HW-PLNT-SEC-CPC	☐	BADGER M2000	CPC HW PLANT SECONDARY	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	2,000	± 0.2%	120 VAC	HASTELLOY C	PTFE	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-HW-BLDG-CPC	☑	BADGER M2000	CPC BUILDING HW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	2,000	± 0.2%	120 VAC	HASTELLOY C	PTFE	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-CH-1-HIH	☐	BADGER M2000	CH-1-HI EVAPORATOR	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	1,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-CH-2-HIH	☐	BADGER M2000	CH-2-HI EVAPORATOR	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	4"	4"	0	750	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-CHW-BLDG-HIH	☑	BADGER M2000	HEIFER INTL BUILDING CHW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	6"	6"	0	1,000	± 0.2%	120 VAC	HASTELLOY C	HARD RUBBER	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-HW-PLNT-HIH	☐	BADGER M2000	HEIFER INTL HW PLANT	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	4"	4"	0	750	± 0.2%	120 VAC	HASTELLOY C	PTFE	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.
FM-HW-BLDG-HIH	☑	BADGER M2000	HEIFER INTL BUILDING HW	INLINE MAGNETIC	CARBON STEEL	FLANGED - ANSI 150	4"	4"	0	750	± 0.2%	120 VAC	HASTELLOY C	PTFE	PROVIDE WITH REMOTE TRANSMITTER WITH NEMA 4X ENCLOSURE AND ADEQUATE REMOTE CABLE LENGTH; 316 SS GROUNDING RINGS.

PLANT CONTROL VALVE SCHEDULE

DESIGNATION	SHIPPED WITH PUMP SKID	REFERENCE PRODUCT	SERVES	VALVE TYPE	VALVE BODY	VALVE TRIM	ANSI PRESSURE CLASS	ANSI LEAKAGE CLASS	FLOW CHARACTERISTIC	RANGEABILITY	FLOW RATE (GPM)	ACTUAL (100% OPEN)	ACTION (NO, NC)	FAIL POSITION (OPEN, CLOSED, LAST)	CLOSE-OFF PRESSURE (PSID)	MAXIMUM DIFFERENTIAL PRESSURE FOR MODULATING CONTROL (PSID)	DESIGN DIFFERENTIAL PRESSURE (PSID)	VALVE SIZE (IN)	LINE SIZE (IN)	OPERATOR	REMARKS
CV-BCHW-BYP-CPC	☑	VSI-SERIES 2100	CPC CHW BUILDING BYPASS	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	1,500	1,579	NO	LAST	200	-	-	8"	8"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-1-CPC	☑	VSI-SERIES 2100	CPC BCHP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	1,500	3,136	NO	LAST	200	-	-	8"	8"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-2-CPC	☑	VSI-SERIES 2100	CPC BCHP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	1,500	3,136	NO	LAST	200	-	-	8"	8"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHW-BYP-CPC	☑	VSI-SERIES V	CPC HW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	600	850	NO	LAST	250	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-1-CPC	☑	VSI-SERIES 2100	CPC BHWP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	600	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-2-CPC	☑	VSI-SERIES 2100	CPC BHWP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	600	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-DCHW-CPC	☐	VSI-SERIES 2100	CPC DISTRICT CHW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	1,200	3,136	NO	LAST	200	-	-	8"	8"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HPCH-CHW-CPC	☐	VSI-SERIES 2100	CPC HEAT PUMP CHILLER CHW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HPCH-DCHW-CPC	☐	VSI-SERIES 2100	CPC HEAT PUMP CHILLER DISTRICT CHW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-DHW-CPC	☐	VSI-SERIES 2100	CPC DISTRICT HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	400	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HW-PLNT-CPC	☐	VSI-SERIES 2100	CPC PLANT HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	400	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-DHW-HPCH-CPC	☐	VSI-SERIES 2100	CPC HEAT PUMP CHILLER DISTRICT HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	340	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HW-HPCH-CPC	☐	VSI-SERIES 2100	CPC HEAT PUMP CHILLER HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	340	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
						-															
CV-BCHW-BYP-HIH	☑	VSI-SERIES V	HEIFER INTL CHW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	360	529	NO	LAST	250	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-1-HIH	☑	VSI-SERIES 2100	HEIFER INTL BCHP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	360	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-2-HIH	☑	VSI-SERIES 2100	HEIFER INTL BCHP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	360	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHW-BYP-HIH	☑	VSI-SERIES V	HEIFER INTL HW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	300	529	NO	LAST	250	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-1-HIH	☑	VSI-SERIES 2100	HEIFER INTL BHWP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-2-HIH	☑	VSI-SERIES 2100	HEIFER INTL BHWP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-CHW-MINFLOW-HIH	☐	VSI-SERIES V	HEIFER INTL CHW MIN FLOW BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	300	270	NO	LAST	200	-	-	3"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-TW-BYPASS-HIH	☐	VSI-SERIES 2100	HEIFER INTL TW BYPASS	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	270	NO	LAST	200	-	-	8"	8"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-DCHW-HIH	☐	VSI-SERIES 2100	HEIFER INTL DISTRICT CHW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	1,000	3,136	NO	LAST	200	-	-	6"	6"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HW-PLNT-HIH	☐	VSI-SERIES 2100	HEIFER INTL PLANT HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-DHW-HIH	☐	VSI-SERIES 2100	HEIFER INTL DISTRICT HW	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	BUBBLE TIGHT	EQUAL PERCENTAGE	-	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120-V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA). PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-

AIR COMPRESSOR SCHEDULE

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	COMPRESSOR				CABINET				ELECTRICAL			REMARKS
				QTY	TYPE	SPEED (RPM)	MAX PRESSURE (PSIG)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LB)	MHP	VOLTAGE	PHASE	
AC-1-HIH	INGERSOLL RAND SS5L5	HIH CENTRAL ENERGY PLANT	RAINWATER COLLECTION SYSTEM	1	VERTICAL SINGLE STAGE	-	135	50	40	78	385.2	5	480	3	AUTOMATIC START/STOP PRESSURESWITCH CONTROL CUT-IN: 95-PSIG CUT-OUT: 130-PSIG

DUCT CLASSIFICATION SCHEDULE

DESIGNATION	DESCRIPTION	DUCT PRESSURE CLASS	SMACNA MINIMUM SEAL CLASS	SMACNA LEAKAGE CLASS	SMACNA DUCT CLEANLINESS LEVEL	DUCT LEAKAGE TEST	DUCT MATERIAL
EXHAUST	RECTANGULAR	-2"	C	4	C	REQUIRED	GALVANIZED STEEL

ENFRA
MCC, LLC | MECHANICAL

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METAIRIE, LA 70001
Phone: (504) 883-8291

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:

EQUIPMENT SCHEDULES - MECHANICAL

SHEET NUMBER:

M003

NATURAL GAS FLOW METER SCHEDULE

DESIGNATION	REFERENCE PRODUCT	SERVES	TYPE	FLUID TYPE	METER SIZE (INCH)	LINE SIZE (INCH)	FLUID FLOW (SCFH)	INLET PRESSURE (PSIG)	ACCURACY (%)	PRESSURE LOSS (PSID)	ELECTRICAL REQUIREMENTS	REMARKS
FM-NG-PLNT-CPC	SIERRA INSTRUMENTS QUADRATHERM 780i	BOILER NATURAL GAS	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	4"	4"	8,000 (MAX) 200 (MIN)	0.5	+/- 0.5%	0.05	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-B-1-HIH	SIERRA INSTRUMENTS QUADRATHERM 780i	B-1 NATURAL GAS	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	1-1/2"	1-1/2"	2,000 (MAX) 200 (MIN)	0.25-0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-B-2-HIH	SIERRA INSTRUMENTS QUADRATHERM 780i	B-2 NATURAL GAS	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	1-1/2"	1-1/2"	2,000 (MAX) 200 (MIN)	0.25-0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-GEN-CPC	SIERRA INSTRUMENTS QUADRATHERM 780i	CPC GENERATORS	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	4"	4"	33,000 (MAX) 2,500 (MIN)	10	+/- 0.5%	0.12	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-LOW- DWH	SIERRA INSTRUMENTS QUADRATHERM 780i	LOW TEMPERATURER WATER HEATER	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	2"	2"	600 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-HIGH-DWH	SIERRA INSTRUMENTS QUADRATHERM 780i	HIGH TEMPERATURER WATER HEATER	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	2"	2"	500 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-DU-B1	SIERRA INSTRUMENTS QUADRATHERM 780i	DESSICANT UNIT	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	1"	1"	350 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-DU-B2 & B3	SIERRA INSTRUMENTS QUADRATHERM 780i	DESSICANT UNIT	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	1-1/4"	1-1/4"	350 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-DU-M-1	SIERRA INSTRUMENTS QUADRATHERM 780i	DESSICANT UNIT	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	1-1/4"	1-1/4"	350 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION
FM-NG-KITCHENS	SIERRA INSTRUMENTS QUADRATHERM 780i	KITCHENS	INSERTION THERMALS MASS FLOW METER	NATURAL GAS	2"	2"	1,100 (MAX)	0.5	+/- 0.5%	0.01	24 VDC (1.1 A)	PROVIDE WITH LINE SIZE 316 SS IN-LINE FLOW BODY WITH INTEGRAL FLOW CONDITIONER WITH ANSI CLASS 150 FLANGE, DIRECT MOUNT NEMA 4X ENCLOSURE, 4-20mA OUTPUT SINGALS FOR MASS FLOW RATE, PRESSURE AND TEMPERATURE; LOCAL LCD DISPLAY; FLOW METER TO BE CALIBRATED FOR NATURAL GAS; CONTRACTOR TO VERIFY LINE SIZE PRIOR TO PURCHASE AND INSTALLATION

FLOW METERS TO BE PROCURED AND INSTALLED BY MECHANICAL CONTRACTOR, 120V POWER BY ELECTRICAL CONTRACTOR, 24V POWER WIRING AND ALL CONTROL WIRING BY ATC CONTRACTOR

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MCC, LLC | MECHANICAL

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NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

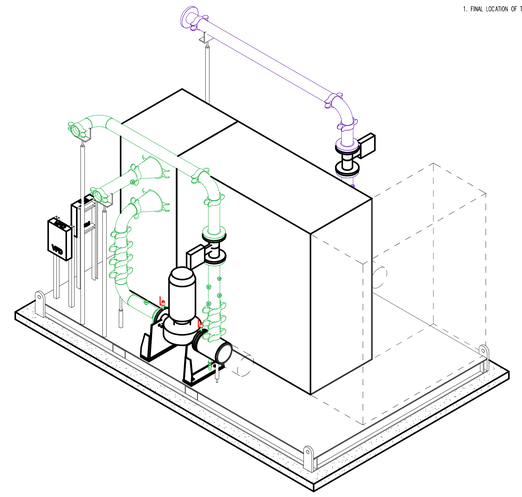
SHEET TITLE:

EQUIPMENT SCHEDULES - MECHANICAL

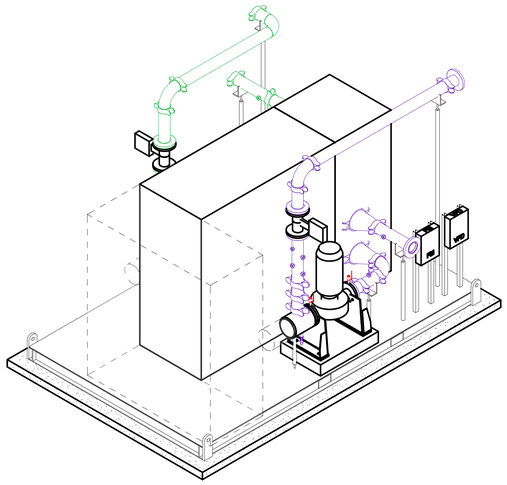
SHEET NUMBER:

M004

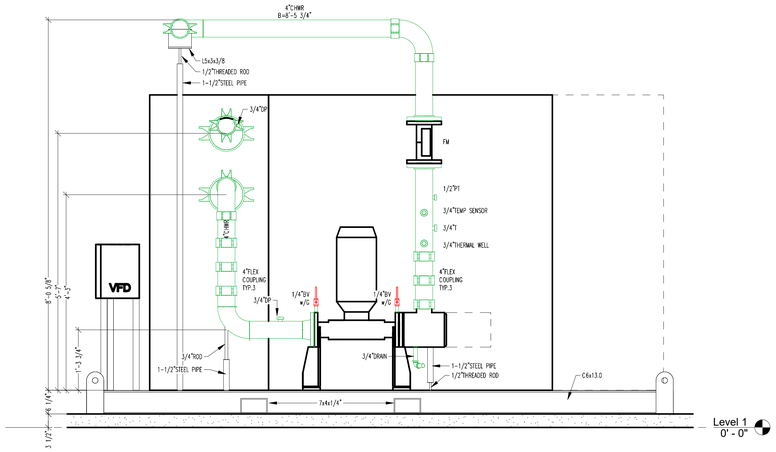
GENERAL NOTES:
1. FINAL LOCATION OF THE VFD's PENDING APROVED SUBMITTALS.



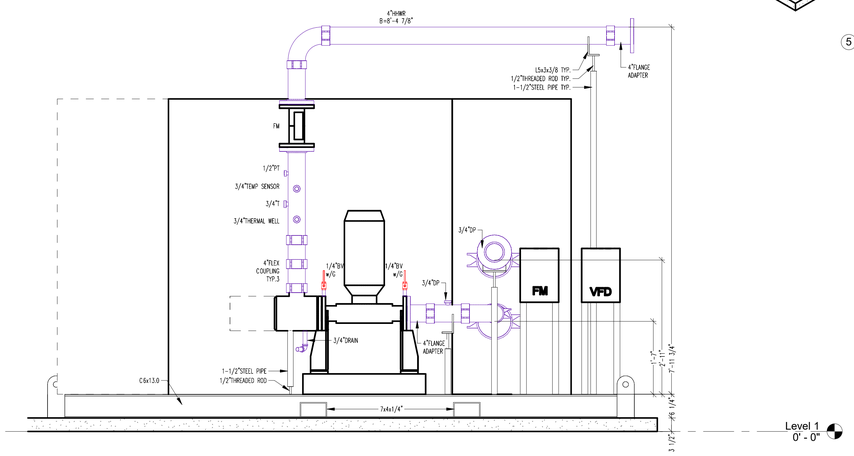
4 PMP-CHW-HPCH-1-CPC ISO



5 PMP-HW-HPCH-1-CPC ISO



2 PMP-CHW-HPCH-1-CPC DETAIL
3/4" = 1'-0"



3 PMP-HW-HPCH-1-CPC DETAIL
3/4" = 1'-0"

FABRICATED HPCH SKID
DETAIL - MECHANICAL

ISSUED FOR REVIEW

0 2" 4" 8"
SCALE: 1/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

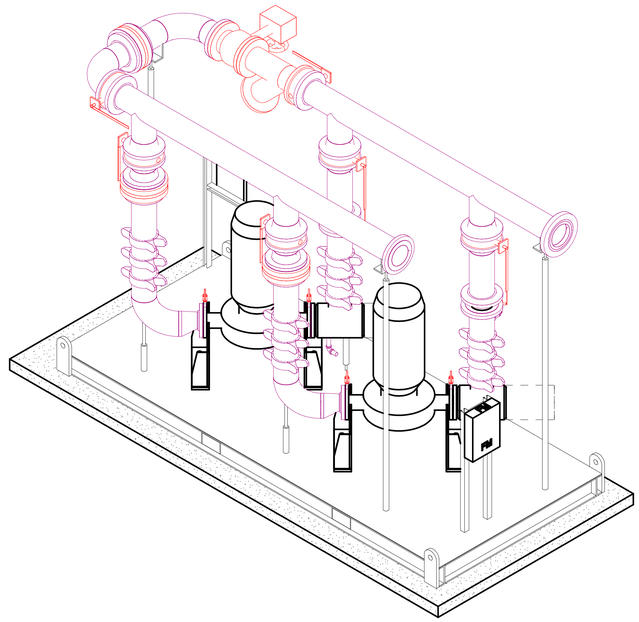
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

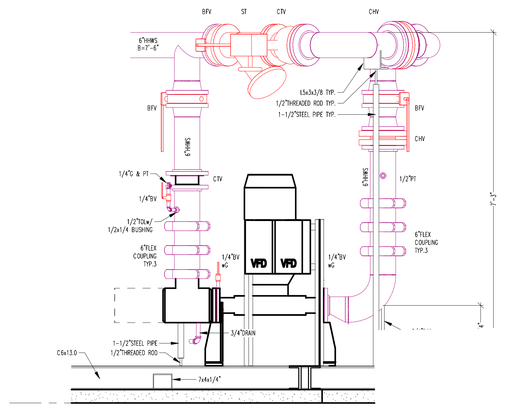
SHEET TITLE:
FABRICATED HPCH SKID
DETAIL - MECHANICAL

SHEET NUMBER:
M503

GENERAL NOTES:
1. FINAL LOCATION OF THE VFD's PENDING APPROVED SUBMITTALS.



3 PMP-HW-2A/B-CPC ISO



2 PMP-HW-2A/B-CPC DETAIL
3/4" = 1'-0"

ISSUED FOR REVIEW

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

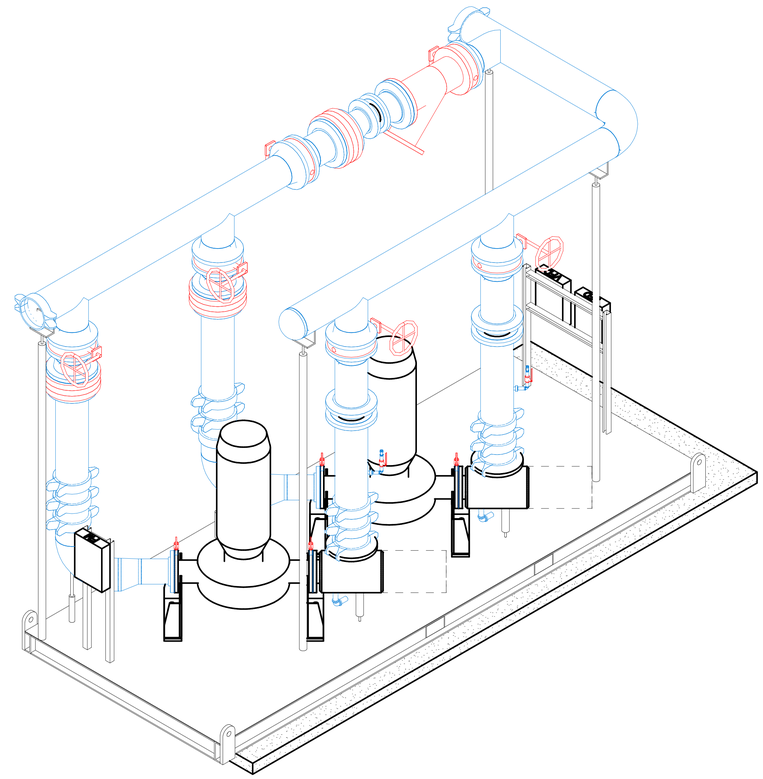
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

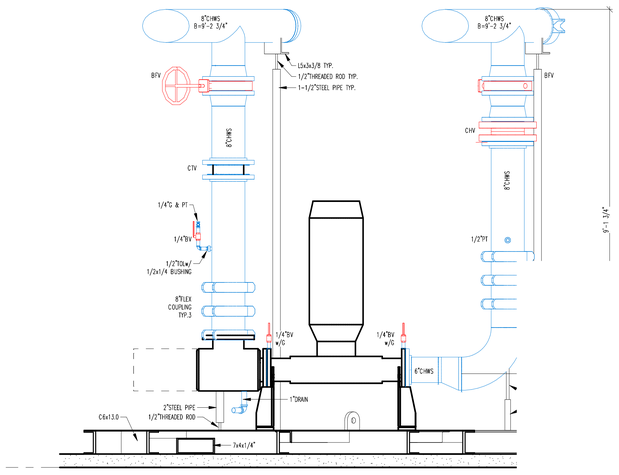
SHEET TITLE:
FABRICATED CPC HW SKID DETAIL - MECHANICAL

SHEET NUMBER:
M504

GENERAL NOTES:
1. FINAL LOCATION OF THE VFD's PENDING APROVED SUBMITTALS.



3 PMP-CHW-2A/B-CPC ISO



2 PMP-CHW-2A/B-CPC DETAIL
3/4" = 1'-0"

ISSUED FOR REVIEW

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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CLINTON FOUNDATION

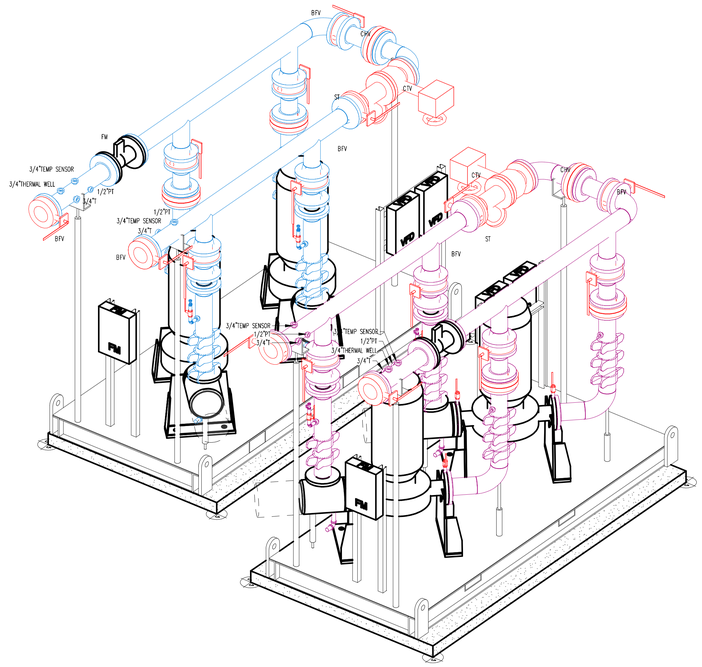
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

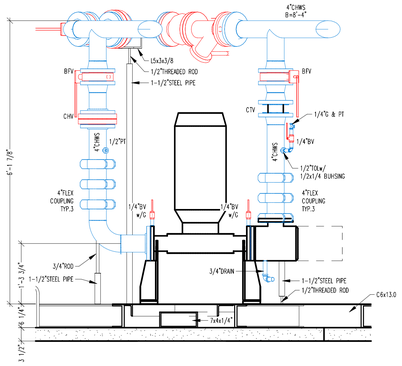
SHEET TITLE:
FABRICATED CPC CHW SKID DETAIL - MECHANICAL

SHEET NUMBER:
M505

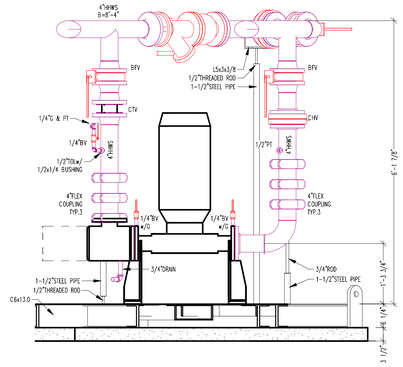
GENERAL NOTES:
1. FINAL LOCATION OF THE VFD's PENDING APPROVED SUBMITTALS.



4 CHWP&HWP-1/2-HI ISO



2 CHWP-1/2-HI DETAIL
3/4" = 1'-0"



3 HWP-1/2-HI DETAIL
3/4" = 1'-0"

ISSUED FOR REVIEW

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

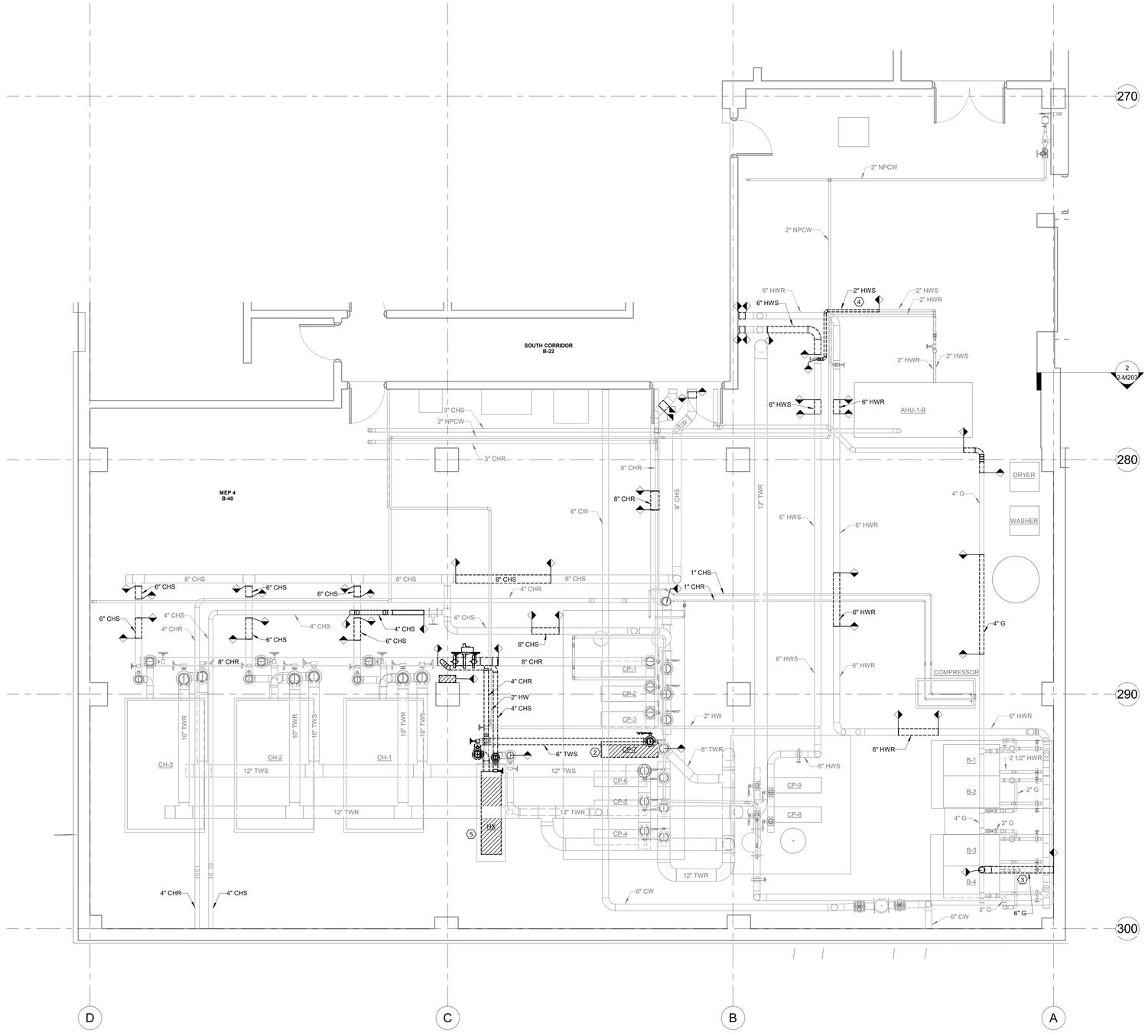
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
FABRICATED HIH PUMP SKID DETAIL - MECHANICAL

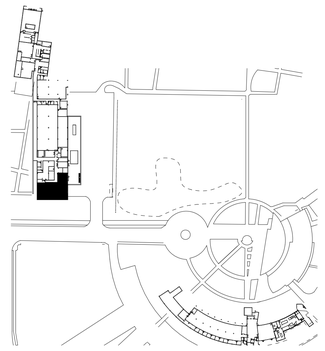
SHEET NUMBER:
M506

KEYED NOTES:

1. ATC CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR REMOVAL AND DISPOSAL OF EXISTING REFRIGERANT MONITOR.
2. REMOVAL AND DISPOSAL OF EXISTING TOWER WATER PUMP. MECHANICAL CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR ON REMOVAL OF ASSOCIATED VARIABLE SPEED DRIVE.
3. DEMOLISH EXISTING NATURAL GAS PIPING FROM PREVIOUS UTILITY FEED TO EXTENTS SHOWN.
4. DEMOLISH HW PIPE TO EXTENT SHOWN FOR AHU-1-B RE-FEED IN NEW WORK.
5. REMOVE AND DISPOSE OF PLATE AND FRAME HEAT EXCHANGER AND ASSOCIATED PIPING TO EXTENT SHOWN. COORDINATE WITH ATC CONTRACTOR AND ELECTRICAL CONTRACTOR FOR ANY CONDUIT , SENSOR, OR WIRING REMOVAL.



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL DEMOLITION
1/4" = 1'-0"



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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11-20-2025
PROJECT NUMBER:		561470540

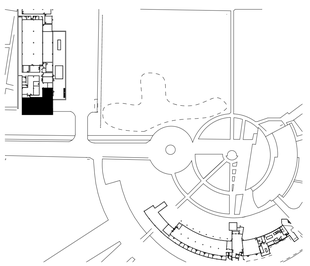
SHEET TITLE:
WILLIAM J. CLINTON. CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL DEMOLITION

SHEET NUMBER:
M200

KEYED NOTES:

1. EXISTING EQUIPMENT WITH NEW DESIGNATION; MECHANICAL CONTRACTOR TO PROVIDE NEW EQUIPMENT TAGS
2. PIPING THROUGH EXTERIOR WALL: REFER TO STRUCTURAL DRAWINGS FOR X-RAY AND CORE DRILLING REQUIREMENTS.
3. NEW REFRIGERANT MONITOR. ATC CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR RECONNECTING POWER. RECONNECT SNIFFER TUBES TO EXISTING CHILLERS AND EXTEND NEW SNIFFER LINE IN CONDUIT TO NEW HPCH-1-CPC. RECONNECT ANY STARTS/STOPS AND SAFETY CONNECTIONS PER ATC DIAGRAM.
4. REPLACE FAILED BOILER COMBUSTION AIR INTAKE DUCTWORK.
5. ATC CONTRACTOR TO CORRDINATE EXISTING PANEL RELOCATION WITH ELECTRICAL CONTRACTOR.
6. ATC CONTRACTOR TO CONNECT TOWER MAKEUP WATER FLOW METER INSTALLED IN PAKAGE 1 TO BAS.
7. PRE-MANUFACTURED EQUIPMENT SKID.
8. NEW FIELD EQUIPMENT PANEL FOR CLIMA-CHECK JACE. REFER TO ATC DRAWINGS FOR SCOPE OF WORK.
9. REFER TO PIPING DIAGRAMS FOR EXPANSION TANK AND REGULATOR SCOPE OF WORK.

1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

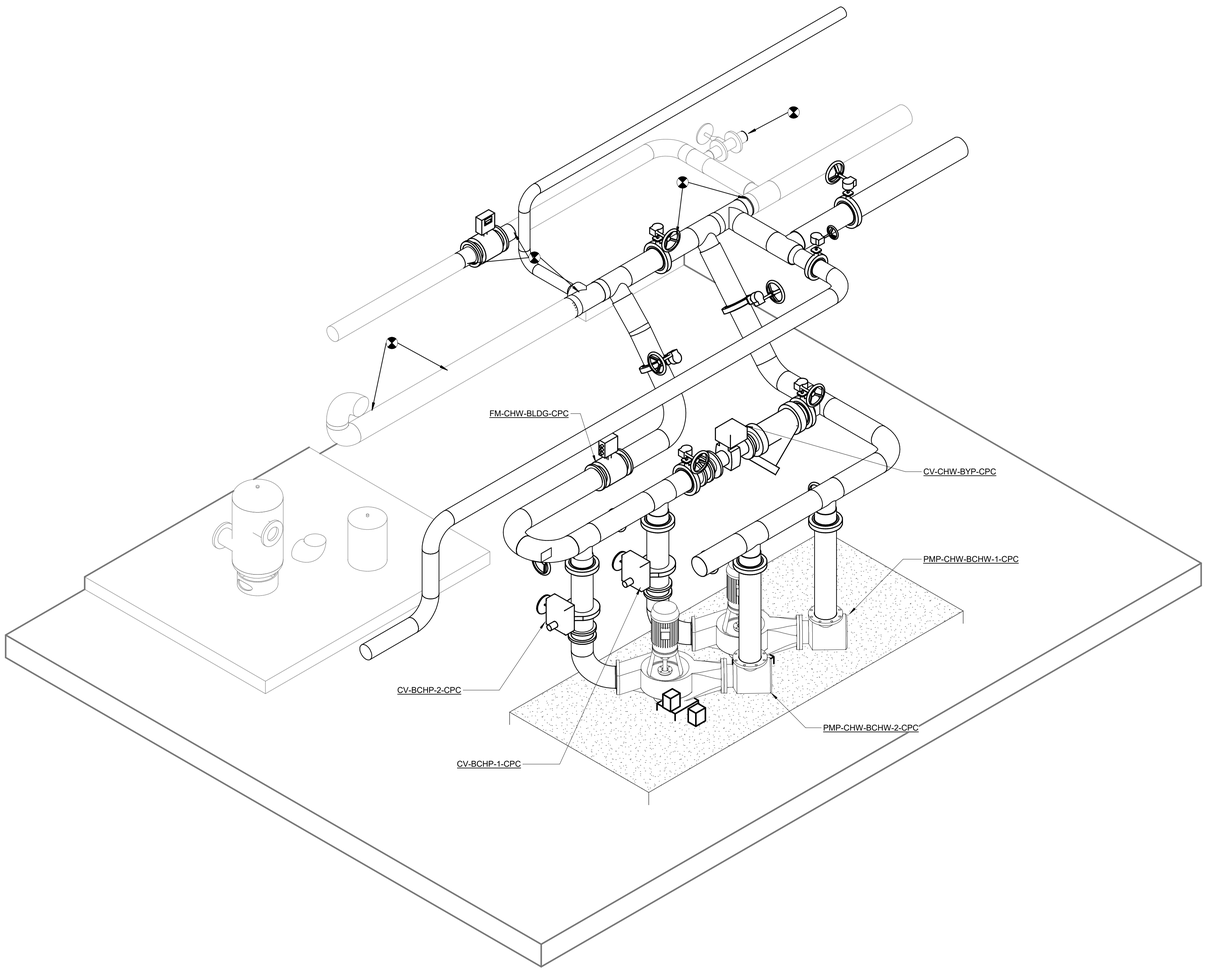
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

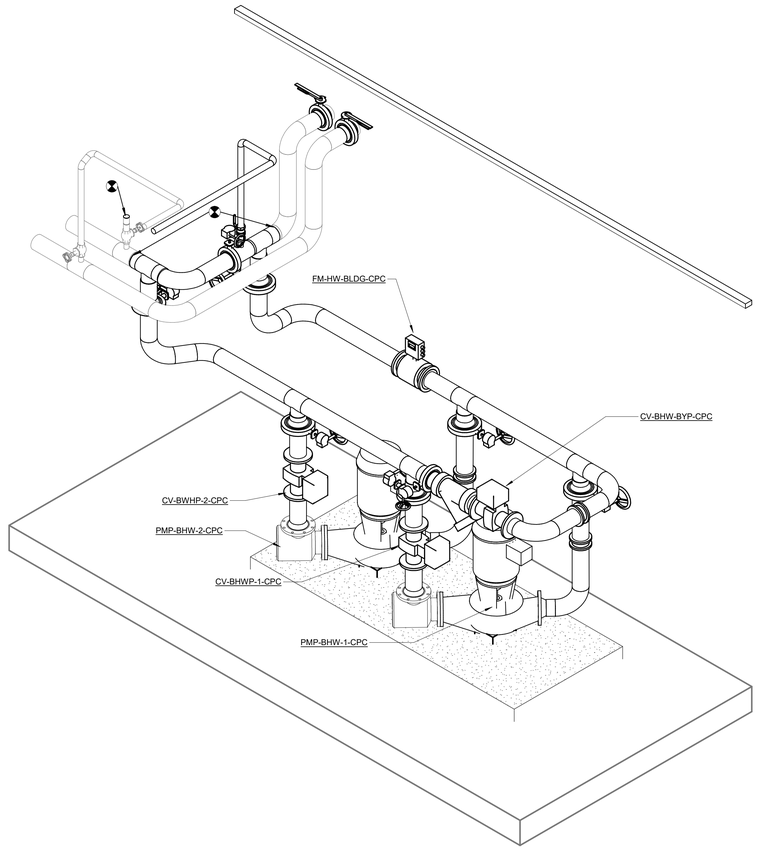
WILLIAM J. CLINTON. CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - MECHANICAL

SHEET NUMBER:

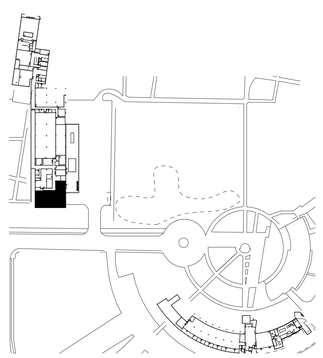
M201



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHW PUMP SKID - PERSPECTIVE VIEW



2 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - HW PUMP SKID - PERSPECTIVE VIEW



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

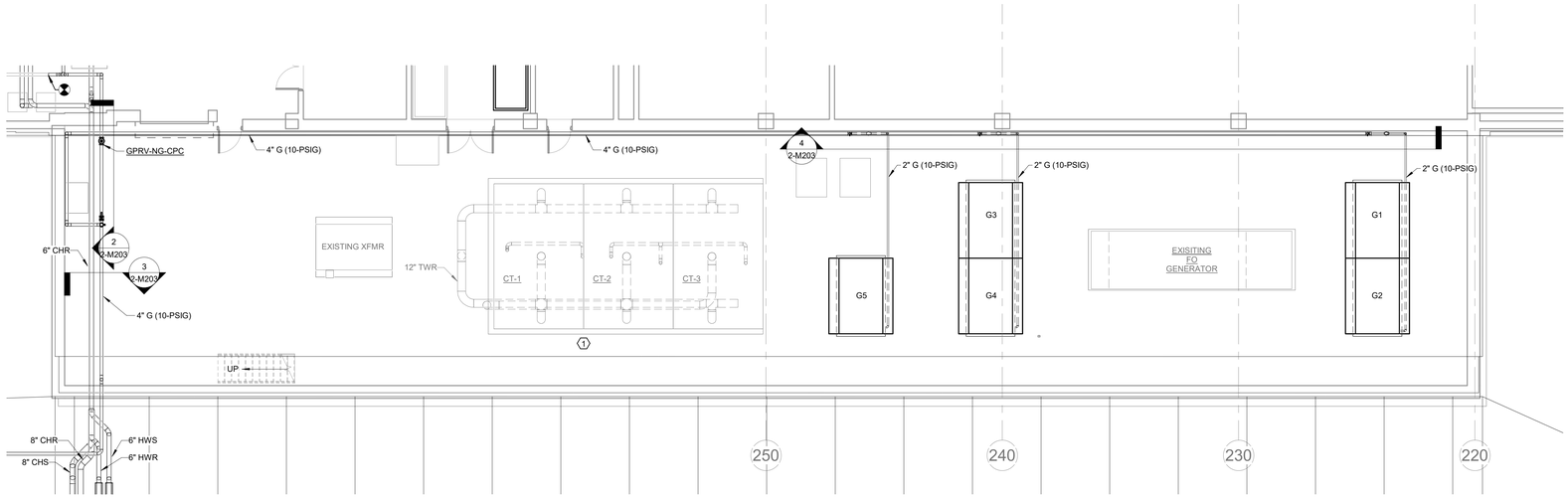
WILLIAM J. CLINTON. CENTRAL UTILITY PLANT - CHW AND HW PUMPS - PERSPECTIVE VIEWS

SHEET NUMBER:

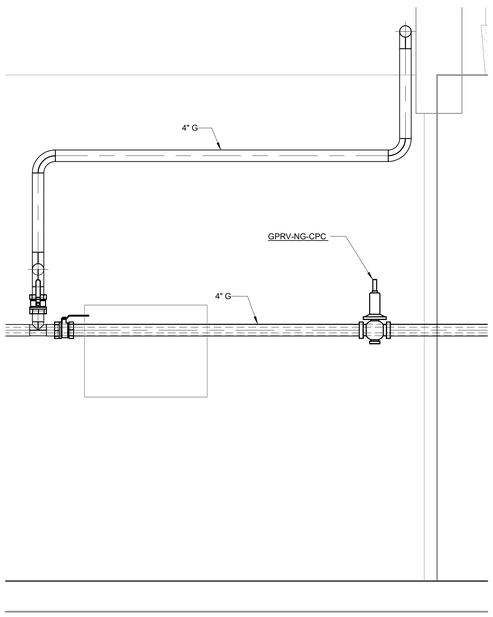
M202

KEYED NOTES:

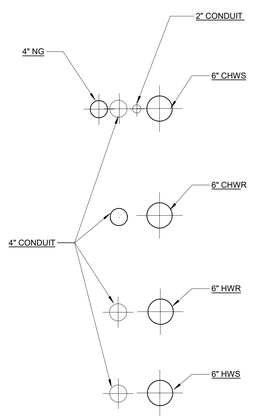
1. RETROFIT EXISTING COOLING TOWER HOT WATER BASIN DISTRIBUTION NOZZLES AND CUPS FOR HIGH TURNDOWN.



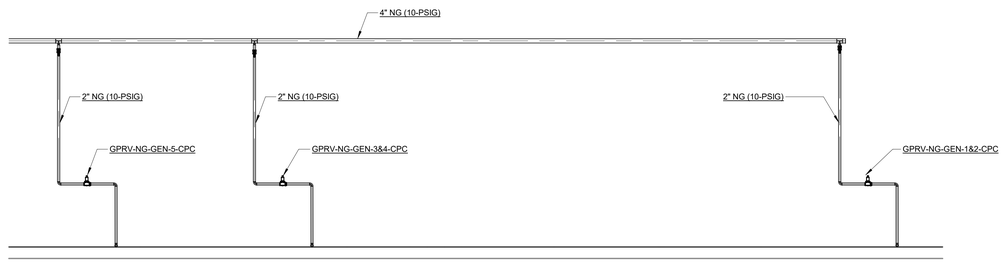
1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER YARD PLAN - MECHANICAL
1/8" = 1'-0"



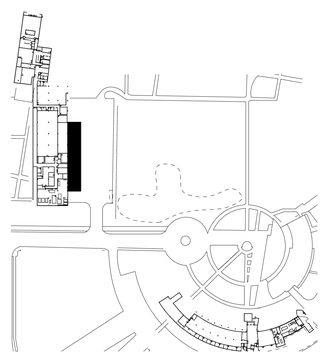
2 WILLIAM J. CLINTON - TOWER YARD - NG PRV - SECTION VIEW
1/2" = 1'-0"



3 WILLIAM J. CLINTON UTILITY PLANT - TOWER YARD - STRUCTURAL FRAM PIPE LAYOUT - SECTION VIEW
3/4" = 1'-0"



4 WILLIAM J. CLINTON UTILITY PLANT - TOWER YARD - NATURAL GAS - SECTION VIIEW
3/16" = 1'-0"



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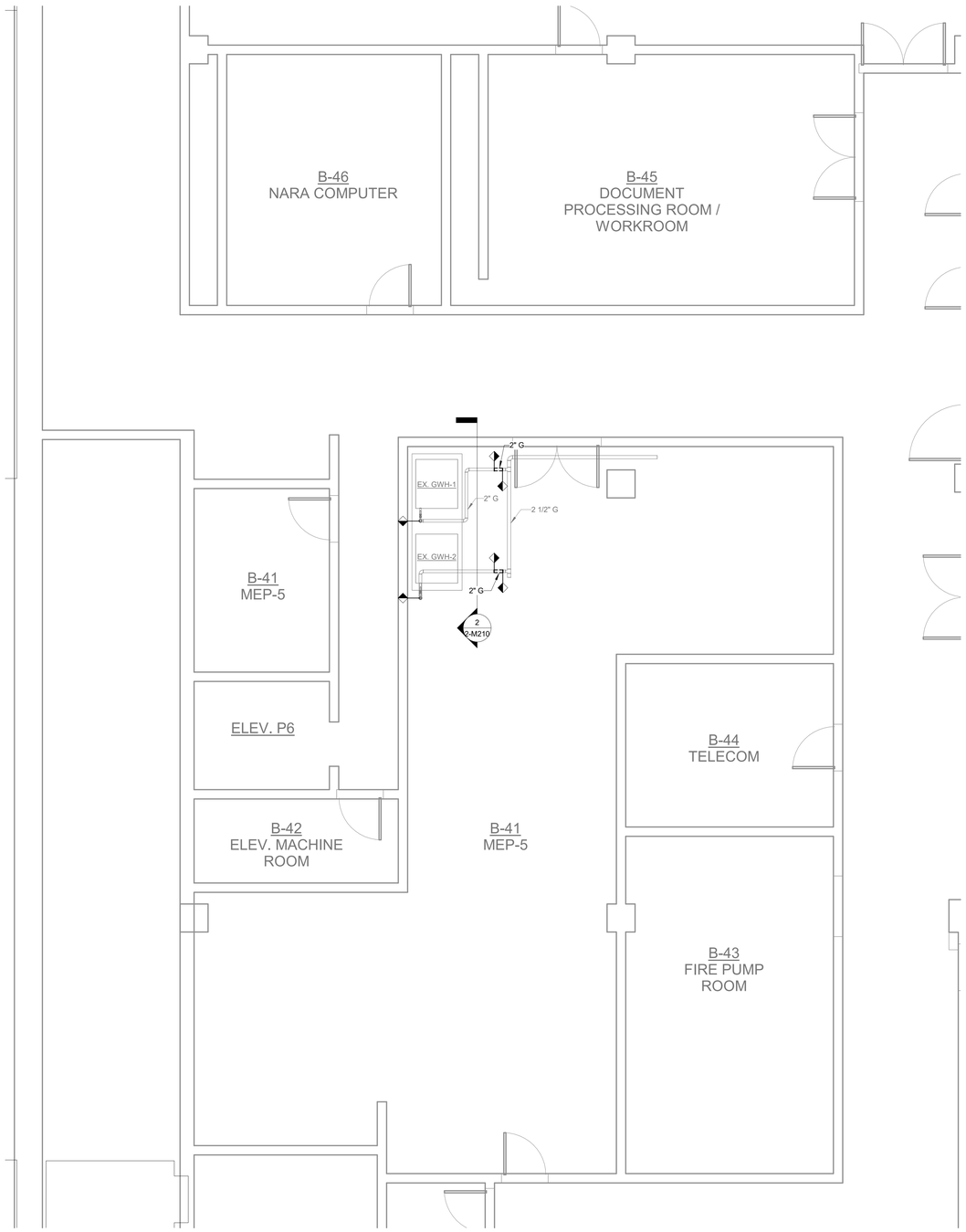
CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

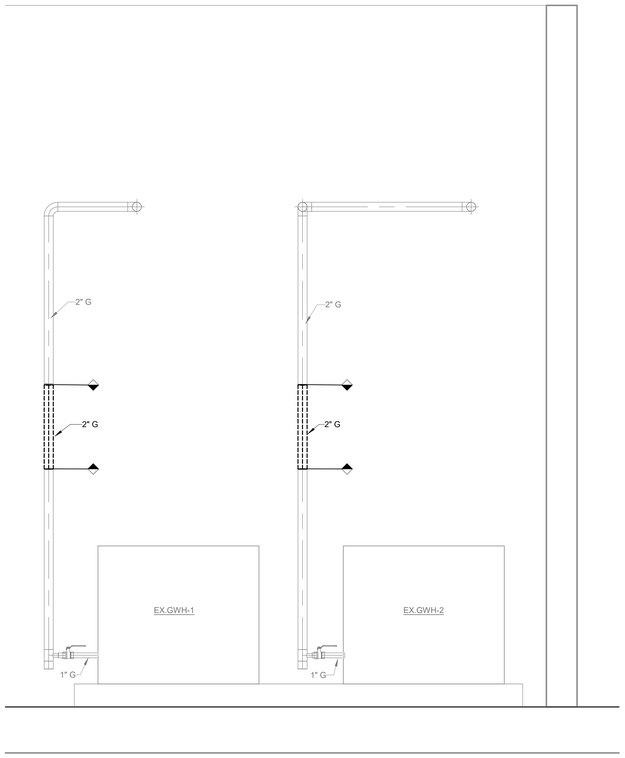
MARK	DATE	DESCRIPTION
ISSUE DATE:		11-20-2025
PROJECT NUMBER:		561470540

SHEET TITLE:
WILLIAM J. CLINTON. CENTRAL UTILITY PLANT - TOWER YARD PLAN - MECHANICAL

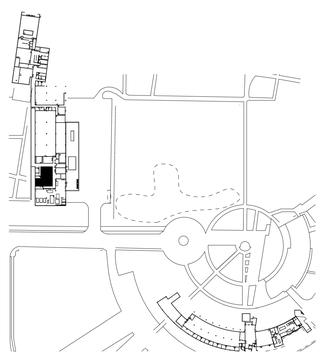
SHEET NUMBER:
M203



1 NARA BUILDING - BASEMENT FLOOR PLAN - ARCHIVES - DEMOLITION
1/4" = 1'-0"



2 NARA BUILDING - BASEMENT FLOOR PLAN - ARCHIVES - DEMOLITION - SECTION VIEW
3/4" = 1'-0"



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CLINTON FOUNDATION

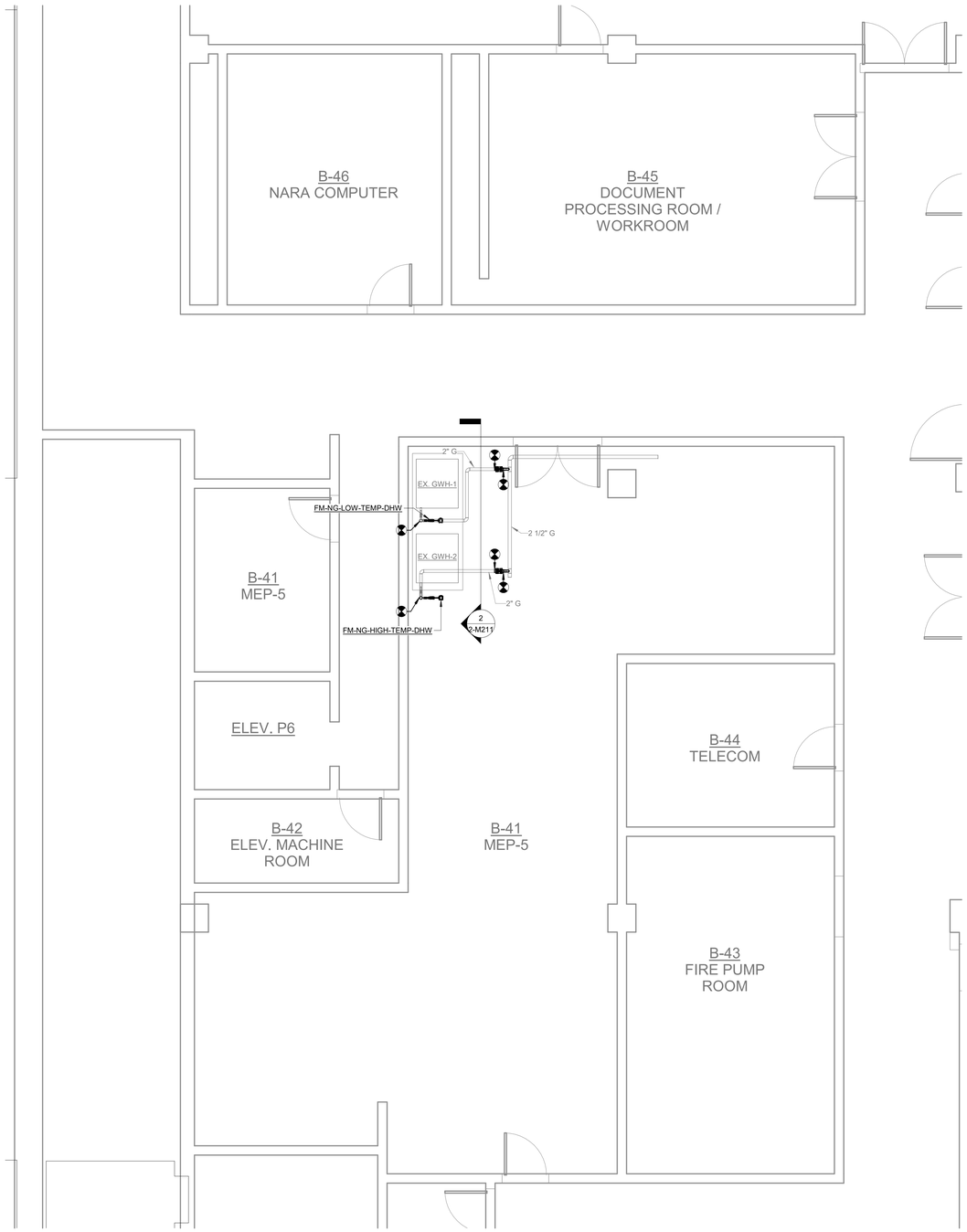
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

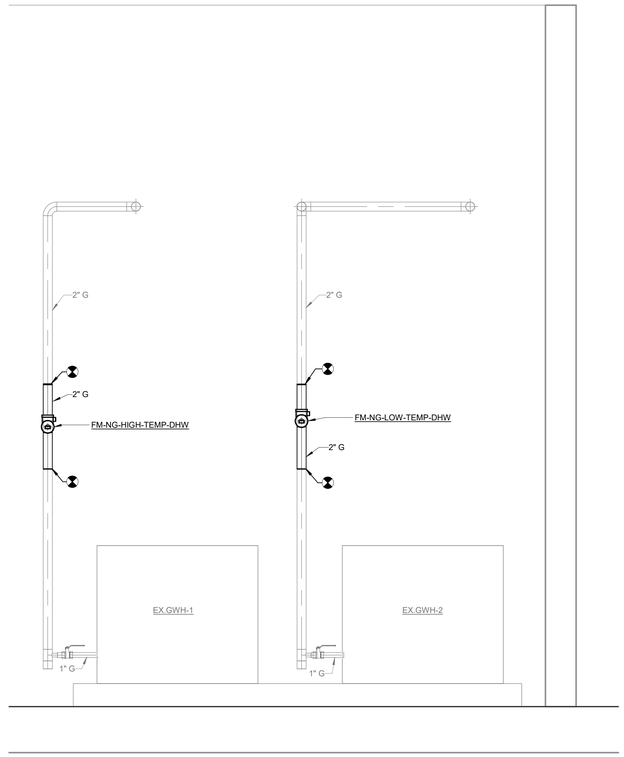
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
NARA BUILDING - BASEMENT FLOOR PLAN ARCHIVES - MECHANICAL DEMOLITION

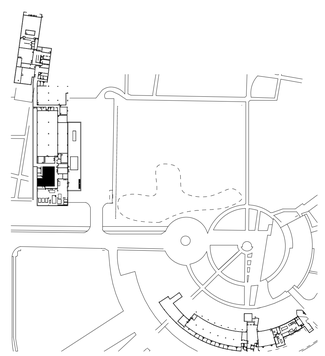
SHEET NUMBER:
M210



1 NARA BUILDING - BASEMENT FLOOR PLAN - ARCHIVES - MECHANICAL
1/4" = 1'-0"



2 NARA BUILDING - BASEMENT FLOOR PLAN - ARCHIVES - MECHANICAL - SECTION VIEW
3/4" = 1'-0"



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CLINTON FOUNDATION

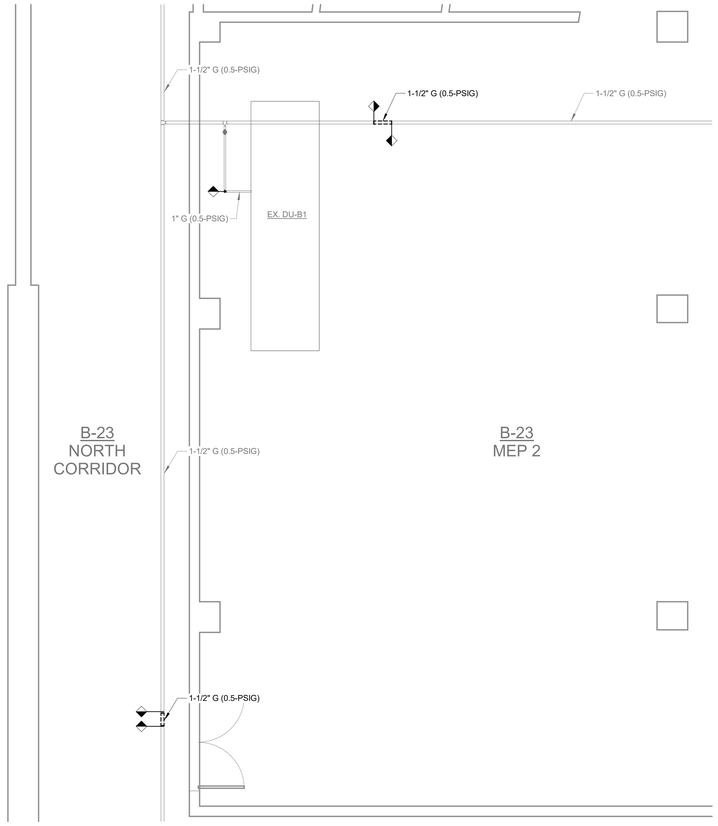
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

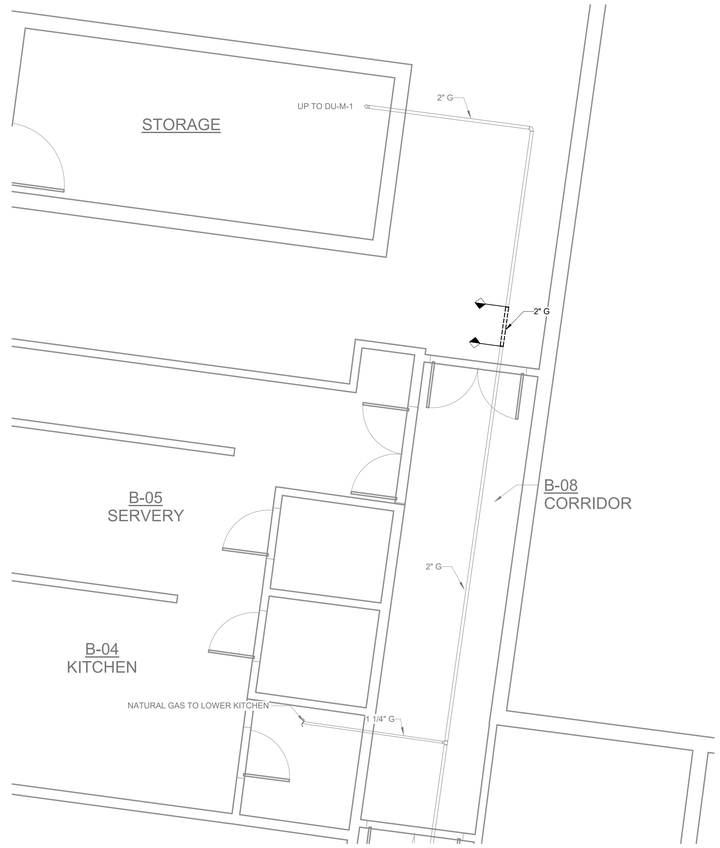
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
NARA BUILDING - BASEMENT FLOOR PLAN ARCHIVES - MECHANICAL

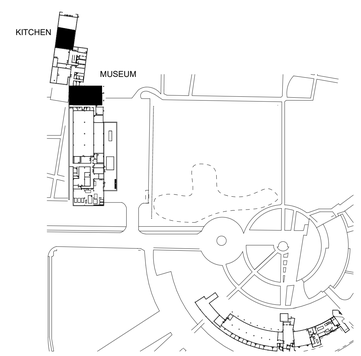
SHEET NUMBER:
M211



1 NARA BUILDING - BASEMENT FLOOR PLAN - MUSEUM - DEMOLITION
1/4" = 1'-0"



2 NARA BUILDING - BASEMENT FLOOR PLAN - KITCHEN - DEMOLITION
1/4" = 1'-0"



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CLINTON FOUNDATION

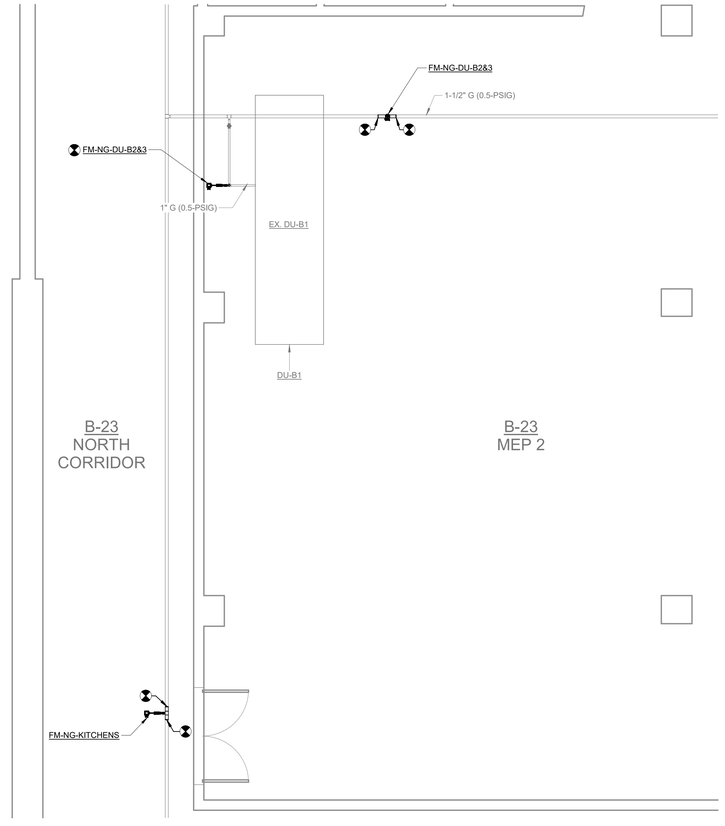
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

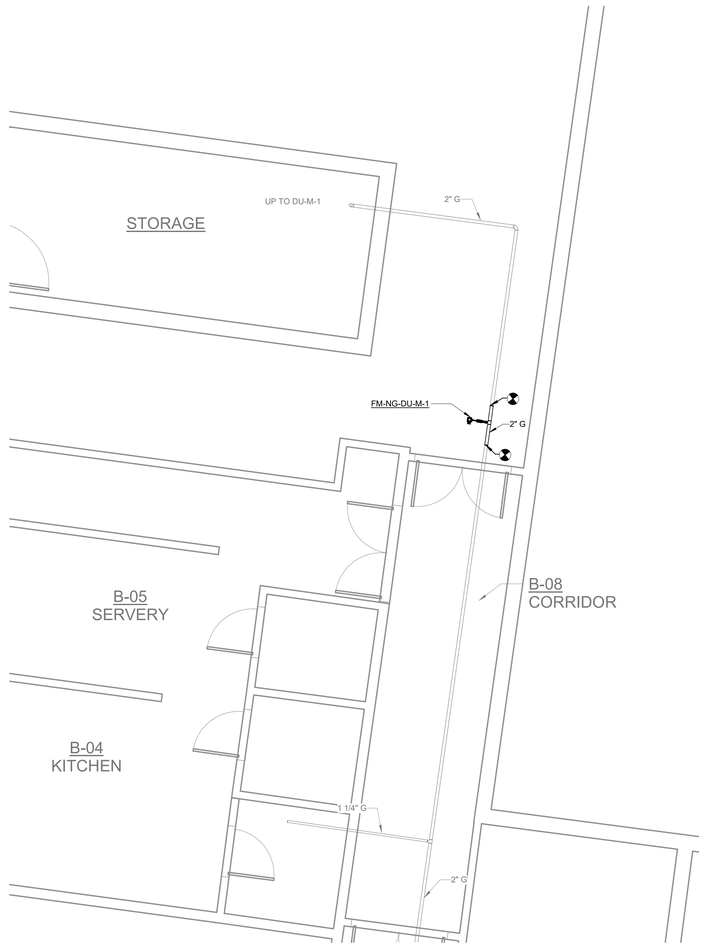
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
NARA BUILDING - BASEMENT FLOOR PLAN MUSEUM - MECHANICAL DEMOLITION

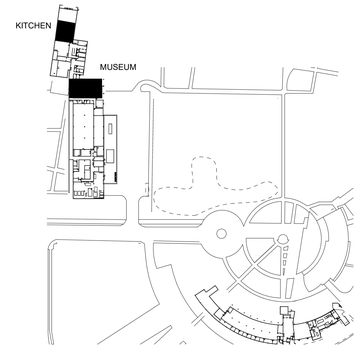
SHEET NUMBER:
M212



1 NARA BUILDING - BASEMENT FLOOR PLAN - MUSEUM - MECHANICAL
1/4" = 1'-0"



2 NARA BUILDING - BASEMENT FLOOR PLAN - KITCHEN - MECHANICAL
1/4" = 1'-0"



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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

NARA BUILDING - BASEMENT FLOOR PLAN MUSEUM - MECHANICAL

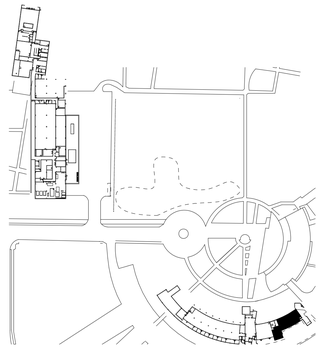
SHEET NUMBER:

M213

KEYED NOTES:

1. COORDINATE WITH ATC AND ELECTRICAL CONTRACTORS FOR DEMOLITION, REMOVAL AND DISPOSAL OF CONTROL VALVES.
2. REMOVE AND DISPOSE OF PLATE AND HEAT EXCHANGER AND ASSOSICATED PIPING TO EXTENT SHOWN. COORDINATE WITH ATC CONTRACTOR AND ELECTRICAL CONTRACTOR FOR ANY CONDUIT, SENSOR, OR WIRING REMOVAL.
3. REMOVE AND DISPOSE OF EXISITNG CHW BYPASS. COORDINATE WITH ATC CONTRACTOR ON REMOVAL OF ASSOCIATED CONTROLS.

1 HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL DEMOLTION
1/4" = 1'-0"



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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

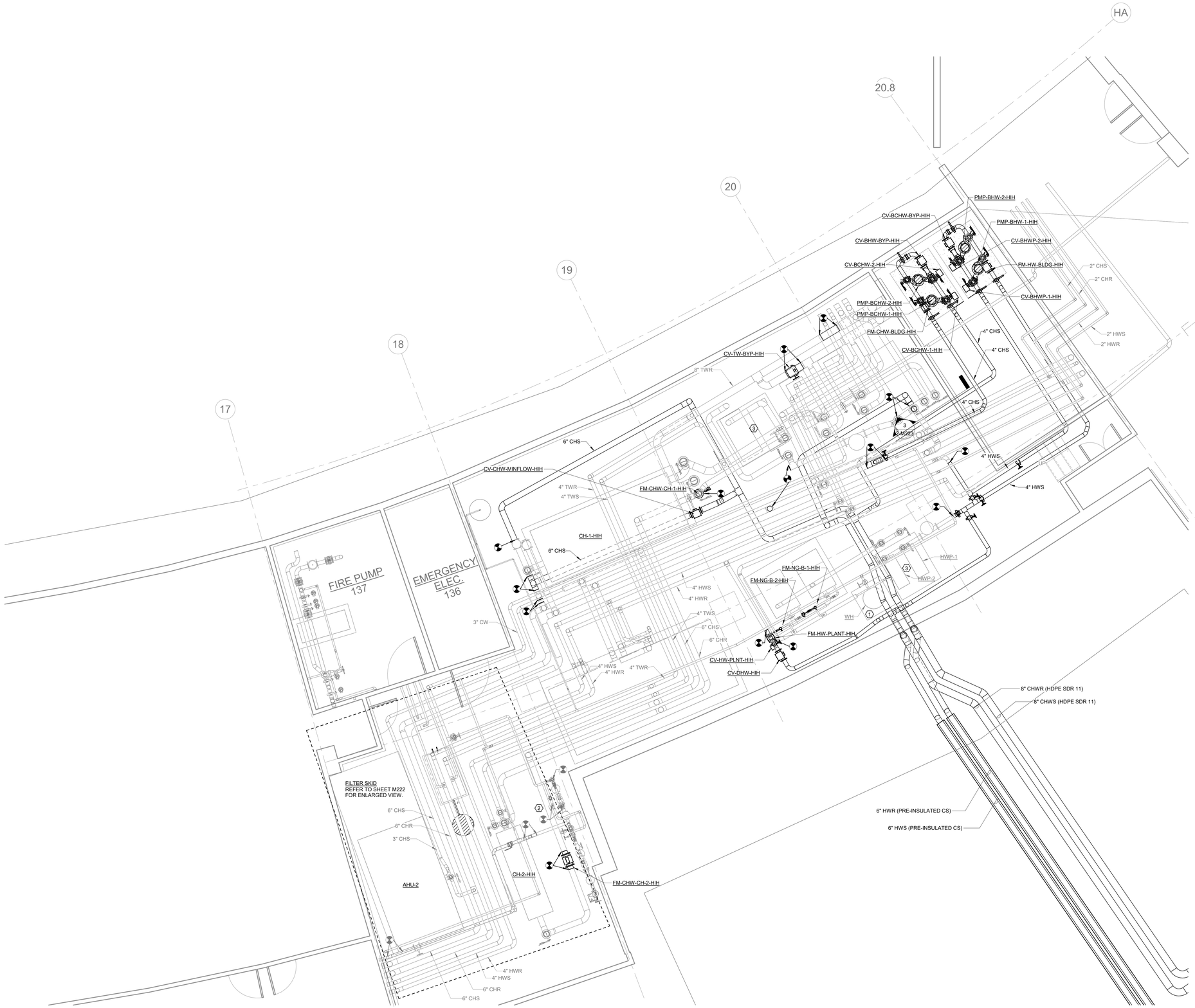
HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL DEMOLITION

SHEET NUMBER:

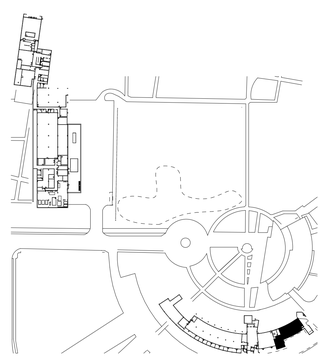
M220

KEYED NOTES:

1. REFER TO PIPING DIAGRAMS FOR EXPANSION TANK ANS REGULATOR SCOPE OF WORK.
2. ATC CONTRACTOR TO CONNECT TOWER MAKUP WATER FLOW METER INSTALLED IN PACKAGE 1 TO BAS.
3. FULLY OPEN TRIPLE DUTY VALVES.



1 HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

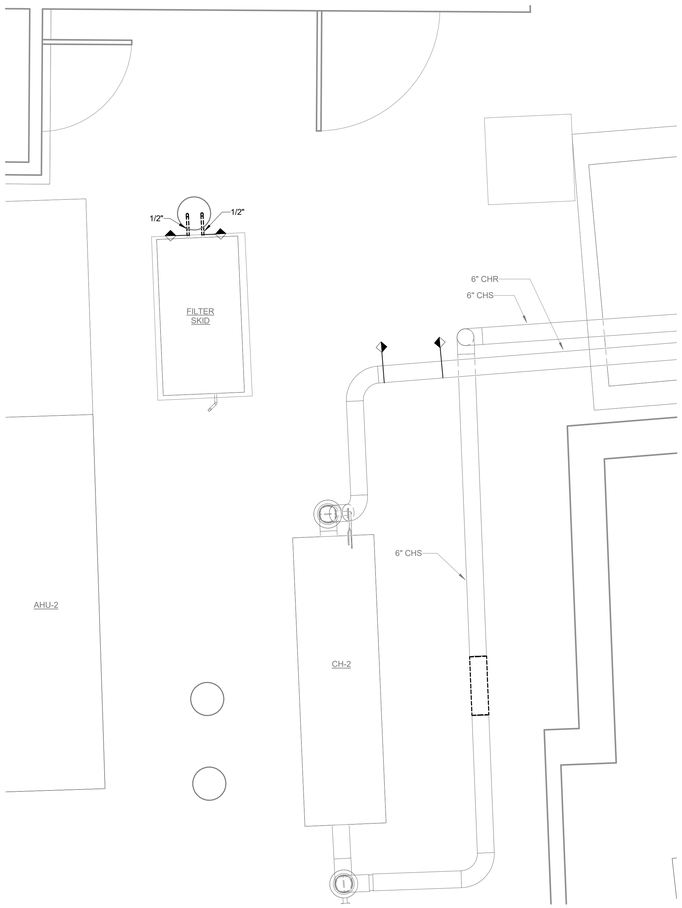
HEIFER INT. CENTRAL UTILITY PLANT - FLOOR PLAN - MECHANICAL

SHEET NUMBER:

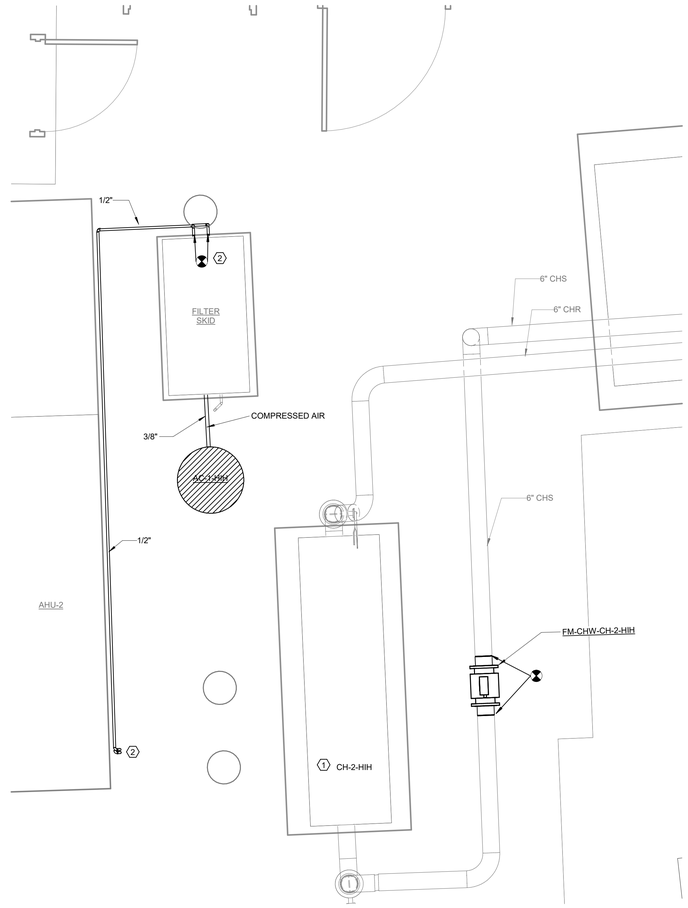
M221

KEYED NOTES:

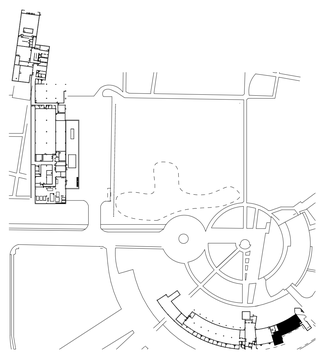
1. EXISTING EQUIPMENT WITH NEW DESIGNATION; MECHANICAL CONTRACTOR TO PROVIDE NEW EQUIPMENT TAGS
2. REFER TO MECHANICAL SHEET M327 FOR FURTHER DETAIL ON FILTER SKID MODIFICATIONS.



1 HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL - DEMOLITION
1/2" = 1'-0"



2 HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL
1/2" = 1'-0"



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

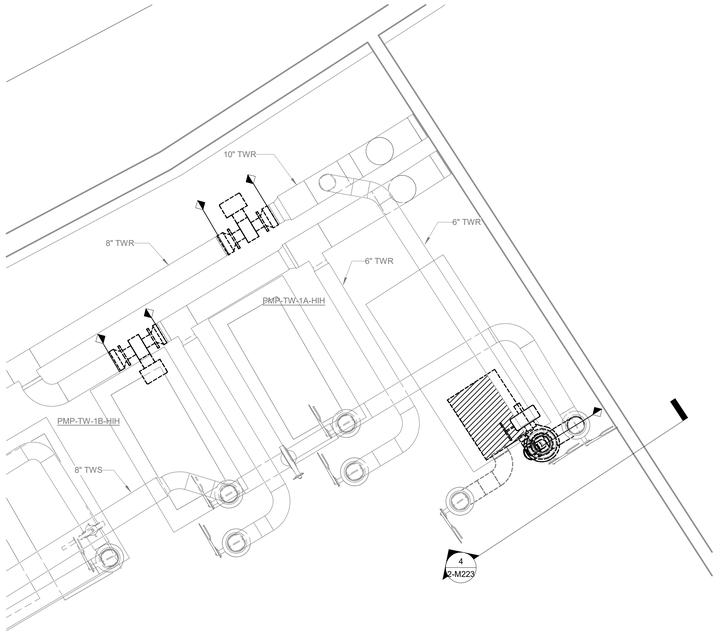
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

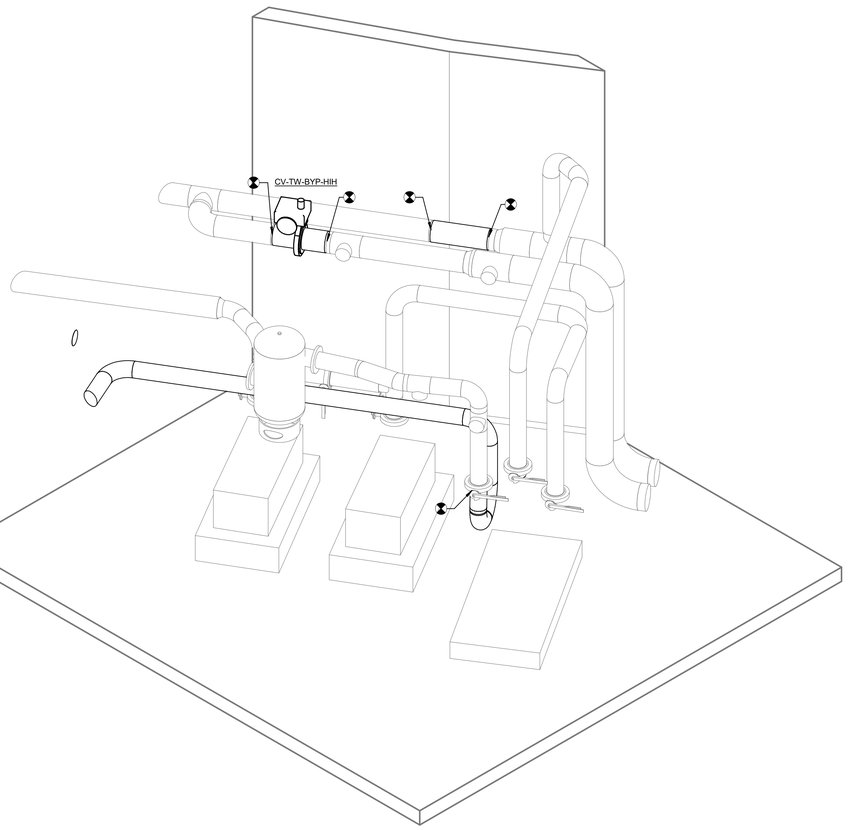
HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL

SHEET NUMBER:

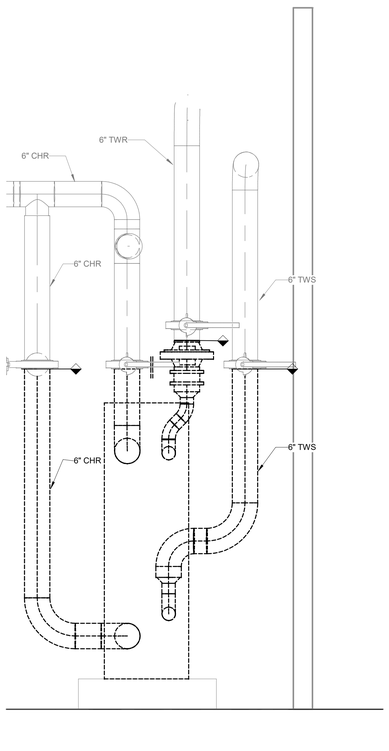
M222



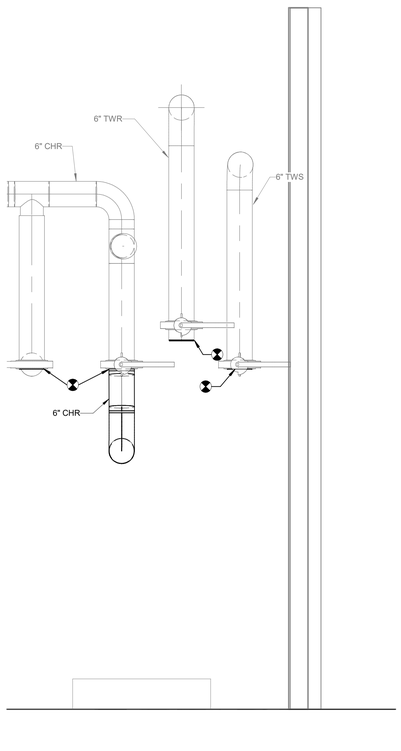
1 HEIFER INT. CUP - ENLARGED VIEW - HEAT EXCHANGER - MECHANICAL DEMOLITION
1/2" = 1'-0"



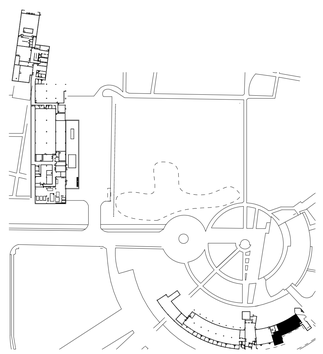
2 HEIFER INT. CUP - HEAT EXCHANGER - PERSPECTIVE VIEW



4 HEIFER INT. CUP - HEAT EXCHANGER - DEMOLITION
3/4" = 1'-0"



3 HEIFER INT. CUP - HEAT EXCHANGER - NEW
3/4" = 1'-0"



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

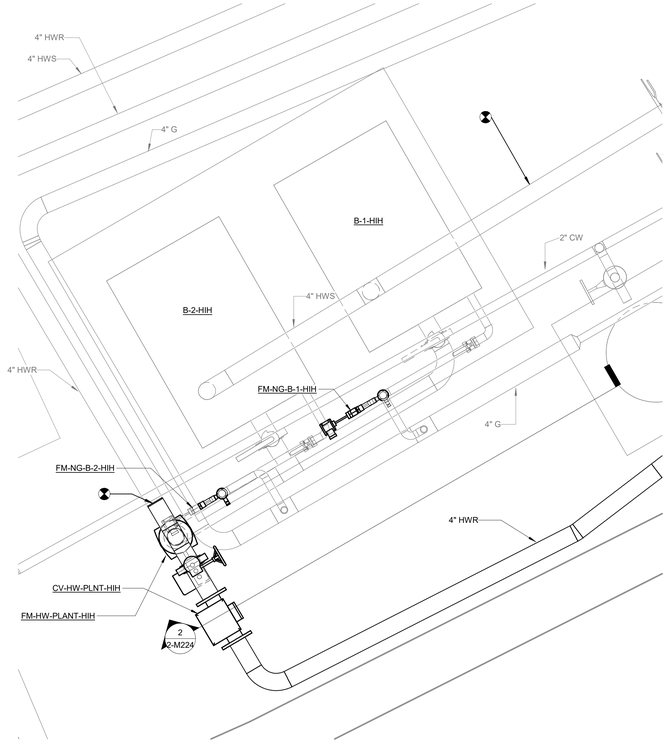
SHEET TITLE:
HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - HEAT EXCHANGER - MECHANICAL

SHEET NUMBER:

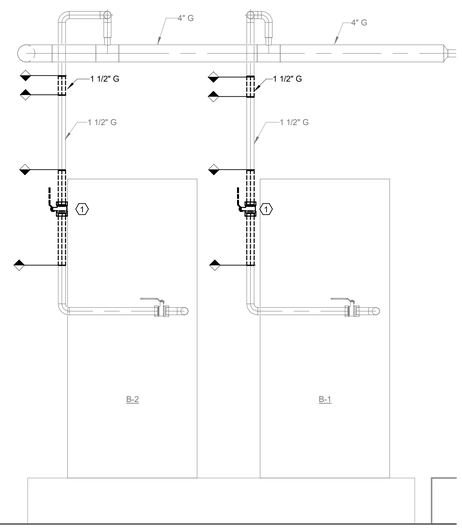
M223

KEYED NOTES:

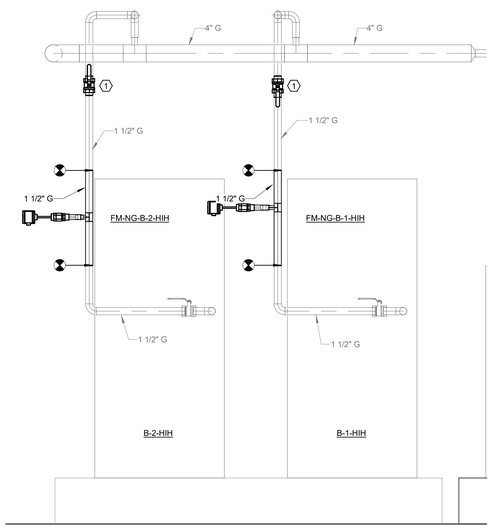
1. RELOCATE BOILER NATURAL GAS ISOLATION VALVES AS REQUIRED FOR NEW FLOW METERS AND ASSOCIATED UPSTREAM AND DOWNSTREAM REQUIREMENTS.



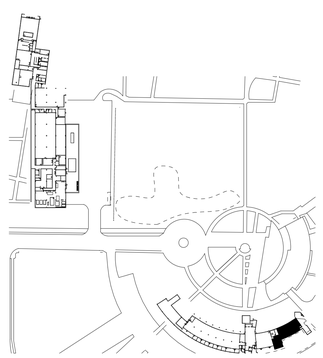
1 HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - NATURAL GAS - MECHANICAL
3/4" = 1'-0"



2 HEIFER INT. CUP - NATURAL GAS - DEMOLITION
3/4" = 1'-0"



3 HEIFER INT. CUP - NATURAL GAS - RENOVATION
3/4" = 1'-0"



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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

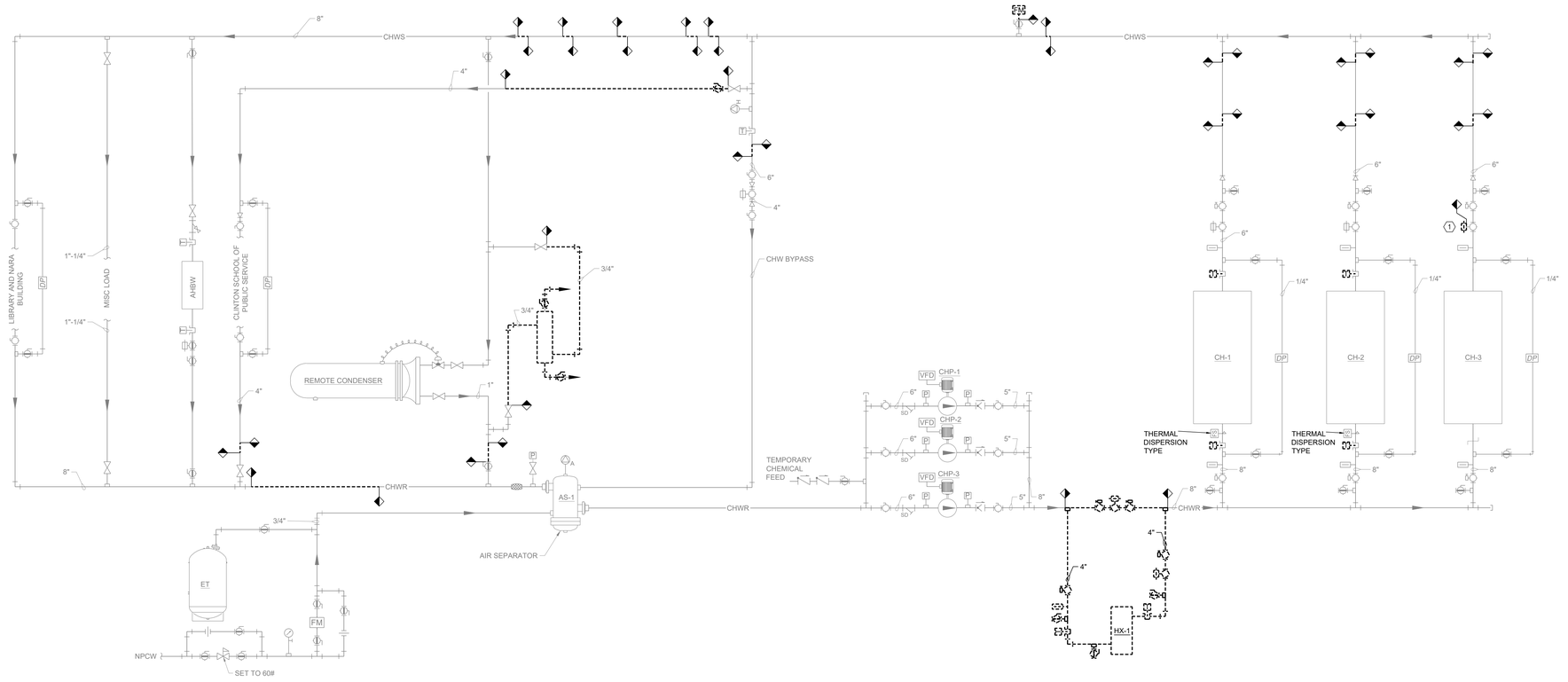
SHEET TITLE:

HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - NATURAL GAS - MECHANICAL

SHEET NUMBER:

M224

1 REPLACEMENT OF ACTUATOR PERFORMED BY ATC CONTRACTOR, SHOWN FOR CLARITY



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA MCC, LLC | MECHANICAL

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CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

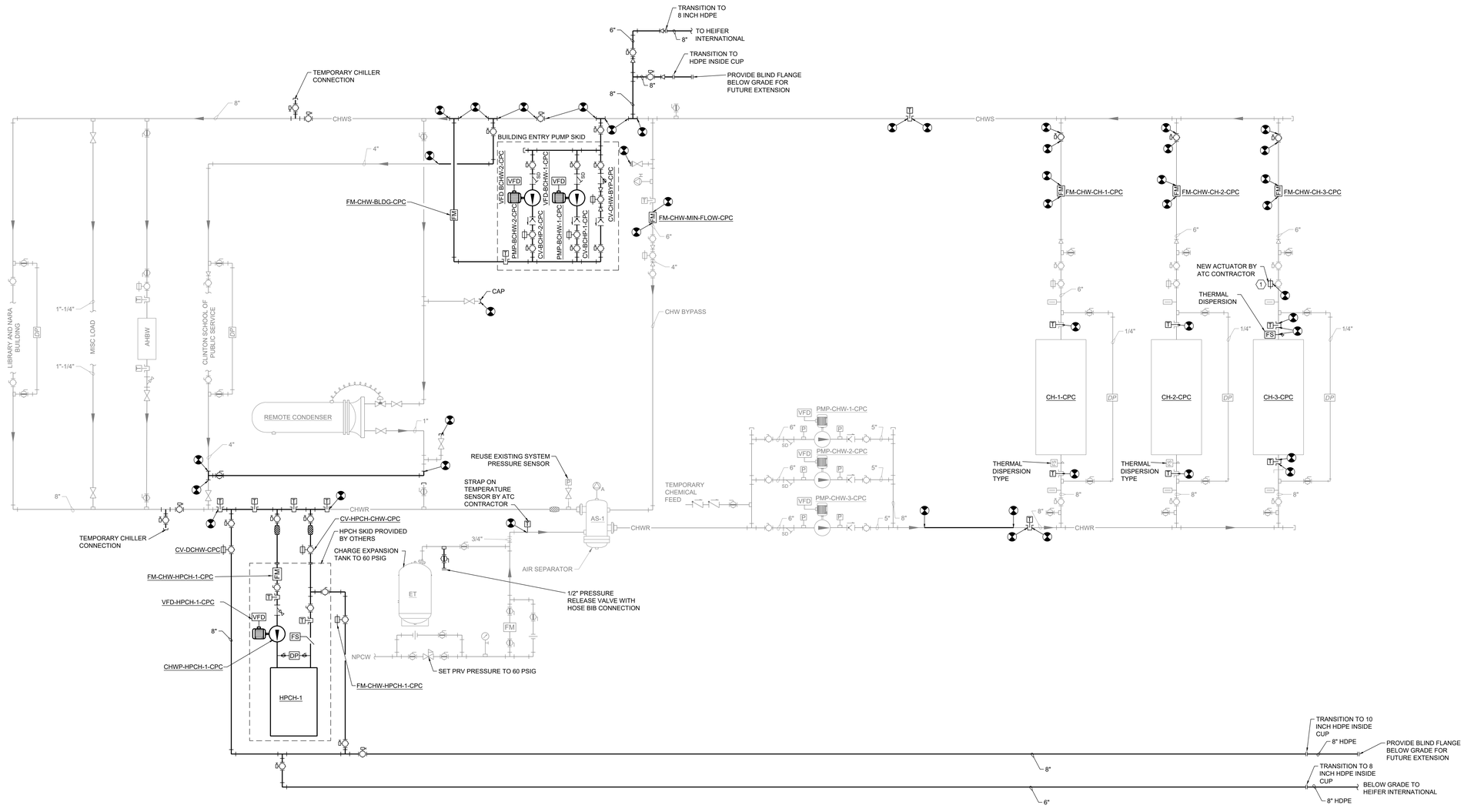
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:

M300

1 REPLACEMENT OF ACTUATOR PERFORMED BY ATC CONTRACTOR, SHOWN FOR CLARITY



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

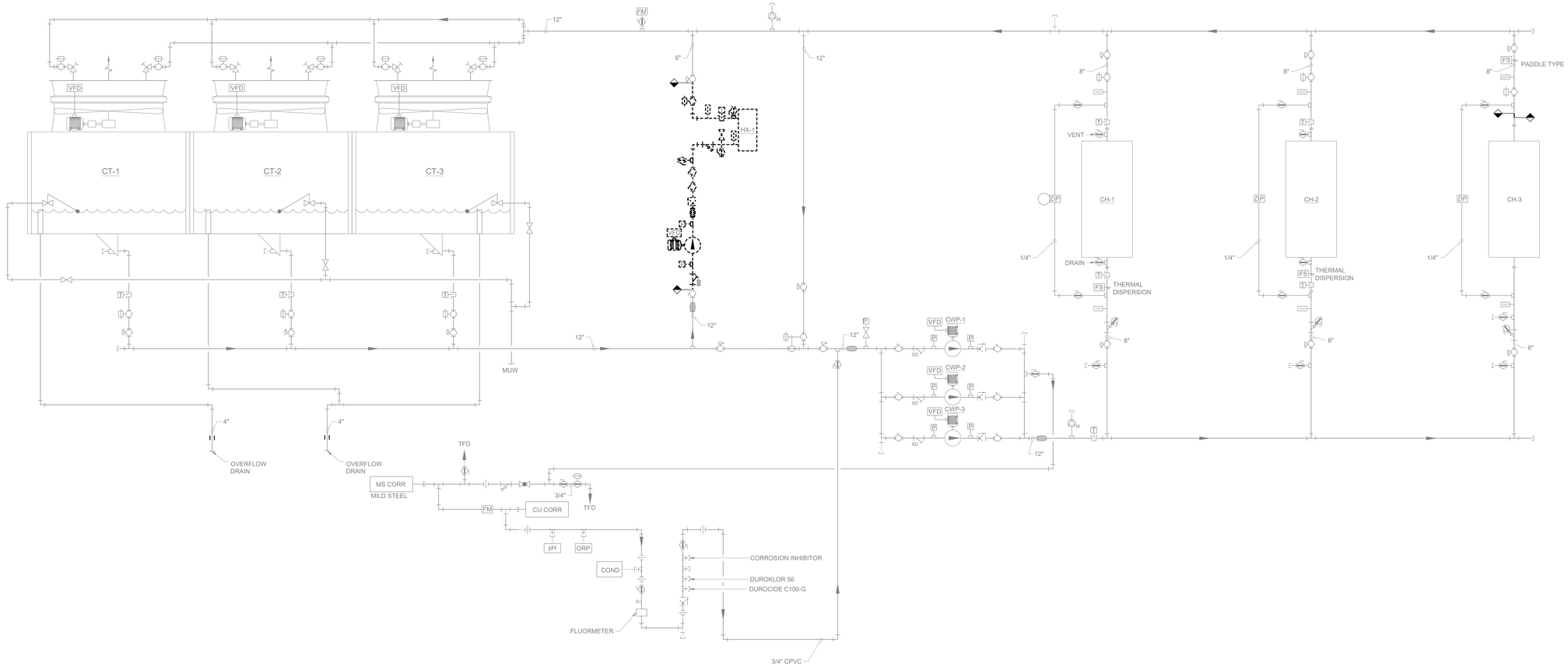
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:

M301



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

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CLINTON FOUNDATION

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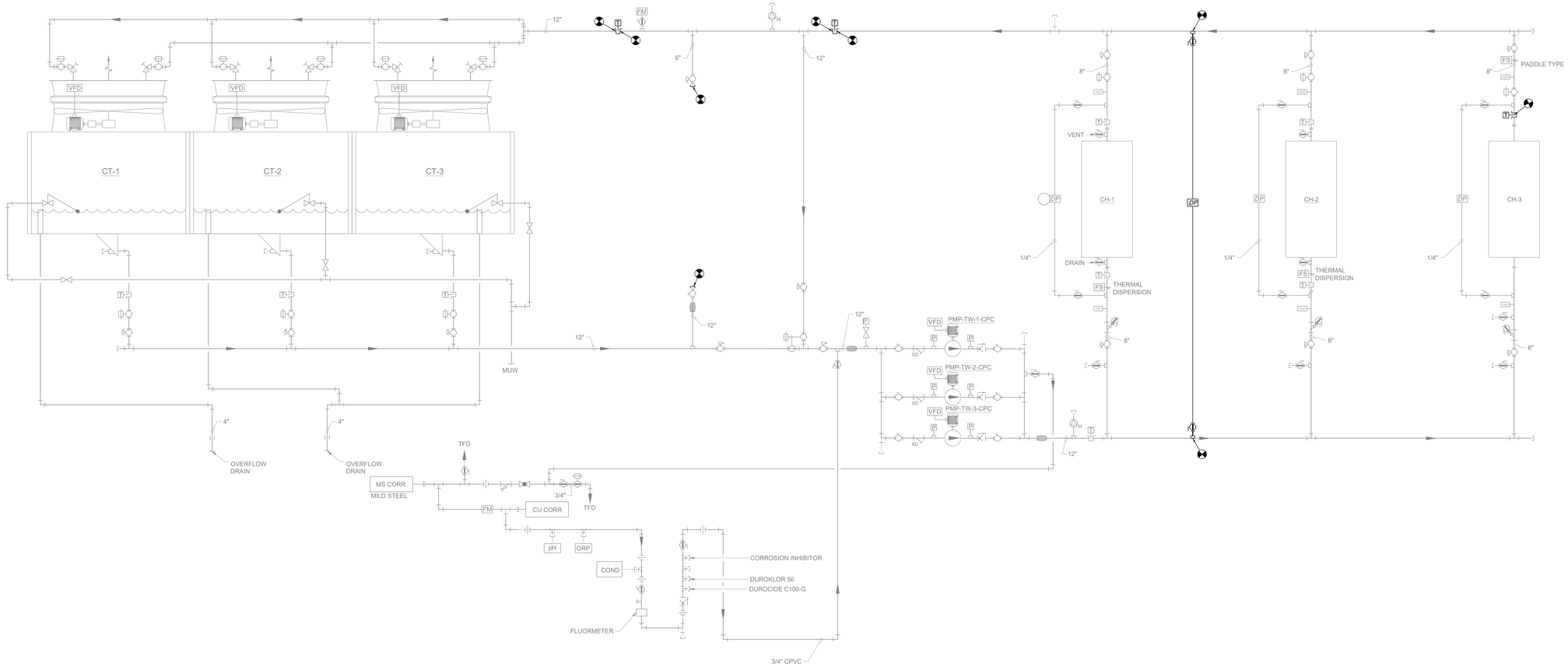
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M302



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

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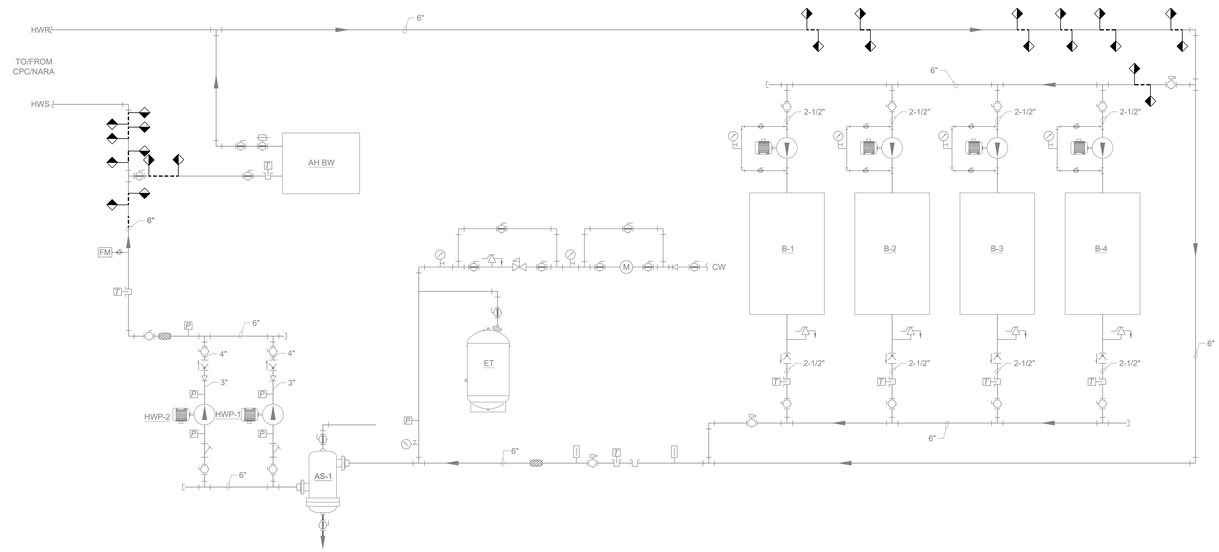
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M303



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
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CLIINTON FOUNDATION

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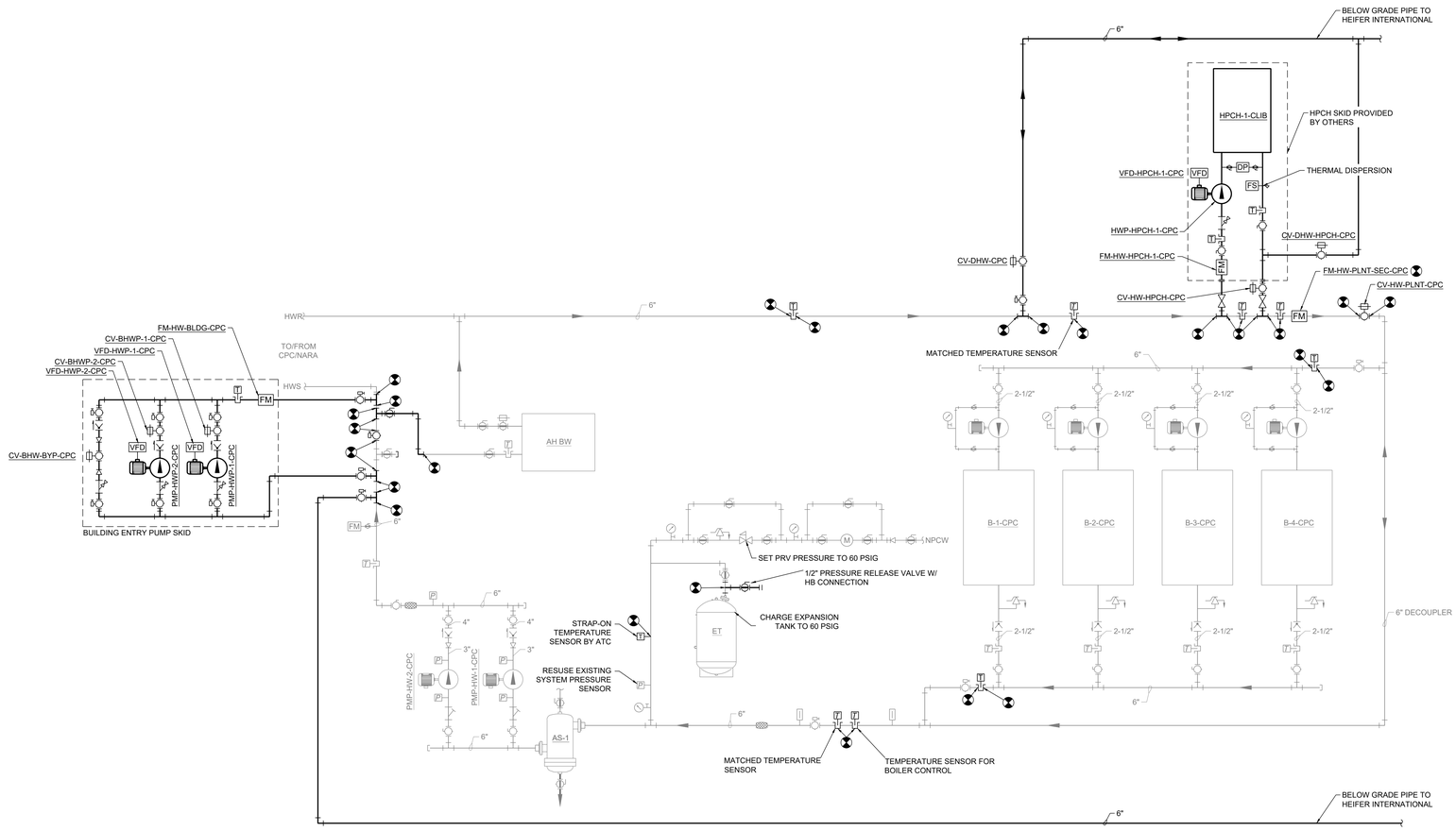
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M304



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

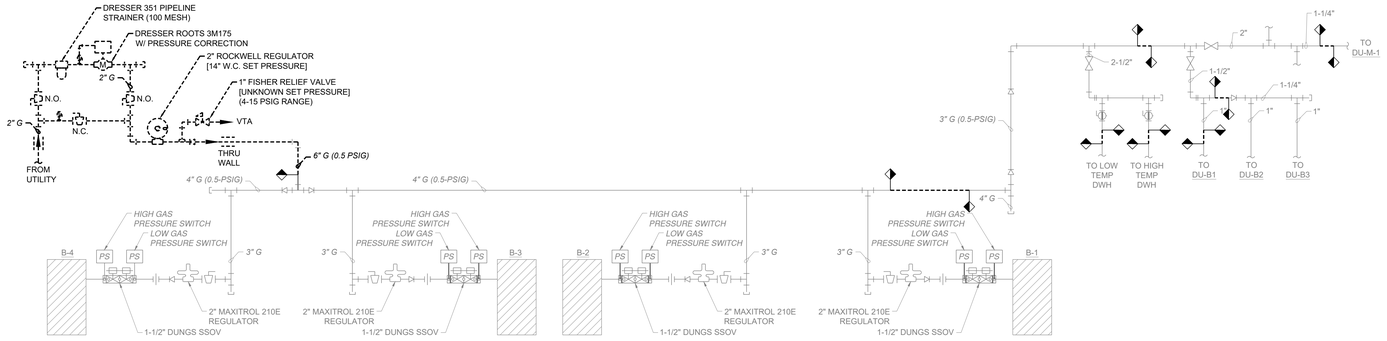
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M305



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

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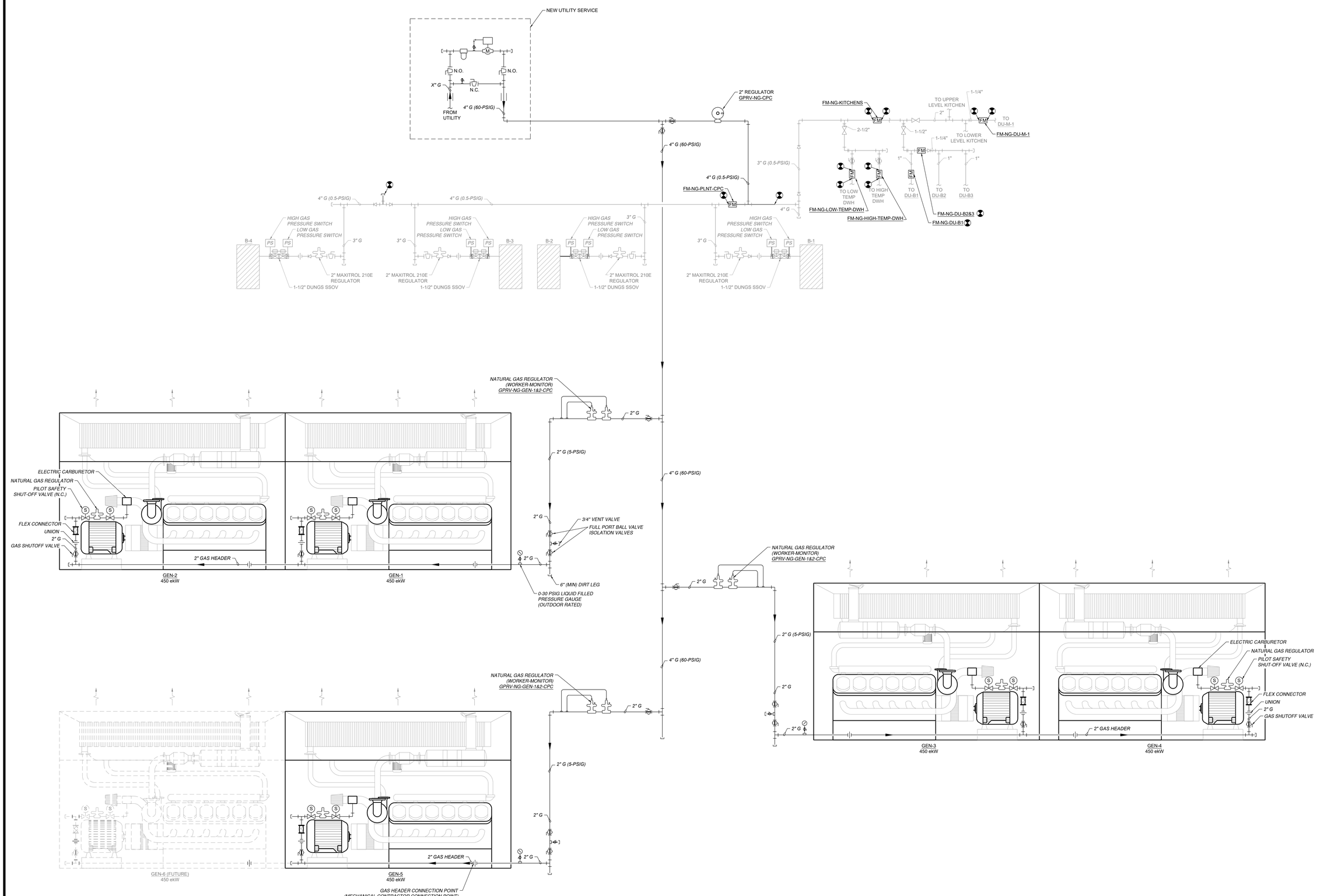
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M306



1 WILLIAM J. CLINTON CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM- MECHANICAL
SCALE: NONE

ENFRA
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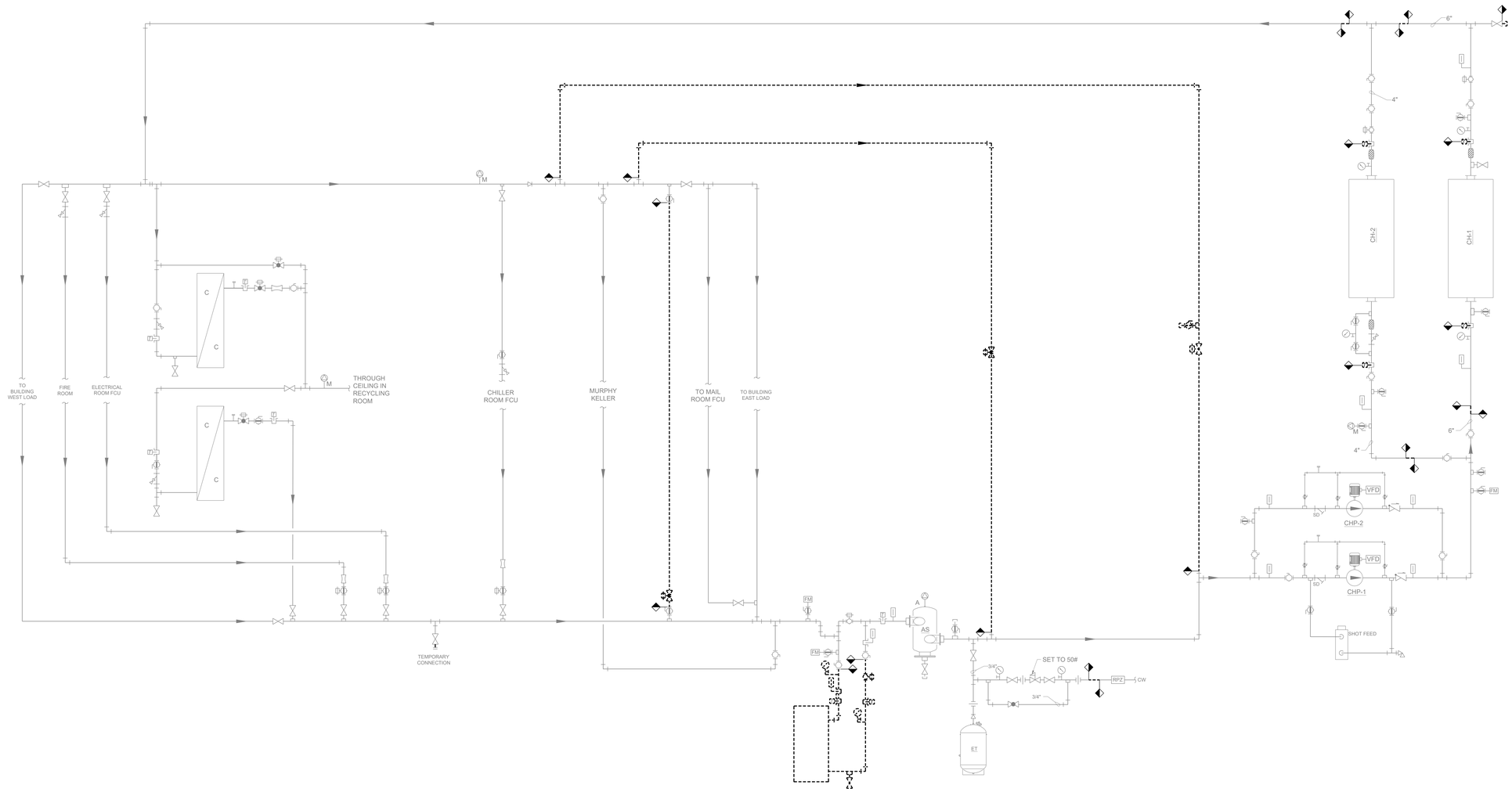
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
W. J. CLINTON - CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M307



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

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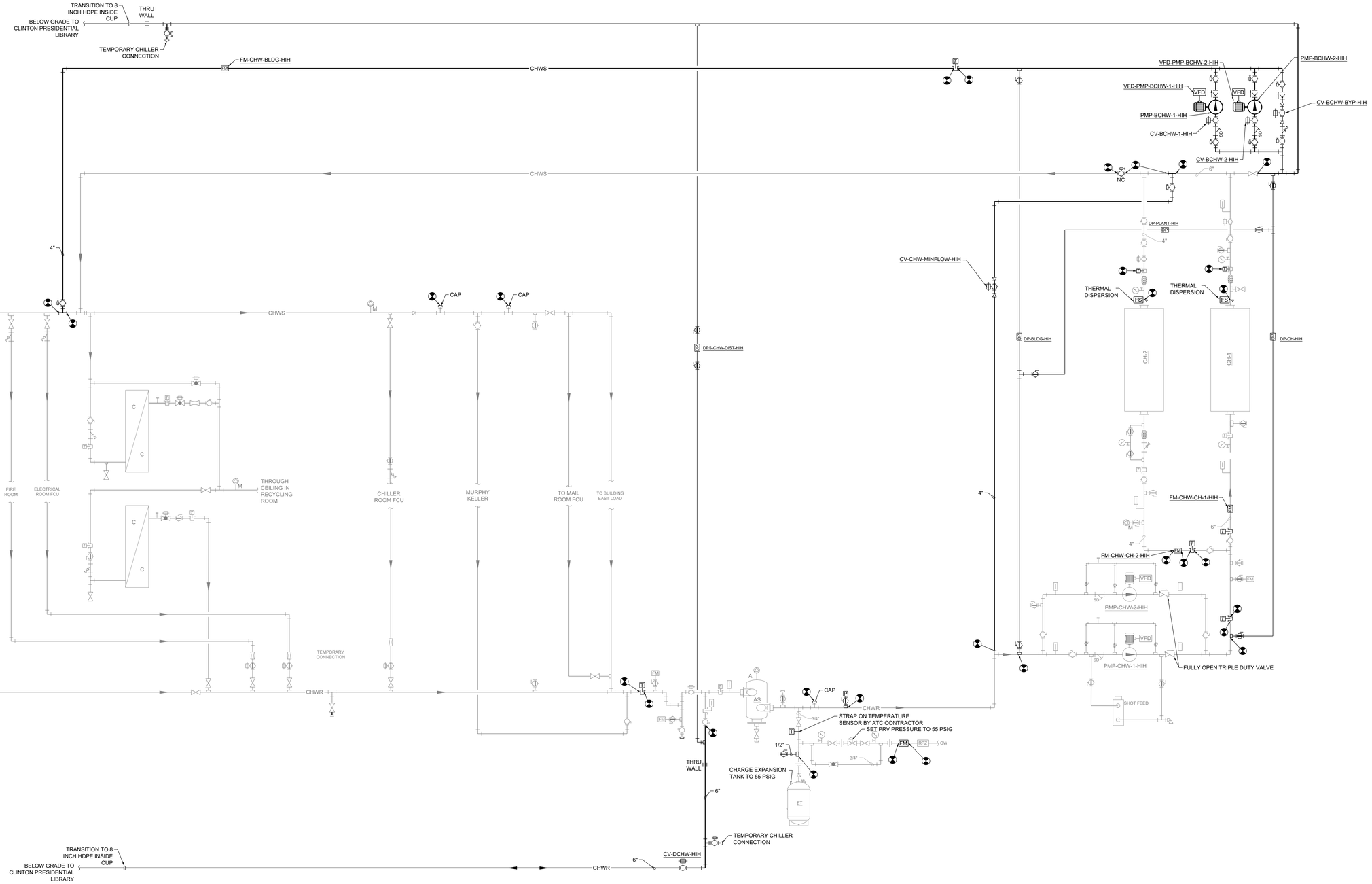
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M320



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

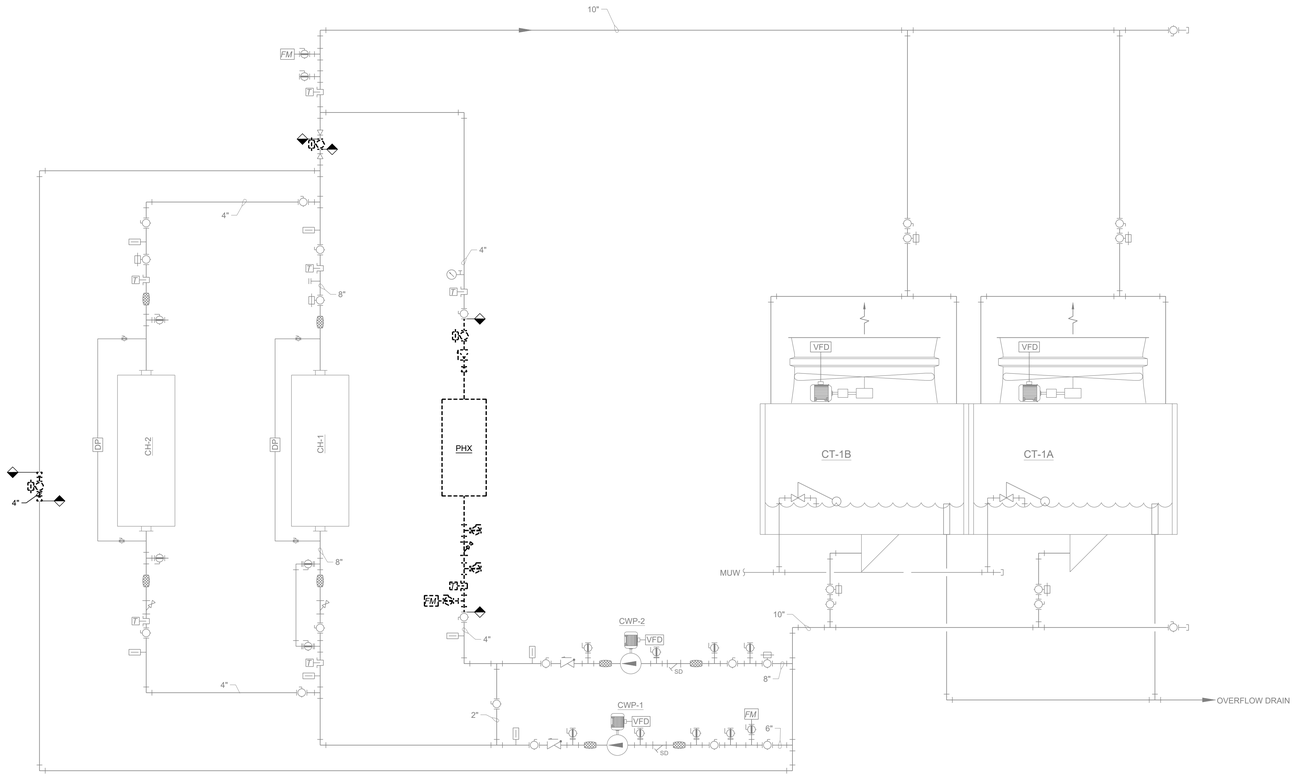
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - CHILLED WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M321



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

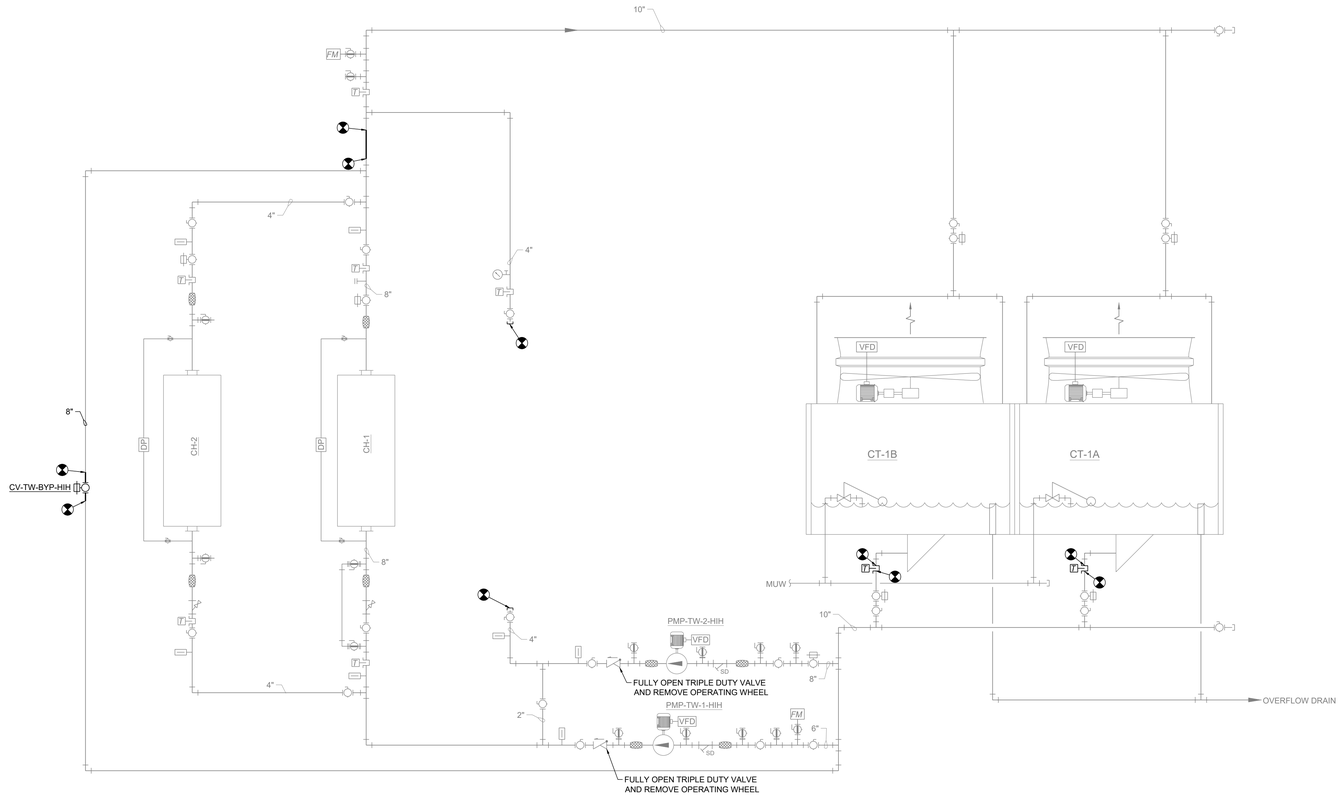
CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M322



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

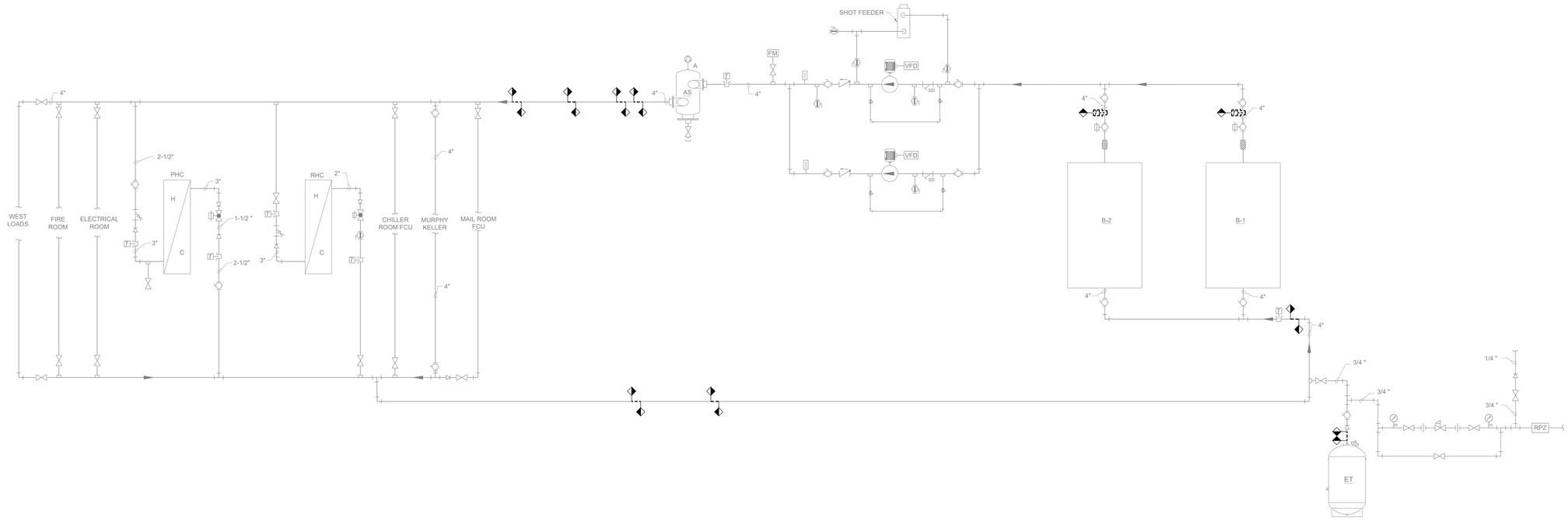
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - TOWER WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M323



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

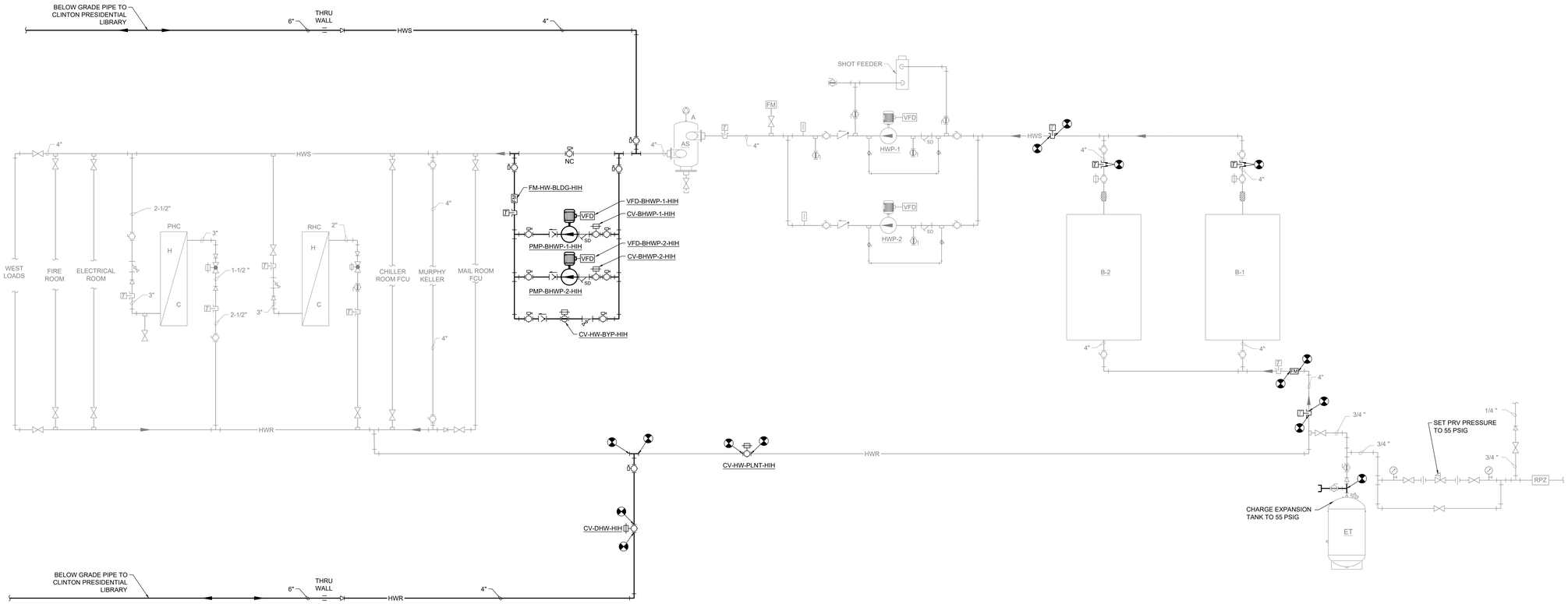
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL DEMOLITION

SHEET NUMBER:
M324



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

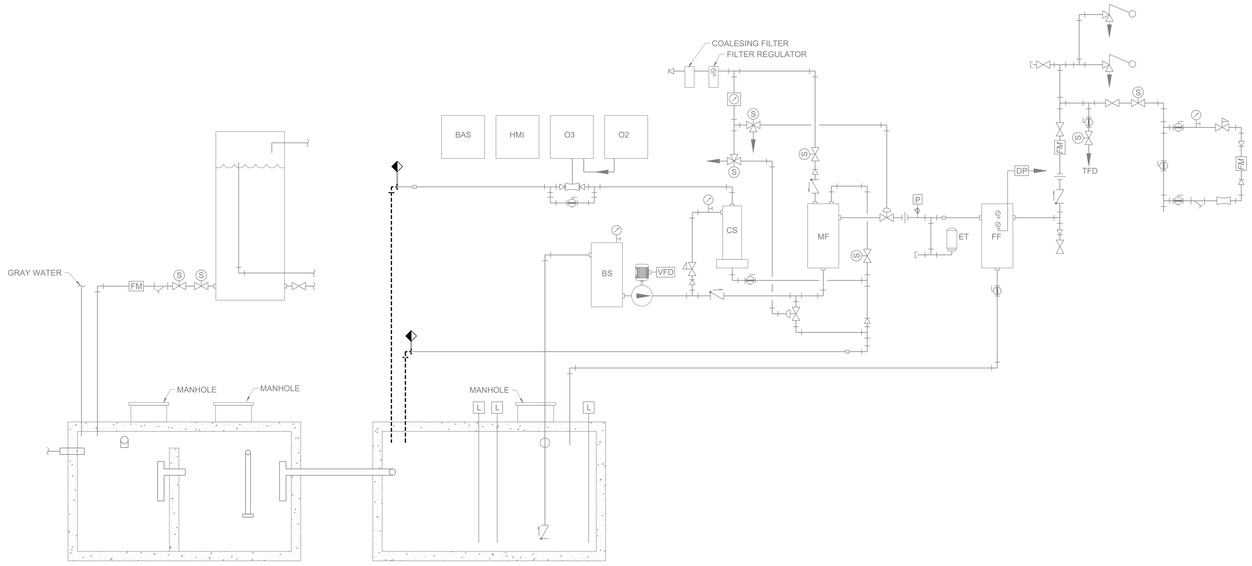
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

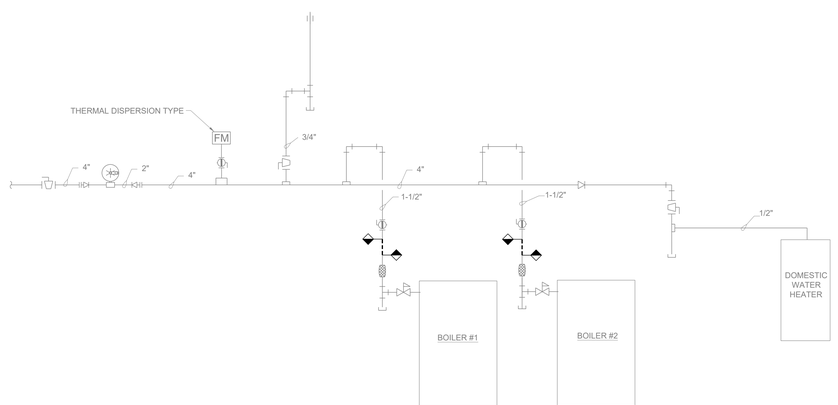
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - HEATING WATER PIPING DIAGRAM - MECHANICAL

SHEET NUMBER:
M325



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - COOLING TOWER FILTER PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE



2 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL DEMOLITION
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

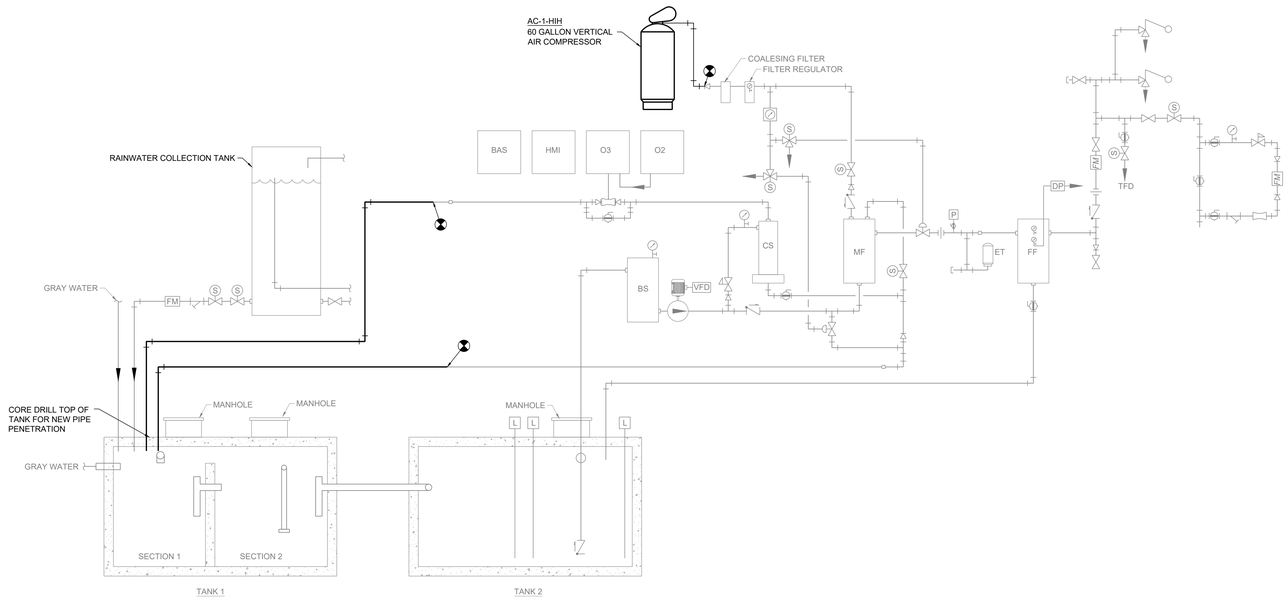
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

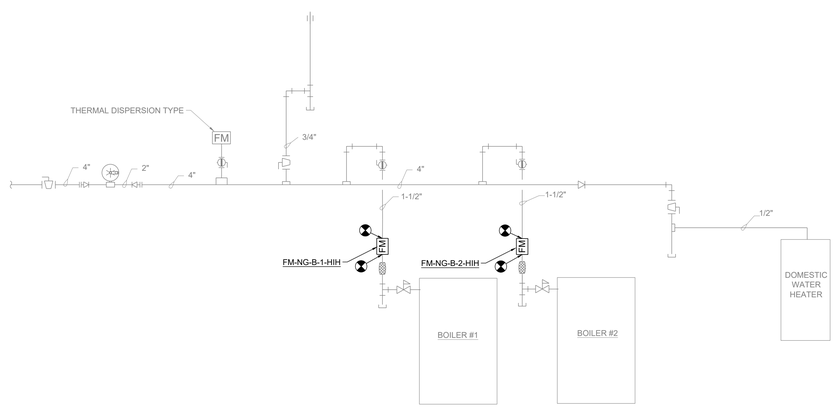
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - PIPING DIAGRAMS - MECHANICAL DEMOLITION

SHEET NUMBER:
M326



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - COOLING TOWER FILTER PIPING DIAGRAM - MECHANICAL
SCALE: NONE



2 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - NATURAL GAS PIPING DIAGRAM - MECHANICAL
SCALE: NONE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
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CORPORATE SEAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

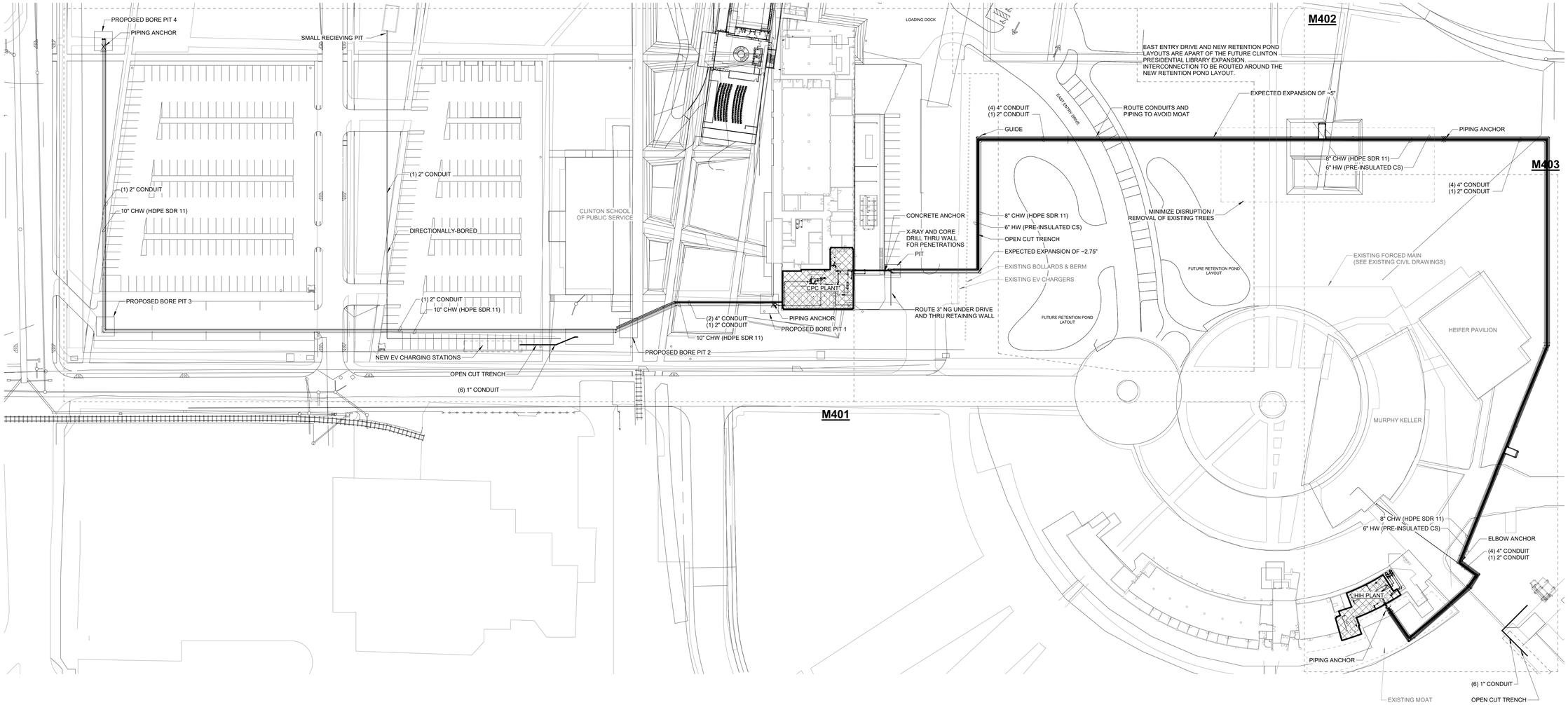
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INT. - CENTRAL UTILITY PLANT - PIPING DIAGRAMS - MECHANICAL

SHEET NUMBER:
M327



1 CLINTON SUSTAINABLE ENERGY DISTRICT - OVERALL SITE PLAN
1" = 50'-0"

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

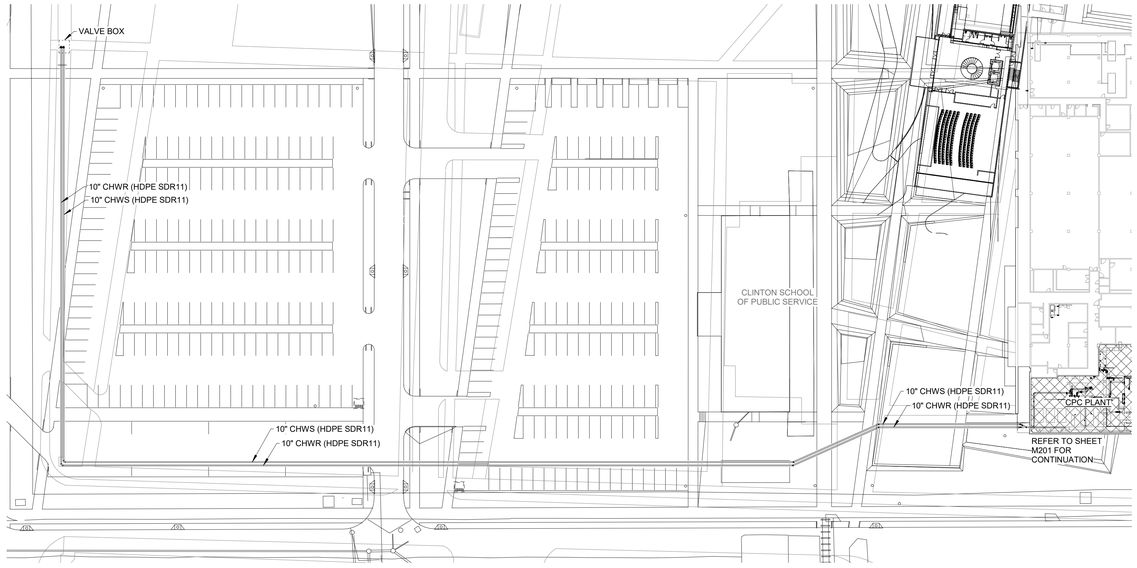
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
CLINTON SUSTAINABLE ENERGY DISTRICT - OVERALL SITE PLAN

SHEET NUMBER:
ME400



1 CLINTON SUSTAINABLE ENERGY DISTRICT - FUTURE DISTRICT CONNECTION
1" = 50'-0"

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

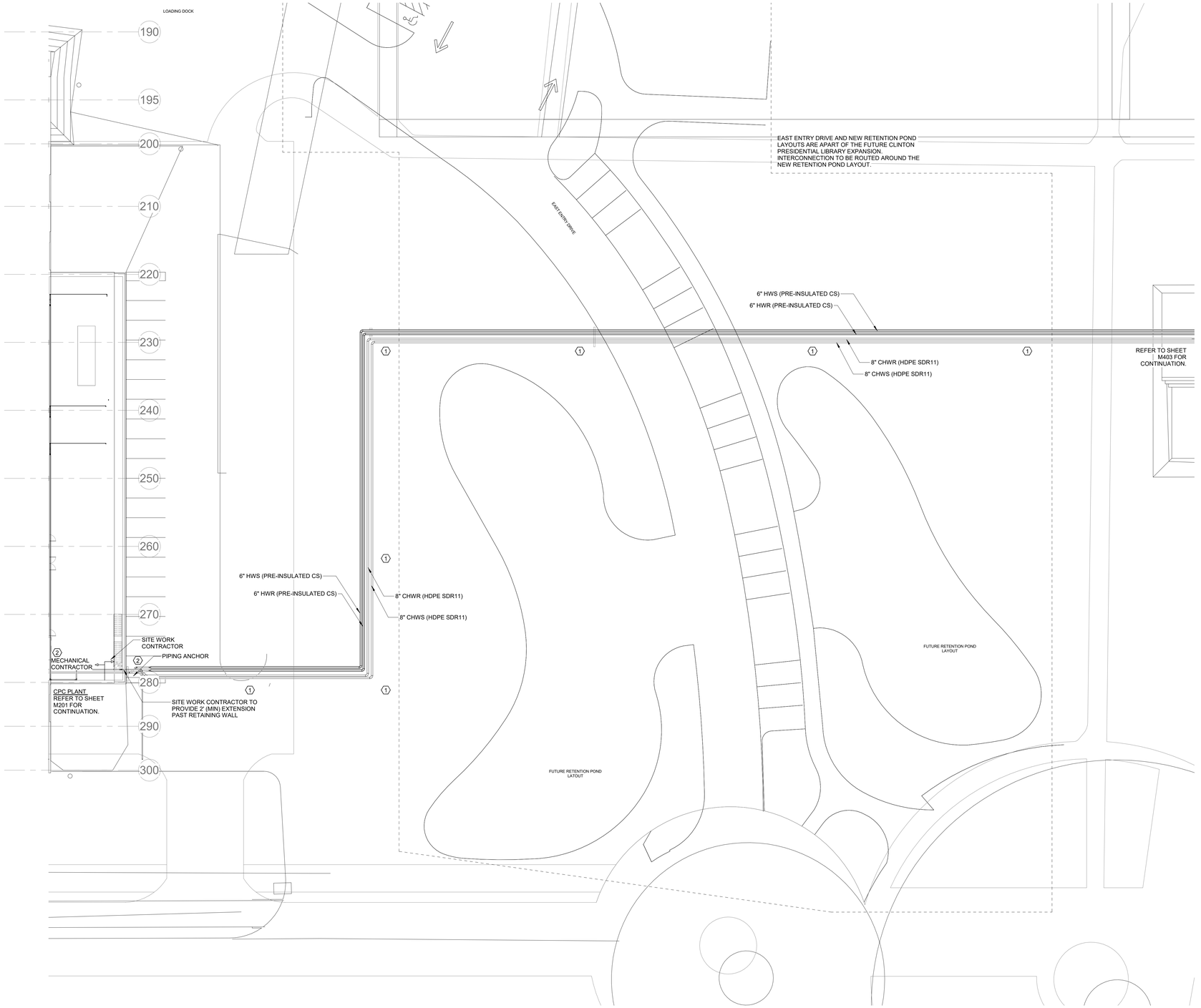
CLINTON SUSTAINABLE ENERGY DISTRICT - FUTURE DISTRICT CONNECTION

SHEET NUMBER:

M401

KEYED NOTES:

1. ROUTE INTERCONNECTION AROUND PLANNED NEW LAYOUT OF RETENTION PONDS.
2. X-RAY EXTERIOR CONCRETE WALL BEFORE CORE DRILLING FOR PIPE ROUTING.



1 CLINTON SUSTAINABLE ENERGY DISTRICT - WILLIAM J. CLINTON CONNECTION
NOT TO SCALE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

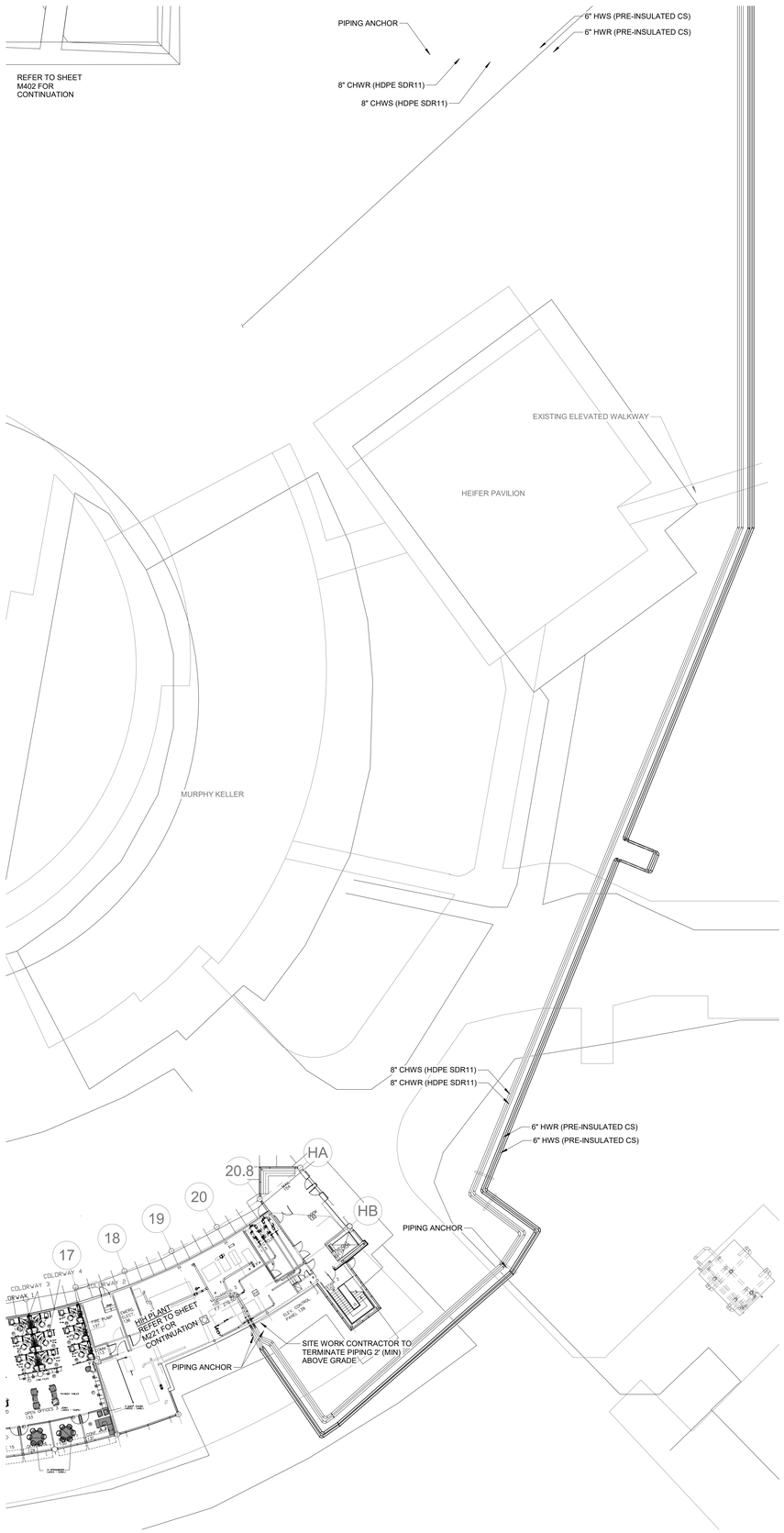
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

CLINTON SUSTAINABLE ENERGY DISTRICT - WILLIAM J. CLINTON CONNECTION

SHEET NUMBER:

M402



1 CLINTON SUSTAINABLE ENERGY DISTRICT - HEIFER INT. CONNECTION
NOT TO SCALE

ENFRA
MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

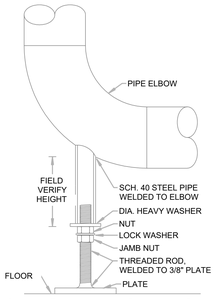
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

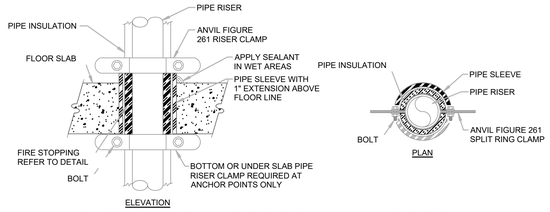
CLINTON SUSTAINABLE ENERGY DISTRICT - HEIFER INT. CONNECTION

SHEET NUMBER:

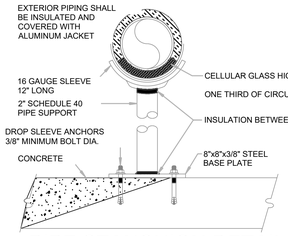
M403



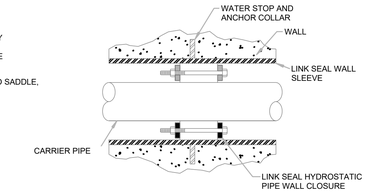
1 PIPE STAND SUPPORT
NOT TO SCALE:



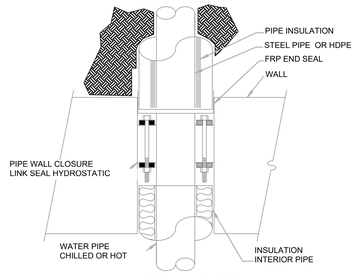
2 PIPE RISER SUPPORT/ANCHOR DETAIL
NOT TO SCALE:



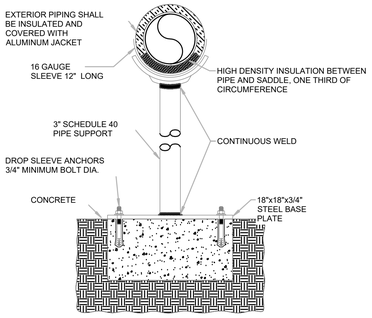
3 PIPE STANCHION DETAIL
NOT TO SCALE:



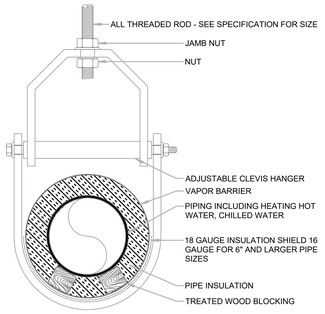
4 LINK SEAL DETAIL
NOT TO SCALE:



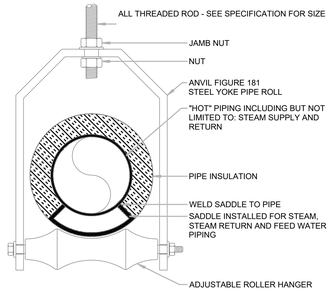
5 LINK SEAL DETAIL
NOT TO SCALE:



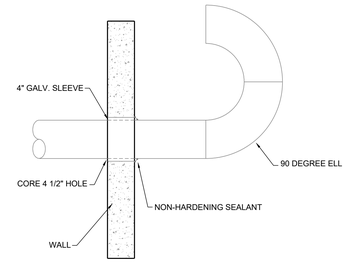
6 TYPICAL PIPING SUPPORT DETAIL
NOT TO SCALE:



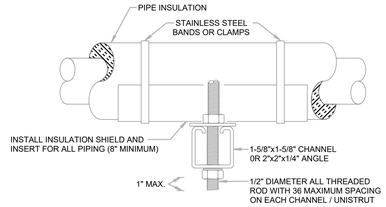
7 CLEVIS PIPE HANGER DETAIL
NOT TO SCALE:



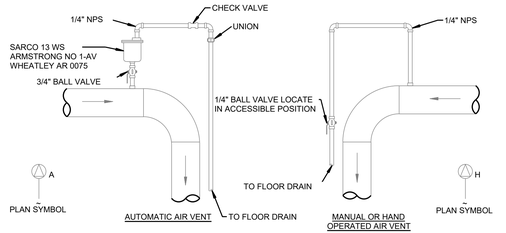
8 ROLLER PIPE HANGER
NOT TO SCALE:



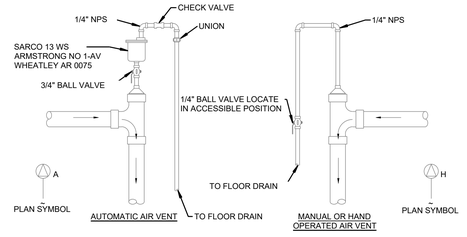
9 VENT THRU WALL DETAIL
NOT TO SCALE:



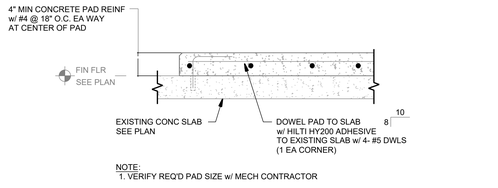
10 TRAPEZE PIPE HANGER DETAIL
NOT TO SCALE:



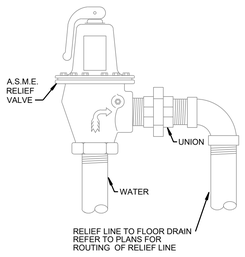
11 AIR ELIMINATOR DETAIL (FOR 3-INCH PIPES & ABOVE)
NOT TO SCALE:



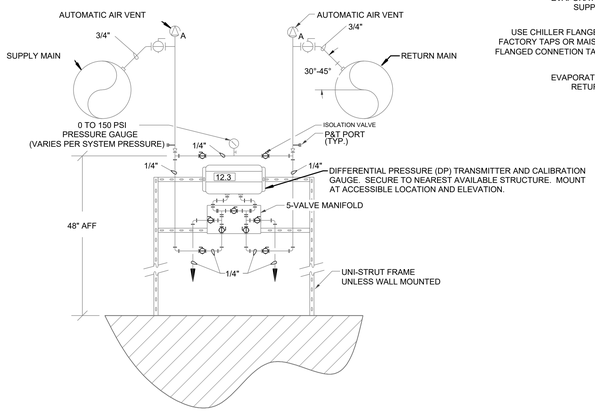
12 AIR ELIMINATOR DETAIL (FOR PIPES BELOW 3-INCH)
NOT TO SCALE:



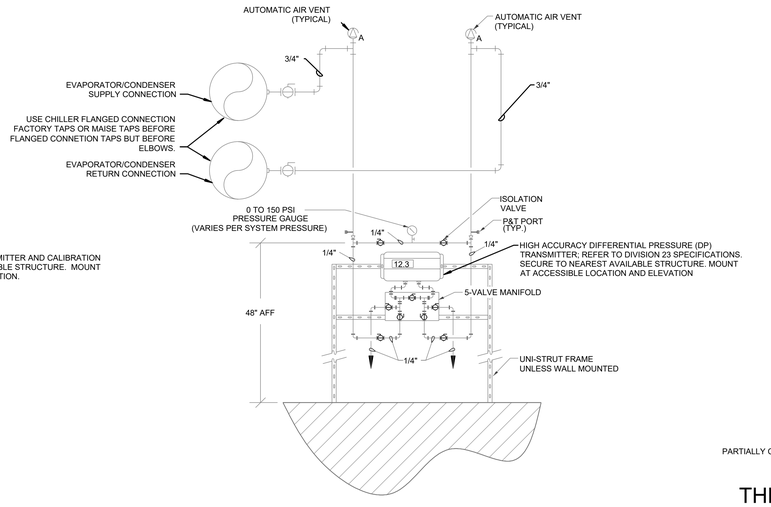
13 HOUSEKEEPING PAD SECTION AT MECHANICAL EQUIPMENT
NOT TO SCALE



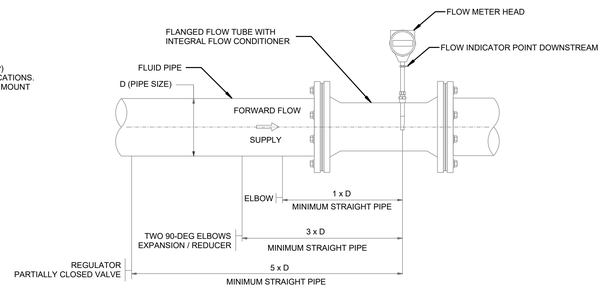
14 RELIEF VALVE DETAIL
NOT TO SCALE:



15 DIFFERENTIAL PRESSURE TRANSMITTER DETAIL
NOT TO SCALE:



16 CHILLER DIFFERENTIAL PRESSURE TRANSMITTER
NOT TO SCALE:



THERMAL MASS METER WITH FLANGED FLOW TUBE - NATURAL GAS
NOT TO SCALE

ENFRA
MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

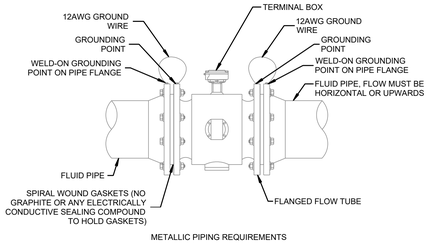
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

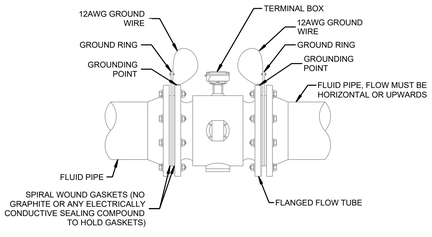
DETAILS- MECHANICAL

SHEET NUMBER:

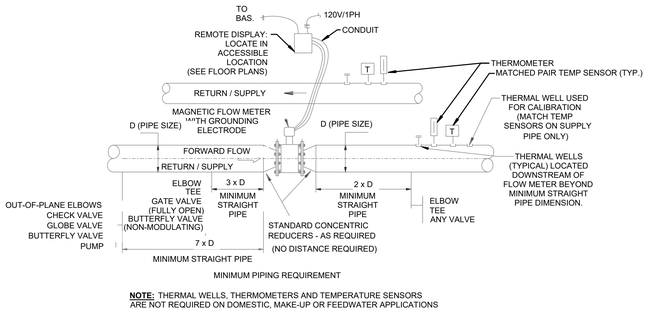
M500



METALLIC PIPING REQUIREMENTS



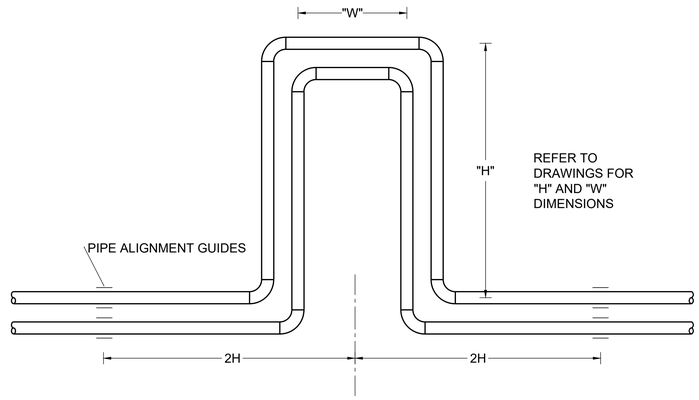
NON-METALLIC PIPING REQUIREMENTS



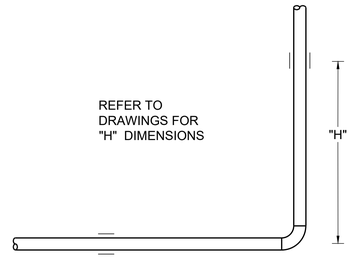
MINIMUM PIPING REQUIREMENT

NOTE: THERMAL WELLS, THERMOMETERS AND TEMPERATURE SENSORS ARE NOT REQUIRED ON DOMESTIC, MAKE-UP OR FEEDWATER APPLICATIONS

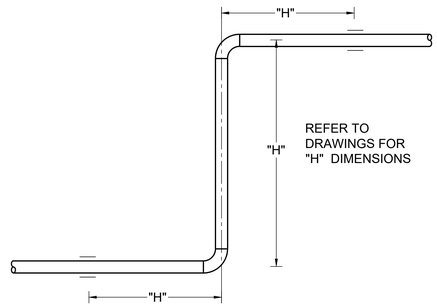
1 MAGNETIC FLOW METER - HYDRONIC
NOT TO SCALE:



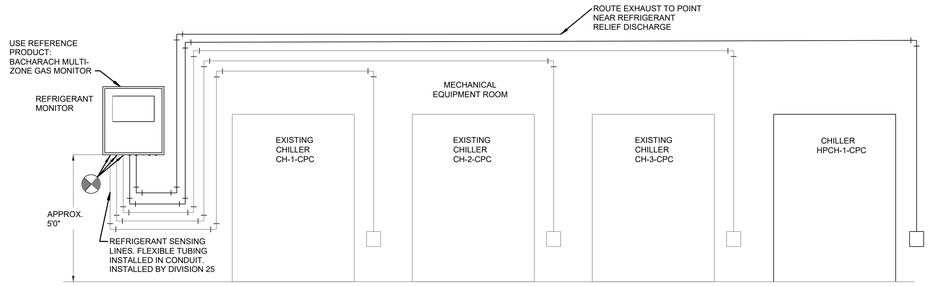
2 EXPANSION LOOP DETAIL
NOT TO SCALE:



3 L-TYPE EXPANSION LOOP DETAIL
NOT TO SCALE:



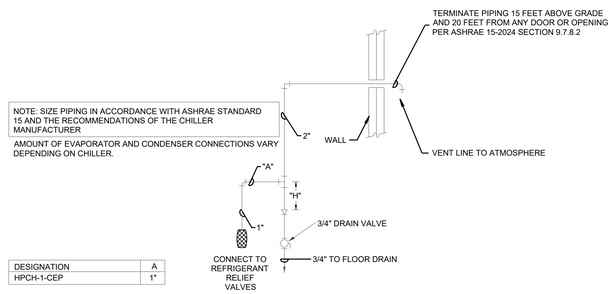
4 Z-TYPE EXPANSION LOOP DETAIL
NOT TO SCALE:



5 REFRIGERANT MONITOR PIPING
NOT TO SCALE:

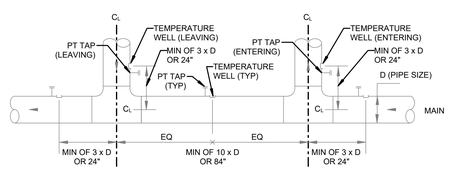
EQUIPMENT TAG	REFRIGERANT TYPE	OEL * (PPM)
CH_1_CPC	R-134A(A1)	1,000
CH_2_CPC	R-134A(A1)	1,000
CH_3_CPC	R-134A(A1)	1,000
HPCH_1_CPC	R-134A(A1)	650

*OCCUPATIONAL EXPOSURE LIMIT (OEL) AS LISTED IN ASHRAE 34-2024



DESIGNATION	A
HPCH-1-CEP	1"

6 CHILLER REFRIGERANT VENT PIPING
NOT TO SCALE:



7 DECOUPLER PIPING DETAIL
NOT TO SCALE:

ENFRA
MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

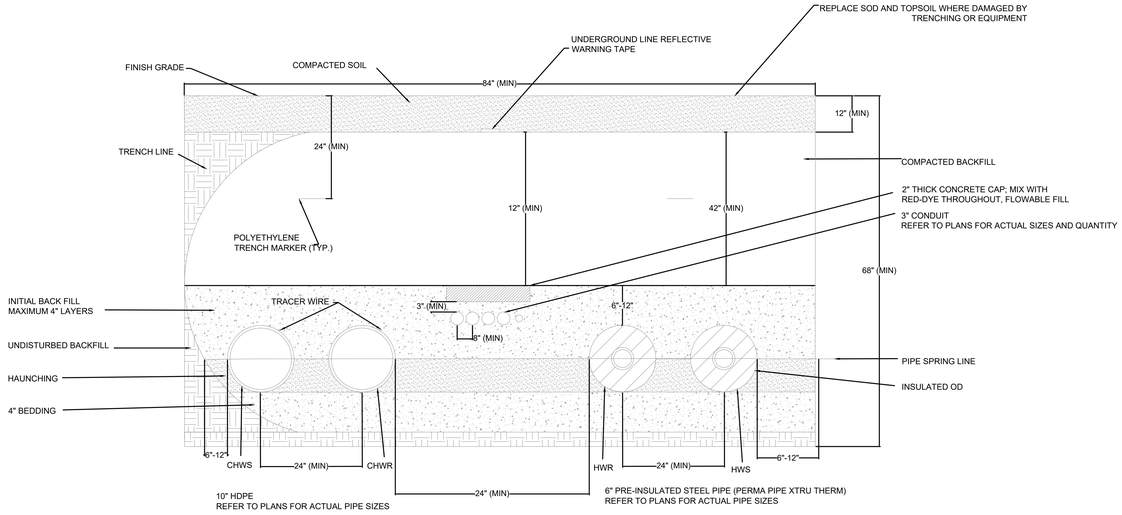
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

DETAILS- MECHANICAL

SHEET NUMBER:

M501

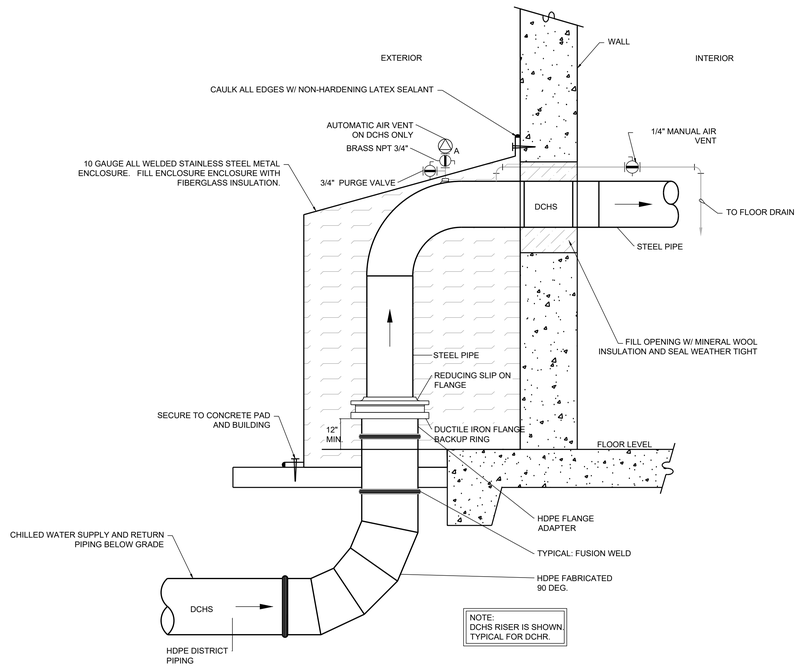


BEDDING:
- CRUSHED STONE OR FINE GRAVEL
- USED FOR LEVELING PIPE, UNSTABLE SOIL OR ROCKY LOCATIONS

HAUNCHING:
- CRUSHED STONE OR FINE GRAVEL
- APPLIED IN MAXIMUM OF 6" LAYERS, AND EACH LAYER TAMPED INTO PLACE REMOVING ALL VOIDS BELOW PIPE.

BEDDING:
- CRUSHED STONE OR FINE GRAVEL
- LAY IN 4"-6" LIFTS AND TAMPED SIMULTANEOUSLY.

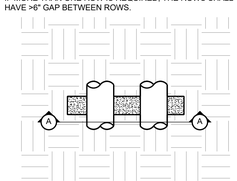
1 TRENCH DETAIL
NOT TO SCALE:

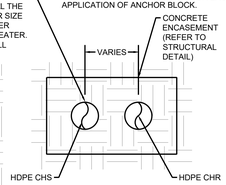


2 HDPE TO STEEL TRANSITION OUTSIDE BUILDING PIPING DETAIL
NOT TO SCALE:

GENERAL NOTES:
1. PIPE ELEVATIONS AND SPACING WILL VARY.
2. ESTIMATED RESTRAINT CAPACITIES ARE FOR A SINGLE PIPE. ANCHOR COMBINATION OF CONCRETE ENCASEMENT SIZE SHALL INCREASE AS REQUIRED FOR MULTIPLE PIPES.
3. SEPARATE CONCRETE ANCHORS ARE ACCEPTABLE FOR STAGGERED PIPING APPLICATIONS.
4. REFER TO STRUCTURAL DETAILS FOR CONCRETE AND REBAR DESIGN FOR EACH APPLICATION OF ANCHOR BLOCK.

APPROVED ELECTROFUSION FLEX RESTRAINT MAY BE USED SUCH AS APPROVED PRODUCT GEORG FISCHER FLEX RESTRAINT, ALONG THE PERIMETER OF THE HDPE PIPING. THE COUNT OF THERMAL RESTRAINTS NEEDS TO EQUAL THE REQUIRED RESTRAINT CAPACITY (REFER TO TABLE FOR SIZE AND REQUIRED CAPACITY - TYPICAL) OR MANUFACTURER QUANTITY OF RESTRAINTS NEEDED, WHICHEVER IS GREATER. IF MORE THAN ONE ROW IS REQUIRED, THE ROWS SHALL HAVE >6" GAP BETWEEN ROWS.



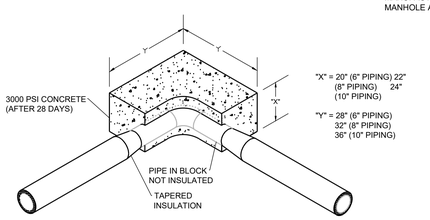


SECTION A-A
NOT TO SCALE

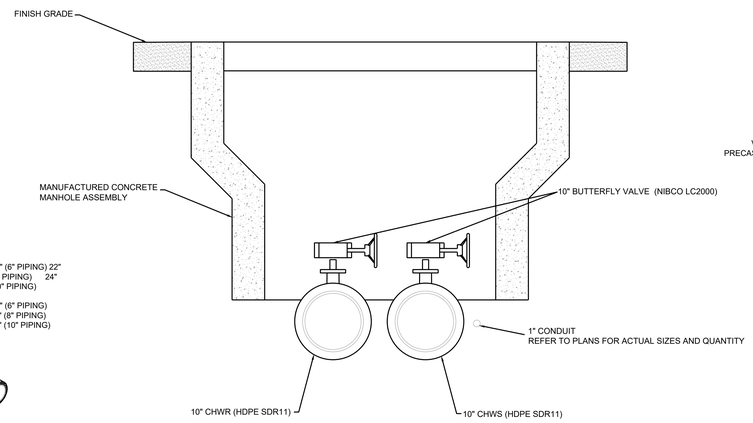
ESTIMATED ANCHOR STRESS & LOAD DUE TO THERMAL CONTRACTION CALCULATIONS		
NOMINAL PIPE SIZE (in)	STANDARD DIMENSION RATIO (SDR)	ESTIMATED RESTRAINT CAPACITY (lbs)
8	11	23,000
10	11	33,000

NOTES:
1) 68°F GROUND TEMP (CALCULATED USING 73.4°F)
2) 40° CHILLED WATER (30° ΔT USED FOR CALCULATION).
3) HYDROSTATIC DESIGN STRESS 1000 (PE4710)
4) COEFFICIENT OF LINEAR EXPANSION = 0.00008 (PE4xxx)
5) PIPE APPARENT ELASTIC MODULUS CALCULATED BASED ON 100 HOURS OF DURATION OF SUSTAINED

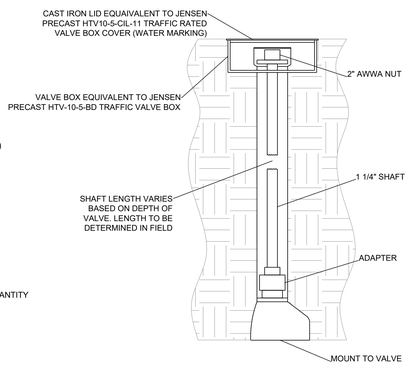
3 IN-LINE - ANCHOR DETAIL
NOT TO SCALE:



4 THRUST BLOCK DETAIL
NOT TO SCALE:



5 VALVE BOX DETAIL
NOT TO SCALE:



6 VALVE STEM EXTENSION DETAIL
NOT TO SCALE:

ENFRA
MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

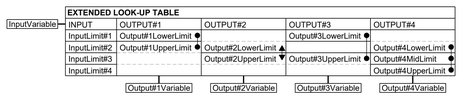
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

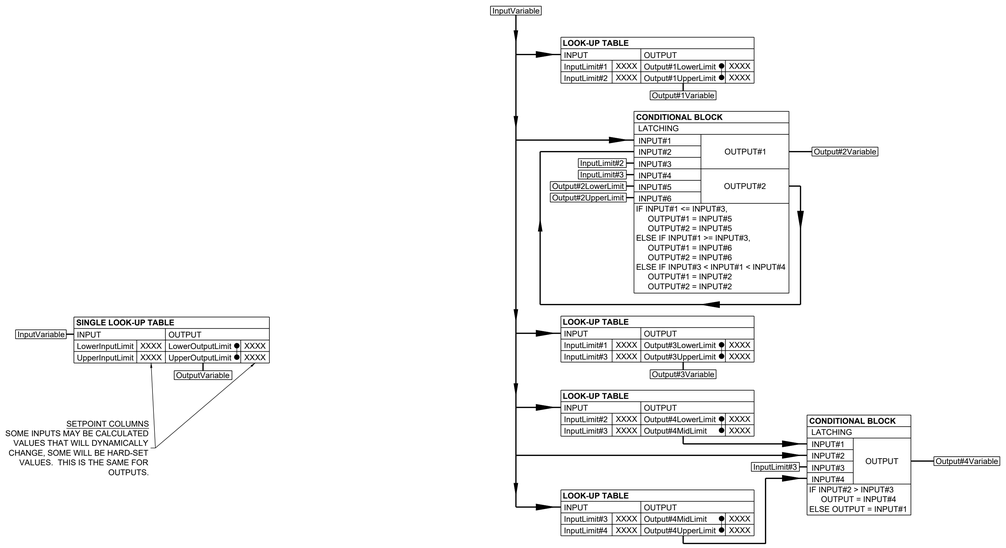
SHEET TITLE:

DETAILS- MECHANICAL

SHEET NUMBER:

M502

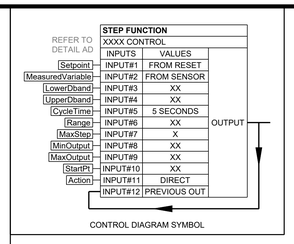




NOTES:
1. COMMON SYNTAX FOR LOOK UP TABLES INCLUDE RESET TABLE, LINEAR RESET, AND TABLE STATEMENT.
2. WHEN INPUT IS EQUAL TO OR BELOW THE LOWER INPUT LIMIT, THE OUTPUT SHALL REMAIN THE LOWER OUTPUT LIMIT.
3. WHEN THE INPUT IS EQUAL TO OR ABOVE THE UPPER INPUT LIMIT, THE OUTPUT SHALL REMAIN THE UPPER OUTPUT LIMIT.
4. WHEN THE INPUT IS BETWEEN THE LOWER INPUT LIMIT AND UPPER INPUT LIMIT, THE OUTPUT SHALL BE LINEARLY SCALED BETWEEN THE LOWER OUTPUT LIMIT AND THE UPPER OUTPUT LIMIT.
5. SINGLE LOOK-UP TABLES CAN BE COMBINED INTO LARGER, MORE COMPLEX TABLES.

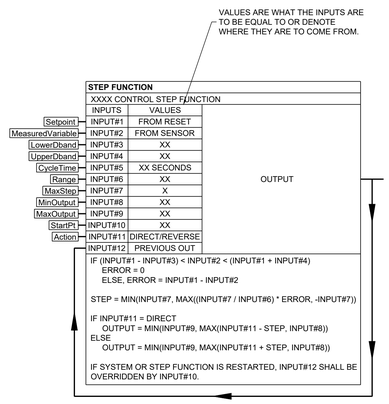
NOTES:
1. SINGLE LOOK UP TABLES CAN BE COMBINED TO FORM MORE COMPLICATED LOOK UP TABLES. THIS CAN BE USED FOR STAGING AND SETTING TRIGGER POINTS FOR SYSTEM EVENTS. THESE COMBINED FOR THE PURPOSES OF THESE CONTROL SHEETS IN ORDER TO BETTER CONVEY INFORMATION AND ALLOW FOR MORE USER FRIENDLY LIVE SEQUENCE GRAPHICS.
2. THE SYMBOL ● REPRESENTS A LINEAR RESET.
3. THE SYMBOL ▲▼ REPRESENTS A THRESHOLD OR A LATCH THAT PROVIDES A HYSTERESIS EFFECT,
4. THE EXTENDED LOOK UP TABLE AT THE TOP OF THIS DETAIL HAS BEEN EXPLODED BELOW TO PROVIDE AN EXAMPLE OF THE INFORMATION IT IS CONVEYING. THE CONTRACTOR IS ALLOWED TO USE THEIR PRE DEFINED BLOCKS, SYNTAX, OR OTHER APPLICABLE TOOLS TO ACHIEVE THE SAME SAME RESULTS. THE DESIGN INTENT SHALL STILL BE MET.

1 SINGLE AND EXTENDED LOOK-UP TABLES DETAIL



STEP FUNCTION INPUT DESCRIPTIONS

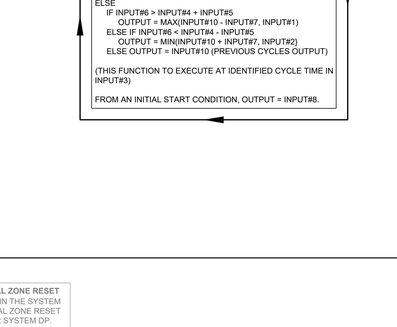
- Setpoint - THE VALUE THAT IS BEING CONTROLLED TO. THIS VALUE NORMALLY COMES FROM A RESET OR A HARD SET VALUE.
- MeasuredVariable - MEASURED FEEDBACK FROM A SENSOR (TEMPERATURE, PRESSURE, FLOW, ETC.)
- LowerDband - LOWER DEADBAND VALUE FOR WHEN THE ERROR CALCULATION IS EQUAL TO 0.
- UpperDband - UPPER DEADBAND VALUE FOR WHEN THE ERROR CALCULATION IS EQUAL TO 0.
- CycleTime - HOW OFTEN THE STEP FUNCTION IS TO EXECUTE.
- Range - THE POINT AT WHICH THE STEP RESPONSES START TO BECOME PROPORTIONAL TO THE ERROR. THIS HAPPENS WHEN ERROR IS LESS THAN OR EQUAL TO THE RANGE.
- MaxStep - THE LARGEST INCREMENTAL OUTPUT ADJUSTMENT THE STEP FUNCTION CAN MAKE EACH TIME IT EXECUTES.
- MinOutput - THE MINIMUM VALUE THE OUTPUT CAN BE.
- MaxOutput - THE MAXIMUM VALUE THE OUTPUT CAN BE.
- StartPt - THE STARTING OUTPUT FOR WHEN THE STEP FUNCTION IS RESTARTED MANUALLY OR BECAUSE OF CONTROLLER LOSS OF POWER.
- Action - THIS CAN BE EITHER DIRECT ACTING OR REVERSE ACTING. THIS IS BEHAVES THE SAME WAY AS ACTION WOULD FOR A PID LOOP.



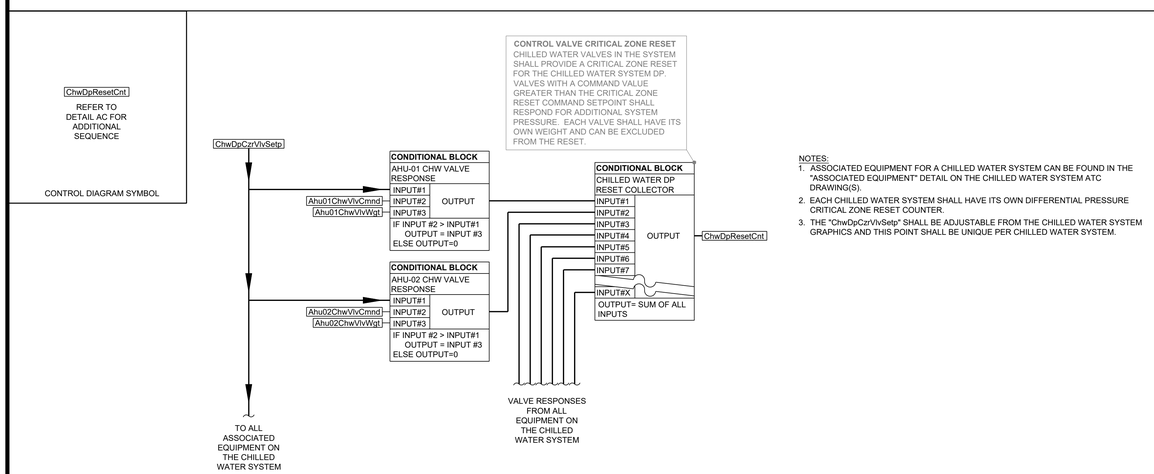
2 STEP FUNCTION CALCULATION BLOCK DETAIL

STEP FUNCTION INPUT DESCRIPTIONS

- MinOutput - THE MINIMUM VALUE THE OUTPUT CAN BE.
- MaxOutput - THE MAXIMUM VALUE THE OUTPUT CAN BE.
- CycleTime - HOW OFTEN THE RESET FUNCTION IS TO EXECUTE.
- MaxCntSetp - THE SETPOINT VALUE THE RESET FUNCTION IS OPERATING TO.
- Deadband - A DEADBAND VALUE TO PREVENT FREQUENT OUTPUT CHANGES THAT WOULD CAUSE SYSTEM INSTABILITY.
- ResetCnt - THE COUNT OF DEVICES CALLING FOR A SETPOINT RESET. THIS COMES FROM A COLLECTOR FUNCTION.
- Action - THIS CAN BE EITHER DIRECT ACTING OR REVERSE ACTING. IF THE COUNT IS GREATER THAN THE COUNT SETPOINT AND THE OUTPUT NEEDS TO INCREASE, THIS WOULD BE DIRECT ACTING. IF THE COUNT IS GREATER THAN THE COUNT SETPOINT AND THE OUTPUT NEEDS TO DECREASE, THIS WOULD BE REVERSE ACTING.
- StartPt - THE STARTING OUTPUT FOR WHEN THE FUNCTION IS RESTARTED MANUALLY OR BECAUSE OF CONTROLLER LOSS OF POWER.

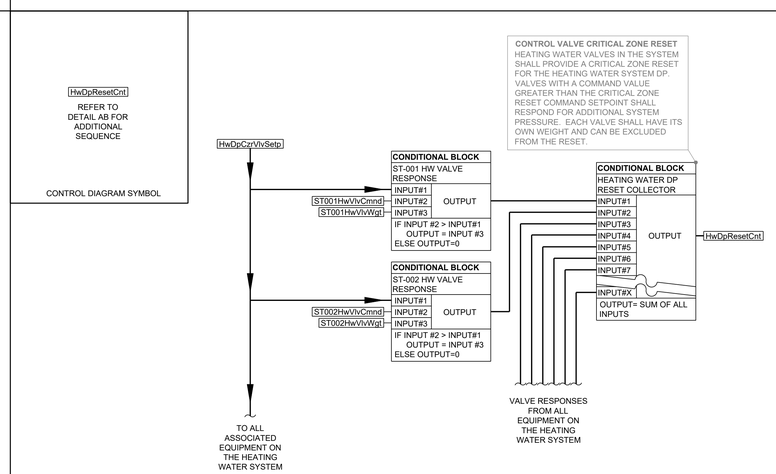


3 SETPOINT RESET CALCULATION BLOCK DETAIL



NOTES:
1. ASSOCIATED EQUIPMENT FOR A CHILLED WATER SYSTEM CAN BE FOUND IN THE "ASSOCIATED EQUIPMENT" DETAIL ON THE CHILLED WATER SYSTEM ATC DRAWING(S).
2. EACH CHILLED WATER SYSTEM SHALL HAVE ITS OWN DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER.
3. THE "ChwDpCzrVlvSetp" SHALL BE ADJUSTABLE FROM THE CHILLED WATER SYSTEM GRAPHICS AND THIS POINT SHALL BE UNIQUE PER CHILLED WATER SYSTEM.

4 CHILLED WATER SYSTEM DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER DETAIL



NOTES:
1. ASSOCIATED EQUIPMENT FOR A HEATING WATER SYSTEM CAN BE FOUND IN THE "ASSOCIATED EQUIPMENT" DETAIL ON THE HEATING WATER SYSTEM ATC DRAWING(S).
2. EACH HEATING WATER SYSTEM SHALL HAVE ITS OWN DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER.
3. THE "HwDpCzrVlvSetp" SHALL BE ADJUSTABLE FROM THE HEATING WATER SYSTEM GRAPHICS AND THIS POINT SHALL BE UNIQUE PER HEATING WATER SYSTEM.

5 HEATING WATER SYSTEM DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER DETAIL

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MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

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CORPORATE SEAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

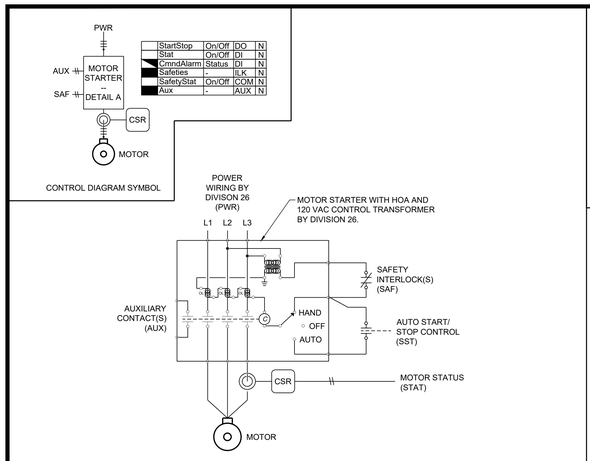
PROJECT NUMBER: 561470540

SHEET TITLE:

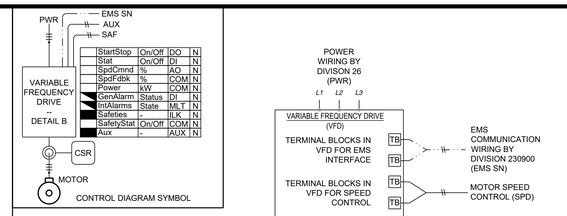
DETAILS - CONTROLS

SHEET NUMBER:

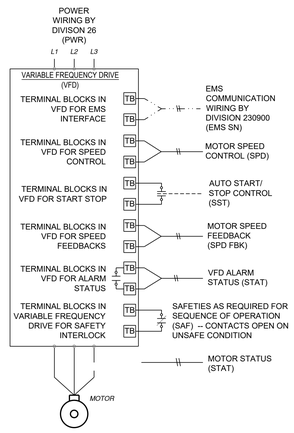
ATC401



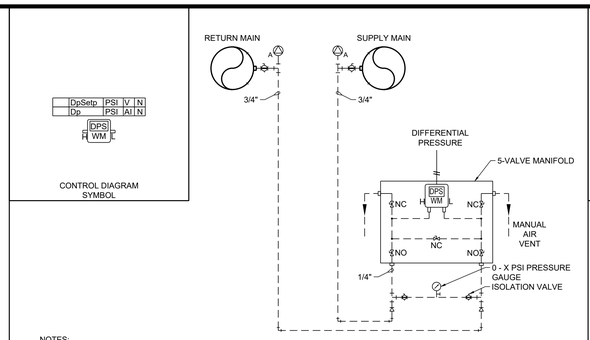
1 MOTOR STARTER CONTROL WIRING DETAIL
NOT TO SCALE



VARIABLE FREQUENCY DRIVE NOTES:
1. ALL DRIVES, NEW AND EXISTING SHALL BE CONFIGURED SO A COMMAND OF 0% EQUALS THE MINIMUM SPEED SET POINT AND A COMMAND OF 100% EQUALS THE MAXIMUM SPEED SETPOINT.
2. 20% (12 HTZ) SHALL BE THE STANDARD MINIMUM SPEED SETPOINT UNLESS INDICATED OTHERWISE. FIELD ADJUST AS REQUIRED.
3. 100% (60 HTZ) SHALL BE THE STANDARD MAXIMUM SPEED SET POINT UNLESS INDICATED OTHERWISE. FIELD ADJUST AS REQUIRED.
4. VFDS SHALL BE CONFIGURED FOR SYNCHRONOUS SPEED STARTING (SPINNING START) AND DC BUS OVER-VOLTAGE RELIEF (FREE WHEELING).
5. PROVIDE A DEDICATED GRAPHIC FOR VFD INTEGRATIONS WITH THE FOLLOWING: H/O/A/B STATUS; COMMAND STATUS, RPM, FREQ, SIGNAL (0-100%), START/STOP; FEEDBACK STATUS, RPM, FREQ, SIGNAL (0-100%) & START/STOP STATUS; HARD WIRED ALARM STATUS, ALL COMM ALARMS, OUTPUT VOLTAGE AND CURRENT PER PHASE, KW, KWH, POWER FACTOR, CURRENT LIMIT, ACCEL AND DECEL TIME, AND SAFETY CIRCUIT STATUS.
6. IF THE VFD HAS TERMINAL BLOCKS FOR MOTOR STATUS, THIS CAN BE WIRED TO INSTEAD OF PROVIDING A CURRENT SENSING RELAY FOR MOTOR STATUS.

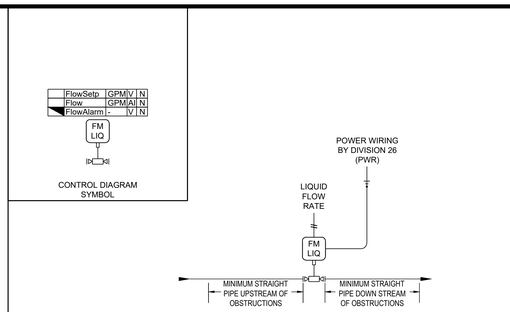


2 VARIABLE FREQUENCY DRIVE CONTROL WIRING DETAIL
NOT TO SCALE



NOTES:
1. DIFFERENTIAL PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY FURNISHED AND INSTALLED BY DIVISION 230900.
2. VALVE MANIFOLD AND ENCLOSURE FOR DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900.
3. ISOLATION VALVES AND TAPS IN PIPING SHALL BE FURNISHED AND INSTALLED BY DIVISION 23 PIPING. TAPS IN HORIZONTAL RUNS SHALL BE BETWEEN 45° ABOVE OR BELOW THE PIPE'S HORIZONTAL CENTERLINE.
4. COPPER TUBING FROM ISOLATION VALVES TO VALVE MANIFOLD AND DIFFERENTIAL PRESSURE SENSOR BY DIVISION 230900.
5. MANUAL AIR VENTS PROVIDED WITH 12" LENGTH OF COPPER TUBING TURNED DOWN FOR CONVENIENT COLLECTION OF DISCHARGE.
6. SENSOR TO BE SELECTED AND CONFIGURED FOR THE APPLICATION. REFER TO SCHEDULE FOR MORE INFORMATION.
7. SENSOR HIGH SIDE SHALL ALWAYS BE CONNECTED TO THE SUPPLY. SENSOR LOW SIDE SHALL ALWAYS BE CONNECTED TO THE RETURN.
8. FOR DIFFERENTIAL PRESSURE SENSORS ACROSS CHILLER EVAPORATOR/CONDENSER, USE CHILLER FLANGED CONNECTION FACTORY TAPS. IF THERE ARE NO AVAILABLE FACTORY TAPS, PROVIDE TAPS BEFORE FLANGED CONNECTION BUT BEFORE ELBOWS.

3 DIFFERENTIAL PRESSURE SENSOR - WET MEDIA DETAIL
NOT TO SCALE

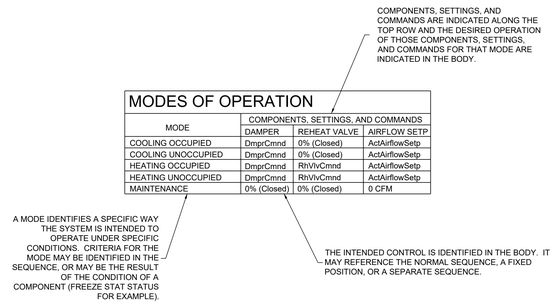


NOTES:
1. INSTALL FLOW METER PER MANUFACTURERS INSTALLATION INSTRUCTION FOR MINIMUM LENGTH OF STRAIGHT PIPE UP AND DOWN STREAM OF FLOW METER TO MAINTAIN THE PUBLISHED METER ACCURACY.
2. INSTALL STANDARD CONCENTRIC REDUCERS AS REQUIRED TO MAINTAIN PUBLISHED METER ACCURACIES.
3. FLOW METER IS FURNISHED AND WIRED BY DIVISION 230900; INSTALLED IN PIPING BY DIVISION 23 PIPING.
4. REFER TO SCHEDULE FOR MINIMUM THRESHOLD FLOW AND MAXIMUM FLOW RATE FOR SCALING OF THE METER'S SIGNAL.

4 LIQUID FLOW METER DETAIL
NOT TO SCALE

NOTES:
1. INSTALL FLOW METER PER MANUFACTURERS INSTALLATION INSTRUCTION FOR MINIMUM LENGTH OF STRAIGHT PIPE UP AND DOWN STREAM OF FLOW METER TO MAINTAIN THE PUBLISHED METER ACCURACY.
2. INSTALL STANDARD CONCENTRIC REDUCERS AS REQUIRED TO MAINTAIN PUBLISHED METER ACCURACIES.
3. FLOW METER IS FURNISHED AND INSTALLED IN PIPING BY DIVISION 23; WIRED BY DIVISION 230900.

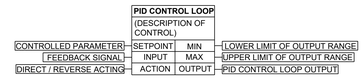
5 GAS FLOW METER DETAIL
NOT TO SCALE



MODES OF OPERATION

MODE	COMPONENTS, SETTINGS, AND COMMANDS		
	DAMPER	REHEAT VALVE	AIRFLOW SETP
COOLING OCCUPIED	DmprCmnd	0% (Closed)	ActAirflowSetp
COOLING UNOCCUPIED	DmprCmnd	0% (Closed)	ActAirflowSetp
HEATING OCCUPIED	DmprCmnd	RhVlvCmnd	ActAirflowSetp
HEATING UNOCCUPIED	DmprCmnd	RhVlvCmnd	ActAirflowSetp
MAINTENANCE	0% (Closed)	0% (Closed)	0 CFM

1 MODES TABLE DETAIL



NOTES:
1. CYCLE TIMES, TUNING, LIMITS & PERFORMANCE OF ALL CONTROL LOOPS TO BE SET UP TO WORK WITH ALL ASSOCIATED SYSTEMS.

2 PID CONTROL LOOP (PROPORTIONAL INTEGRAL DERIVATIVE CONTROL) DETAIL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

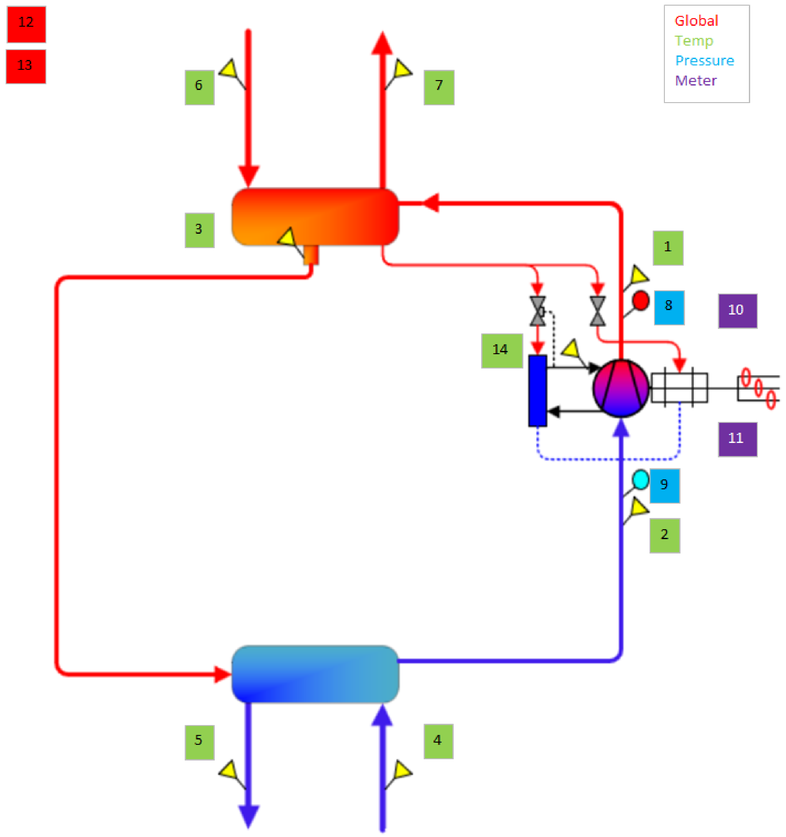
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

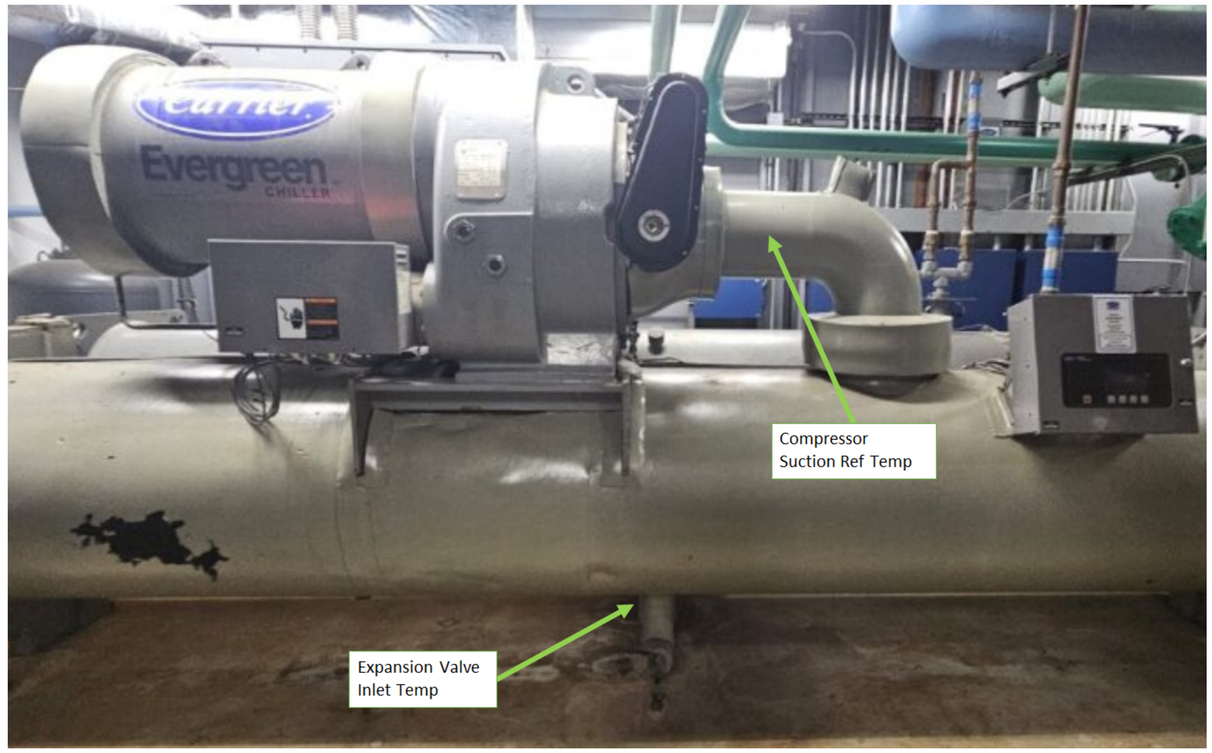
SHEET TITLE:

DETAILS - CONTROLS

SHEET NUMBER:

ATC400





Chiller #	Standard Point Name	OEM (Y/N)	CC Online Variable Name	Unit	Input #	** BACnet Reference	Wire Label
CH1	Discharge refrigerant temperature	Y	TT_RCOMP_OUT	°C	1	AV18 / cmpd_1	CH1_1
CH1	Suction refrigerant temperature	N	TT_RCOMP_IN	°C	2	CH1_TT_RCOMP_IN	CH1_2
CH1	Expansion valve inlet temperature	N	TT_REXP_IN	°C	3	CH1_TT_REXP_IN	CH1_3
CH1	Evaporator entering water temperature	Y	TT_SECC_IN	°C	4	AV26 / ecw_1	CH1_4
CH1	Evaporator leaving water temperature	Y	TT_SECC_OUT	°C	5	AV31 / lcw_1	CH1_5
CH1	Condenser entering water temperature	Y	TT_SECW_IN	°C	6	AV27 / ecdw_1	CH1_6
CH1	Condenser leaving water temperature	Y	TT_SECW_OUT	°C	7	AV32 / lcdw_1	CH1_7
CH1	Condenser refrigerant pressure	Y	PT_RHP	kPa(a)	8	AV21 / crp_1	CH1_8
CH1	Evaporator refrigerant pressure	Y	PT_RLP	kPa(a)	9	AV28 / erp_1	CH1_9
CH1	Input power (kW)	N	EP_COMP	kW	10	New Chiller Elec Meter	CH1_10
CH1	Input energy (kWh)	N	ENERGY_COMP	kWh	11	New Chiller Elec Meter	CH1_11
CH1	Outside Air Temperature	Y	TT_OUTDOOR	°C	12	Global Point	CH1_12
CH1	Outside Air Humidity	Y	RH_OUTDOOR	% RH	13	Global Point	CH1_13
CH1	Oil return from oil cooler to compressor temp	N	TT_OIL_OILCOOL_OUT	°C	14	CH1_TT_OIL_OILCOOL_OUT	CH1_14
CH1	Guide Vane Position	Y	AI_X12	%	15	AV7 / gv_pos_1	CH1_15
CH1	VFD Frequency	Y	AI_X13	Hz	16	AV11 / vfd_act_1	CH1_16

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

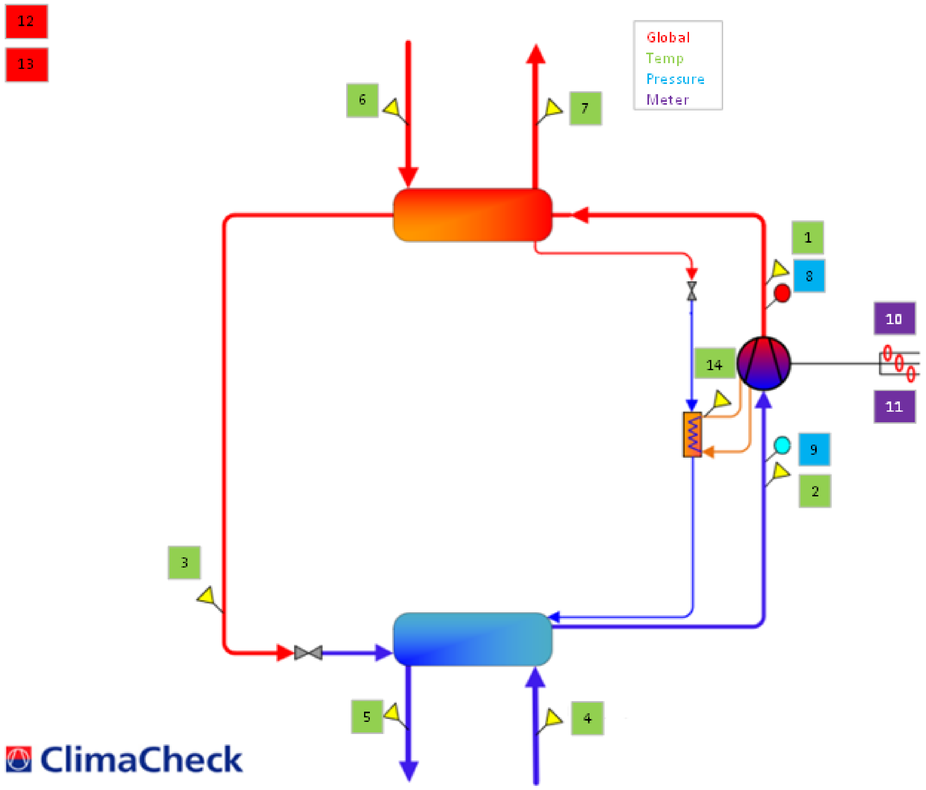
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

HEIFER INTERNATIONAL HEADQUARTERS CH-1-HIH CLIMA-CHECK DETAILS

SHEET NUMBER:

ATC306



Chiller #	Standard Point Name	OEM (Y/N)	CC Online Variable Name	Unit	Input #	** BACnet/LON Reference	Wire Label
HPCH1	Discharge Refrigerant Temperature	Y	TT_RCOMP_OUT	°C	1	COMP DISCH TEMP	HPCH1_1
HPCH1	Suction Refrigerant Temperature	Y	TT_RCOMP_IN	°C	2	HR1-SUCT TEMP	HPCH1_2
HPCH1	Expansion Valve Inlet Temperature	N	TT_REXP_IN	°C	3	HPCH1_TT_REXP_IN	HPCH1_3
HPCH1	Evaporator Entering Water Temperature	Y	TT_SECC_IN	°C	4	EVAP EWT	HPCH1_4
HPCH1	Evaporator Leaving Water Temperature	Y	TT_SECC_OUT	°C	5	EVAP LWT	HPCH1_5
HPCH1	Condenser Entering Water Temperature	Y	TT_SECW_IN	°C	6	CONDENSER EWT (HOT)	HPCH1_6
HPCH1	Condenser Leaving Water Temperature	Y	TT_SECW_OUT	°C	7	CONDENSER LWT (HOT)	HPCH1_7
HPCH1	Condenser Refrigerant Pressure	Y	PT_RHP	kPa(a)	8	HR1-DISCHARGE PRESSURE	HPCH1_8
HPCH1	Evaporator Refrigerant Pressure	Y	PT_RLP	kPa(a)	9	HR1-SUCT PRESS	HPCH1_9
HPCH1	Input Power (kW)	N	EP_COMP	kW	10	New Chiller Elec Meter	HPCH1_10
HPCH1	Input Energy (kWh)	N	ENERGY_COMP	kWh	11	New Chiller Elec Meter	HPCH1_11
HPCH1	Outside Air Temperature	Y	TT_OUTDOOR	°C	12	Global Point	HPCH1_12
HPCH1	Outside Air Humidity	Y	RH_OUTDOOR	% RH	13	Global Point	HPCH1_13
HPCH1	Oil Cooling Temp	N	TT_OIL_COOL_OUT	°C	14	HPCH1_TT_OIL_OILCOOL_OUT	HPCH1_14

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

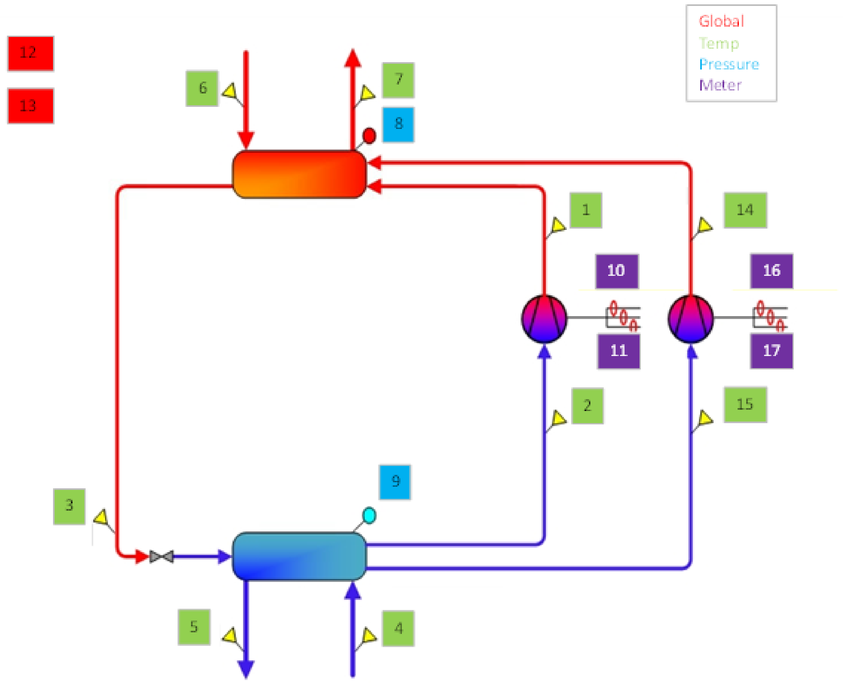
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

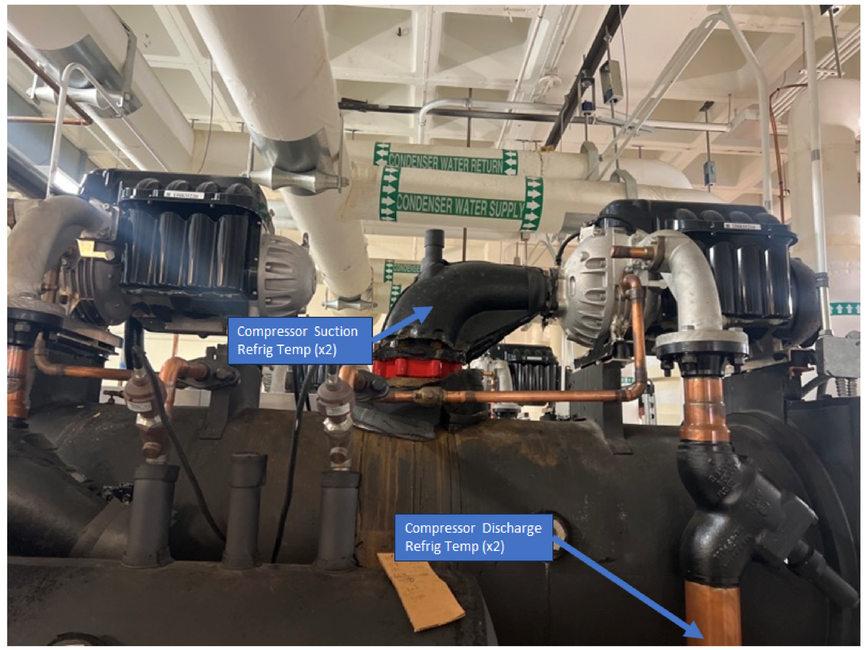
MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
CLIMA-CHECK HPCH-1-CPC
DETAILS

SHEET NUMBER:
ATC305





Chiller #	Standard Point Name	OEM (Y/N)	CC Online Variable Name	Unit	Input #	** BACnet/LON Reference	Wire Label
CH1	Discharge Refrigerant Temperature Comp 1	N	TT_RCOMP_OUT_1	°C	1	CH1_TT_RCOMP_OUT_1	CH1_1
CH1	Suction Refrigerant Temperature Comp 1	N	TT_RCOMP_IN_1	°C	2	CH1_TT_RCOMP_IN_1	CH1_2
CH1	Expansion Valve Inlet Temperature	N	TT_REXP_IN	°C	3	CH1_TT_REXP_IN	CH1_3
CH1	Evaporator Entering Water Temperature	Y	TT_SECC_IN	°C	4	012 / nvoEntCHWTemp	CH1_4
CH1	Evaporator Leaving Water Temperature	Y	TT_SECC_OUT	°C	5	011 / nvoLvgCHWTemp	CH1_5
CH1	Condenser Entering Water Temperature	Y	TT_SECW_IN	°C	6	013 / nvoEntCndWTemp	CH1_6
CH1	Condenser Leaving Water Temperature	Y	TT_SECW_OUT	°C	7	014 / nvoLvgCndWTemp	CH1_7
CH1	Condenser Refrigerant Pressure	Y	PT_RHP	kPa(a)	8	MAX of 058 & 059 / nvoPressureDischarge_1 & _2	CH1_8
CH1	Evaporator Refrigerant Pressure	Y	PT_RLP	kPa(a)	9	MAX of 052 & 053 / nvoPressureSuction_1 & _2	CH1_9
CH1	Input Power (kW) Comp 1	N	EP_COMP_1	kW	10	New Chiller Elec Meter (Comp1)	CH1_10
CH1	Input Energy (kWh) Comp 1	N	ENERGY_COMP_1	kWh	11	New Chiller Elec Meter	CH1_11
CH1	Outside Air Temperature	Y	TT_OUTDOOR	°C	12	Global Point	CH1_12
CH1	Outside Air Humidity	Y	RH_OUTDOOR	% RH	13	Global Point	CH1_13
CH1	Discharge Refrigerant Temperature Comp 2	N	TT_RCOMP_OUT_2	°C	14	CH1_TT_RCOMP_OUT_2	CH1_14
CH1	Suction Refrigerant Temperature Comp 2	N	TT_RCOMP_IN_2	°C	15	CH1_TT_RCOMP_IN_2	CH1_15
CH1	Input Power (kW) Comp 2	N	EP_COMP_2	kW	16	New Chiller Elec Meter (Comp2)	CH1_16
CH1	Input Energy (kWh) Comp 2	N	ENERGY_COMP_2	kWh	17	New Chiller Elec Meter	CH1_17
CH1	Inlet Guide Vane % Comp 1	Y	AI_X12	#	18	046 / nvoIgvPosition_1	CH1_18
CH1	Inlet Guide Vane % Comp 2	Y	AI_X13	#	19	047 / nvoIgvPosition_2	CH1_19
CH1	Compressor RPM Comp 1	Y	AI_X14	RPM	20	028 /nvoRpm_1	CH1_20
CH1	Compressor RPM Comp 2	Y	MISC1	RPM	21	029 /nvoRpm_2	CH1_21

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLIINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
CLIMA-CHECK CH-1-CPC AND CH-2-CPC DETAILS

SHEET NUMBER:
ATC304

GENERAL:

1. INSTALL AND INTEGRATE SURFACE MOUNT TEMPERATURE SENSORS ON EACH CHILLER SPECIFIED.
2. INSTALL ONE (1) JACE, ONE (1) JACE RS-485 EXPANSION MODULE, AND THREE (3) JACE I/O EXPANSION MODULES USING NETWORK DIAGRAMS TO ACCOMMODATE NEW EXTERNAL SENSORS.

CONTROLS SCOPE OF WORK

1. OVERVIEW – DIVISION 23 TO USE THIS SCOPE OF WORK TO PROVIDE A PROPOSAL FOR TIME AND MATERIALS USING THE FOLLOWING GUIDANCE.
2. ALL LOW VOLTAGE WIRING IS REQUIRED TO BE IN CONDUIT MEETING FACILITY REQUIREMENTS.
3. DIVISION 23 TO PROVIDE SURFACE MOUNT TEMPERATURE SENSORS ON EACH CHILLER SPECIFIED.
   - 3.1. DIVISION 23 TO CALIBRATE ALL TEMPERATURE SENSORS BEFORE THEY ARE INSTALLED ON SURFACES.
   - 3.2. DIVISION 23 WILL BE REQUIRED TO LAND ALL WIRES ON I/O EXPANSION MODULE.
4. CONFIGURE JACE WITH FURNISHED NETWORK SETTINGS.
   - 4.1. INTEGRATE POINTS AND I/O EXPANSION MODULE TO JACE
   - 4.1. MAP REQUIRED POINTS FROM EXTERNAL SENSORS USING PROVIDED PROGRAMMING AND WIRING WORKSHEET.
   - 4.2. INTEGRATE BACNET/IP OBJECTS FROM BMS PROVIDED BY BERNHARD PROGRAMMING AND WIRING WORKSHEET.
   - 4.3. ALL SENSORS REPORTING SI UNITS NEED TO BE CONVERTED TO METRIC UNITS. THE CONTROLLER MUST OUTPUT THE TEMPERATURES IN °C, POWERS IN KW, AND PRESSURES IN KPA ABSOLUTE.
   - 4.4. ALL DATA POINTS ARE REQUIRED TO PULL 1-MINUTE SAMPLES
   - 4.5. BIND POINTS FROM CHILLERS THAT ARE ON PROGRAMMING AND WIRING WORKSHEET TO JAR FILE/MODULE FOR EACH CHILLER.
5. TERMINATE POWER ON JACE AND I/O EXPANSION MODULE.
   - 5.1. COMMUNICATION WIRE BETWEEN JACE AND I/O EXPANSION MODULE WILL BE BACNET WIRE.
   - 5.2. USE WIRING WORKSHEET TO DOCUMENT ALL WIRE NUMBERING.
   - 5.3. COORDINATE WITH FACILITY IT DEPARTMENT WITH ASSISTANCE FROM BERNHARD TO RUN CONDUIT FROM THE NEAREST MDF ROOM TO JACE. ALL ETHERNET CAT5E/6 WILL BE REQUIRED TO BE IN CONDUIT MEETING FACILITY REQUIREMENTS.
6. SUBMITTALS WILL BE REQUIRED FOR THE FOLLOWING:
   - 6.1. ARMACELL R1 INSULATION TAPE
   - 6.2. ALUMINUM FOIL TAPE
   - 6.3. ADDITIONAL INSULATION AND MECHANICAL BANDING
   - 6.4. JACE TO NETWORK – CAT 6 NETWORK WIRE
   - 6.5. FROM JACE TO I/O MODULES – BACNET WIRE
   - 6.6. I/O MODULE TO SENSORS IN SPACE – 18/2 WIRE
   - 6.7. PROVIDE WARRANTY LETTER FOR 1 YEAR FOR PARTS AND LABOR.

External Temperature Sensors Required		
Photo Reference	**Sensors Required**	**Chillers in Scope**
Appendix A	Discharge Refrigerant Temp	CH1a, CH1b, CH2a, CH2b
Appendix A	Suction Refrigerant Temp	CH1a, CH1b, CH2a, CH2b
Appendix A	Expansion Valve Inlet Temp	CH1, CH2, HPCH1
Appendix A	Compresor Oil Cooling Temp	HPCH1

External Temperature Sensors Required		
Photo Reference	**Sensors Required**	**Chillers in Scope**
Appendix A	Suction Refrigerant Temp	CH1
Appendix A	Expansion Valve Inlet Temp	CH1
Appendix A	Compresor Oil Cooling Temp	CH1

HARDWARE SPECIFICATIONS

Hardware and Wire Specifications		
Hardware Type	**Specifications**	**Provided by**
Temperature Sensors	See sensor specifications table	ENFRA
JACE	TRD-JACE-9000 or most suitable for application	ENFRA
I/O Modules	TRD-IO-34 or most suitable for application	ENFRA
Heat Transfer Paste	Non-Silicone, Temperature Range ~ -58°F to 266°F	ATC Contractor
Temperature Sensor Wire	18 AWG /2 Conductor (no shielding)	ATC Contractor
Sensor Wire Connections	Wire nuts, electrical tape, and wire ties	ATC Contractor
Communication Wire	24 AWG / 1.5 PR Shielded Temperature Control	ATC Contractor
Aluminum Foil Tape	Foil tape with sticky back adhesive, Temperature Range ~ -25°F to 250°F	ATC Contractor
Armacell R1 Insulation Tape	With sticky back adhesive, or equivalent	ATC Contractor

Sensor Specifications				
Sensor Type	**Sensor Range**	**Sensor Signal**	**Sensor Accuracy**	**Quantity**
Surface Mount Temp Sensor	0 °F - 250°F	10,000 Ω	+/- 0.25°F	14

INSTALLATION NOTES:

1. REMOVE ANY INSULATION AND PAINT ON THE SURFACE BY USING A MECHANICAL SANDER.
2. APPLY HEAT TRANSFER PASTE BETWEEN TEMP SENSOR AND SURFACE TO BE MEASURED (FIG.1)
3. SECURELY PRESS THE SENSOR AGAINST THE SURFACE IT IS MOUNTED AGAINST.
4. APPLY A LAYER OF ALUMINUM FOIL TAPE ON TOP OF THE SURFACE MOUNTED SENSOR (FIG.1)
5. APPLY LAYERS OF ARMACELL R1 INSULATION TAPE DIRECTLY ON TOP OF THE ALUMINUM TAPE (FIG.2)
6. APPLY A FINAL LAYER OF RUBBER PIPE INSULATION ON TOP OF THE ARMACELL TAPE AND SECURE WITH MECHANICAL BANDING (FIG.3)

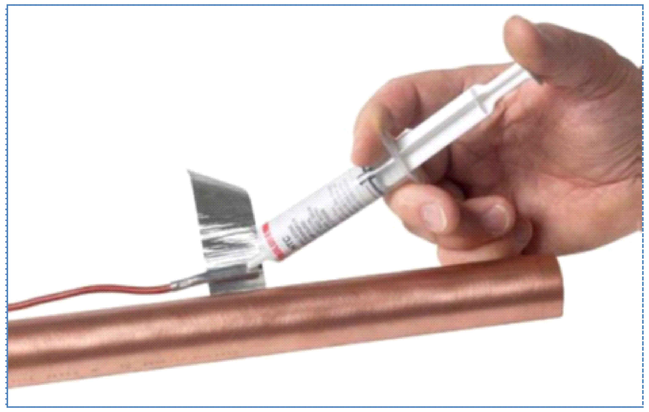


FIGURE 1

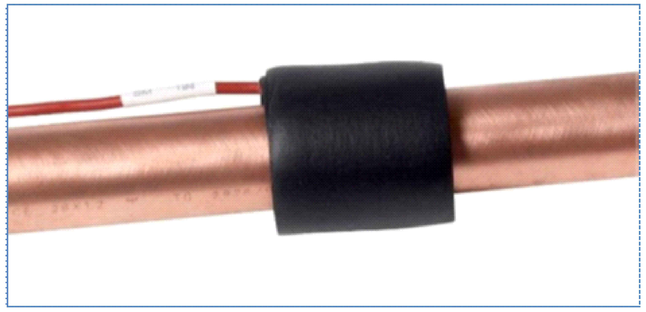
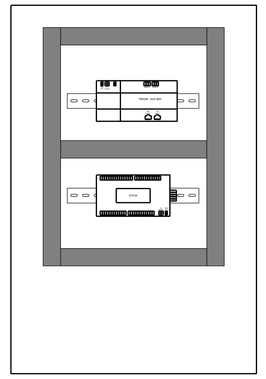


FIGURE 2

FIGURE 3

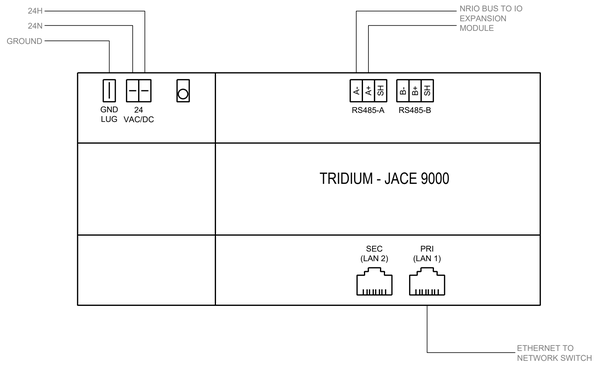
A DETAIL: SURFACE MOUNT TEMPERATURE SENSOR INSTALLATION
NOT TO SCALE



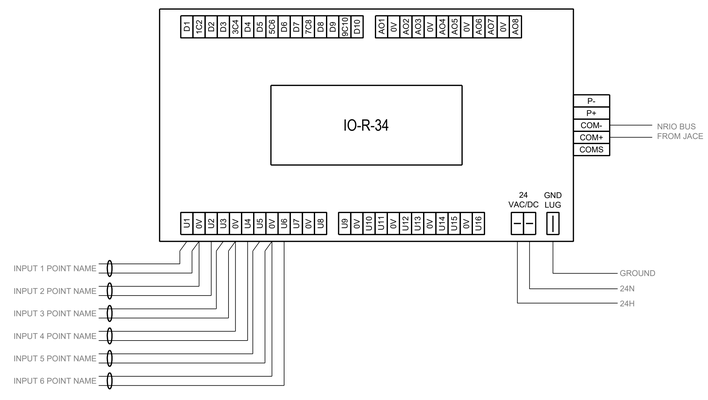
CLIMACHECK PANEL NOTES:

1. PROVIDE NEW DIN RAIL TO MOUNT NEW JACE AND EXPANSION MODULE..
2. PROVIDE NEW 24VAC CLASS 2 POWER LIMITED POWER SUPPLY.
3. NEW IP DROP TO PANEL FOR INTEGRATING JACE INTO NETWORK

B DETAIL: CLIMACHECK CONTROL PANEL
NOT TO SCALE



C DETAIL: TYPICAL JACE WIRING
NOT TO SCALE



D DETAIL: TYPICAL JACE I/O MODULE WIRING
NOT TO SCALE

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:

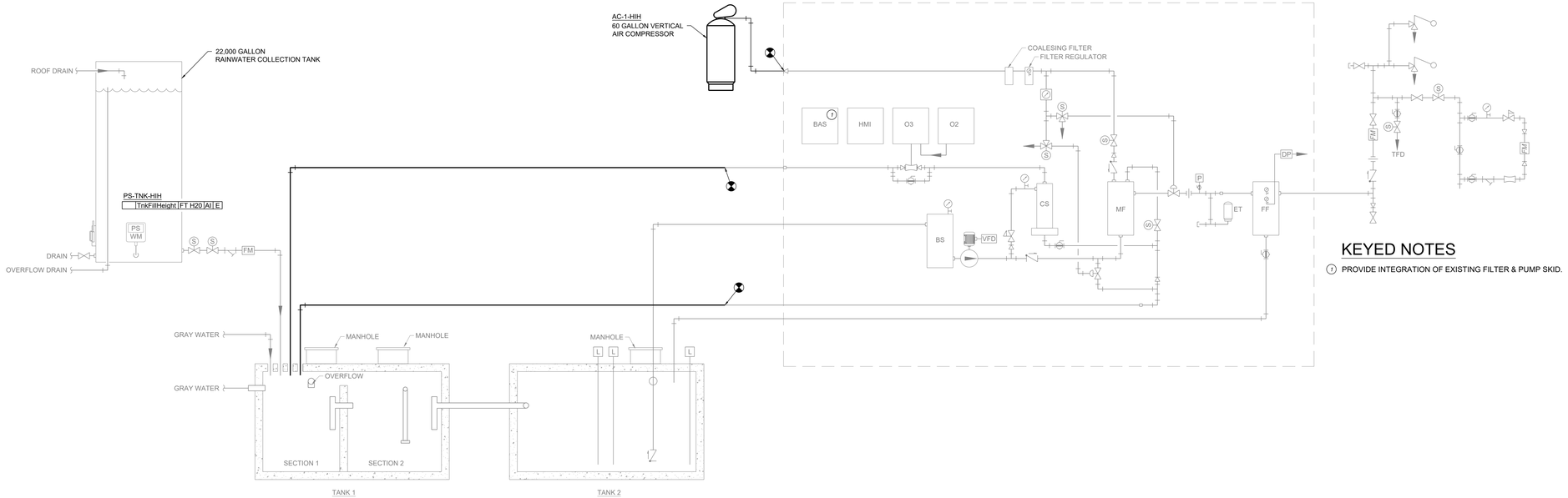
CLIMA-CHECK OVERALL DETAILS

SHEET NUMBER:

ATC303

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
13. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



1 HEIFER INTERNATIONAL CENTRAL UTILITY PLANT - COOLING TOWER FILTER PIPING DIAGRAM - MECHANICAL
SCALE: NONE

KEYED NOTES

(1) PROVIDE INTEGRATION OF EXISTING FILTER & PUMP SKID.

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

HEIFER RAINWATER COLLECTION SYSTEM CONTROL DIAGRAM AND SEQUENCE

SHEET NUMBER:

ATC302

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1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

CLINTON PRESIDENTIAL CENTER
GENERATOR DIAGRAM

SHEET NUMBER:

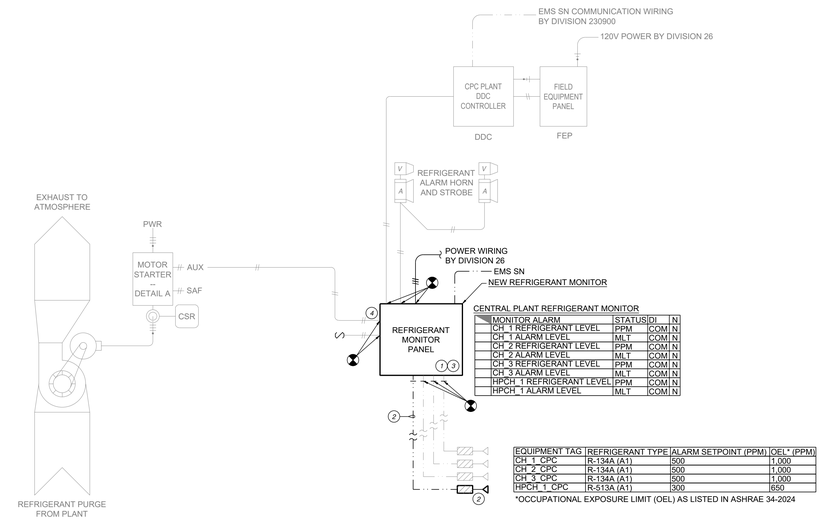
ATC301

GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, ... STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SETPOINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SETPOINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SETPOINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
5. ALL POINTS ARE TO BE TRENDED AT 15 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
6. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS AND STORED FOR A PERIOD OF 3 MONTHS. THEY SHALL BE LIVE AND HISTORICAL FOR THE FULL 3 MONTH PERIOD.
7. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SETPOINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
8. EQUIPMENT PROVIDED WITH CONTROLLERS (CHILLERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SETPOINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.

KEYED NOTES

1. REFRIGERANT MONITOR FURNISHED AND INSTALLED BY DIVISION 230900. REFRIGERANT MONITOR TO BE BACHARACH MULTI-ZONE GAS MONITOR CONFIGURED FOR R-134A AND R-513A WITH UNIT MOUNTED STROBE OR ENGINEER APPROVED EQUAL.
2. REFRIGERANT SENSING TUBES INSTALLED IN CONDUIT BY DIVISION 230900. QUANTITY AND LOCATION PER LOCAL CODE REQUIREMENTS, AUTHORITY HAVING JURISDICTION REQUIREMENTS, AND MANUFACTURER RECOMMENDATIONS. REFER TO MECHANICAL FLOOR PLANS FOR QUANTITIES AND LOCATIONS.
3. BAS SHALL RECEIVE ALL POINTS AVAILABLE FROM INTEGRATION TO THE REFRIGERANT MONITOR CONTROL PANEL. COORDINATE WITH ENGINEER OF RECORD ALL INFORMATION THAT IS TO BE DISPLAYED IN GRAPHICS. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND ON THIS SHEET SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE REFRIGERANT MONITOR GRAPHICS. REFRIGERANT MONITOR COMMUNICATES VIA MODBUS RTU OVER A RS-485 SERIAL INTERFACE.
4. INTERLOCK NEW REFRIGERANT MONITOR PANEL INTO EXISTING REFRIGERANT PURGE FAN MOTOR STARTER AUXILIARY INTERLOCK CIRCUIT. REFRIGERANT MONITOR TO START/STOP PURGE FAN IN THE EVENT OF A PURGE SITUATION.



CENTRAL PLANT REFRIGERANT MONITOR

MONITOR ALARM	STATUS	DI	N
CH_1 REFRIGERANT LEVEL	PPM	COM	N
CH_1 ALARM LEVEL	MLT	COM	N
CH_2 REFRIGERANT LEVEL	PPM	COM	N
CH_2 ALARM LEVEL	MLT	COM	N
CH_3 REFRIGERANT LEVEL	PPM	COM	N
CH_3 ALARM LEVEL	MLT	COM	N
HPCH_1 REFRIGERANT LEVEL	PPM	COM	N
HPCH_1 ALARM LEVEL	MLT	COM	N

EQUIPMENT TAG	REFRIGERANT TYPE	ALARM SETPOINT (PPM)	OEL* (PPM)
CH_1 CPC	R-134A (A1)	500	1,000
CH_2 CPC	R-134A (A1)	500	1,000
CH_3 CPC	R-134A (A1)	500	1,000
HPCH_1 CPC	R-513A (A1)	300	650

*OCCUPATIONAL EXPOSURE LIMIT (OEL) AS LISTED IN ASHRAE 34-2024

CPC PLANT VENTILATION SYSTEM SEQUENCE OF OPERATION:

REFRIGERANT MONITORING:
THE BAS SHALL MONITOR ALL POINTS AVAILABLE THROUGH INTEGRATION FROM THE REFRIGERANT MONITORING SYSTEM. IN THE EVENT THAT AN UNSAFE REFRIGERANT LEVEL IS DETECTED BY THE REFRIGERANT MONITOR, AN AUDIBLE ALARM SHALL BE ACTIVATED BY THE DDC PANEL DIGITAL OUTPUT. THE ALARM SHALL SOUND UNTIL SILENCED AT THE ALARM OR ACKNOWLEDGED AT THE WORKSTATION.

ALARM MONITORING:
AN ALARM WILL BE GENERATED AT THE BAS WORKSTATION IF ANY OF THE FOLLOWING OCCUR:
1. UNSAFE REFRIGERANT LEVEL

1 CPC PLANT EXHAUST CONTROL DIAGRAM AND SEQUENCE OF OPERATION

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

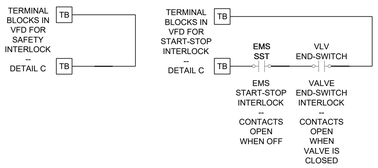
PROJECT NUMBER: 561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER HPCH REFRIGERANT PURGE SYSTEM

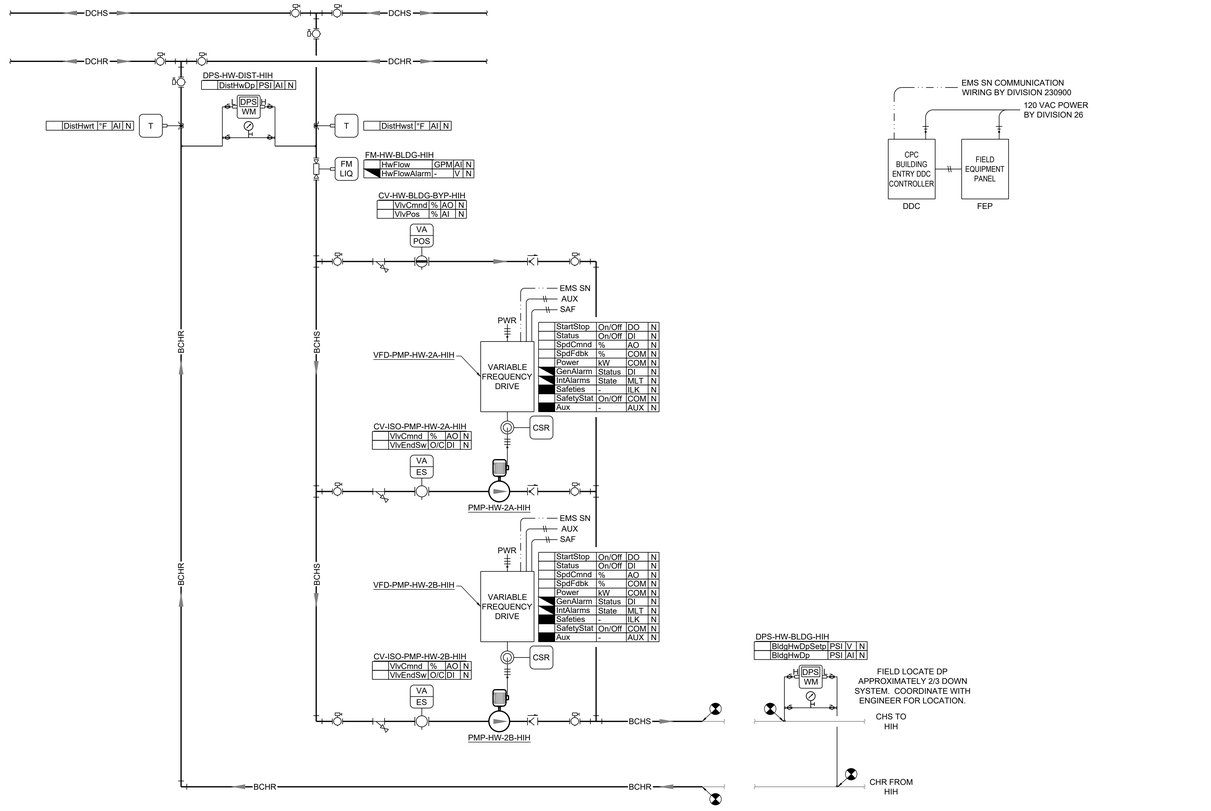
SHEET NUMBER:
ATC300

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
13. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



(2) HEATING WATER PUMP(S) VFD INTERLOCKS



SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmlChwBypVlvCmnd	LeadBchwpSpdCmnd	LeadBchwpIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MaintChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

ALARMS

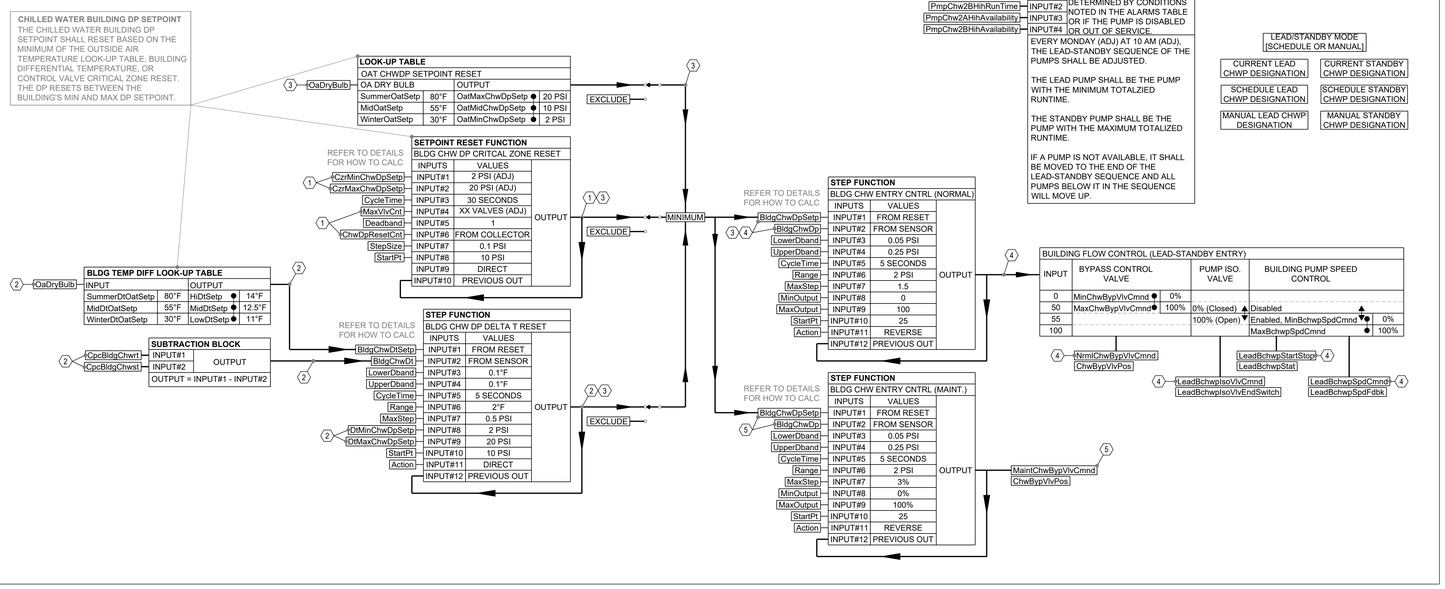
REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE		REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS	FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ).
	FAILED TWO-POSITION ACTUATOR	L, G	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
	UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	UNRELIABLE METER	TO BE COORD.	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	BldgChwst > DistChwstStpt + 2°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStpt + 5°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER.
VFD ALARMS AND WARNINGS	FAULT STATUS (AVAIL.)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
	COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
	COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
	STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
	VFD IN HAND (AVAIL.)	L, G	VFD IN HAND
	VFD IN HAND OFF (AVAIL.)	L, G	VFD IN HAND OFF
	VFD IN BYPASS	L, G	VFD IN BYPASS
	SAFETY INTERLOCK (AVAIL.)	L, G	VFD DISABLED BY SAFETY INTERLOCK

NOTES:
1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
3. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
4. ALARM CRITERIA AND REPORTING TO BE COORDINATED WITH THE FACILITY. ALARM REPORTING AS FOLLOWS:
   A. ALARMS ARE TO REPORT TO PRIORITIZED ALARM LOGS.
   B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
   C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS
   D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
5. ALARMS MARKED WITH "(AVAIL)" SHALL BE CONSIDERED IN THE ASSOCIATED EQUIPMENT'S AVAILABILITY DETERMINATION. IF THE ALARM IS ACTIVE, THEN THE EQUIPMENT SHALL BE MADE UNAVAILABLE.

TRENDING GROUPS:

1. BUILDING CRITICAL ZONE DP RESET
2. BUILDING DELTA T DP RESET
3. BUILDING CHW DP SETP RESET
4. NORMAL MODE BUILDING CHW DP CONTROL
5. MAINT. MODE BUILDING CHW DP CONTROL



(1) HEIFER INTERNATIONAL HEADQUARTERS HEATING WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

NOT TO SCALE

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CORPORATE SEAL

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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:
HEIFER INTERNATIONAL HQ HEATING WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

SHEET NUMBER:

ATC206

GENERAL NOTES:

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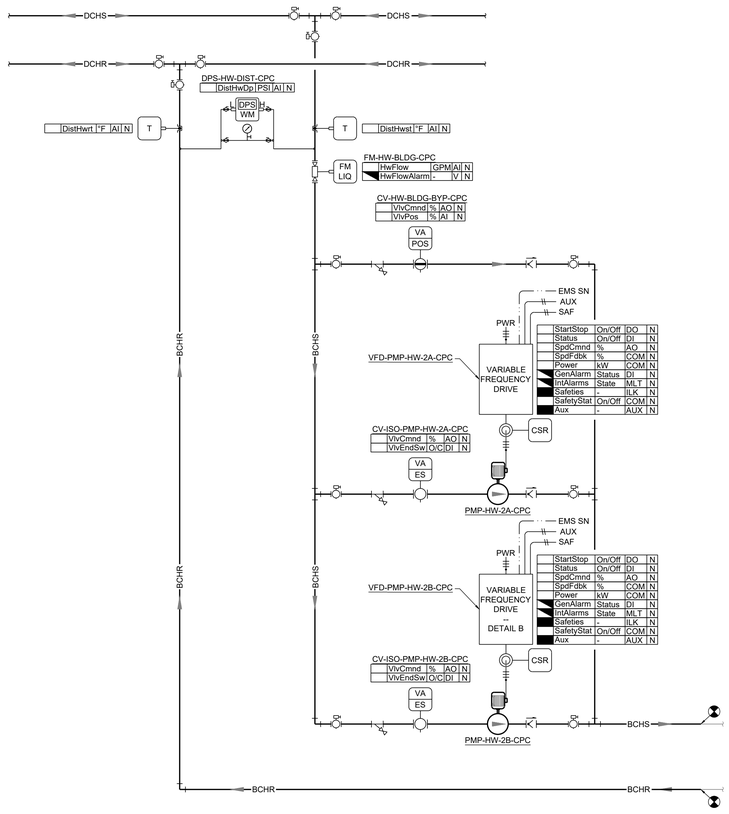
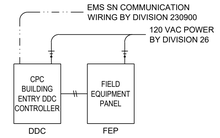
② HEATING WATER PUMP(S) VFD INTERLOCKS





SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmlChwBypVlvCmnd	LeadBchwpSpdCmnd	LeadBchwpIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MaintChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

ALARMS

REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE		REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS	FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ)
	FAILED TWO-POSITION ACTUATOR	L, G	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
	UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	UNRELIABLE METER	TO BE COORD.	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	BldgChwst > DistChwstStpt + 2°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStpt + 5°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER.
	FAULT STATUS (AVAIL)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
VFD ALARMS AND WARNINGS	COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
	COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
	STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
	VFD IN HAND (AVAIL)	L, G	VFD IN HAND
	VFD IN HAND OFF (AVAIL)	L, G	VFD IN HAND OFF
	VFD IN BYPASS	L, G	VFD IN BYPASS
	SAFETY INTERLOCK (AVAIL)	L, G	VFD DISABLED BY SAFETY INTERLOCK

NOTES:
1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
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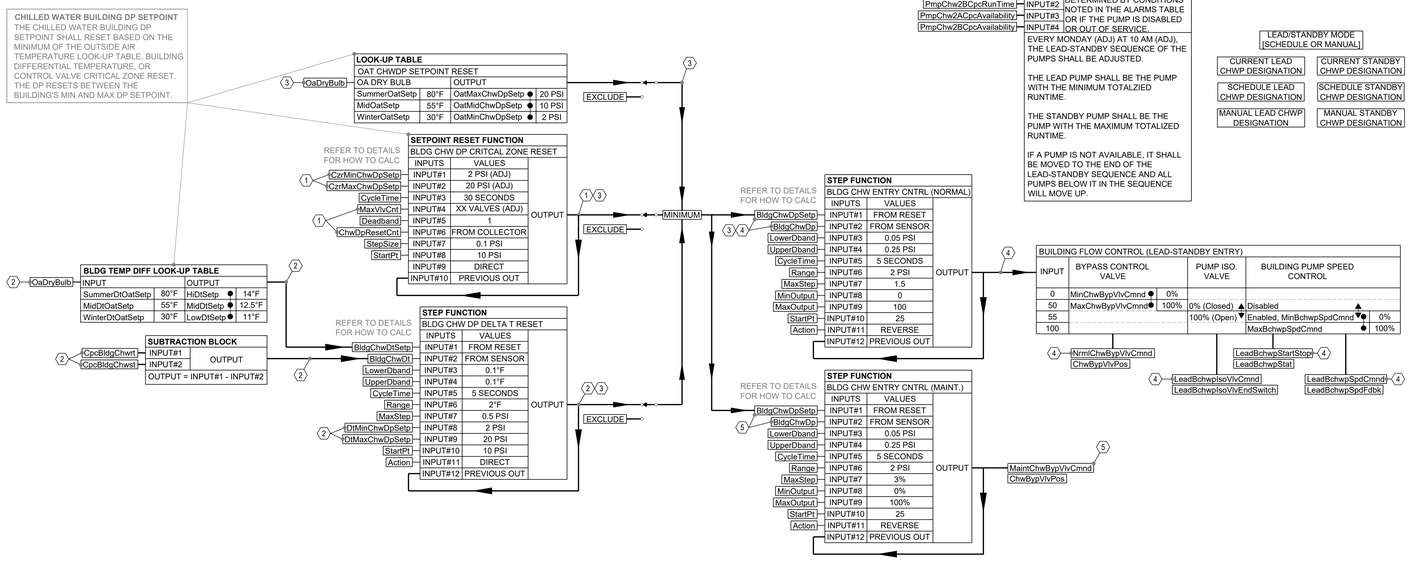
   B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
   C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS
   D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
5. ALARMS MARKED WITH "(AVAIL)" SHALL BE CONSIDERED IN THE ASSOCIATED EQUIPMENT'S AVAILABILITY DETERMINATION. IF THE ALARM IS ACTIVE, THEN THE EQUIPMENT SHALL BE MADE UNAVAILABLE.

TRENDING GROUPS:

1. BUILDING CRITICAL ZONE DP RESET
2. BUILDING DELTA T DP RESET
3. BUILDING CHW DP SETP RESET
4. NORMAL MODE BUILDING CHW DP CONTROL
5. MAINT. MODE BUILDING CHW DP CONTROL



① CLINTON PRESIDENTIAL CENTER HEATING WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

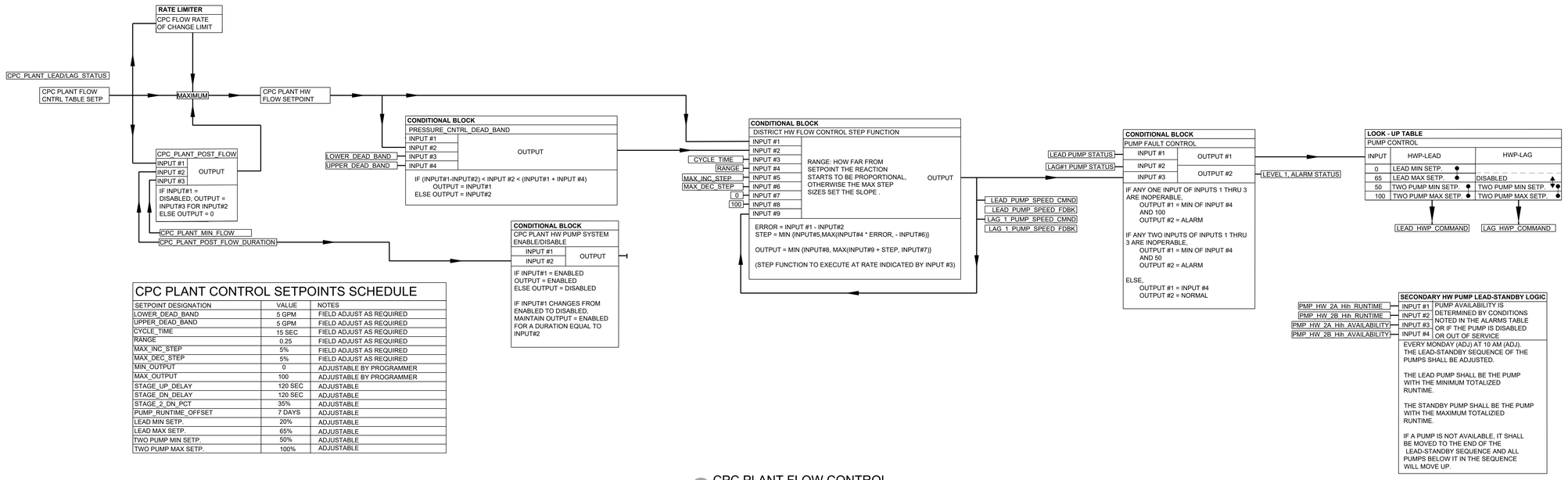
ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER BUILDING HEATING WATER ENTRY CONTROL DIAGRAM AND SEQUENCES

SHEET NUMBER:

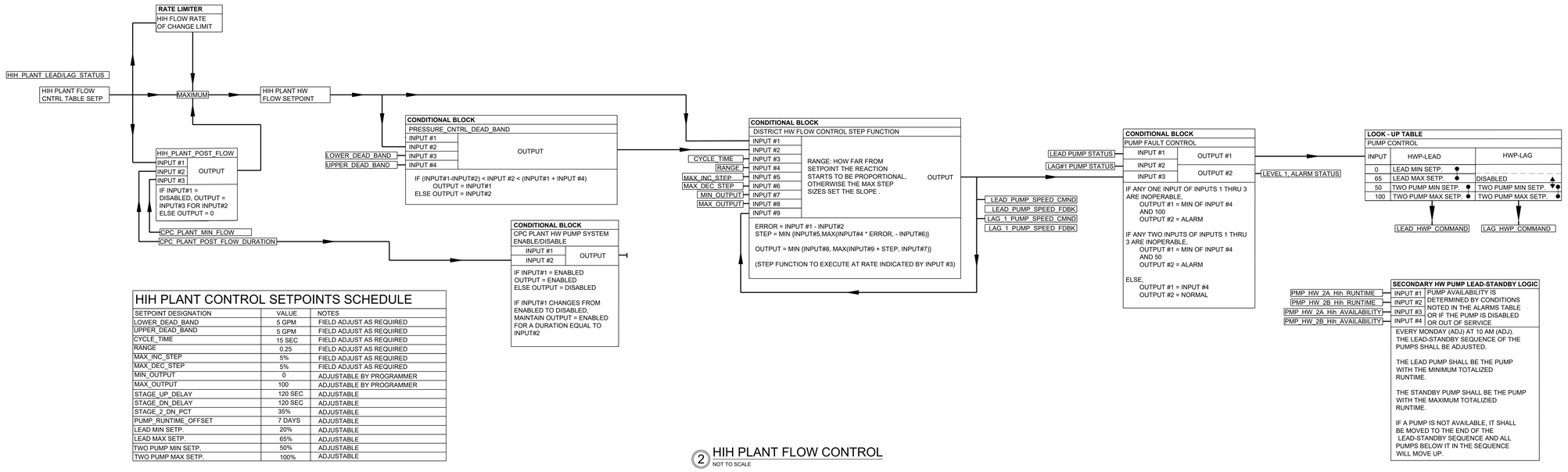
ATC205



CPC PLANT CONTROL SETPOINTS SCHEDULE

SETPOINT DESIGNATION	VALUE	NOTES
LOWER_DEAD_BAND	5 GPM	FIELD ADJUST AS REQUIRED
UPPER_DEAD_BAND	5 GPM	FIELD ADJUST AS REQUIRED
CYCLE_TIME	15 SEC	FIELD ADJUST AS REQUIRED
RANGE	0.25	FIELD ADJUST AS REQUIRED
MAX_INC_STEP	5%	FIELD ADJUST AS REQUIRED
MAX_DEC_STEP	5%	FIELD ADJUST AS REQUIRED
MIN_OUTPUT	0	ADJUSTABLE BY PROGRAMMER
MAX_OUTPUT	100	ADJUSTABLE BY PROGRAMMER
STAGE_UP_DELAY	120 SEC	ADJUSTABLE
STAGE_DN_DELAY	120 SEC	ADJUSTABLE
STAGE_2_DN_PCT	35%	ADJUSTABLE
PUMP_RUNTIME_OFFSET	7 DAYS	ADJUSTABLE
LEAD MIN SETP.	20%	ADJUSTABLE
LEAD MAX SETP.	65%	ADJUSTABLE
TWO PUMP MIN SETP.	50%	ADJUSTABLE
TWO PUMP MAX SETP.	100%	ADJUSTABLE

1 CPC PLANT FLOW CONTROL
NOT TO SCALE



HIH PLANT CONTROL SETPOINTS SCHEDULE

SETPOINT DESIGNATION	VALUE	NOTES
LOWER_DEAD_BAND	5 GPM	FIELD ADJUST AS REQUIRED
UPPER_DEAD_BAND	5 GPM	FIELD ADJUST AS REQUIRED
CYCLE_TIME	15 SEC	FIELD ADJUST AS REQUIRED
RANGE	0.25	FIELD ADJUST AS REQUIRED
MAX_INC_STEP	5%	FIELD ADJUST AS REQUIRED
MAX_DEC_STEP	5%	FIELD ADJUST AS REQUIRED
MIN_OUTPUT	0	ADJUSTABLE BY PROGRAMMER
MAX_OUTPUT	100	ADJUSTABLE BY PROGRAMMER
STAGE_UP_DELAY	120 SEC	ADJUSTABLE
STAGE_DN_DELAY	120 SEC	ADJUSTABLE
STAGE_2_DN_PCT	35%	ADJUSTABLE
PUMP_RUNTIME_OFFSET	7 DAYS	ADJUSTABLE
LEAD MIN SETP.	20%	ADJUSTABLE
LEAD MAX SETP.	65%	ADJUSTABLE
TWO PUMP MIN SETP.	50%	ADJUSTABLE
TWO PUMP MAX SETP.	100%	ADJUSTABLE

2 HIH PLANT FLOW CONTROL
NOT TO SCALE

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

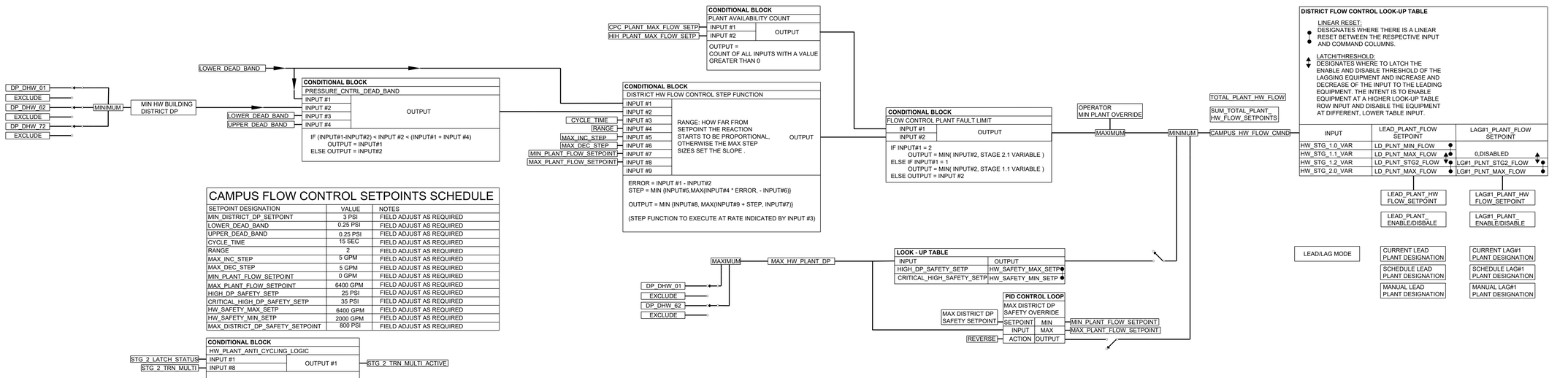
SHEET TITLE:

DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:

ATC204

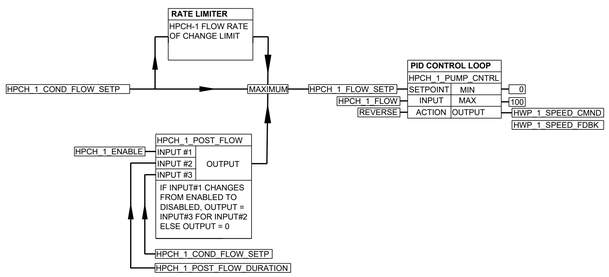
NOTES:
1. NO PLANT SHALL EVER BE ASSIGNED A FLOW SET POINT BELOW ITS TRUE MANUFACTURER MINIMUM SUSTAINABLE FLOW, REGARDLESS OF CALCULATIONS.
2. THIS PLANT FLOW CONTROL LOOK UP TABLE IS DYNAMIC, PLANT SET POINTS AND DESIGNATIONS SHALL FOLLOW THE PLANT NO MATTER WHAT LEAD OR LAG POSITION THEY ARE PLACED IN.
3. REFER TO THE "CAMPUS HW CALCULATIONS SCHEDULE" ON ATCXXX FOR VARIABLE DEFINITIONS.
4. UPON A COMMAND TO DISABLE A PLANT, MINIMUM RUN TIME AND PUMP DOWN TIMES SHALL BE REQUIRED AS RECOMMENDED BY EQUIPMENT MANUFACTURERS. POST FLOW RATE SHALL BE HELD AT THE MINIMUM MANUFACTURER RECOMMENDED POST FLOW RATES AND/OR DURATIONS.
5. DISABLED AND UNAVAILABLE PLANTS RECEIVE FLOW SET POINTS OF 0 AFTER THEY ARE RELOCATED TO THE END OF THE PLANT FLOW CONTROL TABLE.
6. IF A PLANT SHOULD FAULT, ALARM, BE IN MAINTENANCE MODE, OR FOR ANY REASON BE UNABLE TO OPERATE (HW VFD, ISO VALVE FAIL TO OPEN, FLOW FAIL TO PROOF WITHIN ALLOTTED DURATION...ETC) UPON A CALL FROM A PLANT LEAD LAG SCHEDULE, THAT PLANT SHALL BE MOVED TO THE END OF THE QUEUE, AND THE NEXT PLANT SHALL AUTOMATICALLY TAKE ITS PLACE. THE SYSTEM SHALL NOT BE ALLOWED TO CALL FOR PLANTS THAT ARE UNABLE TO OPERATE (IF A LAGGING PLANT IS UNAVAILABLE, THE PRECEDING PLANTS SHALL NOT BE ALLOWED TO DECREASE FLOW TO BEGIN THE NEXT STAGE).
7. IF THE HPCH IS BELOW MINIMUM LOAD SETPOINT (25% CAPACITY), THE HPCH SHALL BE DISABLED FOR A MINIMUM OF 4HRS (UNLESS RE-ENABLED BY OPERATOR) AND UNTIL THE SYSTEM LOAD IS > THAN 25% OF THE HPCH LOAD.



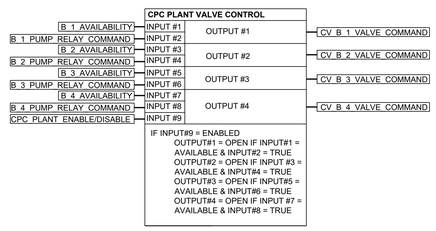
CAMPUS FLOW CONTROL SETPOINTS SCHEDULE

SETPOINT DESIGNATION	VALUE	NOTES
MIN_DISTRICT_DP_SETPOINT	3 PSI	FIELD ADJUST AS REQUIRED
LOWER_DEAD_BAND	0.25 PSI	FIELD ADJUST AS REQUIRED
UPPER_DEAD_BAND	0.25 PSI	FIELD ADJUST AS REQUIRED
CYCLE_TIME	15 SEC	FIELD ADJUST AS REQUIRED
RANGE	2	FIELD ADJUST AS REQUIRED
MAX_INC_STEP	5 GPM	FIELD ADJUST AS REQUIRED
MAX_DEC_STEP	5 GPM	FIELD ADJUST AS REQUIRED
MIN_PLANT_FLOW_SETPOINT	0 GPM	FIELD ADJUST AS REQUIRED
MAX_PLANT_FLOW_SETPOINT	6400 GPM	FIELD ADJUST AS REQUIRED
HIGH_DP_SAFETY_SETP	25 PSI	FIELD ADJUST AS REQUIRED
CRITICAL_HIGH_DP_SAFETY_SETP	35 PSI	FIELD ADJUST AS REQUIRED
HW_SAFETY_MAX_SETP	6400 GPM	FIELD ADJUST AS REQUIRED
HW_SAFETY_MIN_SETP	2000 GPM	FIELD ADJUST AS REQUIRED
MAX_DISTRICT_DP_SAFETY_SETPOINT	800 PSI	FIELD ADJUST AS REQUIRED

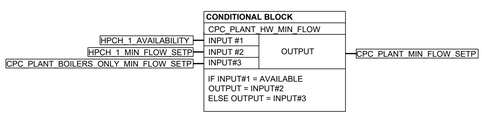
1 CAMPUS HEATING WATER PLANT FLOW ASSIGNMENT
NOT TO SCALE



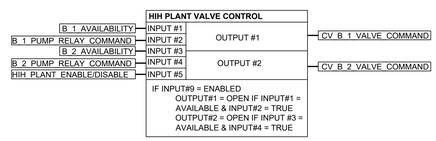
2 HPCH-1 FLOW CONTROL
NOT TO SCALE



3 CPC BOILER PUMP CONTROL
NOT TO SCALE



4 CPC PLANT MIN FLOW CALCULATION
NOT TO SCALE



5 HIH BOILER ISOLATION VALVE CONTROL
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

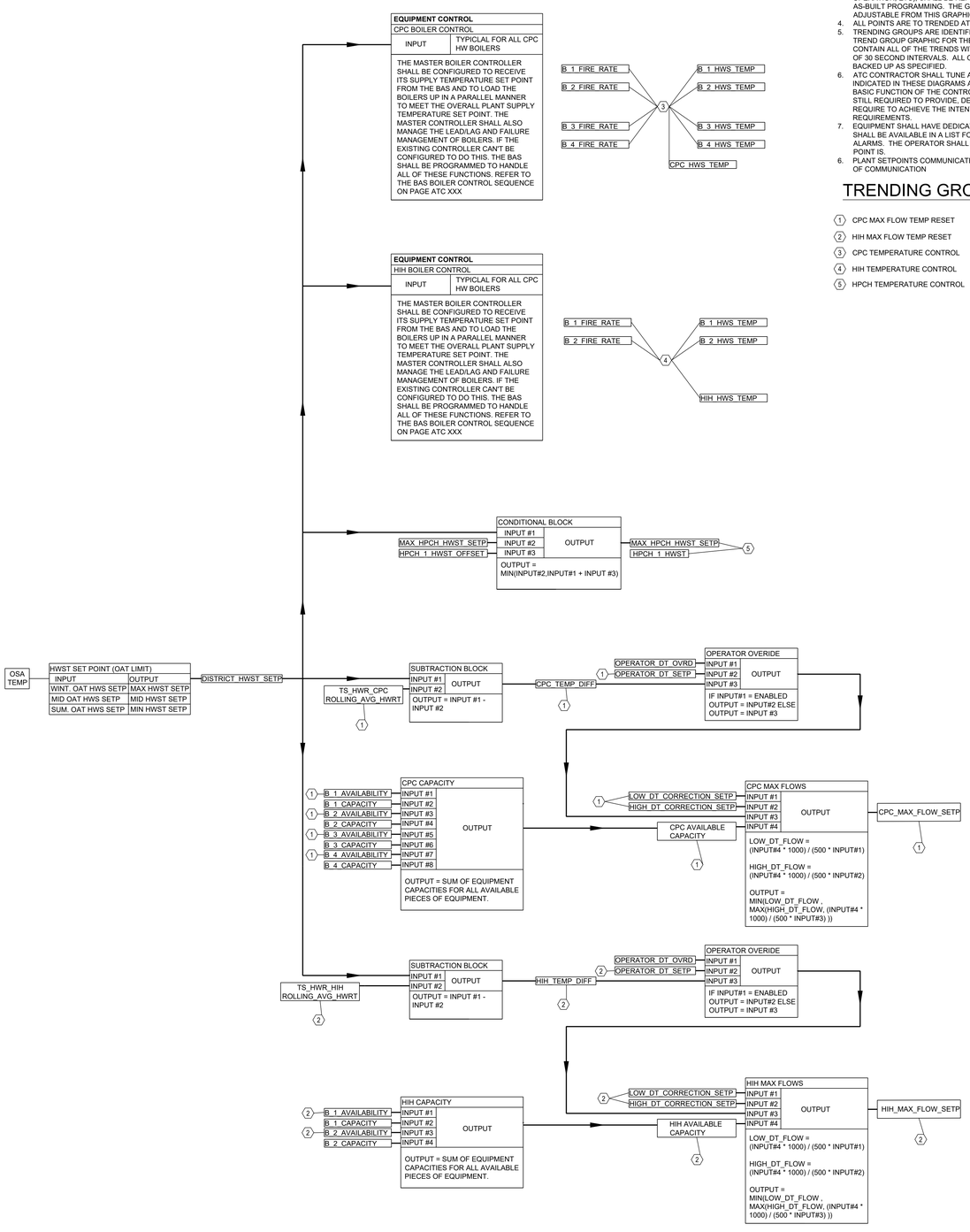
CLIINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:
ATC203



GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, ... STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. ALL POINTS ARE TO TRENDED AT 15 MINUTE INTERVALS AND BAKED UP AS SPECIFIED
5. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS. ALL OTHER POINTS ARE TO BE TRENDED AT 15 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
6. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAIN ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
7. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
6. PLANT SETPOINTS COMMUNICATED OVER THE NETWORK SHALL HOLD THE LAST VALUE UPON A LOSS OF COMMUNICATION

TRENDING GROUPS:

1. CPC MAX FLOW TEMP RESET
2. HIH MAX FLOW TEMP RESET
3. CPC TEMPERATURE CONTROL
4. HIH TEMPERATURE CONTROL
5. HPCH TEMPERATURE CONTROL

HW PLANTS SETPOINT SCHEDULE

SETPOINT DESIGNATION	VALUE	NOTES
HPCH_1_COND_FLOW_SETP	GPM	NOT ADJUSTABLE
HPCH_1_HWST_OFFSET	°F	FIELD ADJUST AS REQUIRED
MAX_HPCH_HWST_SETP	°F	NOT ADJUSTABLE
CPC_OAT_HWS_SETP	°F	ADJUSTABLE
HIH_OAT_HWS_SETP	°F	ADJUSTABLE
MAX_HWST_SETP	°F	ADJUSTABLE
MID_HWST_SETP	°F	ADJUSTABLE
MIN_HWST_SETP	°F	ADJUSTABLE
CPC_LOW_DT_CORRECTION_SETP	°F	ADJUSTABLE
CPC_HIGH_DT_CORRECTION_SETP	°F	ADJUSTABLE
HIH_LOW_DT_CORRECTION_SETP	°F	ADJUSTABLE
HIH_HIGH_DT_CORRECTION_SETP	°F	ADJUSTABLE
HIH_MIN_FLOW_SETP	GPM	ADJUSTABLE BY PROGRAMMER
CPC_BOLIERS_ONLY_MIN_FLOW_SETP	GPM	ADJUSTABLE BY PROGRAMMER

ALARMS

ALARM TYPE	STATUS	PRIORITY	CRITERIA
CHILLER CONTROLLER ALARMS/WARNINGS	-	2	ALARMS AND WARNINGS COMMUNICATED FROM THE HPCH CONTROLLER.
FAILED ACTUATOR	-	1	HPCH COND. LWT > MAX HPCH LWT SETPOINT + 3 °F (ADJ) FOR MORE THAN 5 MIN (ADJ)
FAILED END SWITCH	-	3	HPCH TEMP DIFF < MIN HPCH TEMP DIFF SETPOINT - 2 °F (ADJ) FOR MORE THAN 5 MIN (ADJ)
VFD FAILURE	-	2	ALARMS AND WARNINGS COMMUNICATED FROM THE BOILER PANELS.
FAILED CURRENT SWITCH/SENSOR STATUS	-	3	COND BOILER RETURN TEMP < MIN COND BOILER RETURN TEMP SETPOINT (ADJ) FOR MORE THAN 5 MIN (ADJ)
HIGH ZONE CHW PRESSURE	-	3	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
LOW ZONE CHW PRESSURE	-	3	HWST < MIN HWST SETPOINT - 2 °F (ADJ) FOR MORE THAN 5 MIN (ADJ)
LOW CHILLER CHW FLOW	-	3	HWST > MAX HWST SETPOINT + 2 °F (ADJ) FOR MORE THAN 5 MIN (ADJ)
HIGH CHILLER CHW FLOW	-	2	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD
LOW EVAPORATOR WATER LEAVING TEMP	-	3	DISTRICT DP < DISTRICT DP SETPOINT - 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
HIGH EVAPORATOR WATER LEAVING TEMP	-	3	DISTRICT DP < DISTRICT DP SETPOINT + 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW TOWER WATER ENTERING TEMP	-	3	BLDG DP < BLDG DP SETPOINT - 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
HIGH SYSTEM PRESSURE	-	3	BLDG DP > BLDG DP SETPOINT + 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW SYSTEM PRESSURE	-	2	PLANT FLOW < MIN PLANT FLOW SETPOINT - 100 GPM (ADJ) FOR MORE THAN 5 MIN (ADJ)
UNRELIABLE SENSOR	-	2	PLANT FLOW > MAX PLANT FLOW SETPOINT + 100 GPM (ADJ) FOR MORE THAN 5 MIN (ADJ)
UNRELIABLE METER	-	3	PRESSURE REQUEST > 85 PSI (ADJ) FOR MORE THAN 10 MIN. (ADJ)

NOTES:
1. ALARMS FROM HX CONTROLLER SHALL BE IDENTIFIED IF CONTROLLER IS CAPABLE. A GENERAL ALARM IS NOT ACCEPTABLE FOR UNITS WITH COMPATIBLE CONTROLLERS
2. INTEGRATED BOILER, CHILLER, AND VFD ALARMS SHALL BE IDENTIFIED BY DESCRIPTIONS. OPERATORS SHALL NOT HAVE TO LOOK-UP BINARY VALUES OR ADDRESSES TO DETERMINE WHAT AN ALARM, FAULT, OR WARNING MEANS.

CAMPUS HW CALCULATIONS SCHEDULE

DESIGNATION	CALCULATION
CPC_PLANT_RANGE	= CPC_MAX_FLOW_SETP
HIH_PLANT_RANGE	= HIH_MAX_FLOW_SETP
STG_2_START_LOAD	= LEAD_PLANT_MAX_FLOW_SETP
STG_2_MIN_SUM	= LEAD_PLANT_MIN_FLOW_SETP + LAG#1_PLANT_MIN_FLOW_SETP
STG_2_RANGE	= LEAD_PLANT_RANGE + LAG#1_PLANT_RANGE
PLANT_VAR_STG_2	= (STG_2_START_LOAD - STG_2_MIN_SUM) / STG_2_RANGE
STG_2_TRN_MULTI	= (STG_2_START_LOAD - STG_2_TRNDN_LIMIT * (STG_2_START_LOAD - STG_1_PLANT_SUM)) / STG_2_START_LOAD
LD_PLANT_STG_2_FLOW	= MAX((LEAD_PLANT_MIN_FLOW + LEAD_PLANT_RANGE * PLANT_VAR_STG_2) * STG_2_TRN_MULTI_ACTIVE), LAG#1_PLANT_MIN_FLOW)
LG#1_PLANT_STG_2_FLOW	= MAX((LAG#1_PLANT_MIN_FLOW + LAG#1_PLANT_RANGE * PLANT_VAR_STG_2) * STG_2_TRN_MULTI_ACTIVE), LAG#1_PLANT_MIN_FLOW)
STG_1_PLANT_SUM	= LEAD_PLANT_MIN_FLOW
STG_2_PLANT_SUM	= LD_PLANT_STG_2_FLOW + LG#1_PLANT_STG_2_FLOW
PLANT_STG_1.0_VAR	= LEAD_PLANT_MIN_FLOW
PLANT_STG_1.1_VAR	= LEAD_PLANT_MAX_FLOW * PLANT_STG_1.1_OFFSET * PLANT_STG_1.1_RESET
PLANT_STG_2.0_VAR	= PLANT_STG_1.1_VAR / PLANT_STG_1.1_OFFSET * PLANT_STG_2.0_OFFSET
PLANT_STG_2.1_VAR	= (LEAD_PLANT_MAX_FLOW + LAG#1_PLANT_MAX_FLOW)
PLANT_STG_1.1_RESET	= STG_2_TRN_MULTI_ACTIVE

HEATING WATER PLANT LEAD LAG SCHEDULE

CURRENT MODE	BAS/MANUAL
BAS MODE	ENABLE/DISABLE
MANUAL MODE	ENABLE/DISABLE

PLANT DESIGNATION	CURRENT STATUS	LEAD/LAG OPTIONS MANUAL	EXEC	LEAD/LAG OPTIONS BAS	EXEC	FLOW SCHEME	AVAILABLE CAPACITY	STANDBY TIMER (DAYS)	MAX STANDBY SETPOINTS (DAYS)
CPC	LEAD	LEAD OR LAG#1		LEAD OR LAG#1		VARIABLE	-	-	28
HIH	LAG #1	LEAD OR LAG#1		LEAD OR LAG#1		VARIABLE	-	-	28

NOTES:
1. LEAD AND LAG STATUS WILL AUTOMATICALLY ADJUST FOR PLANTS EXCLUDED DUE TO MAINTENANCE SHUTDOWNS AND ALARM SHUTDOWNS, OR IF A PLANT IS NOT ALLOWED TO OPERATE FOR ANY REASON. A POWER OUTAGE SHALL CONSTITUTE AN ALARM SHUTDOWN AND THE EMERGENCY POWERED PLANT SHALL AUTOMATICALLY TAKE THE LEAD POSITION. WHEN A PLANT AVAILABILITY TO OPERATE IS RESTORED, IT WILL REMAIN IN ITS QUEUE POSITION (FOR INSTANCE, IF AN ALARM IS CLEARED FOR PLANT 2 AND IT WAS THE LAG 1 POSITION BUT WAS MOVED TO LAG 2, IT IS TO REMAIN IN THE LAG 2 POSITION UNTIL ANOTHER FAULTED PLANT TAKES IT PLACE, OR UNTIL AN OPERATOR MOVES IT TO ANOTHER POSITION IN THE QUEUE.
2. THERE SHALL BE AN AUTOMATIC LEAD/LAG SCHEDULE SET UP TO AUTOMATICALLY ROTATE PLANTS BY THE BAS AND THERE SHALL BE A MANUAL LEAD/LAG SCHEDULE SET UP BY THE OPERATOR. THE OPERATOR SHALL BE ABLE TO SELECT BETWEEN MANUAL MODE AND AUTOMATIC MODE. LEAD/LAG STATUS SHALL BE SELECTABLE BY THE OPERATOR FROM SCHEDULE. THE OPERATOR SHALL BE SABLE TO SEE THE CURRENT LEAD/LAG STATUS AND HAVE A QUEUE FOR MANUAL SELECTION. UPON CLICKING THE EXECUTE BUTTON, THE MANUAL SELECTION SHALL BE ACCEPTED BY THE BAS AND THE CURRENT STATUS SHALL BE UPDATED.
3. IF THE HPCH AND AT LEAST ONE CPC PLANT BOILER ARE AVAILABLE, BUT THE CPC PLANT IS NOT IN THE LEAD POSITION, PROVIDE A POP UP ALARM EVERY 2 HRS (ADJ) THAT THE CPC PLANT SHOULD BE PLACED IN LEAD POSITION.
4. THE OPERATOR SHALL BE ABLE TO ADJUST THE FLOW SCHEME FOR EACH PLANT.
5. ALL ALARMS SHALL BE RECORDED AND SHALL BE CAPABLE OF BEING SORTED BY PRIORITY AND DATE.
6. ONLY ONE PLANT SHALL BE ALLOWED BY PROGRAMMING IN A QUEUE POSITION AT A TIME (ONLY ONE LEAD PLANT, ONE LAG #1 PLANT, ONE LAG #2 PLANT,ETC.) AND EACH PLANT SHALL ONLY BE ALLOWED ONE QUEUE POSITION AT A TIME.
7. THIS SCHEDULE TO BE PROVIDED AS A GRAPHIC FOR AN OPERATOR TO SEE THE CURRENT STATUS AND TO SELECT AND RE-ARRANGE THE ORDER OF PLANTS.
8. PROVIDE A MEANS TO RE-ARRANGE PLANT ORDER WITHOUT FALSE STARTS OF THE PLANTS.
9. THE AVAILABLE CAPACITY FOR A PLANT IS CALCULATED ON ATCXXX IN THE "CAMPUS HEATING PLANTS MAXIMUM FLOW RATE CALCULATIONS" SEQUENCE.
10. THIS PROJECT REQUIRES THE RECONFIGURATION OF EXISTING BOILER CONTROLS FROM PRIMARY SECONDARY TO VARIABLE PRIMARY. PROVIDE THE REQUIRED FIELD MODIFICATIONS TO ACHIEVE THE REQUIREMENTS OF THIS DESIGN. ALSO PROVIDE GATEWAY AS REQUIRED TO INTEGRATE EXISTING BOILER CONTROLLERS TO THE BAS.
11. THE BOILERS SHALL BE CAPABLE OF BEING ENABLED AND DISABLED FROM THE BAS.

HEATING WATER EQUIPMENT SETPOINT SCHEDULE

PLANT	DESIGNATION	HEATING CAPACITY (MBH)	MIN FLOW SETP (GPM)	LOAD CHANGE LIMIT	POST-FLOW-DURATION	AVAILABILITY	STANDBY TIMER (DAYS)	MAX STANDBY SETPOINTS (DAYS)
HIH	B-1			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
	B-2			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
CPC	B-1			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
	B-2			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
	B-3			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
	B-4			-	2 MINUTES	AVAIL./UNAVAIL.	-	28
	HPCH-1			30 GPM/MIN	2 MINUTES	AVAIL./UNAVAIL.	-	28

NOTES:
1. COORDINATE ALL POST-FLOW DURATIONS WITH EQUIPMENT MANUFACTURER REQUIREMENTS. THESE CAN BE VIA COMMAND FROM THE BOILER CONTROLLER, IF AVAILABLE.
2. STANDBY TIMER SHALL INCREASE COUNT IF A BOILER WAS NOT RAN FOR A MINIMUM OF 4 HRS.
3. STANDBY TIMER SHALL RESET IF A BOILER HAS BEEN RAN FOR A MINIMUM OF 4 HRS. (ADJ)

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:

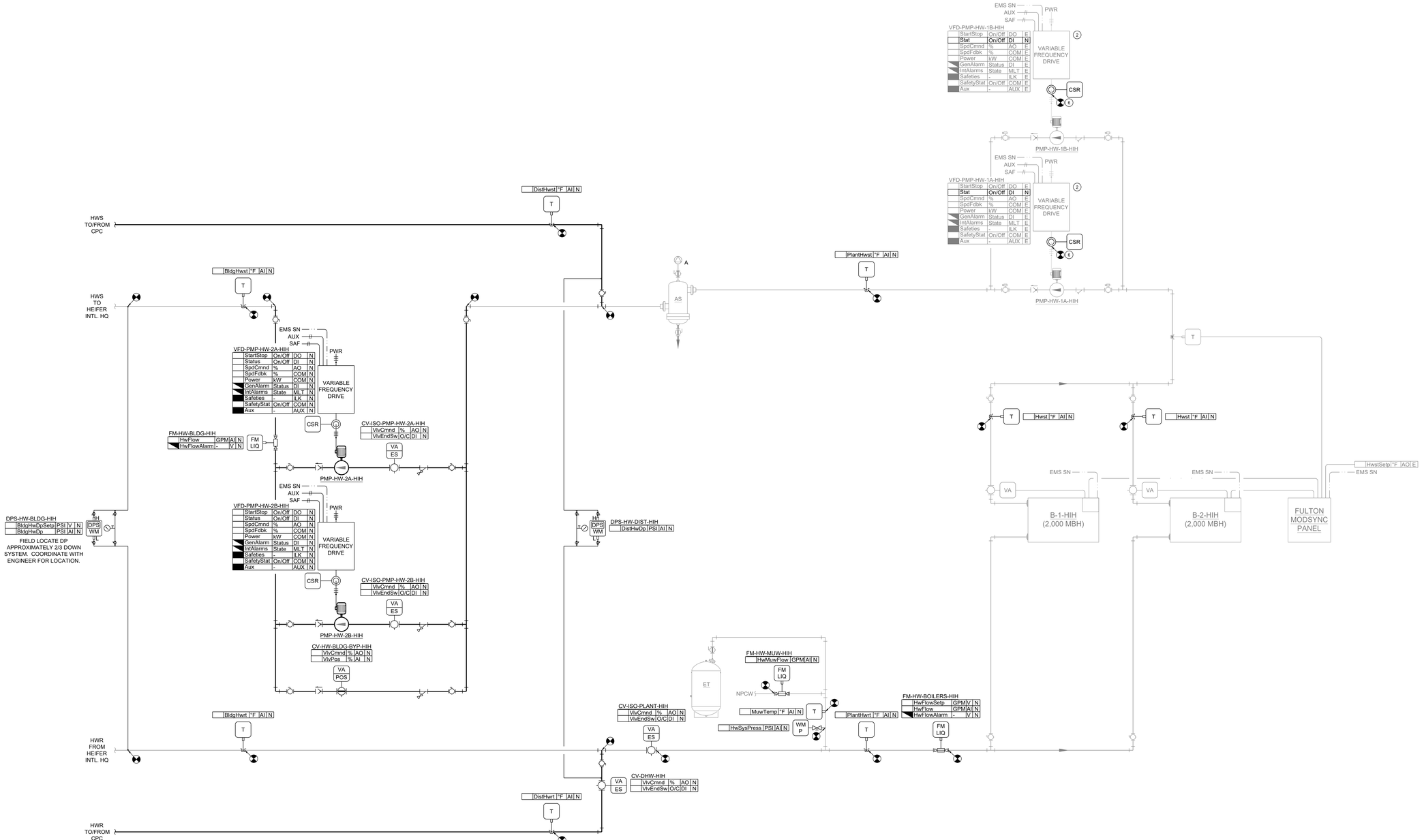
DISTRICT HEATING WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:

ATC202

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
13. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



1 HEIFER INTERNATIONAL HEADQUARTERS HEATING WATER PLANT CONTROL DIAGRAM
NOT TO SCALE

ENFRA
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Phone: (504) 883-8291

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CORPORATE SEAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

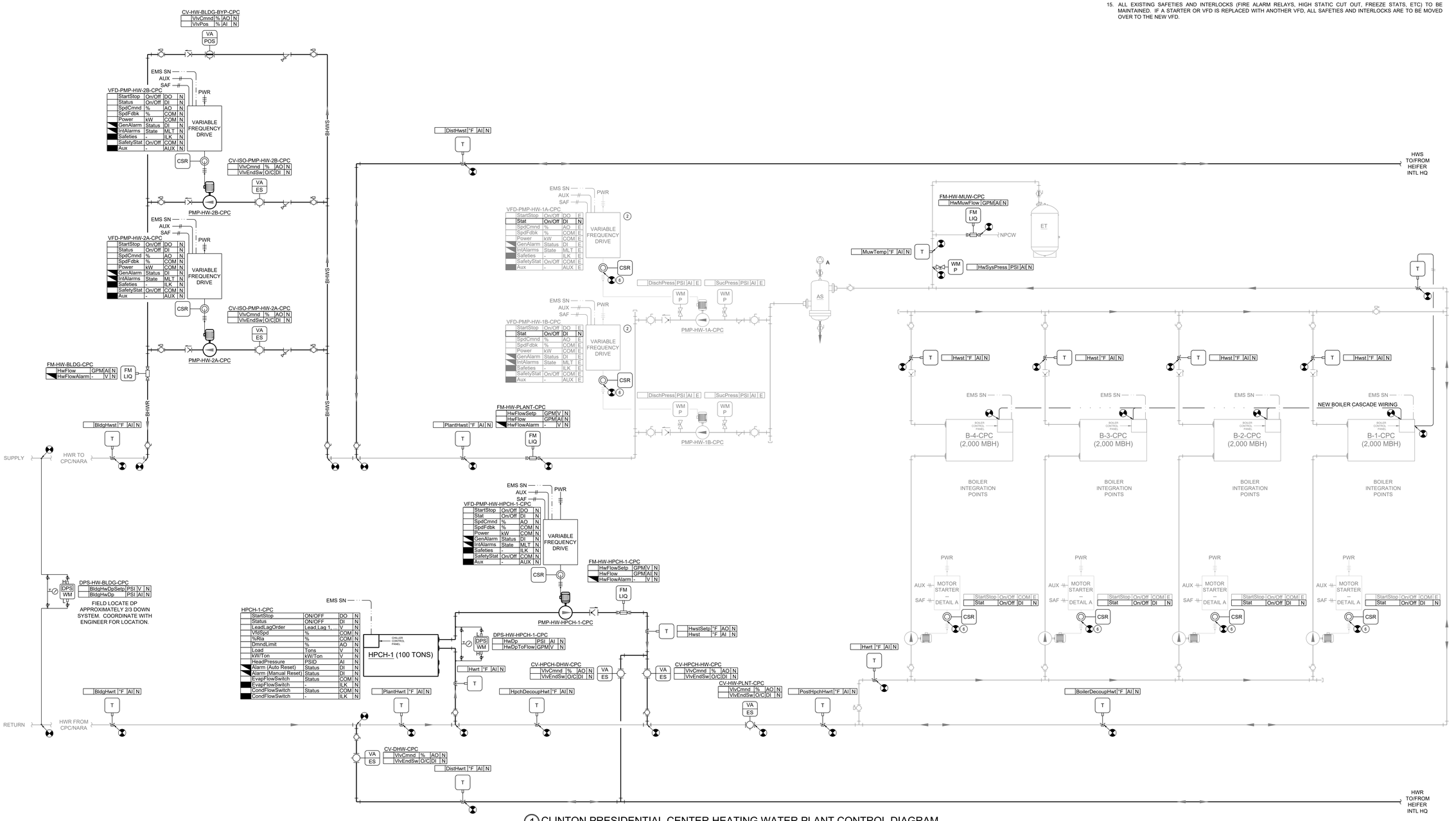
SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS HEATING WATER PLANT CONTROL DIAGRAM

SHEET NUMBER:

ATC201

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
13. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



1 CLINTON PRESIDENTIAL CENTER HEATING WATER PLANT CONTROL DIAGRAM
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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

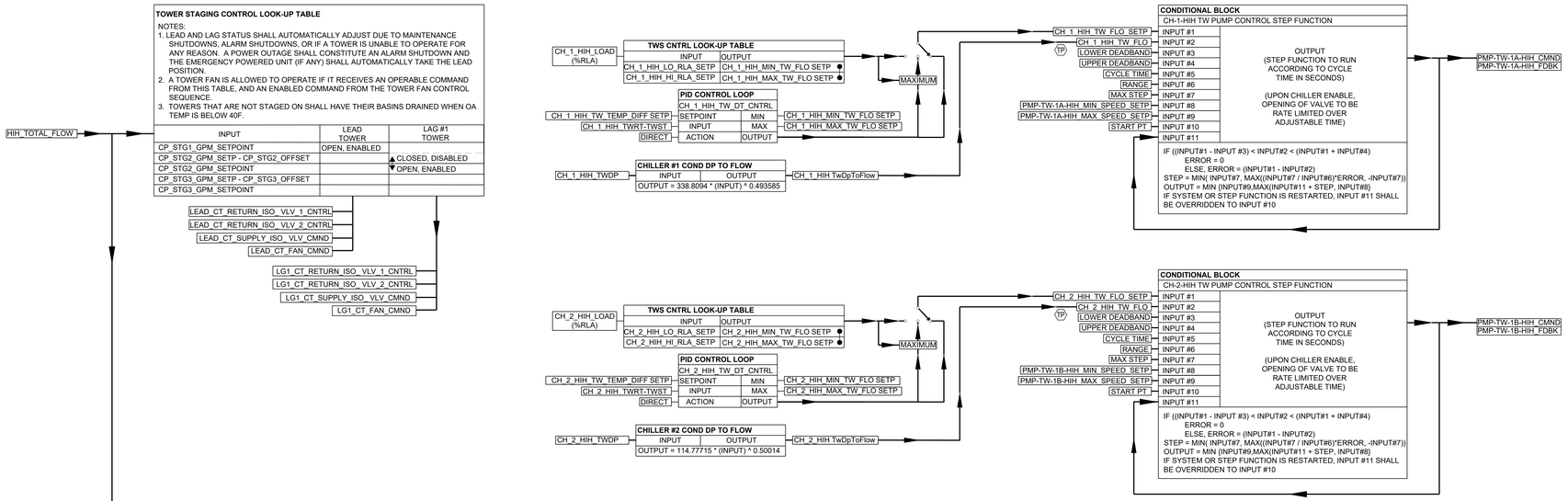
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

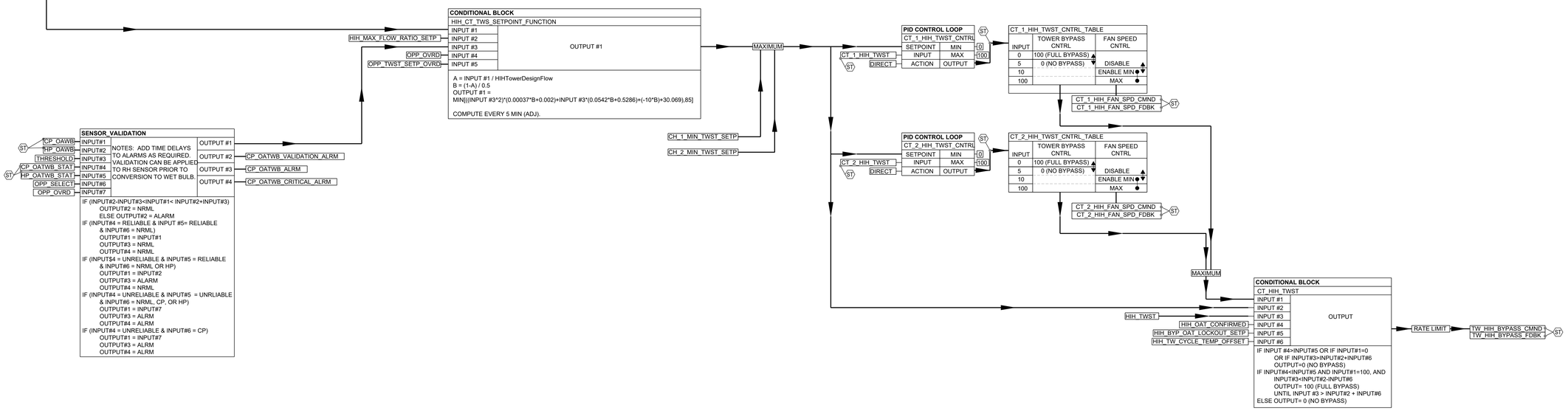
CLINTON PRESIDENTIAL CENTER HEATING WATER PLANT CONTROL DIAGRAM

SHEET NUMBER:

ATC200



2 TOWER FLOW CONTROL SEQUENCE
NOT TO SCALE



1 TOWER TEMPERATURE CONTROL SEQUENCE
NOT TO SCALE

GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, ... STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
6. INDICATE OVERRIDES BY HIGHLIGHTING THE VALUES IN PURPLE, OR CHANGING THE TEXT COLORS TO PURPLE.
7. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS. ALL OTHER POINTS ARE TO BE TRENDED AT 15 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
8. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAIN ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
9. EQUIPMENT PROVIDED WITH CONTROLLERS (CHILLERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE UPAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
10. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
11. A PROPORTIONAL STEP FUNCTION CAN BE USED IN PLACE OF TOWER FAN SPEED PID CONTROL LOOP.

TW PUMP SETPOINTS SCHEDULE

NOTES: ADJUSTABLE. FIELD TUNE AS REQUIRED. EACH CHILLER SHALL HAVE ITS OWN SET POINTS AND PARAMETERS TO BE INDIVIDUALLY TUNED. VALVES SHALL BE CLOSED WHEN CHILLER IS OFF.

DESIGNATION | | VALUE CH_1_HIH | VALUE CH_2_HIH
TW PUMP CONTROL STEP FUNCTION | LOWER DEADBAND (GPM) | 0 | 0
| UPPER DEADBAND (GPM) | 15 | 15
| CYCLE TIME (SEC) | 30 | 30
| RANGE (GPM) | 15 | 15
| MAX STEP (% SPEED CMND) | 2.0 | 2.0
| MIN_TWP_SPEED_SETP (%) | 20.0 | 20.0
| MAX_TWP_SPEED_SETP (%) | 100.0 | 100.0
| START PT (% SPEED CMND) | 55.0 | 80.0
LO_RLA_SETP (%) | | 50.0 | 50.0
HI_RLA_SETP (%) | | 80.0 | 80.0
MIN_TW_FLO SETP (GPM) | | 550 | 250
MAX_TW_FLO SETP (GPM) | | 900 | 250
TW_TEMP_DIFF SETP (°F) | | 10.0 | 10.0
MIN_TWST_SETP (°F) | | 55.0 | 65.0

TOWER LEAD LAG SCHEDULE

TOWER DESIGNATION | RUN CMND | RUN STATUS | CURRENT RUN POSITION | DESIRED RUN POSITION | EXEC. | SCHEDULED RUN POSITION | EXEC. | RUNTIME (HRS) | STANDBY TIMER (DAYS) | MAX STANDBY SET POINT (DAYS)
CT_1_HIH | - | - | - | - | | - | | - | - | 28
CT_2_HIH | - | - | - | - | | - | | - | - | 28

NOTES:
1. LEAD AND LAG STATUS WILL AUTOMATICALLY ADJUST FOR UNITS EXCLUDED DUE TO MAINTENANCE SHUTDOWNS AND ALARM SHUTDOWNS, OR IF A TOWER IS NOT ALLOWED TO OPERATE FOR ANY REASON. WHEN A TOWER'S AVAILABILITY TO OPERATE IS RESTORED, IT WILL REMAIN IN ITS QUEUE POSITION (FOR INSTANCE, IF AN ALARM IS CLEARED FOR TOWER 2 AND IT WAS IN THE LAG 1 POSITION BUT WAS MOVED TO LAG 2, IT IS TO REMAIN IN THE LAG 2 POSITION UNTIL ANOTHER FAULTED TOWER TAKES IT PLACE, OR UNTIL AN OPERATOR MOVES IT TO ANOTHER POSITION IN THE QUEUE.
2. TOWER RUN POSITION SHALL ALTERNATE WEEKLY BASED ON RUN TIME. TOWER RUN POSITION SHALL BE CAPABLE OF BEING OVERRIDDEN BY OPERATOR. THE OPERATOR SHALL BE ABLE TO SEE THE CURRENT RUN POSITION AND SELECT A DESIRED RUN POSITION. UPON CLICKING AN EXECUTE BUTTON, AN ACCEPTABLE RUN ORDER SHALL BE IMPLEMENTED AND THE CURRENT RUN ORDER SHALL BE UPDATED. ONLY ONE TOWER SHALL BE ALLOWED BY PROGRAMMING IN A QUEUE POSITION AT A TIME (ONLY ONE LEAD TOWER, ONE LAG #1 TOWER, AND ONE LAG #2 TOWER). IF THE RUN ORDER IS NOT ACCEPTABLE, THE UNACCEPTABLE CONDITION(S) SHALL BE HIGHLIGHTED. PROVIDE THIS FUNCTION AT THE LIVE SEQUENCE GRAPHIC (AS INDICATED ABOVE), AT THE CONTROL PIPING DIAGRAM, AND AT THE PLANT DASHBOARD.
3. PROVIDE A TOWER STANDBY ALARM IF THE MAXIMUM STANDBY TIMER SET POINT IS EXCEEDED. STANDBY TIMER SHALL RESET WHEN A TOWER IS DISABLED IF TOWER HAS RUN FOR A MINIMUM OF 4 CONTINUOUS HOURS (ADJUSTABLE).
4. ANY TOWER SHALL BE CAPABLE OF RUNNING IN ANY RUN POSITION.
5. PROVIDE A TABLE SIMILAR TO THIS FOR THE OPERATOR TO DETERMINE RUN ORDER.

SETPOINTS

VARIABLE NAME | VALUE | NOTES
CP_STG1_GPM_SETPOINT | 0 GPM | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG2_OFFSET | 50 GPM | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG2_GPM_SETPOINT | 500 GPM | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_CT_MIN_FAN_SPD_CMND | 25% | ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER FAN.
CP_CT_MIN_FAN_SPD_CMND | 100% | ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER FAN.
CP_BYP_OAT_LOCKOUT_SETP | 51°F | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_TW_CYCLE_TEMP_OFFSET | 5°F | ADJUSTABLE. FIELD TUNE AS REQUIRED.
LOWER DEADBAND | 2% | ADJUSTABLE. FIELD TUNE AS REQUIRED.
UPPER DEADBAND | 2% | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CYCLE TIME | 1 MIN | ADJUSTABLE. FIELD TUNE AS REQUIRED.
RANGE | 5% | ADJUSTABLE. FIELD TUNE AS REQUIRED.
MAX STEP | 2% | ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_CT_2X_RETURN_ISO_VLV_LO | 80% | ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER VALVE
CP_CT_2X_RETURN_ISO_VLV_HI | 100% | ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER VALVE.
START PT | 100% | ADJUSTABLE. FIELD TUNE AS REQUIRED.

TOWER MODES OF OPERATION

MODE | CT_SUPPLY_ISO_ VLV_CMND | CT_RETURN_ISO_ VLV_CMND | CT_FAN_CMND
NORMAL ENABLED | CT_SUPPLY_ISO_ VLV_CMND | CT_RETURN_ISO_ VLV_CMND | CT_FAN_CMND
NORMAL DISABLED | CLOSED | CLOSED | DISABLED
MAINTENANCE SHUTDOWN | CLOSED | CLOSED | DISABLED
ALARM SHUTDOWN (UPAS OR EQUIPMENT CONTROLLER) | CLOSED | CLOSED | DISABLED

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK | DATE | DESCRIPTION

ISSUE DATE: 11/20/2025
PROJECT NUMBER: 561470540

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER SYSTEM CONTROL SEQUENCES

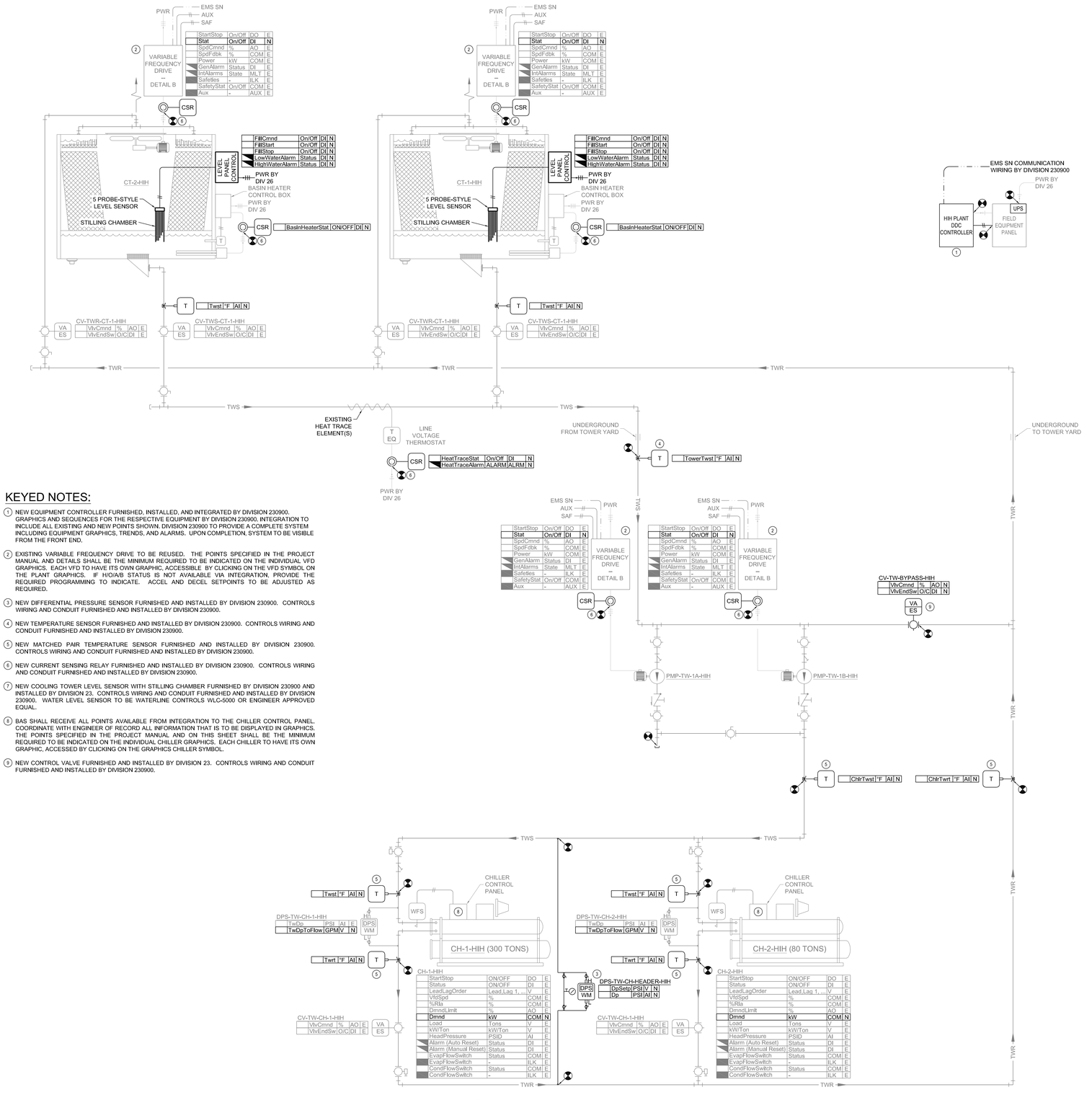
SHEET NUMBER:
ATC114

GENERAL NOTES:

1. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE FURNISHED AND INSTALLED BY DIVISION 230900, UNLESS NOTED OTHERWISE. CONTROL VALVES AND THERMOWELLS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. TRANSFORMERS OR POWER SUPPLIES ARE FURNISHED BY DIVISION 230900. DIVISION 26 TO WIRE 120V POWER TO TRANSFORMERS OR POWER SUPPLIES. DIVISION 230900 TO WIRE 24V POWER FROM TRANSFORMERS OR POWER SUPPLIES TO CONTROLLER.
2. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
3. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
4. IF COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
5. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
6. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
7. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
8. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
9. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
10. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
11. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
12. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
13. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.

KEYED NOTES:

1. NEW EQUIPMENT CONTROLLER FURNISHED, INSTALLED, AND INTEGRATED BY DIVISION 230900. GRAPHICS AND SEQUENCES FOR THE RESPECTIVE EQUIPMENT BY DIVISION 230900. INTEGRATION TO INCLUDE ALL EXISTING AND NEW POINTS SHOWN. DIVISION 230900 TO PROVIDE A COMPLETE SYSTEM INCLUDING EQUIPMENT GRAPHICS, TRENDS, AND ALARMS. UPON COMPLETION, SYSTEM TO BE VISIBLE FROM THE FRONT END.
2. EXISTING VARIABLE FREQUENCY DRIVE TO BE REUSED. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND DETAILS SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL VFD GRAPHICS. EACH VFD TO HAVE ITS OWN GRAPHIC, ACCESSIBLE BY CLICKING ON THE VFD SYMBOL ON THE PLANT GRAPHICS. IF H/O/A/B STATUS IS NOT AVAILABLE VIA INTEGRATION, PROVIDE THE REQUIRED PROGRAMMING TO INDICATE. ACCEL AND DECEL SETPOINTS TO BE ADJUSTED AS REQUIRED.
3. NEW DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
4. NEW TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
5. NEW MATCHED PAIR TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
6. NEW CURRENT SENSING RELAY FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
7. NEW COOLING TOWER LEVEL SENSOR WITH STILLING CHAMBER FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900. WATER LEVEL SENSOR TO BE WATERLINE CONTROLS WLC-5000 OR ENGINEER APPROVED EQUAL.
8. BAS SHALL RECEIVE ALL POINTS AVAILABLE FROM INTEGRATION TO THE CHILLER CONTROL PANEL. COORDINATE WITH ENGINEER OF RECORD ALL INFORMATION THAT IS TO BE DISPLAYED IN GRAPHICS. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND ON THIS SHEET SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL CHILLER GRAPHICS. EACH CHILLER TO HAVE ITS OWN GRAPHIC, ACCESSED BY CLICKING ON THE GRAPHICS CHILLER SYMBOL.
9. NEW CONTROL VALVE FURNISHED AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.



1 HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER CONTROL DIAGRAM

NOT TO SCALE

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CORPORATE SEAL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

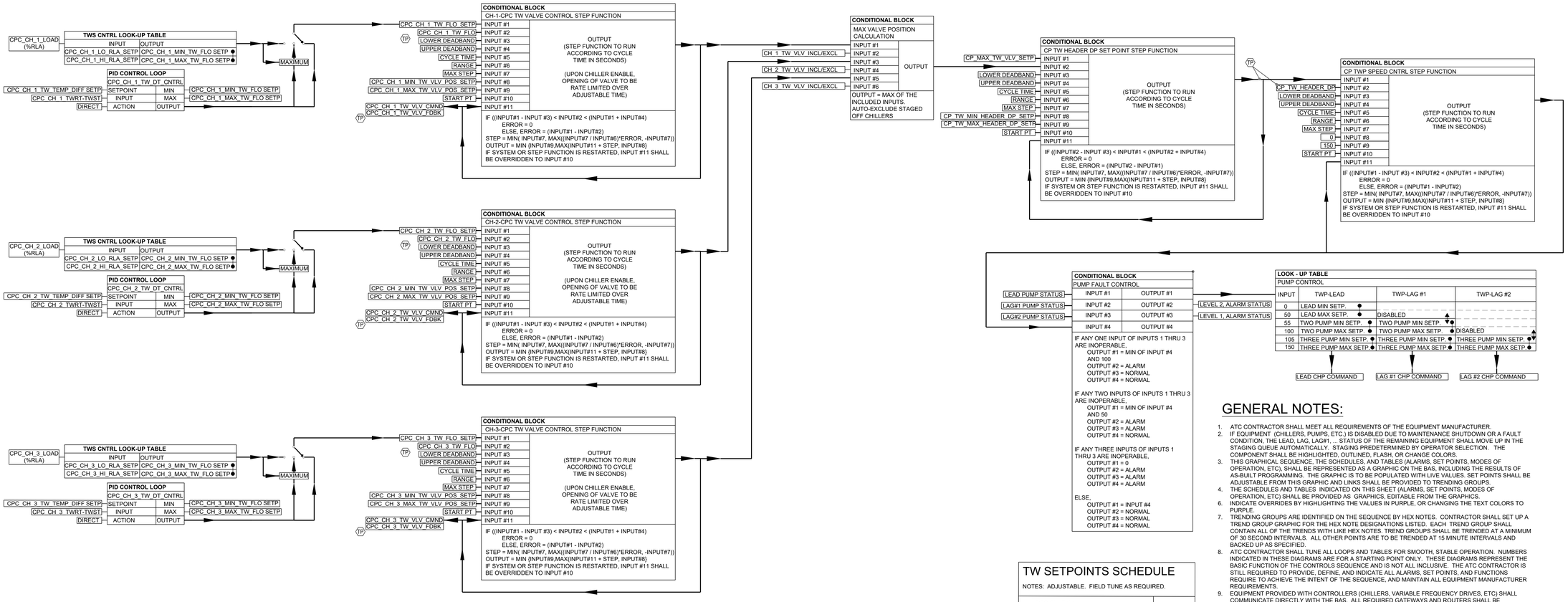
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER SYSTEM CONTROL DIAGRAM

SHEET NUMBER:

ATC113



1 TOWER FLOW CONTROL SEQUENCE
NOT TO SCALE

TW VLV SETPOINTS SCHEDULE

NOTES: ADJUSTABLE. FIELD TUNE AS REQUIRED. EACH CHILLER SHALL HAVE ITS OWN SET POINTS AND PARAMETERS TO BE INDIVIDUALLY TUNED. VALVES SHALL BE CLOSED WHEN CHILLER IS OFF.

DESIGNATION		VALUE		
		CH_1	CH_2	CH_3
TW VALVE CONTROL STEP FUNCTION	LOWER DEADBAND (GPM)	10	10	10
	UPPER DEADBAND (GPM)	15	15	15
	CYCLE TIME (SEC)	15	15	15
	RANGE (GPM)	85	85	85
	MAX STEP (% VALVE CMND)	2.0	2.0	2.0
	MIN_TW_VLV_POS_SETP (%)	30.0	30.0	30.0
	MAX_TW_VLV_POS_SETP (%)	80.0	80.0	80.0
	START PT (% VALVE CMND)	25.0	25.0	25.0
LO_RLA_SETP (%)		50.0	50.0	50.0
HI_RLA_SETP (%)		80.0	80.0	80.0
MIN_TW_FLO SETP (GPM)		350	350	900
MAX_TW_FLO SETP (GPM)		900	900	900
TW_TEMP_DIFF SETP (°F)		10.0	10.0	10.0

TW SETPOINTS SCHEDULE

NOTES: ADJUSTABLE. FIELD TUNE AS REQUIRED.

DESIGNATION		VALUE
TW HEADER DP SETPOINT STEP FUNCTION	CP_MAX_TW_VLV_SETP	80%
	LOWER DEADBAND (%)	2.5
	UPPER DEADBAND (%)	2.5
	CYCLE TIME (SEC)	15
	RANGE (%)	10
	MAX STEP (PSID)	0.1
	CP_TW_MIN_HEADER_DP_SETP	0.5
	CP_TW_MAX_HEADER_DP_SETP	8.0
TW PUMP SPEED CONTROL STEP FUNCTION	START PT (PSID)	6.5
	LOWER DEADBAND (PSID)	0.0
	UPPER DEADBAND (PSID)	0.1
	CYCLE TIME (SEC)	30
	RANGE (PSID)	0.25
	MAX STEP (VALUE)	5.0
	START PT (VALUE)	50.0
LEAD MIN SETP.		20%
LEAD MAX SETP.		60%
TWO PUMP MIN SETP.		50%
TWO PUMP MAX SETP.		65%
THREE PUMP MIN SETP.		55%
THREE PUMP MAX SETP.		100%

GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, ... STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
6. INDICATE OVERRIDES BY HIGHLIGHTING THE VALUES IN PURPLE, OR CHANGING THE TEXT COLORS TO PURPLE.
7. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS. ALL OTHER POINTS ARE TO BE TRENDED AT 15 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
8. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAIN ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
9. EQUIPMENT PROVIDED WITH CONTROLLERS (CHILLERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE UPAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
10. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
11. A PROPORTIONAL STEP FUNCTION CAN BE USED IN PLACE OF TOWER FAN SPEED PID CONTROL LOOP.

TOWER WATER PUMP LEAD-LAG SCHEDULE

PUMP DESIGNATION	LEAD-LAG STATUS	LEAD-LAG OPTIONS NORMAL	RUN TIME (HRS)
TWP-1-CPC	LEAD	LEAD, LAG #1, LAG #2, LAG #3, LAG #4	-
TWP-2-CPC	LAG #1	LEAD, LAG #1, LAG #2, LAG #3, LAG #4	-
TWP-3-CPC	LAG #2	LEAD, LAG #1, LAG #2, LAG #3, LAG #4	-

NOTES:
1. LEAD AND LAG STATUS WILL AUTOMATICALLY ADJUST FOR UNITS EXCLUDED DUE TO MAINTENANCE SHUTDOWNS, AND ALARM SHUTDOWNS.
2. OPERATOR SHALL ESTABLISH QUEUE POSITIONS IN THE SCHEDULE. WHICH SHALL AUTOMATICALLY BE ROTATED ONCE PER WEEK (ADJUSTABLE).
3. LEAD LAG STATUS SHALL BE SELECTABLE BY OPERATOR FROM A UPAS SCHEDULE.

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

CLINTON PRESIDENTIAL CENTER TOWER WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:

ATC112

TOWER STAGING CONTROL LOOK-UP TABLE

NOTES:
1. LEAD AND LAG STATUS SHALL AUTOMATICALLY ADJUST DUE TO MAINTENANCE SHUTDOWNS, ALARM SHUTDOWNS, OR IF A TOWER IS UNABLE TO OPERATE FOR ANY REASON. A POWER OUTAGE SHALL CONSTITUTE AN ALARM SHUTDOWN AND THE EMERGENCY POWERED UNIT (IF ANY) SHALL AUTOMATICALLY TAKE THE LEAD POSITION.
2. A TOWER FAN IS ALLOWED TO OPERATE IF IT RECEIVES AN OPERABLE COMMAND FROM THIS TABLE, AND AN ENABLED COMMAND FROM THE TOWER FAN CONTROL SEQUENCE.
3. TOWERS THAT ARE NOT STAGED ON SHALL HAVE THEIR BASINS DRAINED WHEN OA TEMP IS BELOW 40F.

INPUT	LEAD TOWER	LAG #1 TOWER	LAG #2 TOWER
CP_STG1_GPM_SETPOINT	OPEN, ENABLED		
CP_STG2_GPM_SETP - CP_STG2_OFFSET		▲ CLOSED, DISABLED	
CP_STG2_GPM_SETPOINT		▼ OPEN, ENABLED	
CP_STG3_GPM_SETP - CP_STG3_OFFSET			▲ CLOSED, DISABLED
CP_STG3_GPM_SETPOINT			▼ OPEN, ENABLED

CPC_TOTAL_FLOW

LEAD_CT_RETURN_ISO_ VLV_1_CNTRL
LEAD_CT_RETURN_ISO_ VLV_2_CNTRL
LEAD_CT_SUPPLY_ISO_ VLV_CMND
LEAD_CT_FAN_CMND

LG1_CT_RETURN_ISO_ VLV_1_CNTRL
LG1_CT_RETURN_ISO_ VLV_2_CNTRL
LG1_CT_SUPPLY_ISO_ VLV_CMND
LG1_CT_FAN_CMND

LG2_CT_RETURN_ISO_ VLV_1_CNTRL
LG2_CT_RETURN_ISO_ VLV_2_CNTRL
LG2_CT_SUPPLY_ISO_ VLV_CMND
LG2_CT_FAN_CMND

TOWER LEAD LAG SCHEDULE

TOWER DESIGNATION	RUN CMND	RUN STATUS	CURRENT RUN POSITION	DESIRED RUN POSITION	EXEC.	SCHEDULED RUN POSITION	EXEC.	RUNTIME (HRS)	STANDBY TIMER (DAYS)	MAX STANDBY SET POINT (DAYS)
CT_1	-	-	-	-		-		-	-	28
CT_2	-	-	-	-		-		-	-	28
CT_3	-	-	-	-		-		-	-	28

NOTES:
1. LEAD AND LAG STATUS WILL AUTOMATICALLY ADJUST FOR UNITS EXCLUDED DUE TO MAINTENANCE SHUTDOWNS AND ALARM SHUTDOWNS, OR IF A TOWER IS NOT ALLOWED TO OPERATE FOR ANY REASON. WHEN A TOWER'S AVAILABILITY TO OPERATE IS RESTORED, IT WILL REMAIN IN ITS QUEUE POSITION (FOR INSTANCE, IF AN ALARM IS CLEARED FOR TOWER 2 AND IT WAS IN THE LAG 1 POSITION BUT WAS MOVED TO LAG 2, IT IS TO REMAIN IN THE LAG 2 POSITION UNTIL ANOTHER FAULTED TOWER TAKES IT PLACE, OR UNTIL AN OPERATOR MOVES IT TO ANOTHER POSITION IN THE QUEUE.
2. TOWER RUN POSITION SHALL ALTERNATE WEEKLY BASED ON RUN TIME. TOWER RUN POSITION SHALL BE CAPABLE OF BEING OVERRIDDEN BY OPERATOR. THE OPERATOR SHALL BE ABLE TO SEE THE CURRENT RUN POSITION AND SELECT A DESIRED RUN POSITION. UPON CLICKING AN EXECUTE BUTTON, AN ACCEPTABLE RUN ORDER SHALL BE IMPLEMENTED AND THE CURRENT RUN ORDER SHALL BE UPDATED. ONLY ONE TOWER SHALL BE ALLOWED BY PROGRAMMING IN A QUEUE POSITION AT A TIME (ONLY ONE LEAD TOWER, ONE LAG #1 TOWER, AND ONE LAG #2 TOWER). IF THE RUN ORDER IS NOT ACCEPTABLE, THE UNACCEPTABLE CONDITION(S) SHALL BE HIGHLIGHTED. PROVIDE THIS FUNCTION AT THE LIVE SEQUENCE GRAPHIC (AS INDICATED ABOVE), AT THE CONTROL PIPING DIAGRAM, AND AT THE PLANT DASHBOARD.
3. PROVIDE A TOWER STANDBY ALARM IF THE MAXIMUM STANDBY TIMER SET POINT IS EXCEEDED. STANDBY TIMER SHALL RESET WHEN A TOWER IS DISABLED IF TOWER HAS RUN FOR A MINIMUM OF 4 CONTINUOUS HOURS (ADJUSTABLE).
4. ANY TOWER SHALL BE CAPABLE OF RUNNING IN ANY RUN POSITION.
5. PROVIDE A TABLE SIMILAR TO THIS FOR THE OPERATOR TO DETERMINE RUN ORDER.

SETPOINTS

VARIABLE NAME	VALUE	NOTES
CP_STG1_GPM_SETPOINT	0 GPM	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG2_OFFSET	50 GPM	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG2_GPM_SETPOINT	650 GPM	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG3_OFFSET	100 GPM	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_STG3_GPM_SETPOINT	1000 GPM	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_CT_MIN_FAN_SPD_CMND	25%	ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER FAN.
CP_CT_MIN_FAN_SPD_CMND	100%	ADJUSTABLE. SET POINT TO BE ADJUSTABLE PER FAN.
CP_BYP_OAT_LOCKOUT_SETP	51°F	ADJUSTABLE. FIELD TUNE AS REQUIRED.
CP_TW_CYCLE_TEMP_OFFSET	5°F	ADJUSTABLE. FIELD TUNE AS REQUIRED.

TOWER MODES OF OPERATION

MODE	CT_SUPPLY_ISO_ VLV_CMND	CT_RETURN_ISO_ VLV_1_CMND	CT_RETURN_ISO_ VLV_2_CMND	CT_FAN_CMND
NORMAL ENABLED	CT_SUPPLY_ISO_ VLV_CMND	CT_RETURN_ISO_ VLV_1_CMND	CT_RETURN_ISO_ VLV_2_CMND	CT_FAN_CMND
NORMAL DISABLED	CLOSED	CLOSED	CLOSED	DISABLED
MAINTENANCE SHUTDOWN	CLOSED	CLOSED	CLOSED	DISABLED
ALARM SHUTDOWN (UPAS OR EQUIPMENT CONTROLLER)	CLOSED	CLOSED	CLOSED	DISABLED

GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, ... STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
6. INDICATE OVERRIDES BY HIGHLIGHTING THE VALUES IN PURPLE, OR CHANGING THE TEXT COLORS TO PURPLE.
7. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS. ALL OTHER POINTS ARE TO BE TRENDED AT 15 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
8. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAIN ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
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10. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
11. A PROPORTIONAL STEP FUNCTION CAN BE USED IN PLACE OF TOWER FAN SPEED PID CONTROL LOOP.

CONDITIONAL BLOCK
CPC_CT_TWS_SETPOINT_FUNCTION
INPUT #1 … INPUT #5 → OUTPUT #1

A = INPUT #1 / CPCTowerDesignFlow
B = (1-A) / 0.7
OUTPUT #1 =
MIN[((INPUT #3^2)*(0.00033*B+0.00187)+INPUT #3*(0.1263*B+0.5)+(-18.3089*B)+35.4716),85]

COMPUTE EVERY 5 MIN (ADJ).

CPC_MAX_FLOW_RATIO_SETP
OPP_OVRD
OPP_TWST_SETP_OVRD

SENSOR_VALIDATION
INPUT#1 CP_OAWB
INPUT#2 HP_OAWB
INPUT#3 THRESHOLD
INPUT#4 CP_OATWB_STAT
INPUT#5 HP_OATWB_STAT
INPUT#6 OPP_SELECT
INPUT#7 OPP_OVRD
NOTES: ADD TIME DELAYS TO ALARMS AS REQUIRED. VALIDATION CAN BE APPLIED TO RH SENSOR PRIOR TO CONVERSION TO WET BULB.
OUTPUT #1
OUTPUT #2 → CP_OATWB_VALIDATION_ALRM
OUTPUT #3 → CP_OATWB_ALRM
OUTPUT #4 → CP_OATWB_CRITICAL_ALRM

IF (INPUT#2-INPUT#3<INPUT#1< INPUT#2+INPUT#3)
OUTPUT#2 = NRML
ELSE OUTPUT#2 = ALARM
IF (INPUT#4 = RELIABLE & INPUT #5= RELIABLE
& INPUT#6 = NRML)
OUTPUT#1 = INPUT#1
OUTPUT#3 = NRML
OUTPUT#4 = NRML
IF (INPUTS4 = UNRELIABLE & INPUT#5 = RELIABLE
& INPUT#6 = NRML OR HP)
OUTPUT#1 = INPUT#2
OUTPUT#3 = ALARM
OUTPUT#4 = NRML
IF (INPUT#4 = UNRELIABLE & INPUT#5 = UNRLIABLE
& INPUT#6 = NRML, CP, OR HP)
OUTPUT#1 = INPUT#7
OUTPUT#3 = ALRM
OUTPUT#4 = ALRM
IF (INPUT#4 = UNRELIABLE & INPUT#6 = CP)
OUTPUT#1 = INPUT#7
OUTPUT#3 = ALRM
OUTPUT#4 = ALRM

CONDITIONAL BLOCK
CH_1_STATUS, CH_1_CHWST, CH_1_TWST_SETP, CH_1_TWST_OFFSET → OUTPUT #1
IF INPUT #1 = ENABLED,
OUTPUT #1 = MAX(INPUT #2 + INPUT #4, INPUT #3)

CONDITIONAL BLOCK
CH_2_STATUS, CH_2_CHWST, CH_2_TWST_SETP, CH_2_TWST_OFFSET → OUTPUT #1
IF INPUT #1 = ENABLED,
OUTPUT #1 = MAX(INPUT #2 + INPUT #4, INPUT #3)

CONDITIONAL BLOCK
CH_3_STATUS, CH_3_CHWST, CH_3_TWST_SETP, CH_3_TWST_OFFSET → OUTPUT #1
IF INPUT #1 = ENABLED,
OUTPUT #1 = MAX(INPUT #2 + INPUT #4, INPUT #3)

MAXIMUM

PID CONTROL LOOP — CP_CT_1_TWST_CNTRL
SETPOINT | MIN (0) | INPUT | MAX (100) | ACTION | OUTPUT
CP_CT_1_TWST (ST) → DIRECT

CP_CT_1_TWST_CNTRL_TABLE

INPUT	TOWER BYPASS CNTRL	CT-1 FAN SPEED CNTRL
0	100 (FULL BYPASS) ▲	
5	0 (NO BYPASS) ▼	DISABLE ▲
10		ENABLE MIN ◆ ▼
100		MAX ◆

CP_CT_1_FAN_SPD_CMND
CP_CT_1_FAN_SPD_FDBK (ST)

PID CONTROL LOOP — CP_CT_2_TWST_CNTRL
SETPOINT | MIN (0) | INPUT | MAX (100) | ACTION | OUTPUT
CP_CT_2_TWST (ST) → DIRECT

CP_CT_2_TWST_CNTRL_TABLE

INPUT	TOWER BYPASS CNTRL	CT-2 FAN SPEED CNTRL
0	100 (FULL BYPASS) ▲	
5	0 (NO BYPASS) ▼	DISABLE ▲
10		ENABLE MIN ◆ ▼
100		MAX ◆

CP_CT_2_FAN_SPD_CMND
CP_CT_2_FAN_SPD_FDBK (ST)

PID CONTROL LOOP — CP_CT_3_TWST_CNTRL
SETPOINT | MIN (0) | INPUT | MAX (100) | ACTION | OUTPUT
CP_CT_3_TWST (ST) → DIRECT

CP_CT_3_TWST_CNTRL_TABLE

INPUT	TOWER BYPASS CNTRL	CT-3 FAN SPEED CNTRL
0	100 (FULL BYPASS) ▲	
5	0 (NO BYPASS) ▼	DISABLE ▲
10		ENABLE MIN ◆ ▼
100		MAX ◆

CP_CT_3_FAN_SPD_CMND
CP_CT_3_FAN_SPD_FDBK (ST)

MAXIMUM

CONDITIONAL BLOCK
CT-TWST
INPUT #1 CPC_TWST
INPUT #2 CPC_OAT_CONFIRMED
INPUT #3 CPC_BYP_OAT_LOCKOUT_SETP
INPUT #4 CPC_TW_CYCLE_TEMP_OFFSET
INPUT #5
INPUT #6
→ OUTPUT
IF INPUT #4>INPUT#5 OR IF INPUT#1=0
OR IF INPUT#3>INPUT#2+INPUT#6
OUTPUT=0 (NO BYPASS)
IF INPUT#4<INPUT#5 AND INPUT#1=100, AND
INPUT#3<INPUT#2-INPUT#6
OUTPUT= 100 (FULL BYPASS)
UNTIL INPUT #3 > INPUT#2 + INPUT#6
ELSE OUTPUT= 0 (NO BYPASS)

RATE LIMIT → CP_TW_BYPASS_CMND, CP_TW_BYPASS_FDBK (ST)

1 TOWER TEMPERATURE CONTROL SEQUENCE
NOT TO SCALE

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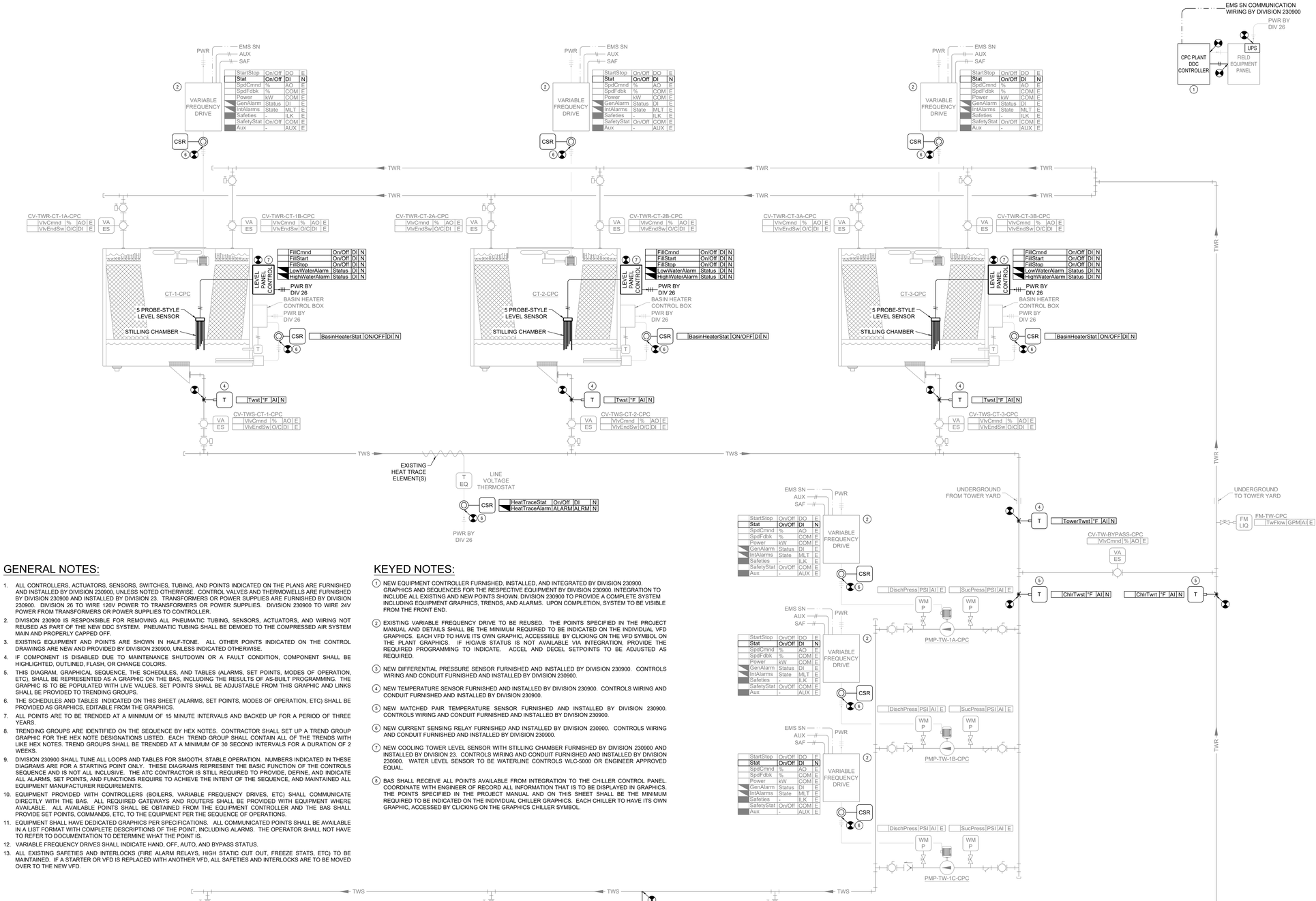
CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
TOWER WATER SYSTEM
CONTROL SEQUENCES

SHEET NUMBER:
ATC111



GENERAL NOTES:

1. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE FURNISHED AND INSTALLED BY DIVISION 230900, UNLESS NOTED OTHERWISE. CONTROL VALVES AND THERMOWELLS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. TRANSFORMERS OR POWER SUPPLIES ARE FURNISHED BY DIVISION 230900. DIVISION 26 TO WIRE 120V POWER TO TRANSFORMERS OR POWER SUPPLIES. DIVISION 230900 TO WIRE 24V POWER FROM TRANSFORMERS OR POWER SUPPLIES TO CONTROLLER.
2. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
3. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
4. IF COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
5. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
6. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
7. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
8. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
9. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
10. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
11. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
12. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
13. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.

KEYED NOTES:

1. NEW EQUIPMENT CONTROLLER FURNISHED, INSTALLED, AND INTEGRATED BY DIVISION 230900. GRAPHICS AND SEQUENCES FOR THE RESPECTIVE EQUIPMENT BY DIVISION 230900. INTEGRATION TO INCLUDE ALL EXISTING AND NEW POINTS SHOWN. DIVISION 230900 TO PROVIDE A COMPLETE SYSTEM INCLUDING EQUIPMENT GRAPHICS, TRENDS, AND ALARMS. UPON COMPLETION, SYSTEM TO BE VISIBLE FROM THE FRONT END.
2. EXISTING VARIABLE FREQUENCY DRIVE TO BE REUSED. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND DETAILS SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL VFD GRAPHICS. EACH VFD TO HAVE ITS OWN GRAPHIC, ACCESSIBLE BY CLICKING ON THE VFD SYMBOL ON THE PLANT GRAPHICS. IF H/O/A/B STATUS IS NOT AVAILABLE VIA INTEGRATION, PROVIDE THE REQUIRED PROGRAMMING TO INDICATE. ACCEL AND DECEL SETPOINTS TO BE ADJUSTED AS REQUIRED.
3. NEW DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
4. NEW TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
5. NEW MATCHED PAIR TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
6. NEW CURRENT SENSING RELAY FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
7. NEW COOLING TOWER LEVEL SENSOR WITH STILLING CHAMBER FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900. WATER LEVEL SENSOR TO BE WATERLINE CONTROLS WLC-5000 OR ENGINEER APPROVED EQUAL.
8. BAS SHALL RECEIVE ALL POINTS AVAILABLE FROM INTEGRATION TO THE CHILLER CONTROL PANEL. COORDINATE WITH ENGINEER OF RECORD ALL INFORMATION THAT IS TO BE DISPLAYED IN GRAPHICS. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND ON THIS SHEET SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL CHILLER GRAPHICS. EACH CHILLER TO HAVE ITS OWN GRAPHIC, ACCESSED BY CLICKING ON THE GRAPHICS CHILLER SYMBOL.

1 CLINTON PRESIDENTIAL CENTER TOWER WATER CONTROL DIAGRAM

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

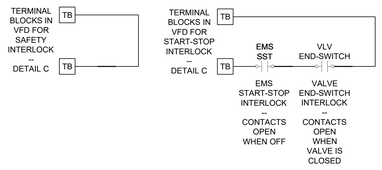
CLINTON PRESIDENTIAL CENTER TOWER WATER SYSTEM CONTROL DIAGRAM

SHEET NUMBER:

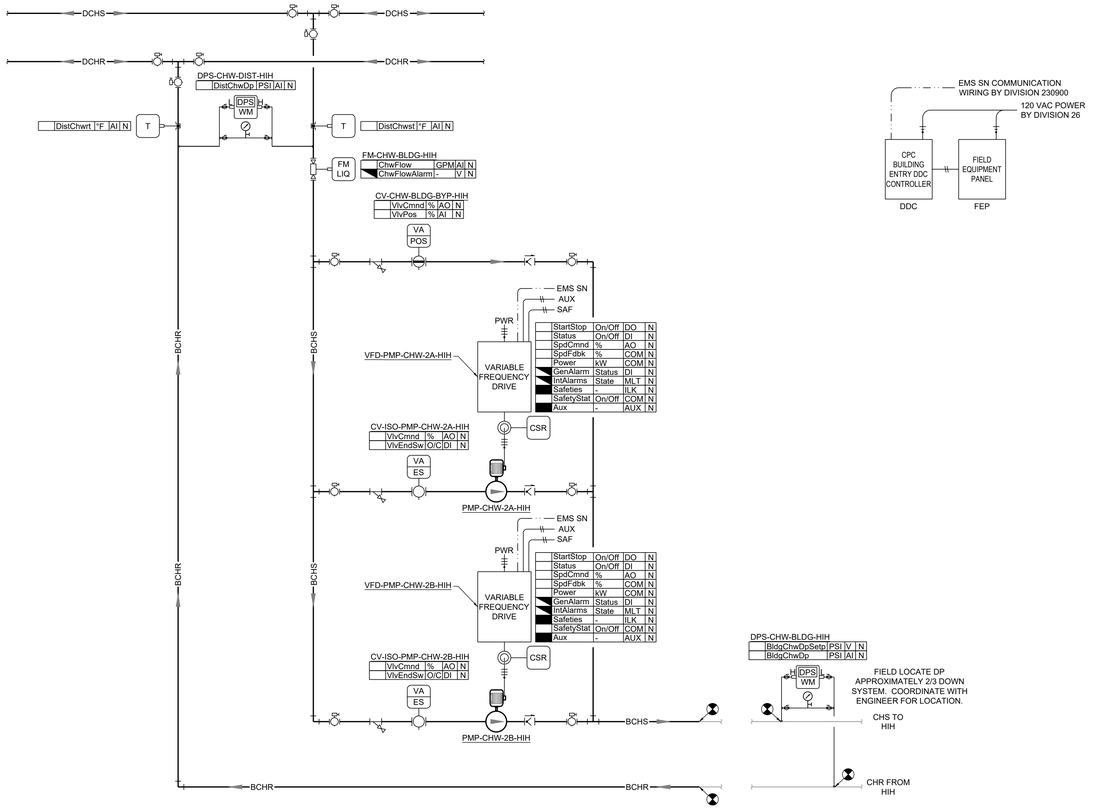
ATC110

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
13. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



2 CHILLED WATER PUMP(S) VFD INTERLOCKS



SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmlChwBypVlvCmnd	LeadBchwpSpdCmnd	LeadBchwpIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MaintChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

ALARMS

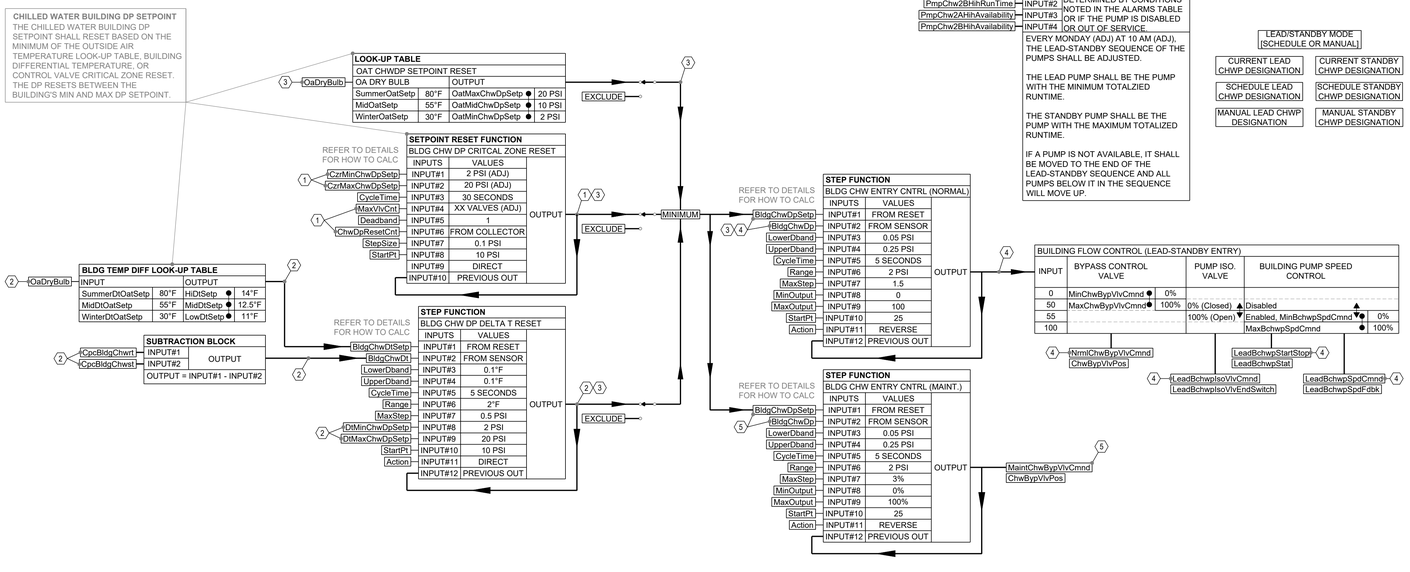
REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE		REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS	FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ)
	FAILED TWO-POSITION ACTUATOR	L, G	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
	UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	UNRELIABLE METER	TO BE COORD.	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	BldgChwst > DistChwstStpt + 2°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStpt + 5°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER.
VFD ALARMS AND WARNINGS	FAULT STATUS (AVAIL)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
	COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET.
	COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
	STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
	VFD IN HAND (AVAIL)	L, G	VFD IN HAND
	VFD IN HAND OFF (AVAIL)	L, G	VFD IN HAND OFF
	VFD IN BYPASS	L, G	VFD IN BYPASS
	SAFETY INTERLOCK (AVAIL)	L, G	VFD DISABLED BY SAFETY INTERLOCK

NOTES:
1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
3. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
4. ALARM CRITERIA AND REPORTING TO BE COORDINATED WITH THE FACILITY. ALARM REPORTING AS FOLLOWS:
   A. ALARMS ARE TO REPORT TO PRIORITIZED ALARM LOGS.
   B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
   C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS
   D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
5. ALARMS MARKED WITH "(AVAIL)" SHALL BE CONSIDERED IN THE ASSOCIATED EQUIPMENT'S AVAILABILITY DETERMINATION. IF THE ALARM IS ACTIVE, THEN THE EQUIPMENT SHALL BE MADE UNAVAILABLE.

TRENDING GROUPS:

1. BUILDING CRITICAL ZONE DP RESET
2. BUILDING DELTA T DP RESET
3. BUILDING CHW DP SETP RESET
4. NORMAL MODE BUILDING CHW DP CONTROL
5. MAINT. MODE BUILDING CHW DP CONTROL



1 HEIFER INTERNATIONAL HEADQUARTERS CHILLED WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE
NOT TO SCALE

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

CLINTON FOUNDATION

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS BUILDING CHILLED WATER ENTRY CONTROL DIAGRAM AND SEQUENCES

SHEET NUMBER:
ATC108

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
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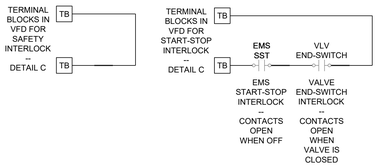
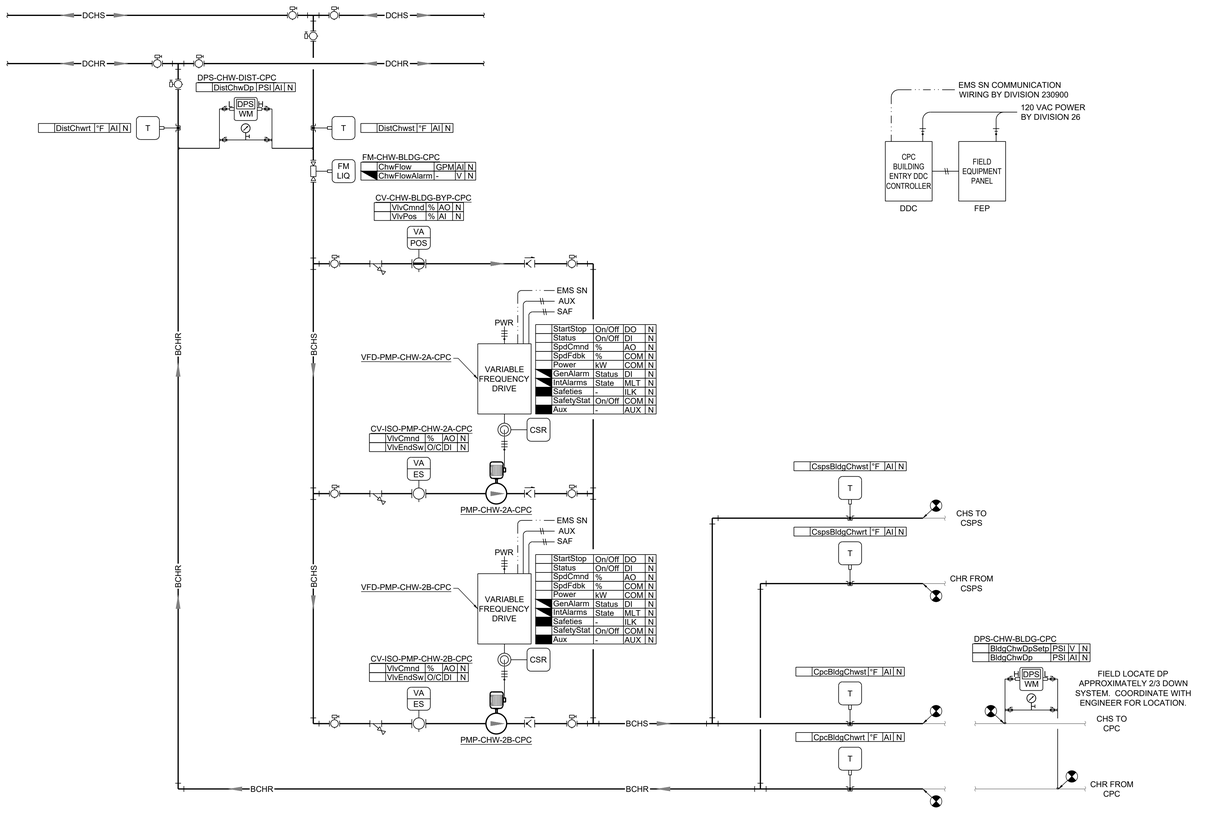


(2) CHILLED WATER PUMP(S) VFD INTERLOCKS



SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmlChwBypVlvCmnd	LeadBchwpSpdCmnd	LeadBchwpIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MaintChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

ALARMS

REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE		REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS	FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ)
	FAILED TWO-POSITION ACTUATOR	L, G	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
	UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	UNRELIABLE METER	TO BE COORD.	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
	HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	BldgChwst > DistChwstStpt + 2°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStpt + 5°F (ADJ) FOR MORE THAN 10 MIN (ADJ.).
	LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ) FOR MORE THAN 10 MIN (ADJ).
	OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER.
VFD ALARMS AND WARNINGS	FAULT STATUS (AVAIL)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
	COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
	COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
	STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
	VFD IN HAND (AVAIL)	L, G	VFD IN HAND
	VFD IN HAND OFF (AVAIL)	L, G	VFD IN HAND OFF
	VFD IN BYPASS	L, G	VFD IN BYPASS
	SAFETY INTERLOCK (AVAIL)	L, G	VFD DISABLED BY SAFETY INTERLOCK

NOTES:
1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
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   B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
   C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS
   D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
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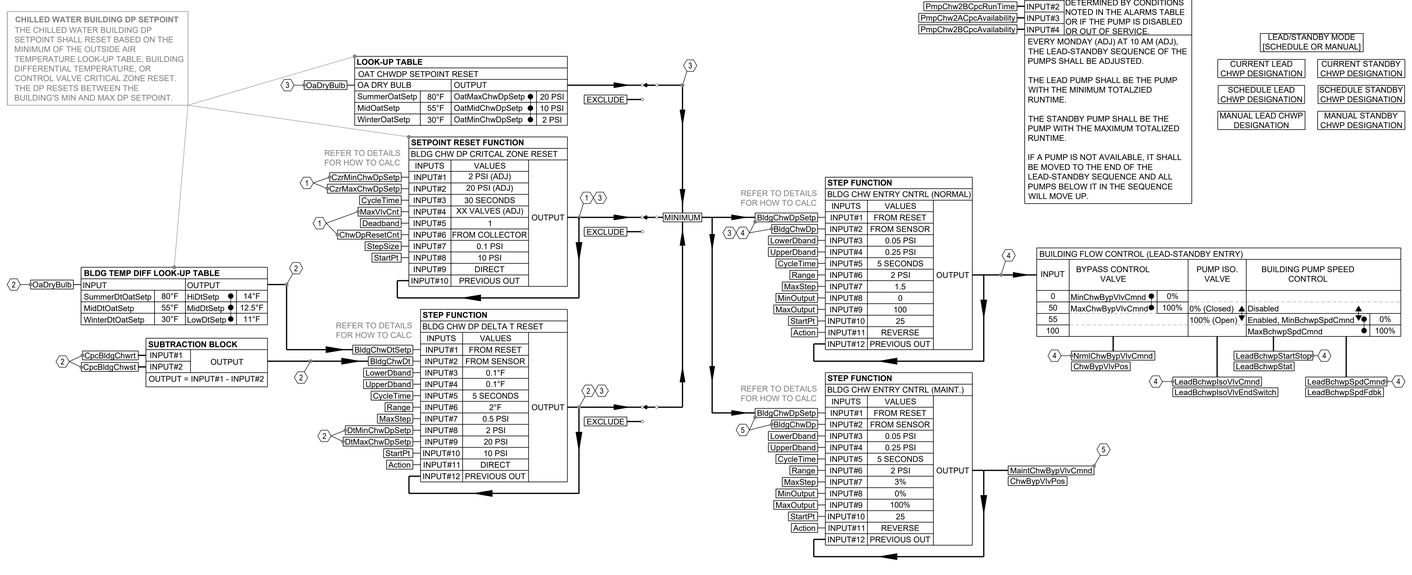
TRENDING GROUPS:

1. BUILDING CRITICAL ZONE DP RESET
2. BUILDING DELTA T DP RESET
3. BUILDING CHW DP SETP RESET
4. NORMAL MODE BUILDING CHW DP CONTROL
5. MAINT. MODE BUILDING CHW DP CONTROL



(1) CLINTON PRESIDENTIAL CENTER CHILLED WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

NOT TO SCALE

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NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER BUILDING CHILLED WATER ENTRY CONTROL DIAGRAM AND SEQUENCES

SHEET NUMBER:

ATC107

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED AND INSTALLED BY DIVISION 230900, UNLESS NOTED OTHERWISE. CONTROL VALVES AND THERMOWELLS ARE PROVIDED BY DIVISION 230900, INSTALLED BY DIVISION 23. TRANSFORMERS ARE PROVIDED BY DIVISION 230900, INSTALLED BY DIVISION 26.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
7. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
8. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
9. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
10. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
11. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
12. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
13. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
14. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.

TRENDING GROUPS:

1. PLANT CHW SUPPLY TEMPERATURE SETPOINT
2. CHILLER STAGING CONTROL
3. PLANT MINIMUM FLOW BYPASS CONTROL
4. BUILDING CHW DP CONTROL
5. CHW PUMP SPEED CONTROL
6. CHW PUMP STAGE CONTROL
7. CHILLER ENABLE CONTROL
8. BUILDING CRITICAL ZONE DP RESET
9. BUILDING DELTA T DP RESET
10. CHW PUMP ENABLE CONTROL

CHILLED WATER TEMP SETPOINT
THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT LOOK-UP TABLE RESETS THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT BETWEEN MAXIMUM AND MINIMUM SETPOINT BASED ON THE OUTSIDE AIR DRY BULB TEMPERATURE.

CHILLED WATER SUPPLY TEMP SETPOINT	
OA DRY BULB	OUTPUT
SUMMER_OAT_SETP	MIN_CHWST_SETP ◆
MID_OAT_SETP	MID_CHWST_SETP ◆
WINTER_OAT_SETP	MAX_CHWST_SETP ◆

CHILLER MODES TABLE	
CHILLER	MODE OF OPERATION
CH-1-CEP	ENABLED, DISABLED, OUT OF SERVICE, SHUTDOWN
CH-2-CEP	ENABLED, DISABLED, OUT OF SERVICE, SHUTDOWN

THIS SCHEDULE IS TO BE PROVIDED AS A GRAPHIC FOR AN OPERATOR TO SET THE CHILLER MODE OF OPERATION.

CONDITIONAL BLOCK
CHILLER AVAILABILITY COUNT
INPUT#1, INPUT#2, INPUT#3 → OUTPUT
OUTPUT = MIN(COUNT OF ALL AVAIL. CHILLERS, INPUT#3)

CHILLER STAGE CONTROL
CHILLERS WILL BE STAGED ON AND OFF BASED EITHER PLANT CHILLED WATER SUPPLY TEMPERATURE DEVIATION FROM SETPOINT OR MAXIMUM OF CHILLER % LOAD. CHILLERS WILL STAGE ON AFTER A TIME DELAY ONCE THE % LOAD EXCEEDS THE STAGE UP LOAD. CHILLERS WILL STAGE OFF AFTER A TIME DELAY ONCE THE %LOAD FALLS BELOW THE RESPECTIVE STAGE DOWN SETPOINTS.

CONVENTIONAL CHILLER ENABLE
THIS IS AN OPERATOR MODIFIABLE POINT TO ENABLE OR DISABLE ALL OF THE CONVENTIONAL WATER COOLED CHILLERS. BY DEFAULT, THIS POINT SHALL BE ENABLED. WHEN CHANGED TO DISABLE, ALL CHILLERS SHALL BE DISABLED.

CONDITIONAL BLOCK
CHILLER STAGE CONTROL
INPUT#1 (PLANT_CHWST), INPUT#2 (TEMP_STG_UP_OFFSET), INPUT#3 (STG_UP_LOAD), INPUT#4 (STG_2_DN_PCT), INPUT#5 (STG_3_DN_PCT), INPUT#6 (STG_UP_DELAY), INPUT#7 (STG_DN_DELAY), INPUT#8 (CHW_SYSTEM_STAT), INPUT#9, INPUT#10, INPUT#11 → OUTPUT

IF INPUT#10 = DISABLED, OUTPUT = 0
ELSE
START POINT = 1
IF ((INPUT#4 > INPUT#5) OR (INPUT#2 > (INPUT#1 + INPUT#3))
  START TIMER
  IF TIMER > INPUT#8
    OUTPUT = MAX(INPUT#11 + 1, 3)
    RESET TIMER
IF (INPUT#4 < INPUT#6) & INPUT#11 = 2
  START TIMER
  IF TIMER > INPUT#9
    OUTPUT = 1
    RESET TIMER
IF (INPUT#4 < INPUT#7) & INPUT#11 = 3
  START TIMER
  IF TIMER > INPUT#9
    OUTPUT = 2
    RESET TIMER
ELSE OUTPUT = INPUT#11

CONDITIONAL BLOCK
CHILLER % CAPACITY
INPUT#1 (CH_1_CEP_%_LOAD), INPUT#2 (CH_2_CEP_%_LOAD) → OUTPUT
OUPUT = MAX OF ALL INPUTS

LEAD/LAG MODE [SCHEDULE OR MANUAL]
CURRENT LEAD CH DESIGNATION
SCHEDULE LEAD CH DESIGNATION
MANUAL LEAD CH DESIGNATION
CURRENT LAG#1 CH DESIGNATION
SCHEDULE LAG#1 CH DESIGNATION
MANUAL LAG#1 CH DESIGNATION

CONDITIONAL BLOCK
CHILLER ENABLE CONTROL
INPUT → OUTPUT#1 (LEAD_CH_SST_CMND), OUTPUT#2 (LAG1_CH_SST_CMND), OUTPUT#3 (LAG2_CH_SST_CMND)

IF INPUT = 0
  OUTPUT#1 = DISABLED
  OUTPUT#2 = DISABLED
  OUTPUT#3 = DISABLED
IF INPUT = 1
  OUTPUT#1 = ENABLED
  OUTPUT#2 = DISABLED
  OUTPUT#3 = DISABLED
IF INPUT = 2
  OUTPUT#1 = ENABLED
  OUTPUT#2 = ENABLED
  OUTPUT#3 = DISABLED
IF INPUT = 3
  OUTPUT#1 = ENABLED
  OUTPUT#2 = ENABLED
  OUTPUT#3 = ENABLED

WHEN A CHILLER IS ENABLED, ITS ISOLATION VALVE SHALL ALSO BE OPENED.

CHILLER #1 EVAP DP TO FLOW
INPUT (CH_1_CEP_CHWDP) → OUTPUT (CH_1_CEP_CHWFLO_CALC)
OUTPUT = 636.47408 * (INPUT) ^ 0.53938

CHILLER #2 EVAP DP TO FLOW
INPUT (CH_2_CEP_CHWDP) → OUTPUT (CH_2_CEP_CHWFLO_CALC)
OUTPUT = 744.51636 * (INPUT) ^ 0.48598

2 CHILLER STAGING CONTROL

PUMP LEAD-LAG LOGIC
CHP_1_CEP_TOT_RUNTIME, CHP_2_CEP_TOT_RUNTIME, CHP_3_CEP_TOT_RUNTIME, CHP_1_CEP_AVAILABILITY, CHP_2_CEP_AVAILABILITY, CHP_3_CEP_AVAILABILITY → INPUT#1 – INPUT#6
PUMP AVAILABILITY IS DETERMINED BY CONDITIONS NOTED IN THE ALARMS TABLE OR IF THE PUMP IS OR OUT OF SERVICE.

EVERY MONDAY (ADJ) AT 10 AM (ADJ), THE LEAD-LAG SEQUENCE OF THE PUMPS SHALL BE ADJUSTED.

THE LEAD PUMP SHALL BE THE PUMP WITH THE MINIMUM TOTALZIED RUNTIME.

THE LAG#2 PUMP SHALL BE THE PUMP WITH THE MAXIMUM TOTALIZED RUNTIME.

THE LAG#1 PUMP SHALL BE THE REMAINING PUMP.

IF A PUMP IS NOT AVAILABLE, IT SHALL BE MOVED TO THE END OF THE LEAD-LAG SEQUENCE AND ALL PUMPS BELOW IT IN THE SEQUENCE WILL MOVE UP.

CHILLER LEAD-LAG LOGIC
CH_1_CEP_TOT_RUNTIME, CH_2_CEP_TOT_RUNTIME, CH_3_CEP_TOT_RUNTIME, CH_1_CEP_AVAILABILITY, CH_2_CEP_AVAILABILITY, CH_3_CEP_AVAILABILITY → INPUT#1 – INPUT#6
CHILLER AVAILABILITY IS DETERMINED BY CONDITIONS NOTED IN THE ALARMS TABLE OR IF THE CHILLER IS OR OUT OF SERVICE.

EVERY MONDAY (ADJ) AT 9 AM (ADJ), THE LEAD-LAG SEQUENCE OF THE CHILLERS SHALL BE ADJUSTED.

THE LEAD CHILLER SHALL BE THE CHILLER WITH THE MINIMUM TOTALZIED RUNTIME.

THE LAG#2 CHILLER SHALL BE THE CHILLER WITH THE MAXIMUM TOTALIZED RUNTIME.

THE LAG#1 CHILLER SHALL BE THE REMAINING CHILLER.

IF A CHILLER IS NOT AVAILABLE, IT SHALL BE MOVED TO THE END OF THE LEAD-LAG SEQUENCE AND ALL CHILLERS BELOW IT IN THE SEQUENCE WILL MOVE UP.

1 EQUIPMENT LEAD-LAG CONTROL

CONDITIONAL BLOCK
CH_1 MIN FLOW CRITERIA
CH_1_CEP_STATUS, CH_1_CEP_CHWDP → INPUT#1, INPUT#2 → OUTPUT
IF INPUT#1 = ENABLED
OUTPUT = INPUT#2
ELSE OUTPUT = 100

CONDITIONAL BLOCK
CH_2 MIN FLOW CRITERIA
CH_2_CEP_STATUS, CH_2_CEP_CHWDP → INPUT#1, INPUT#2 → OUTPUT
IF INPUT#1 = ENABLED
OUTPUT = INPUT#2
ELSE OUTPUT = 100

PID CONTROL LOOP
MIN FLOW VLV CTRL
SETPOINT: MIN_CH_CHWDP_SETP
INPUT: MINIMUM
ACTION: REVERSE
OUTPUT: CHW_MFB_CEP_VLV_CMND → CHW_MFB_CEP_VLV_POS
MIN: 0% (CLOSED)
MAX: 100% (OPEN)

3 CHW MINIMUM FLOW BYPASS CONTROL

CHILLED WATER BUILDING DP SETPOINT
THE CHILLED WATER BUILDING DP SETPOINT SHALL RESET BASED ON THE MINIMUM OF THE OUTSIDE AIR TEMPERATURE LOOK-UP TABLE, BUILDING DIFFERENTIAL TEMPERATURE, OR CONTROL VALVE CRITICAL ZONE RESET. THE DP RESETS BETWEEN THE BUILDING'S MIN AND MAX DP SETPOINT.

LOOK-UP TABLE
OAT CHWDP SETPOINT RESET
OA DRY BULB → OUTPUT
SUMMER_OAT_SETP: OAT_MAX_CHWDP_SETP ◆
MID_OAT_SETP: OAT_MID_CHWDP_SETP ◆
WINTER_OAT_SETP: OAT_MIN_CHWDP_SETP ◆

CONDITIONAL BLOCK
CRITICAL ZONE CHW DP SETPOINT RESET STEP FUNCTION
INPUT#1 (BLDG_MIN_CHWDP_SETP), INPUT#2 (BLDG_MAX_CHWDP_SETP), INPUT#3 (CYCLE_TIME), INPUT#4 (MAX_VLV_COUNT), INPUT#5 (DEADBAND), INPUT#6 (CHW_DP_RESET_CNT), INPUT#7 (STEP_SIZE), INPUT#8 (START_PT), INPUT#9 → OUTPUT

IF INPUT#6 > INPUT#4 + INPUT#5
  OUTPUT = MIN(INPUT#9 + INPUT#7, INPUT#2)
IF INPUT#6 < INPUT#4 - INPUT#5
  OUTPUT = MAX(INPUT#9 - INPUT#7, INPUT#1)
ELSE OUTPUT = INPUT#9 (PREVIOUS CYCLES OUTPUT)

THIS FUNCTION TO EXECUTE AT IDENTIFIED CYCLE TIME IN INPUT#3.

FROM AN INITIAL START CONDITION, START AT INPUT#8.

REFER TO CONTROL DETAIL AB ON ATC4004 FOR HOW TO CALCULATE THIS POINT.

BLDG TEMP DIFF LOOK-UP TABLE
INPUT → OUTPUT
SUMMER_DT_OAT_SETP: LOW_DT_SETP ◆
MID_DT_OAT_SETP: MID_DT_SETP ◆
WINTER_DT_OAT_SETP: HI_DT_SETP ◆

SUBTRACTION BLOCK
INPUT#1 (PLANT_CHWRT), INPUT#2 (PLANT_CHWST) → OUTPUT
OUTPUT = INPUT#1 - INPUT#2

CONDITIONAL BLOCK
BUILDING TEMP DIFF CHWDP SETPOINT RESET STEP FUNCTION
INPUT#1 (BLDG_CHWDT_SETP), INPUT#2 (BLDG_CHWDT), INPUT#3 (LOWER_DBAND), INPUT#4 (UPPER_DBAND), INPUT#5 (CYCLE_TIME), INPUT#6 (RANGE), INPUT#7 (MAX_STEP), INPUT#8 (MIN_DT_CHWDP_SETP), INPUT#9 (MAX_DT_CHWDP_SETP), INPUT#10 (START_PT), INPUT#11 → OUTPUT

RANGE: HOW FAR FROM SETPOINT THE REACTION STARTS TO BE PROPORTIONAL, OTHERWISE THE MAX STEP SIZES SET THE SLOPE.

IF (INPUT#1 - INPUT#3) < INPUT#2 < (INPUT#1 + INPUT#4)
  ERROR = 0
ELSE, ERROR = INPUT#1 - INPUT#2

STEP = MIN(INPUT#7, MAX((INPUT#7 / INPUT#6) * ERROR, -INPUT#7))

OUTPUT = MIN(INPUT#9, MAX(INPUT#11 - STEP, INPUT#8))

IF SYSTEM OR STEP FUNCTION IS RESTARTED, INPUT#11 SHALL BE OVERRIDDEN BY INPUT#10.

CHW PUMP SPEED SETPOINT
THE CHW PUMP SPEED SETPOINT SHALL RESET BETWEEN THE MINIMUM AND MAXIMUM CHW PUMP SPEEDS BASED ON THE BUILDING CHW DP DEVIATION FROM BUILDING CHW DP SETPOINT.

CONDITIONAL BLOCK
CHW PUMP SPEED CONTROL STEP FUNCTION
INPUT#1 (BLDG_CHWDP_SETP), INPUT#2 (BLDG_CHWDP), INPUT#3 (LOWER_DBAND), INPUT#4 (UPPER_DBAND), INPUT#5 (CYCLE_TIME), INPUT#6 (RANGE), INPUT#7 (MAX_STEP), INPUT#8 (CHP_MIN_SPD_SETP), INPUT#9 (CHP_MAX_SPD_SETP), INPUT#10 (START_PT), INPUT#11 → OUTPUT

RANGE: HOW FAR FROM SETPOINT THE REACTION STARTS TO BE PROPORTIONAL, OTHERWISE THE MAX STEP SIZES SET THE SLOPE.

IF (INPUT#1 - INPUT#3) < INPUT#2 < (INPUT#1 + INPUT#4)
  ERROR = 0
  ELSE, ERROR = INPUT#1 - INPUT#2

STEP = MIN(INPUT#7, MAX((INPUT#7 / INPUT#6) * ERROR, -INPUT#7))

OUTPUT = MIN(INPUT#9, MAX(INPUT#11 * STEP, INPUT#8))

IF SYSTEM OR STEP FUNCTION IS RESTARTED, INPUT#11 SHALL BE OVERRIDDEN BY INPUT#10.

CHW PUMP STAGE CONTROL
CHW PUMPS WILL BE STAGED ON AND OFF BASED ON THE PUMP SPEED COMMAND INPUT. PUMPS WILL STAGE ON AFTER A TIME DELAY ONCE THE SPEED COMMAND EXCEEDS THE STG_UP_PCT SETPOINT. PUMPS WILL STAGE OFF AFTER A TIME DELAY ONCE THE SPEED COMMAND FALLS BELOW THE RESPECTIVE STAGE DOWN SETPOINTS.

CONDITIONAL BLOCK
CHW PUMP STAGE CONTROL
INPUT#1 (LEAD_CHP_SPD_CMND), INPUT#2 (LEAD_CHP_SPD_FDBK), INPUT#3 (LAG1_CHP_SPD_CMND), INPUT#4 (LAG1_CHP_SPD_FDBK), INPUT#5 (LAG2_CHP_SPD_CMND), INPUT#6 (LAG2_CHP_SPD_FDBK), INPUT#7 (STG_DN_DELAY), INPUT#8 (STG_UP_DELAY), INPUT#9 (STG_UP_PCT), INPUT#10 (STG_2_DN_PCT), INPUT#11 (STG_3_DN_PCT) → OUTPUT

IF INPUT#4 = DISABLED, OUTPUT = 0
ELSE
START POINT = 1
IF INPUT#1 > INPUT#5
  START TIMER
  IF TIMER > INPUT#3
    OUTPUT = MAX(INPUT#8 + 1, 3)
  RESET TIMER
IF (INPUT#1 < INPUT#6) & INPUT#8 = 2
  START TIMER
  IF TIMER > INPUT#2
    OUTPUT = 1
    RESET TIMER
IF (INPUT#1 < INPUT#7) & INPUT#8 = 3
  START TIMER
  IF TIMER > INPUT#2
    OUTPUT = 2
    RESET TIMER
ELSE OUTPUT = INPUT#8

FOR ANY PUMP NOT ENABLED, ITS SPEED COMMAND SHALL BE 0%. WHEN THE PUMP IS ENABLED, IT WILL BE GIVEN A SPEED COMMAND BASED ON THE VALUE COMING FROM THE CHW PUMP SPEED CONTROL STEP FUNCTION.

CONDITIONAL BLOCK
CHW PUMP ENABLE/DISABLE
CH_1_CEP_SST_CMND, CH_2_CEP_SST_CMND, CH_3_CEP_SST_CMND → INPUT#1, INPUT#2, INPUT#3 → OUTPUT
IF ANY INPUT = ENABLED, OUTPUT = ENABLED
ELSE, OUTPUT = DISABLED

CONDITIONAL BLOCK
CHW PUMP AVAILABILITY COUNT
CHP_1_CEP_AVAILABILITY, CHP_2_CEP_AVAILABILITY, CHP_3_CEP_AVAILABILITY, MAX_PUMP_RUN_SETP → INPUT#1 – INPUT#4 → OUTPUT
OUTPUT = MIN(COUNT OF ALL AVAIL. PUMPS, INPUT#4)

CONDITIONAL BLOCK
CHW PUMP ENABLE/DISABLE
INPUT → OUTPUT#1 (LEAD_CHP_SST_CMND), OUTPUT#2 (LAG1_CHP_SST_CMND), OUTPUT#3 (LAG2_CHP_SST_CMND)

IF INPUT = 0
  OUTPUT#1 = DISABLED
  OUTPUT#2 = DISABLED
  OUTPUT#3 = DISABLED
IF INPUT = 1
  OUTPUT#1 = ENABLED
  OUTPUT#2 = DISABLED
  OUTPUT#3 = DISABLED
IF INPUT = 2
  OUTPUT#1 = ENABLED
  OUTPUT#2 = ENABLED
  OUTPUT#3 = DISABLED
IF INPUT = 3
  OUTPUT#1 = ENABLED
  OUTPUT#2 = ENABLED
  OUTPUT#3 = ENABLED

4 CHILLED WATER PUMP CONTROL

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NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTER STAND-ALONE CHILLED WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:
ATC106

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TRENDING GROUPS:

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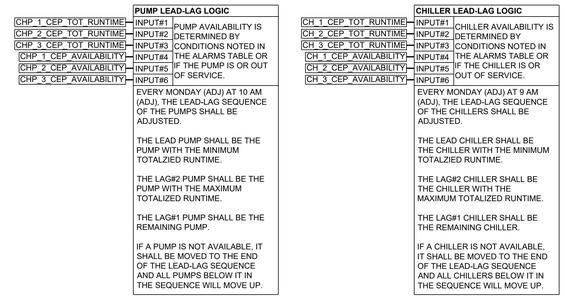
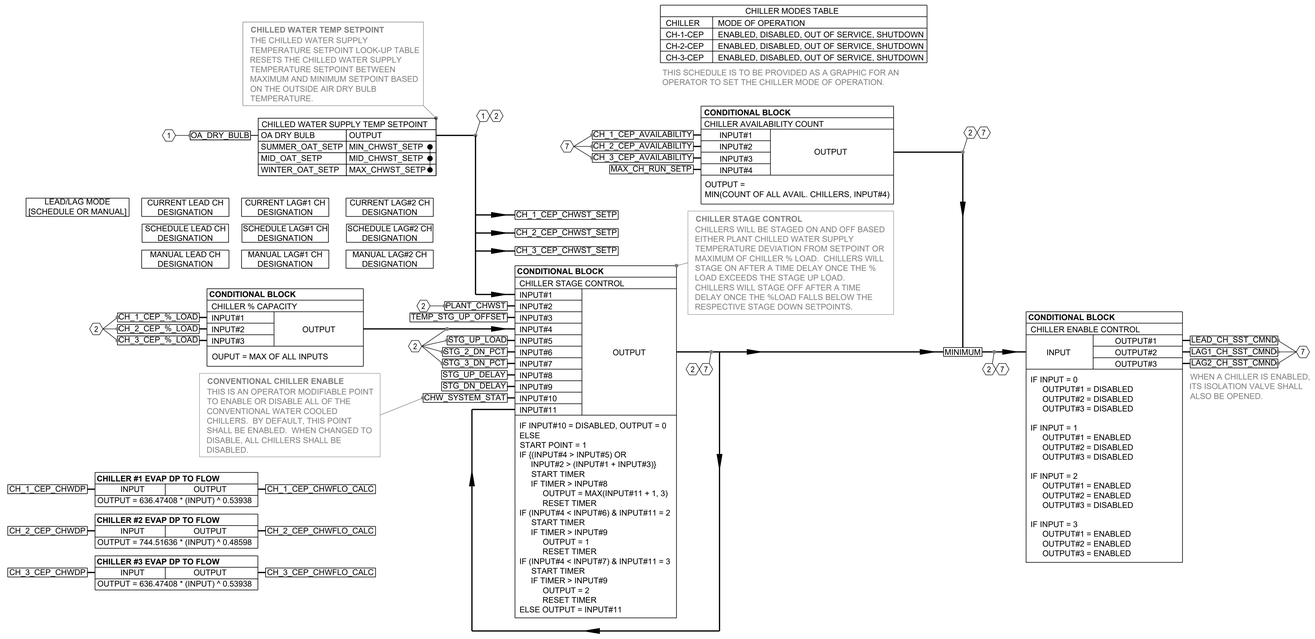
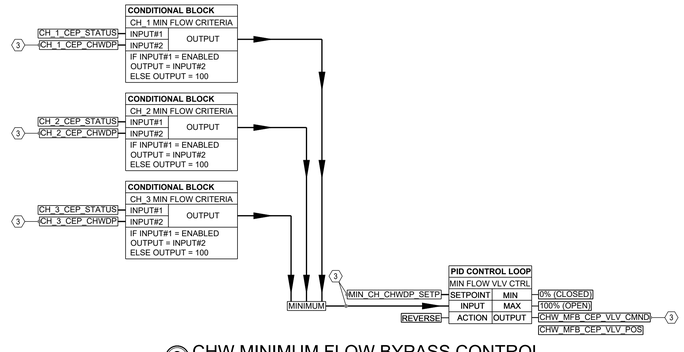
2. CHILLER STAGING CONTROL
3. PLANT MINIMUM FLOW BYPASS CONTROL
4. BUILDING CHW DP CONTROL
5. CHW PUMP SPEED CONTROL
6. CHW PUMP STAGE CONTROL
7. CHILLER ENABLE CONTROL
8. BUILDING CRITICAL ZONE DP RESET
9. BUILDING DELTA T DP RESET
10. CHW PUMP ENABLE CONTROL



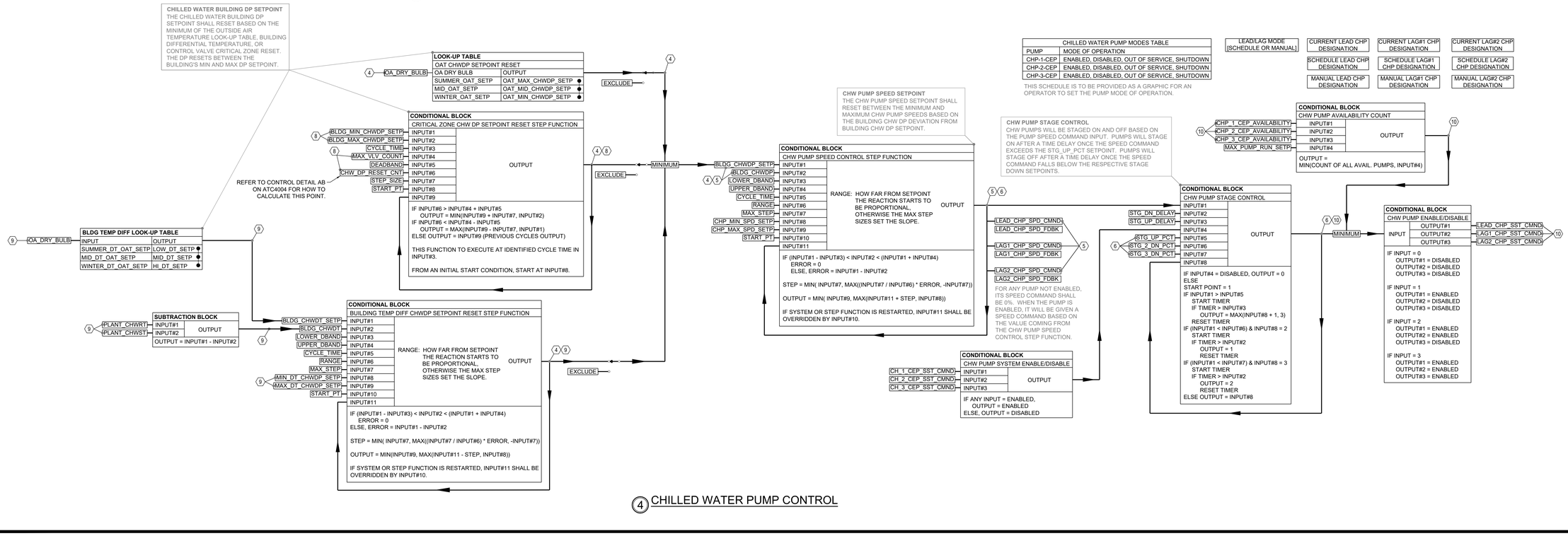
1 EQUIPMENT LEAD-LAG CONTROL



2 CHILLER STAGING CONTROL



3 CHW MINIMUM FLOW BYPASS CONTROL



4 CHILLED WATER PUMP CONTROL

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

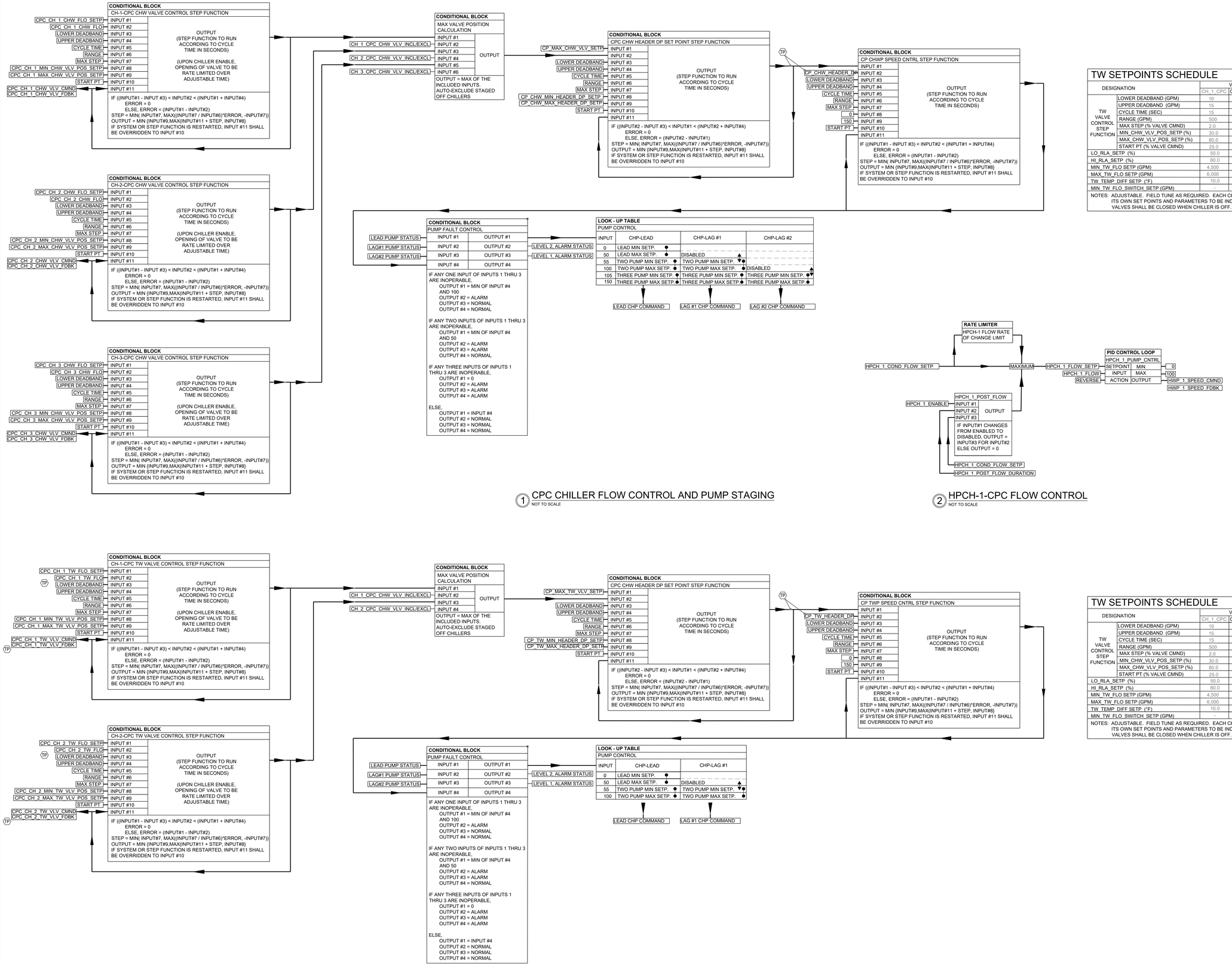
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

CLINTON PRESIDENTIAL CENTER STAND-ALONE CHILLED WATER SYSTEM CONTROL SEQUENCES

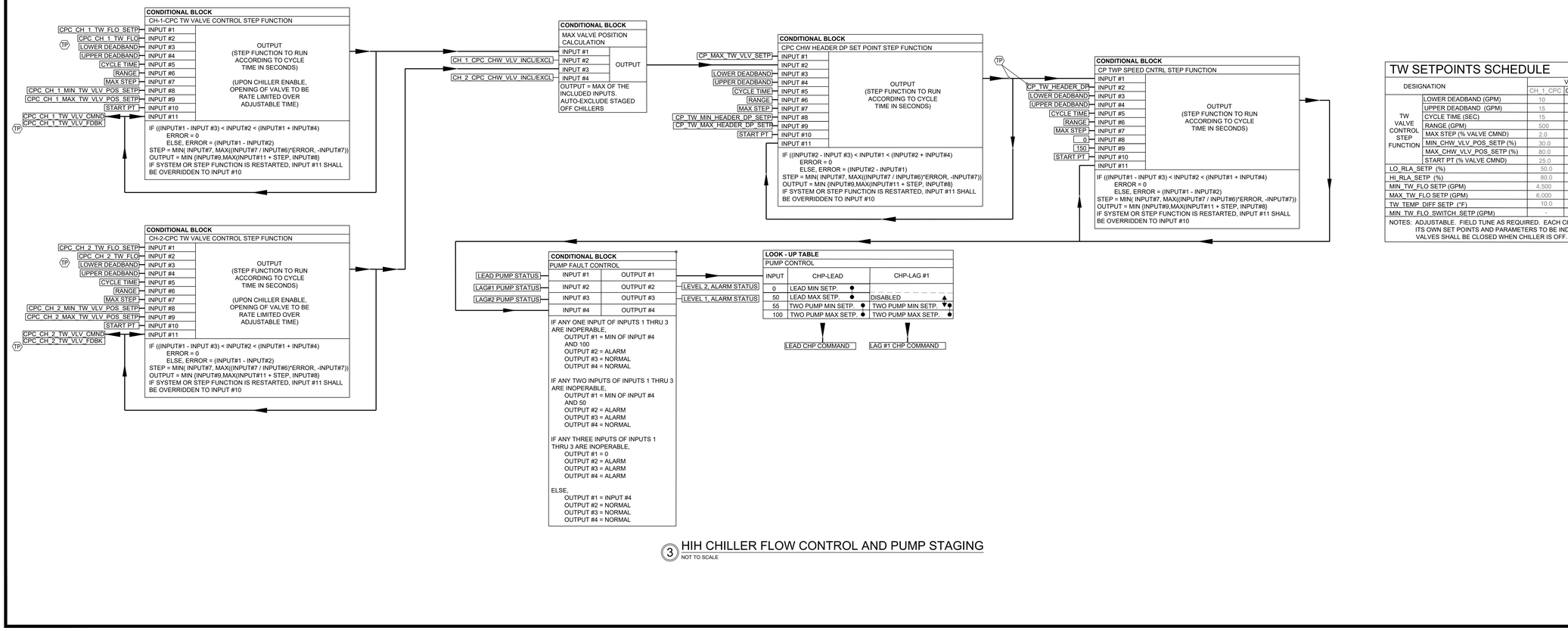
SHEET NUMBER:

ATC105



1 CPC CHILLER FLOW CONTROL AND PUMP STAGING
NOT TO SCALE

2 HPCH-1-CPC FLOW CONTROL
NOT TO SCALE



3 HIH CHILLER FLOW CONTROL AND PUMP STAGING
NOT TO SCALE

TW SETPOINTS SCHEDULE

DESIGNATION		VALUE		
		CH_1_CPC	CH_2_CPC	CH_3_CPC
TW VALVE CONTROL STEP FUNCTION	LOWER DEADBAND (GPM)	10	10	10
	UPPER DEADBAND (GPM)	15	15	15
	CYCLE TIME (SEC)	15	15	15
	RANGE (GPM)	500	500	500
	MAX STEP (% VALVE CMND)	2.0	2.0	2.0
	MIN_CHW_VLV_POS_SETP (%)	30.0	30.0	30.0
	MAX_CHW_VLV_POS_SETP (%)	80.0	80.0	80.0
	START PT (% VALVE CMND)	25.0	25.0	25.0
LO_RLA_SETP (%)		50.0	50.0	50.0
HI_RLA_SETP (%)		80.0	80.0	80.0
MIN_TW_FLO SETP (GPM)		4,500	2,665	2,665
MAX_TW_FLO SETP (GPM)		6,000	5,250	5,250
TW_TEMP_DIFF SETP (°F)		10.0	10.0	10.0
MIN_TW_FLO_SWITCH_SETP (GPM)		-	2,200	2,200

NOTES: ADJUSTABLE. FIELD TUNE AS REQUIRED. EACH CHILLER SHALL HAVE ITS OWN SET POINTS AND PARAMETERS TO BE INDIVIDUALLY TUNED. VALVES SHALL BE CLOSED WHEN CHILLER IS OFF.

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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

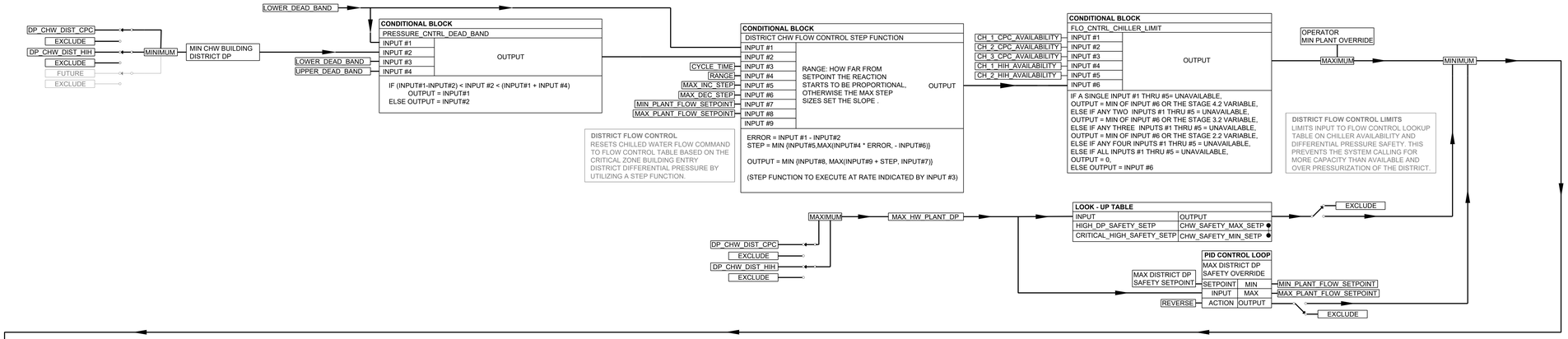
ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

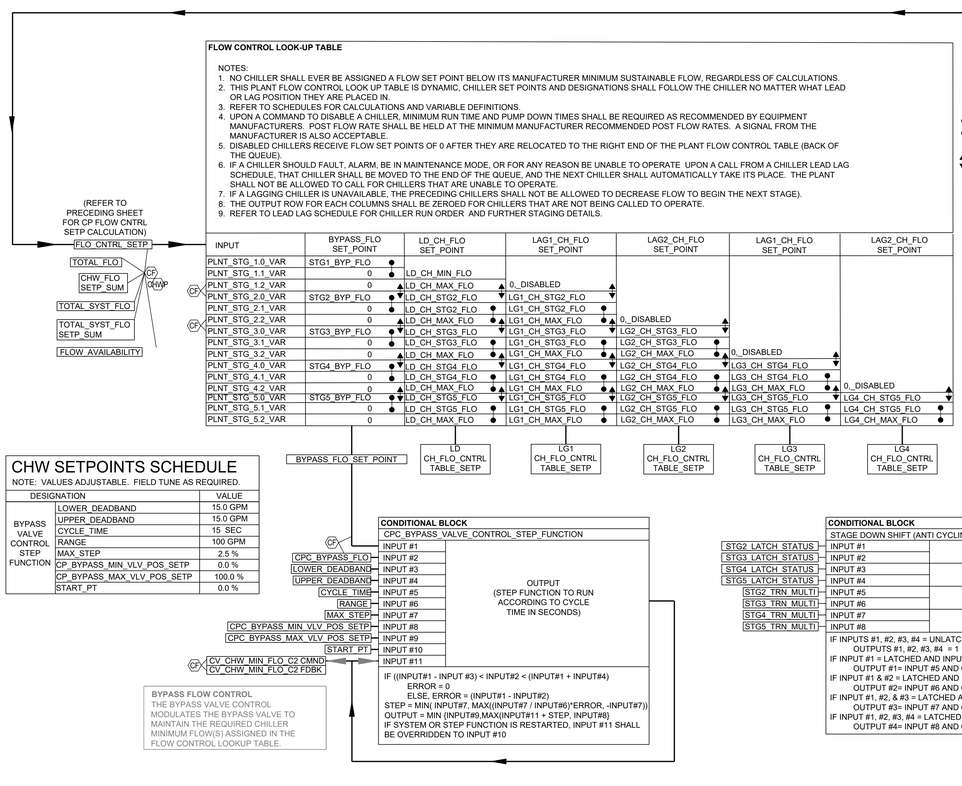
SHEET TITLE:

DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:

ATC104

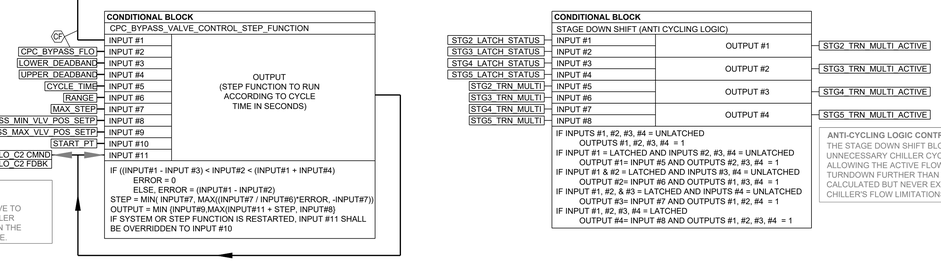


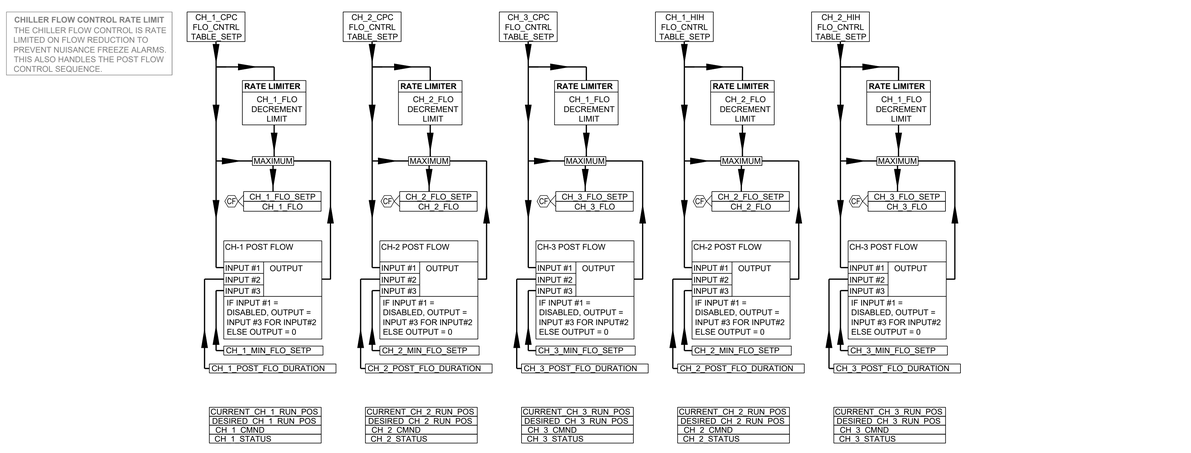


CHW SETPOINTS SCHEDULE

NOTE: VALUES ADJUSTABLE. FIELD TUNE AS REQUIRED.

DESIGNATION		VALUE
BYPASS VALVE CONTROL STEP FUNCTION	LOWER_DEADBAND	15.0 GPM
	UPPER_DEADBAND	15.0 GPM
	CYCLE_TIME	15 SEC
	RANGE	100 GPM
	MAX_STEP	2.5 %
	CP_BYPASS_MIN_VLV_POS_SETP	0.0 %
	CP_BYPASS_MAX_VLV_POS_SETP	100.0 %
	START_PT	0.0 %





1 CPC & HIH PLANT DISTRICT FLOW CONTROL
NOT TO SCALE

CHILLER LEAD LAG SCHEDULE

CHILLER DESIGNATION	RECOMMENDED LEAD/LAG RUN ORDER	NUMBER OF STARTS	RUN TIME (HRS)	STANDBY TIMER (DAYS)	MAX STANDBY SETPOINT (DAYS)
CH_1_CPC	LEAD, LAG #1, OR LAG #2	-	-	-	28
CH_2_CPC	LEAD, LAG #1, OR LAG #2	-	-	-	28
CH_3_CPC	LAG #3	-	-	-	28
CH_1_HIH	LEAD, LAG #1, OR LAG #2	-	-	-	28
CH_2_HIH	LAG#4	-	-	-	28

NOTES:
1. LEAD AND LAG STATUS WILL AUTOMATICALLY ADJUST FOR UNITS EXCLUDED DUE TO MAINTENANCE SHUTDOWNS AND ALARM SHUTDOWNS, OR IF A CHILLER IS NOT ALLOWED TO OPERATE FOR ANY REASON. WHEN A CHILLER'S AVAILABILITY TO OPERATE IS RESTORED, IT WILL REMAIN IN ITS QUEUE POSITION (FOR INSTANCE, IF AN ALARM IS CLEARED FOR CHILLER 2 AND IT WAS IN THE LAG 1 POSITION BUT WAS MOVED TO LAG 2, IT IS TO REMAIN IN THE LAG 2 POSITION UNTIL ANOTHER FAULTED CHILLER TAKES IT PLACE, OR UNTIL AN OPERATOR MOVES IT TO ANOTHER POSITION IN THE QUEUE).
2. CHILLER RUN POSITION SHALL BE SELECTABLE BY OPERATOR. THE OPERATOR SHALL BE ABLE TO SEE THE CURRENT RUN POSITION AND SELECT A DESIRED RUN POSITION. UPON CLICKING AND EXECUTE BUTTON, AN ACCEPTABLE RUN ORDER SHALL BE IMPLEMENTED AND THE CURRENT RUN ORDER SHALL BE UPDATED. ONLY ONE CHILLER SHALL BE ALLOWED BY PROGRAMMING IN A QUEUE POSITION AT A TIME (ONLY ONE LEAD CHILLER, ONE LAG #1 CHILLER, AND ONE LAG #2 CHILLER). IF THE RUN ORDER IS NOT ACCEPTABLE, THE UNACCEPTABLE CONDITION(S) SHALL BE HIGHLIGHTED. PROVIDE THIS FUNCTION AT THE LIVE SEQUENCE GRAPHIC (AS INDICATED ABOVE), AT THE CONTROL PIPING DIAGRAM, AND AT THE PLANT DASHBOARD. AN OPERATOR SHALL BE ABLE TO RE-ARRANGE CHILLER RUN ORDER WITHOUT FALSE STARTS AND TRIPS.
3. PROVIDE A CHILLER STANDBY ALARM IF THE MAXIMUM STANDBY TIMER SET POINT IS EXCEEDED. STANDBY TIMER SHALL RESET WHEN A CHILLER IS DISABLED IF CHILLER HAS RUN FOR A MINIMUM OF 4 CONTINUOUS HOURS (ADJUSTABLE).
4. ANY CHILLER SHALL BE CAPABLE OF RUNNING IN ANY RUN POSITION.
5. PROVIDE A TABLE SIMILAR TO THIS FOR THE OPERATOR TO DETERMINE RUN ORDER.

CHW CALCULATIONS SCHEDULE

DESIGNATION	CALCULATION
CP_STG1_BYP_FLO	= CP_LEAD CH MIN FLO
CP_STG2_BYP_FLO	= - MIN (CP_STG2_START_FLO * CP_BYP_OFFSET_STG2 * CP_STG2_TRN_MULTI_ACTIVE - CP_STG2_MIN_SUM, 0)
CP_STG3_BYP_FLO	= - MIN (CP_STG3_START_FLO * CP_BYP_OFFSET_STG3 * CP_STG3_TRN_MULTI_ACTIVE - CP_STG3_MIN_SUM, 0)
CP_STG4_BYP_FLO	= - MIN (CP_STG4_START_FLO * CP_BYP_OFFSET_STG4 * CP_STG4_TRN_MULTI_ACTIVE - CP_STG4_MIN_SUM, 0)
CP_STG5_BYP_FLO	= - MIN (CP_STG5_START_FLO * CP_BYP_OFFSET_STG5 * CP_STG5_TRN_MULTI_ACTIVE - CP_STG5_MIN_SUM, 0)
CP_STG2_TRNDN_LIMIT	0.5
CP_STG3_TRNDN_LIMIT	0.5
CP_STG4_TRNDN_LIMIT	0.5
CP_STG5_TRNDN_LIMIT	0.5
CP_STG2_TRN_MULTI	= (CP_STG2_START_FLO - CP_STG2_TRNDN_LIMIT * (CP_STG2_START_FLO - CP_STG1.1_SUM +CP_STG2_BYP_FLO)) / CP_STG2_START_FLO
CP_STG3_TRN_MULTI	= (CP_STG3_START_FLO - CP_STG3_TRNDN_LIMIT * (CP_STG3_START_FLO - CP_STG2.1_SUM +CP_STG3_BYP_FLO)) / CP_STG3_START_FLO
CP_STG4_TRN_MULTI	= (CP_STG4_START_FLO - CP_STG4_TRNDN_LIMIT * (CP_STG4_START_FLO - CP_STG3.1_SUM +CP_STG4_BYP_FLO)) / CP_STG4_START_FLO
CP_STG5_TRN_MULTI	= (CP_STG5_START_FLO - CP_STG5_TRNDN_LIMIT * (CP_STG5_START_FLO - CP_STG4.1_SUM +CP_STG5_BYP_FLO)) / CP_STG5_START_FLO
CP_STG1.1_SUM	= CP_LD_CH_MIN_FLO
CP_STG2.1_SUM	= CP_LD_CH_STG2_FLO+CP_LG1_CH_STG2_FLO
CP_STG3.1_SUM	= CP_LD_CH_STG3_FLO+CP_LG1_CH_STG3_FLO+CP_LG2_CH_STG3_FLO
CP_STG4.1_SUM	= CP_LD_CH_STG4_FLO+CP_LG1_CH_STG4_FLO+CP_LG2_CH_STG4_FLO+CP_LG3_CH_STG4_FLO
CP_STG5.1_SUM	= CP_LD_CH_STG5_FLO+CP_LG1_CH_STG5_FLO+CP_LG2_CH_STG5_FLO+CP_LG3_CH_STG5_FLO+CP_LG4_CH_STG5_FLO
CP_LD_CH_STG2_FLO	= MAX ((CP_LD_CH_MIN_FLO + CP_LD_CH_RANGE * CP_CH_VAR_STG2), LD_CH_MIN_FLO)
CP_LG1_CH_STG2_FLO	= MAX ((CP_LAG1_CH_MIN_FLO + CP_LAG1_CH_RANGE * CP_CH_VAR_STG2), CP_LAG1_CH_MIN_FLO)
CP_LD_CH_STG3_FLO	= MAX ((CP_LD_CH_MIN_FLO + LD_CH_RANGE * CP_CH_VAR_STG3), LD_CH_MIN_FLO)
CP_LG1_CH_STG3_FLO	= MAX ((CP_LAG1_CH_MIN_FLO + CP_LAG1_CH_RANGE * CP_CH_VAR_STG3), CP_LAG1_CH_MIN_FLO)
CP_LG2_CH_STG3_FLO	= MAX ((CP_LAG2_CH_MIN_FLO + CP_LAG2_CH_RANGE * CP_CH_VAR_STG3), CP_LAG2_CH_MIN_FLO)
CP_LD_CH_STG4_FLO	= MAX ((CP_LD_CH_MIN_FLO + LD_CH_RANGE * CP_CH_VAR_STG4), LD_CH_MIN_FLO)
CP_LG1_CH_STG4_FLO	= MAX ((CP_LAG1_CH_MIN_FLO + CP_LAG1_CH_RANGE * CP_CH_VAR_STG4), CP_LAG1_CH_MIN_FLO)
CP_LG2_CH_STG4_FLO	= MAX ((CP_LAG2_CH_MIN_FLO + CP_LAG2_CH_RANGE * CP_CH_VAR_STG4, CP_LAG2_CH_MIN_FLO)
CP_LG3_CH_STG4_FLO	= MAX ((CP_LAG3_CH_MIN_FLO + CP_LAG3_CH_RANGE * CP_CH_VAR_STG4), CP_LAG3_CH_MIN_FLO)
CP_LD_CH_STG5_FLO	= MAX ((CP_LD_CH_MIN_FLO + LD_CH_RANGE * CP_CH_VAR_STG5), LD_CH_MIN_FLO)
CP_LG1_CH_STG5_FLO	= MAX ((CP_LAG1_CH_MIN_FLO + CP_LAG1_CH_RANGE * CP_CH_VAR_STG5), CP_LAG1_CH_MIN_FLO)
CP_LG2_CH_STG5_FLO	= MAX ((CP_LAG2_CH_MIN_FLO + CP_LAG2_CH_RANGE * CP_CH_VAR_STG5), CP_LAG2_CH_MIN_FLO)
CP_LG3_CH_STG5_FLO	= MAX ((CP_LAG3_CH_MIN_FLO + CP_LAG3_CH_RANGE * CP_CH_VAR_STG5), CP_LAG3_CH_MIN_FLO)
CP_LG4_CH_STG5_FLO	= MAX ((CP_LAG4_CH_MIN_FLO + CP_LAG4_CH_RANGE * CP_CH_VAR_STG5), CP_LAG4_CH_MIN_FLO)
CH_C8_RANGE	= CH_C8_MAX_FLO_SETP - CH_C8_MIN_FLO_SETP
CH_C9_RANGE	= CH_C9_MAX_FLO_SETP - CH_C9_MIN_FLO_SETP
CH_C10_RANGE	= CH_C10_MAX_FLO_SETP - CH_C10_MIN_FLO_SETP
CH_C11_RANGE	= CH_C11 _MAX_FLO_SETP - CH_C11 _MIN_FLO_SETP
CH_C12_RANGE	= CH_C12_MAX_FLO_SETP - CH_C12_MIN_FLO_SETP
CP_STG1_START_FLO	= CP_LD_CH_MIN_FLO_SETP
CP_STG2_START_FLO	= CP_LD_CH_MAX_FLO_SETP
CP_STG3_START_FLO	= CP_STG2_START_FLO + CP_LAG1_CH_MAX_FLO_SETP
CP_STG4_START_FLO	= CP_STG3_START_FLO + CP_LAG2_CH_MAX_FLO_SETP
CP_STG5_START_FLO	= CP_STG4_START_FLO + CP_LAG3_CH_MAX_FLO_SETP
CP_STG1_MIN_SUM	= CP_LD_CH_MIN_FLO_SETP
CP_STG2_MIN_SUM	= CP_LD_CH_MIN_FLO_SETP + CP_LAG1_CH_MIN_FLO_SETP
CP_STG3_MIN_SUM	= CP_STG2_MIN_SUM + CP_LAG2_CH_MIN_FLO_SETP
CP_STG4_MIN_SUM	= CP_STG3_MIN_SUM + CP_LAG3_CH_MIN_FLO_SETP
CP_STG5_MIN_SUM	= CP_STG4_MIN_SUM + CP_LAG4_CH_MIN_FLO_SETP
CP_STG1_RANGE	= CP_LD_CH_RANGE
CP_STG2_RANGE	= CP_LD_CH_RANGE + CP_LAG1_CH_RANGE
CP_STG3_RANGE	= CP_STG2_RANGE + CP_LAG2_CH_RANGE
CP_STG4_RANGE	= CP_STG3_RANGE + CP_LAG3_CH_RANGE
CP_STG5_RANGE	= CP_STG4_RANGE + CP_LAG4_CH_RANGE
CP_CH_VAR_STG1	= ((CP_STG1_START_FLO * CP_STG1_TRN_MULTI) - CP_STG1_MIN_SUM) / CP_STG1_RANGE
CP_CH_VAR_STG2	= ((CP_STG2_START_FLO * CP_STG2_TRN_MULTI) - CP_STG2_MIN_SUM) / CP_STG2_RANGE
CP_CH_VAR_STG3	= ((CP_STG3_START_FLO * CP_STG3_TRN_MULTI) - CP_STG3_MIN_SUM) / CP_STG3_RANGE
CP_CH_VAR_STG4	= ((CP_STG4_START_FLO * CP_STG4_TRN_MULTI) - CP_STG4_MIN_SUM) / CP_STG4_RANGE
CP_CH_VAR_STG5	= ((CP_STG5_START_FLO * CP_STG5_TRN_MULTI) - CP_STG5_MIN_SUM) / CP_STG5_RANGE
CP_PLNT_STG_1.0_VAR	= 0
CP_PLNT_STG_1.1_VAR	= CP_LD_CH_MIN_FLO_SETP * CP_PLNT_STG_1.2 OFFSET * CP_PLNT_STG1.2_RESET
CP_PLNT_STG_1.2_VAR	= CP_STG2_START_FLO * CP_PLNT_STG_1.2 OFFSET * CP_PLNT_STG1.2_RESET
CP_PLNT_STG_2.0_VAR	= CP_PLNT_STG_1.2_VAR / CP_PLNT_STG_1.2_OFFSET * CP_PLNT_STG2.0_OFFSET
CP_PLNT_STG_2.1_VAR	= (CP_PLNT_STG_2.0_VAR + CP_STG2_BYP_FLO) * CP_PLNT_STG_2.2 OFFSET * CP_PLNT_STG2.2_RESET
CP_PLNT_STG_2.2_VAR	= (CP_STG3_START_FLO) * CP_PLNT_STG_2.2 OFFSET * CP_PLNT_STG2.2_RESET
CP_PLNT_STG_3.0_VAR	= CP_PLNT_STG_2.2_VAR / CP_PLNT_STG_2.2_OFFSET * CP_PLNT_STG3.0_OFFSET
CP_PLNT_STG_3.1_VAR	= (CP_PLNT_STG_3.0_VAR + CP_STG3_BYP_FLO) * CP_PLNT_STG_3.2 OFFSET * CP_PLNT_STG3.2_RESET
CP_PLNT_STG_3.2_VAR	= (CP_STG4_START_FLO) * CP_PLNT_STG_3.2_OFFSET * CP_PLNT_STG3.2_RESET
CP_PLNT_STG_4.0_VAR	= CP_PLNT_STG_3.2_VAR / CP_PLNT_STG_3.2_OFFSET * CP_PLNT_STG4.0_OFFSET
CP_PLNT_STG_4.1_VAR	= CP_PLNT_STG_4.0_VAR + CP_STG4_BYP_FLO
CP_PLNT_STG_4.2_VAR	= (CP_STG5_START_FLO) * CP_PLNT_STG_4.2_OFFSET * CP_PLNT_STG4.2_RESET
CP_PLNT_STG_5.0_VAR	= CP_PLNT_STG_4.2_VAR / CP_PLNT_STG_4.2_OFFSET * CP_PLNT_STG5.0_OFFSET
CP_PLNT_STG_5.1_VAR	= CP_PLNT_STG_5.0_VAR + CP_STG5_BYP_FLO
CP_PLNT_STG_5.2_VAR	= (CP_STG6_START_FLO) * CP_PLNT_STG_5.2_OFFSET * CP_PLNT_STG5.2_RESET
CP_PLNT_STG1.2_RESET	= CCP_STG5_TRN_MULTI_ACTIVE+CP_STG4_TRN_MULTI_ACTIVE+CP_STG3_TRN_MULTI_ACTIVE+ CP_STG2_TRN_MULTI_ACTIVE+CP_STG1_TRN_MULTI_ACTIVE
CP_PLNT_STG2.2_RESET	= CP_STG5_TRN_MULTI_ACTIVE+CP_STG4_TRN_MULTI_ACTIVE+CP_STG3_TRN_MULTI_ACTIVE+ CP_STG2_TRN_MULTI_ACTIVE
CP_PLNT_STG3.2_RESET	= CP_STG5_TRN_MULTI_ACTIVE+CP_STG4_TRN_MULTI_ACTIVE+CP_STG3_TRN_MULTI_ACTIVE
CP_PLNT_STG4.2_RESET	= CP_STG5_TRN_MULTI_ACTIVE+CP_STG4_TRN_MULTI_ACTIVE
CP_PLNT_STG5.2_RESET	= CP_STG5_TRN_MULTI_ACTIVE

CHW OFFSET SCHEDULE

DESIGNATION	CALCULATION
CP_PLNT_STG_1.2_OFFSET	= 0.950
CP_PLNT_STG_2.0_OFFSET	= 1.000
CP_PLNT_STG_2.1_OFFSET	= 1.000
CP_PLNT_STG_2.2_OFFSET	= 0.975
CP_PLNT_STG_3.0_OFFSET	= 1.000
CP_PLNT_STG_3.1_OFFSET	= 1.000
CP_PLNT_STG_3.2_OFFSET	= 0.985
CP_PLNT_STG_4.0_OFFSET	= 1.000
CP_PLNT_STG_4.1_OFFSET	= 1.000
CP_PLNT_STG_4.2_OFFSET	= 0.989
CP_PLNT_STG_5.0_OFFSET	= 1.000
CP_PLNT_STG_5.1_OFFSET	= 1.000
CP_PLNT_STG_5.2_OFFSET	= 0.991
CP_BYP_OFFSET_STG2	1.0
CP_BYP_OFFSET_STG3	1.0
CP_BYP_OFFSET_STG4	1.0
CP_BYP_OFFSET_STG5	1.0

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ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

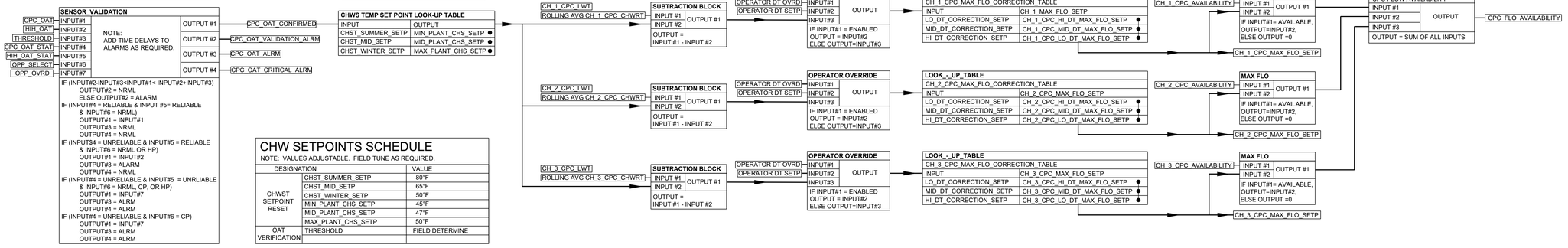
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025
PROJECT NUMBER: 561470540

SHEET TITLE:
DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:
ATC103

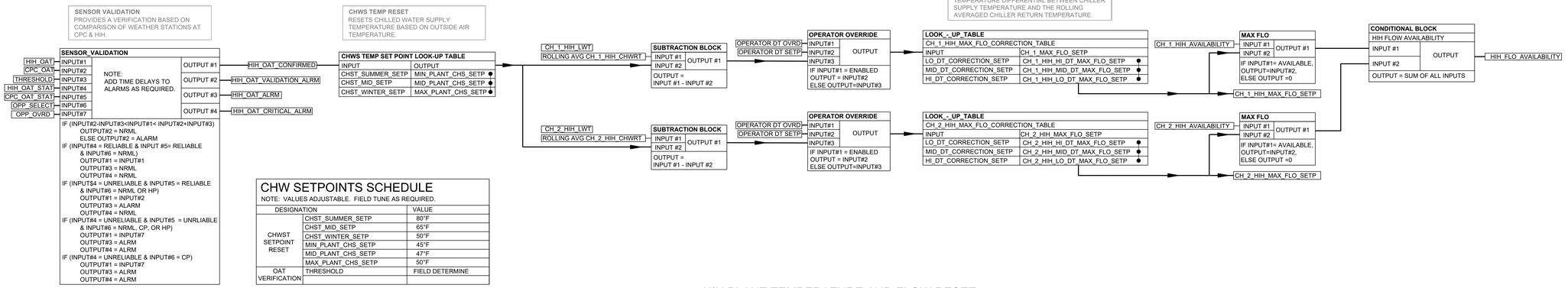


1 CPC PLANT TEMPERATURE AND FLOW RESET
NOT TO SCALE

CHW SETPOINTS SCHEDULE

NOTE: VALUES ADJUSTABLE. FIELD TUNE AS REQUIRED.

DESIGNATION		VALUE
CHWST SETPOINT RESET	CHST_SUMMER_SETP	80°F
	CHST_MID_SETP	65°F
	CHST_WINTER_SETP	50°F
	MIN_PLANT_CHS_SETP	45°F
	MID_PLANT_CHS_SETP	47°F
	MAX_PLANT_CHS_SETP	50°F
OAT VERIFICATION	THRESHOLD	FIELD DETERMINE



1 HIH PLANT TEMPERATURE AND FLOW RESET
NOT TO SCALE

CHW SETPOINTS SCHEDULE

NOTE: VALUES ADJUSTABLE. FIELD TUNE AS REQUIRED.

DESIGNATION		VALUE
CHWST SETPOINT RESET	CHST_SUMMER_SETP	80°F
	CHST_MID_SETP	65°F
	CHST_WINTER_SETP	50°F
	MIN_PLANT_CHS_SETP	45°F
	MID_PLANT_CHS_SETP	47°F
	MAX_PLANT_CHS_SETP	50°F
OAT VERIFICATION	THRESHOLD	FIELD DETERMINE

SEQUENCE GENERAL NOTES:

1. ATC CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
2. IF EQUIPMENT (CHILLERS, PUMPS, ETC.) IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE LEAD, LAG, LAG#1, .. STATUS OF THE REMAINING EQUIPMENT SHALL MOVE UP IN THE STAGING QUEUE AUTOMATICALLY. STAGING PREDETERMINED BY OPERATOR SELECTION. THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
3. THIS GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
4. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
6. INDICATE OVERRIDES BY HIGHLIGHTING THE VALUES IN PURPLE, OR CHANGING THE TEXT COLORS TO PURPLE.
7. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS. ALL OTHER POINTS ARE TO BE TRENDED AT 1 MINUTE INTERVALS AND BACKED UP AS SPECIFIED.
8. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAIN ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
9. EQUIPMENT PROVIDED WITH CONTROLLERS (CHILLERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE UPAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
10. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
11. WHEN A TEMPERATURE SENSOR, DIFFERENTIAL PRESSURE SENSOR, FLOW METER, OR ANY OTHER DEVICES FAILS AND IS RECOGNIZED AS FAILED OR OUT OF RANGE, THE DEVICE SHALL HOLD LAST RELIABLE VALUE, INDICATE THAT IT IS IN ALARM ON THE GRAPHIC, AND SHALL BE LOGGED IN THE ALARMS LOG.
12. CALCULATIONS OF AND WITH THE TURNDOWN MULTIPLIERS AND THE CHILLER STAGE VARIABLES REQUIRE 4 SIGNIFICANT FIGURES AT A MINIMUM. PROGRAMMER TO ACCOUNT FOR IN CALCULATIONS AND GRAPHIC DISPLAYS.

ALARMS

REPORTING: L=LOGS, G= ASSOCIATED GRAPHIC, P=POP UP GRAPHIC, T=TEXT/EMAIL

ALARM TYPE	REPORTING	CRITERIA
CHILLER CONTROLLER ALARMS/WARNINGS	G, L, P	ALARMS AND WARNINGS COMMUNICATED FROM THE CHILLER.
FAILED ACTUATOR	G, L	FEEDBACK POSITION > 3% (ADJ) OF SETPOINT FOR MORE THAN 90 SECONDS (ADJ).
FAILED END SWITCH	G, L	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ) OF COMMAND.
VFD FAILURE	G, L, P	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD.
FAILED CURRENT SWITCH/SENSOR STATUS	G, L	STATUS NOT MET DURING A CALL TO OPERATE.
HIGH ZONE CHW PRESSURE	G, L	ZONE DP > ZONE DP SETPOINT + 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW ZONE CHW PRESSURE	G, L	ZONE DP < ZONE DP SETPOINT - 1 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW CHILLER CHW FLOW	G, L	CHILLER FLOW < FLOW - 150 GPM (ADJ) FOR MORE THAN 10 MIN (ADJ.)
HIGH CHILLER CHW FLOW	G, L	CHILLER FLOW > FLOW + 150 GPM (ADJ) FOR MORE THAN 10 MIN (ADJ.)
LOW EVAPORATOR WATER LEAVING TEMP	G, L	LWT < LWT SETPOINT - 2 °F (ADJ) FOR MORE THAN 10 MIN (ADJ.)
HIGH EVAPORATOR WATER LEAVING TEMP	G, L, P, T	LWT > LWT SETPOINT + 2 °F (ADJ) FOR MORE THAN 10 MIN (ADJ.)
LOW TOWER WATER ENTERING TEMP	G, L	EWT < MIN EWT SETPOINT - 2 °F (ADJ) FOR MORE THAN 10 MIN (ADJ.)
HIGH SYSTEM PRESSURE	G, L, P, T	SYSTEM PRESSURE > SYS PRESS SET POINT + 10 PSI (ADJ)
LOW SYSTEM PRESSURE	G, L, P, T	SYSTEM PRESSURE < SYS PRESS SET POINT - 10 PSI (ADJ)
UNRELIABLE SENSOR	G, L	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC
UNRELIABLE METER	G, L	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC
HIGH MAKE UP WATER FLOW RATE	G, L, P, T	MORE THAN 1 GALLON (ADJ) OF FLOW IN AN HOUR (ADJ).
HIGH HIGH MAKE UP WATER FLOW RATE	G, L, P, T	MORE THAN 10 GALLONS (ADJ) OF FLOW IN A DAY (ADJ).
OWNER REQUESTED ALARMS	COORD.	ATC CONTRACTOR TO ADD ALARMS AS REQUESTED BY OWNER.
HEAT TRACE ALARM	G, L, P, T	FAILED PROOF FROM CT WHEN OAT < 38°F (ADJ)
HEAT TRACE ALARM	G, L, P, T	HEAT TRACE ENABLED WHEN OAT > 38°F (ADJ)
TOWER MAKE UP WATER ALARM	G, L, P, T	MORE THAN 100 GALLONS (ADJ) OF FLOW IN A 24 HR PERIOD (ADJ).
VFD IN HAND	G, L	VFD IN HAND
VFD IN BYPASS	G, L	VFD IN BYPASS
VFD IN HAND OFF	G, L	VFD IN HAND OFF
HIGH PLANT DP	G, L, P	HIGH PLANT DP SAFETY OVERRIDE CONTROL LOOP IS ACTIVE.
CHILLER STANDBY TIMER EXCEEDS SETPOINT	G, L, P	CHILLER STANDBY TIMER HAS EXCEEDED STANDBY TIMER SET POINT.
ADS-CHW-CT DP ALARM	G, L, P	DP HIGHER/LOWER THAN STPT BY 15% OR MORE FOR 15 MIN OR MORE
PMP-CHW-CB SPEED ALARM	G, L, P	AVG PUMP SPEED INCREASES BY MORE THAN 15% OVER A 15 MIN ROLLING INTERVAL
HIGH PLANT DP	G, L, T	PLANT DP > PLANT DP SETPOINT + 5 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW PLANT DP	G, L, T	PLANT DP < PLANT DP SETPOINT - 5 PSI (ADJ) FOR MORE THAN 5 MIN. (ADJ)
LOW CHILLER DP	G, L, T	CHILLER DP < MIN DP SETPOINT FOR MORE THAN 10 MIN (ADJ.)
HIGH CHILLER DP	G, L, T	CHILLER DP > MAX DP SETPOINT FOR MORE THAN 10 MIN (ADJ.)
CENTRAL PLANT BYPASS ACTIVE	G, L, P	BYPASS COMMAND > 0. NOTIFY OPERATOR TO CHANGE QUEUE.
HIGHLAND PLANT BYPASS ACTIVE	G, L, P	BYPASS COMMAND > 0. NOTIFY OPERATOR TO CHANGE QUEUE.

NOTES:
1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
2. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
3. ALARM CRITERIA AND REPORTING TO BE COORDINATED WITH THE FACILITY. ALARM REPORTING AS FOLLOWS:
   A. LOGS ARE TO REPORT TO PRIORITIZED ALARM LOGS
   B. GRAPHICS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT, AND/OR FLASH
   C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS.
   D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED.

CHILLER MODES OF OPERATION

MODE	CHILLER STATUS	CHW CNTRL VALVE	TW CNTRL VALVE
NORMAL ENABLED	ENABLED	CHW_VLV_CMND	TW_VLV_CMND
NORMAL DISABLED	DISABLED	CLOSED	CLOSED
MAINTENANCE SHUTDOWN	DISABLED	CLOSED	CLOSED
ALARM DISABLED	DISABLED	CLOSED	CLOSED

NOTES:
1. WHEN CHILLER IS ENABLED FROM UPAS, IT IS IN NORMAL ENABLED MODE. WHEN ITS AVAILBLE TO RUN BUT IS NOT ENABLED, IT IS IN NORMAL DISABLED MODE. WHEN AN OPERATOR HAS DISABLED FROM UPAS, IT SHALL BE IN MAINTENANCE SHUT DOWN MODE. IF THE CHILLER HAS A LATCHED ALARM, IS WAITING ON A SAFETY TIMER TO RESET, OR HAS NOT PROOFED STATUS OR FLOW WITHIN ALLOTED TIME, IT SHALL BE IN ALARM DISABLED MODE.
2. MAINTENANCE AND ALARM SHUT DOWN MODES SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
3. MANUAL MODES OF OPERATION CHANGES/OVERRIDES SHALL BE CAPABLE FROM UPAS AND REQUIRE SUPERVISOR OR HIGHER LEVEL CLEARANCE.

CHILLER SET POINT SCHEDULE

DESIGNATION	MIN FLOW SWITCH SET POINT	MIN FLOW SET_POINT	LO / MID / HI_DT_ CORRECTION_ SET_POINT	LO / MID / HI_ DT_MAX_FLO_ SET_POINT	LOAD RATE LIMIT	MIN LOAD	POST *5 FLOW DURATION	CONST_ FLOW_ FRACTION
CPC_CH_1	1,176 GPM	1,400 GPM	8°F / 10°F / 12°F	6,300 GPM / 5,040 GPM / 4,200 GPM	250 GPM/MIN	420 TONS	2 MINUTES	N/A
CPC_CH_2	1,176 GPM	1,400 GPM	8°F / 10°F / 12°F	6,300 GPM / 5,040 GPM / 4,200 GPM	250 GPM/MIN	420 TONS	2 MINUTES	N/A
CPC_CH_3	840 GPM	1,050 GPM	8°F / 10°F / 12°F	4,500 GPM / 3,600 GPM / 3,000 GPM	200 GPM/MIN	- - - TONS	2 MINUTES	N/A
HIH_CH_1	1,176 GPM	1,400 GPM	8°F / 10°F / 12°F	6,300 GPM / 5,040 GPM / 4,200 GPM	250 GPM/MIN	420 TONS	2 MINUTES	N/A
HIH_CH_2	1,176 GPM	1,400 GPM	8°F / 10°F / 12°F	6,300 GPM / 5,040 GPM / 4,200 GPM	250 GPM/MIN	420 TONS	2 MINUTES	N/A

NOTES:
1. EQUIPMENT SHALL BE CAPABLE OF BEING EXCLUDED FROM INDIVIDUAL RESET STRATEGIES.
2. EQUIPMENT IN ALARM, DISABLED, OR OTHERWISE NOT AVAILABLE TO RUN SHALL BE EXCLUDED FROM INDIVIDUAL RESET STRATEGY AND SHALL RECEIVE SET POINTS OF 0.
3. ALLEN BRADLEY WILL PROGRAM CHILLERS C8, C9, AND C10 TO OPERATE TO A FIXED FLOW SETPOINT ON THE ALLEN BRADLEY SYSTEM AND PROVIDE THE SETPOINT TO JCI VIA INTEGRATION AS A READ ONLY POINT. THIS SETPOINT WILL BE USED AS THE MAX FLOW SETPOINT FOR EACH STEAM TURBINE CHILLER IN THE STAGING TABLE. MULTIPLY CHILLER MAX FLOW BY 0.99 TO GET CHILLER MIN FLOW SETPOINT.
4. FUTURE CHILLER. SYSTEM INFRASTRUCTURE TO BE PROGRAMMED FOR THE FUTURE CHILLER NOW. CHILLER LOGIC CAN BE "COMMENTED OUT/DISABLED" AND SHALL BE FIXED TO "UNAVAILABLE" IN THE PROGRAMMING AND SETTINGS.
5. A COMMAND FROM CHILLER FOR POST FLOW DURATION INSTEAD OF A TIMER IS ACCEPTABLE.

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:
DISTRICT CHILLED WATER SYSTEM CONTROL SEQUENCES

SHEET NUMBER:
ATC102

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
3. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
8. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
9. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
10. TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
11. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
12. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
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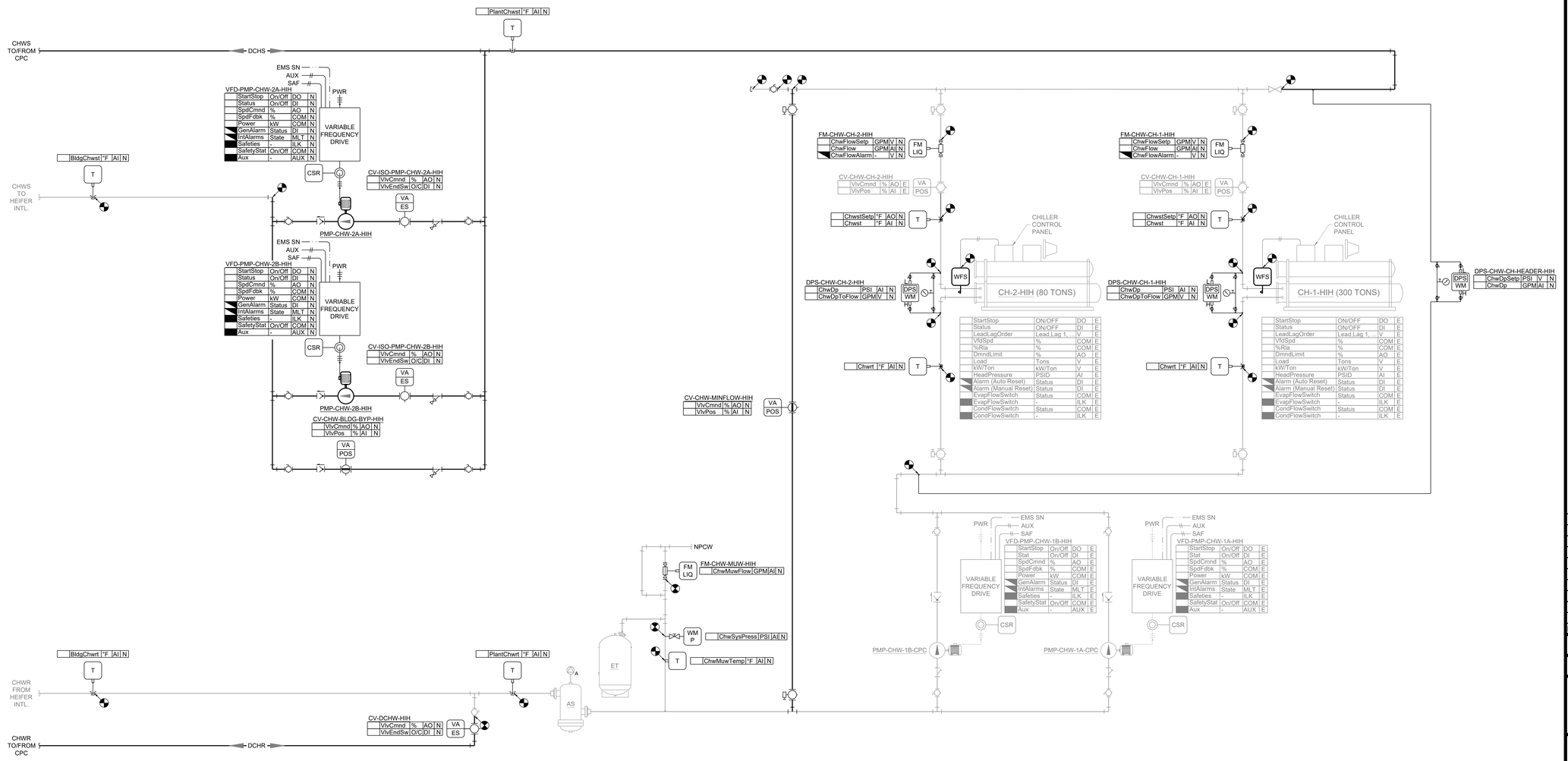
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



1 HEIFER INTERNATIONAL HEADQUARTERS CHILLED WATER PLANT CONTROL DIAGRAM
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS CHILLED WATER PLANT CONTROL DIAGRAM

SHEET NUMBER:

ATC101

GENERAL NOTES:

1. CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
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4. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
5. IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
6. IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
7. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
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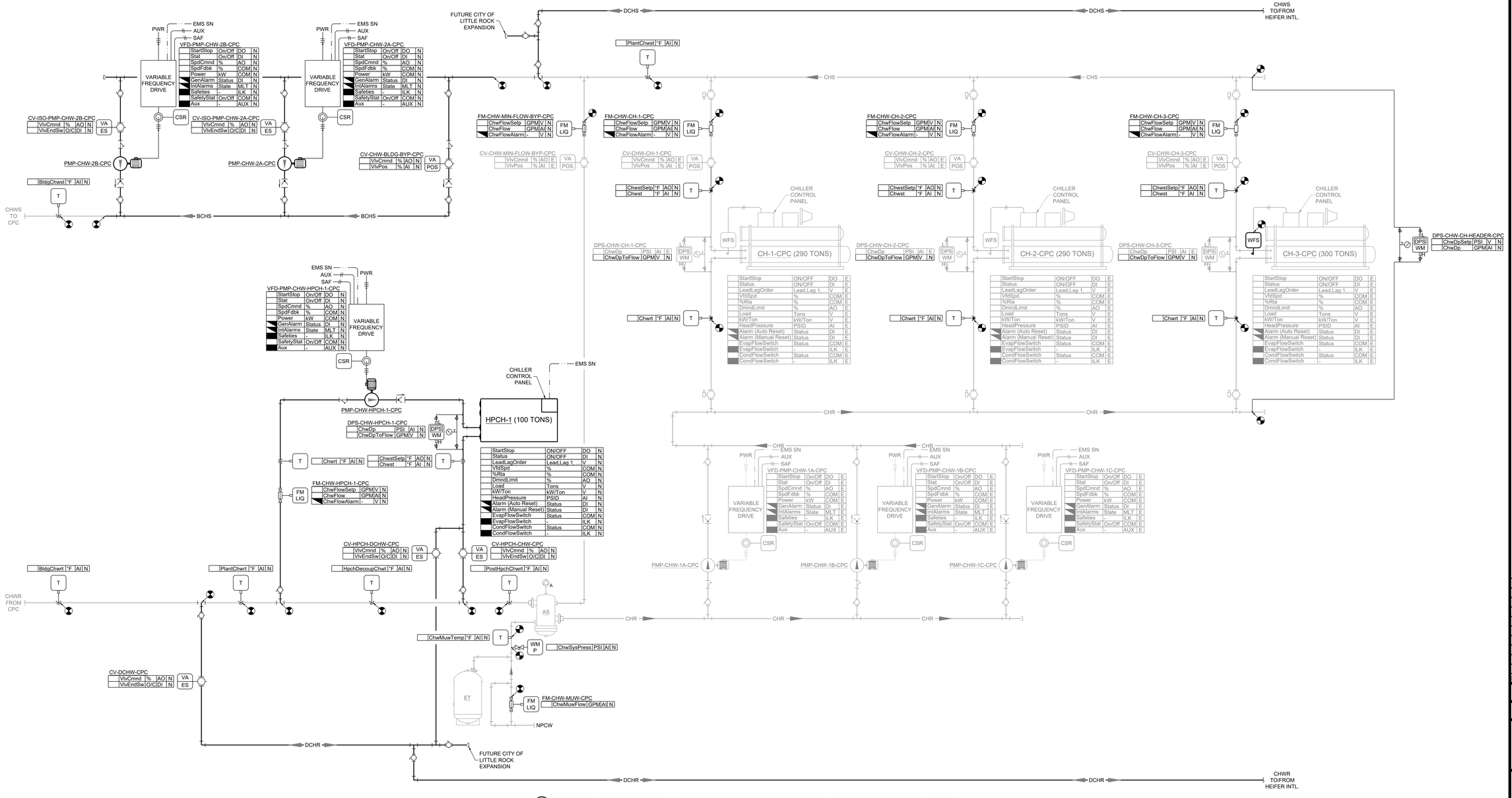
14. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
15. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



1 CLINTON PRESIDENTIAL CENTER CHILLED WATER PLANT CONTROL DIAGRAM
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:

CLINTON PRESIDENTIAL CENTER CHILLED WATER PLANT CONTROL DIAGRAM

SHEET NUMBER:

ATC100

GENERAL NOTES:

1. THE SCHEDULES ON THIS PAGE ARE TO PROVIDE AND EXAMPLE OF WHAT AN EQUIPMENT RESET DASHBOARD SHOULD CONVEY ON THE BAS GRAPHICS. THIS IS NOT AN EQUIPMENT SCHEDULE FOR THE SELECTION AND PURCHASE OF EQUIPMENT.
2. BAS GRAPHICS SHALL INCLUDE DASHBOARDS FOR THE ENTIRE BUILDING / CAMPUS.
3. DASHBOARDS SHALL INDICATE THE SYSTEM SERVED BY THE EQUIPMENT.
4. OPERATORS WITH APPROPRIATE CLEARANCE SHALL BE CAPABLE OF CHANGING THE AIRFLOWS AND SETPOINTS FROM THE DASHBOARD.
5. ENFRA TO CALCULATE AIRFLOWS VIA ROOM VENTILATION SCHEDULE FOR SUPPLY TERMINALS. DIVISION 230900 TO ASSIGN AIRFLOWS ON NEW OR RETROFITTED SUPPLY TERMINALS. ENFRA TO ASSIGN AIRFLOWS ON EXISTING DDC SUPPLY TERMINALS.
6. OVERRIDDEN VALUES SHALL BE HIGHLIGHTED PURPLE OR THE TEXT COLOR SHALL CHANGE TO INDICATE VALUES HAVE BEEN OVERRIDDEN.
7. EQUIPMENT IN ALARM SHALL BE HIGHLIGHTED RED OR THE TEXT SHALL TURN RED TO INDICATE AN ALARM.
8. IDENTIFY ALL ALARMS ASSOCIATED WITH EACH PIECE OF EQUIPMENT. A GENERAL ALARM STATUS CAN BE DISPLAYED AND SPECIFIC ALARMS CAN BE VIEWED BY CLICKING ON THE ALARM STATUS FOR THAT EQUIPMENT.
9. REPORTS ARE NOT AN ACCEPTABLE FORM OF SYSTEM SUMMARIES. REPORTS SHALL CONTAIN LIVE DATA.
10. SCHEDULE COLUMNS SHALL BE CAPABLE OF BEING TOGGLED ON AND OFF.
11. GRAPHICS SHALL INCLUDE A DASHBOARD SIMILAR TO THAT SHOWN. THIS PROJECT MAY REQUIRE ADDITIONAL ROWS, COLUMNS, GRAPHICS, AND CALCULATIONS TO BE INCORPORATED (CONTROL LOOP OUTPUTS, BUILDINGS, ETC).
12. PROVIDE LINKS TO AND FROM BUILDING FLOOR GRAPHICS AND SYSTEM GRAPHICS.
13. TABLES INDICATED HERE ARE PROVIDED TO CONVEY THE MINIMUM LEVEL OF DETAIL EXPECTED.
14. TERMINAL SUMMARY SCHEDULES TO BE PROVIDED FOR BUILDINGS WITH EXISTING SUPPLY TERMINALS ONLY.
15. DESIGNATIONS SHALL SERVE AS A LINK TO A GRAPHIC FOR THAT PIECE OF EQUIPMENT.

CHW TRENDING GROUPS:

1. KW (CHILLER, PUMPS, CT FANS)
2. KW/TON
3. CHILLER LEAVING TEMPS
4. LOAD
5. PLANT INFO

HW TRENDING GROUPS:

1. HW SUPPLY TEMPS
2. PLANT INFO

AIR HANDLING UNIT RESET DASHBOARD (PER AHU)

DESIGNATION	ZONE TEMP	ACTIVE ZONE TEMP SETPOINT	REHEAT VALVE COMMAND	CLG LOOPOUT	AHU SAT RESET RESPONSE	AHU SAT RESET WEIGHT	AIRFLOW	ACTIVE AIRFLOW SETP	TERMINAL DAMPER COMMAND	AHU STATIC PRESS. RESET RESPONSE	AHU SA SP RESET WEIGHT	ZONE RELATIVE HUMIDITY	OCCUPIED / UNOCCUPIED	ALARMS
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUMMARY			MIN / MAX	MIN / MAX	TOTAL				MIN / MAX	TOTAL				
			- / -	- / -	-				- / -	-				

AHU MODE	NORMAL/ECON/DISABLED
AHU SCHEDULE	OCCUPIED/UNOCCUPIED

AHU SUPPLY AIR TEMPERATURE RESET SUMMARY							
AHU SUPPLY TEMP SETPOINT (°F)	-	AHU MIN SUPPLY TEMP SETPOINT (°F)	-	SAT CZR CLG LOOPOUT SETP	-		
AHU SUPPLY TEMP (°F)	-	AHU MAX SUPPLY TEMP SETPOINT (°F)	-	SAT COUNT SETPOINT	-		

AHU STATIC PRESSURE RESET SUMMARY							
AHU SA SP SETPOINT (IN W.C.)	-	AHU MIN SA SP SETPOINT (PSI)	-	AHU SUPPLY FAN SETPOINT (%)	-	SA SP CZR DAMPER SETP	-
AHU SA SP (IN W.C.)	-	AHU MAX SA SP SETPOINT (PSI)	-	AHU SUPPLY FAN FEEDBACK (%)	-	SA SP COUNT SETPOINT	-

1 AIR HANDLING UNIT RESET DASHBOARDS

AIR HANDLING UNIT SUMMARY DASHBOARD

DESIGNATION	MODE	OUTSIDE AIRFLOW / DP / SETP	MIN OA DAMPER CMND/POS	ECON OA DAMPER CMND/POS	RA DAMPER CMND/POS	RELIEF DAMPER CMND/POS	MIXED AIR TEMP	PREHEAT VALVE CMND/POS	PREHEAT AIR TEMP	CHW VALVE CMND/POS	CHW COIL DISCHARGE TEMP	AHU SUPPLY TEMP/SETP	RETURN AIR TEMP	RETURN AIR HUMIDITY	HUMID. VALVE CMND/POS	SUPPLY STATIC PRESS/SETP	SUPPLY FAN SPD CMND/FDBK	SUPPLY AIRFLOW	RETURN FAN SPD CMND/FDBK	RETURN AIRFLOW/SETP	ALARMS
AHU-1	-	- / -	- / -	- / -	- / -	- / -	-	- / -	-	- / -	-	- / -	-	-	- / -	- / -	- / -	-	- / -	- / -	-
AHU-2	-	- / -	- / -	- / -	- / -	- / -	-	- / -	-	- / -	-	- / -	-	-	- / -	- / -	- / -	-	- / -	- / -	-
AHU-3	-	- / -	- / -	- / -	- / -	- / -	-	- / -	-	- / -	-	- / -	-	-	- / -	- / -	- / -	-	- / -	- / -	-
. . .																					
AHU-X	-	- / -	- / -	- / -	- / -	- / -	-	- / -	-	- / -	-	- / -	-	-	- / -	- / -	- / -	-	- / -	- / -	-

2 AIR HANDLING UNIT SUMMARY DASHBOARD

CHW BLDG PRESS. RESET DASHBOARD (PER BLDG)

DESIGNATION	ACTIVE DAT SETPOINT (°F)	DAT (°F)	CHW VALVE COMMAND (%)	BLDG PRESS. RESET RESPONSE	CHW VALVE WEIGHT	UNIT ON/OFF STATUS	ALARMS
AHU-###	-	-	-	-	-	-	-
FCCO-###	-	-	-	-	-	-	-
FCU-###	-	-	-	-	-	-	-
CRAC-###	-	-	-	-	-	-	-
			MIN / MAX	TOTAL			
			- / -	-			

BLDG CHW TEMP DIFF SETP (°F)	-	BLDG CHW TEMP DIFF (°F)	-	BLDG CHW SUPPLY TEMP (°F)	-	BLDG CHW RETURN TEMP (°F)	-
BLDG CHW DP SETP (PSI)	-	BLDG CHW DP (PSI)	-	MIN BLDG CHW DP (PSI)	-	MAX BLDG CHW DP (PSI)	-
CHW DP CZR VALVE SETP	-	DP COUNT SETP	-				
CHW PUMP SPD CMND/FDBK	- / -	# OF ENABLED PUMPS	-				

CENTRAL ENERGY PLANT CHILLED WATER SYSTEM DASHBOARD

DESIGNATION	COMMAND / STATUS	ALARMS	CHW FLOW (GPM)	CHWRT (°F)	CHWST (°F)	CHWST SETP (°F)	CHW VALVE COMMAND (%)	CHW VALVE FEEDBACK (%)	TW FLOW SETPOINT (GPM)	TW FLOW (GPM)	TWRT (°F)	TWST (°F)	TW PUMP SPEED COMMAND (%)	TW PUMP SPEED (%)	QUEUE	KW/TON	KW	LOAD (TONS)	% LOAD	DP (PSI)	CHW APPROACH (°F)	TW APPROACH (°F)
CH-1 / TWP-1	- / -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- / -	-	-
CH-2 / TWP-2	- / -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- / -	-	-
CH-3 / TWP-3	- / -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- / -	-	-
				3	3	3										2	1	4				

PRIMARY CHILLED WATER PUMPS				
DESIGNATION	COMMAND / STATUS	ALARMS	SPEED CMND / FDBK (%)	KW
CHWP-1-CEP	-	-	- / -	-
CHWP-2-CEP	-	-	- / -	-
CHWP-3-CEP	-	-	- / -	-
				1

5	TOTAL SYSTEM FLOW	-
3	PLANT CHWRT / CHWST	- / -
4	TOTAL SYSTEM LOAD (TONS)	-
1	TOTAL PLANT KW	-
2	TOTAL KW/TON	-
5	SYSTEM STATIC PRESSURE (PSI)	-
5	CHW MAKE UP FLOW (GPM)	-

CENTRAL ENERGY PLANT COOLING TOWER DASHBOARD

DESIGNATION	COMMAND / STATUS	ALARMS	SUPPLY VALVE CMND/FDBK	RETURN VALVE CMND/FDBK	FAN SPEED COMMAND (%)	FAN SPEED FDBK (%)	KW	TWRT (°F)	TWST (°F)	TWST SETP (°F)	LEVEL STATUS (LOW/NORM/HIGH)
CT-1	-	-	- / -	- / -	-	-	-	-	-	-	-
CT-2	-	-	- / -	- / -	-	-	-	-	-	-	-
CT-3	-	-	- / -	- / -	-	-	-	-	-	-	-
							1				

TOWER WATER PUMPS				
DESIGNATION	COMMAND / STATUS	ALARMS	SPEED CMND / FDBK (%)	KW
TWP-1	-	-	- / -	-
TWP-2	-	-	- / -	-
TWP-3	-	-	- / -	-
				1

5	TOTAL TW FLOW (GPM)	-
5	MAKE UP FLOW (GPM)	-
	TOTAL MAKE UP (GAL)	-
5	BLOW DOWN FLOW (GPM)	-
	TOTAL BLOW DOWN (GAL)	-

3 CHILLED WATER AND TOWER WATER DASHBOARDS

HW HX PRESSURE RESET DASHBOARD (PER HX)

DESIGNATION	ACTIVE DAT SETPOINT (°F)	DAT (°F)	HW VALVE COMMAND (%)	BLDG PRESS. RESET RESPONSE	HW VALVE WEIGHT	UNIT ON/OFF STATUS	ALARMS
AHU-###	-	-	-	-	-	-	-
UH-###	-	-	-	-	-	-	-
FCU-###	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-
			MIN / MAX	TOTAL			
			- / -	-			

HX HW TEMP DIFF SETP (°F)	-	HX HW TEMP DIFF (°F)	-	HX HW SUPPLY TEMP (°F)	-	HX HW RETURN TEMP (°F)	-
HX HW DP SETP (PSI)	-	HX HW DP (PSI)	-	MIN HX HW DP (PSI)	-	MAX HX HW DP (PSI)	-
HW DP CZR VALVE SETP	-	DP COUNT SETP	-				
HW PUMP SPD CMND/FDBK	- / -	# OF ENABLED PUMPS	-				

HEAT EXCHANGER DASHBOARD

DESIGNATION	COMMAND / STATUS	ALARMS	HWRT (°F)	HWST (°F)	HWST SETP (°F)	STEAM VALVE CMND/FDBK (%)	HWDP (PSID)	HWDP SETP (PSID)	HW PUMP CMD/FDBK (%)	SYS STATIC PRESS/SETP (PSI)	HW MAKE-UP FLOW (GPM)
HX-1	- / -	-	-	-	-	- / -	-	-	- / -	- / -	-
HX-2	- / -	-	-	-	-	- / -	-	-	- / -	- / -	-
HX-3	- / -	-	-	-	-	- / -	-	-	- / -	- / -	-
			1	1	1	1	2	2	2	2	2

4 STEAM TO HOT WATER HEAT EXCHANGER DASHBOARDS

ENFRA MCC, LLC | MECHANICAL

1 GALLERIA BLVD.
SUITE 825
METARIE, LA 70001
Phone: (504) 883-8291

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
1		

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

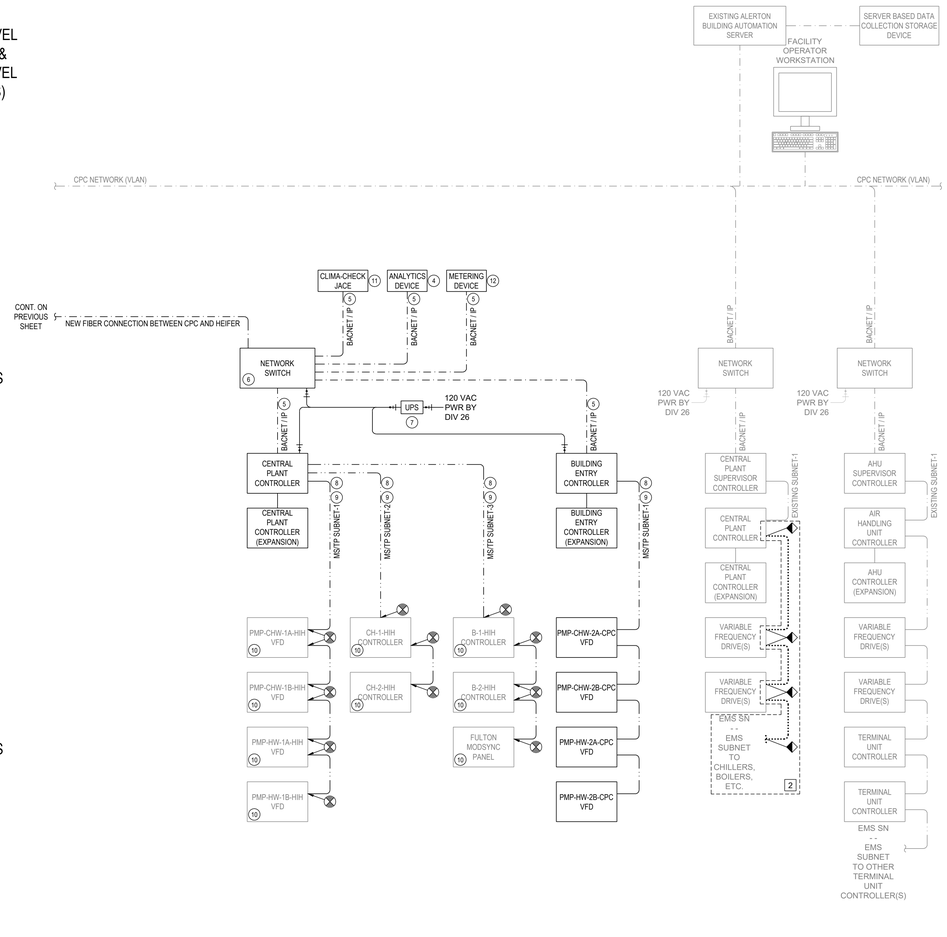
SHEET TITLE:

DASHBOARD GRAPHICS

SHEET NUMBER:

ATC005

HEIFER INTERNATIONAL HEADQUARTERS
NETWORK RISER



EMS GENERAL NOTES:

1. THE PURPOSE OF THIS PROJECT IS TO MIGRATE THE EXISTING SIEMENS DESIGO SYSTEM TO AN ON-SITE SERVER FOR THE DISTRICT CHILLED WATER AND HEATING WATER SYSTEMS. EXISTING DDC EQUIPMENT IS TO BE INTEGRATED INTO THIS NEW SYSTEM. ALL FUNCTIONS OF THE EXISTING SYSTEMS ARE TO BE MAINTAINED. IF OTHER INTEGRATIONS, PROGRAMS, CONTROLLERS, OR FUNCTION OF THE SYSTEM IS DISCOVERED, DIVISION 230900 IS TO MAINTAIN THAT FUNCTION WITH THIS NEW SYSTEM.
2. THE BAS ARCHITECTURE SHOWN IS A DIAGRAMMATIC REPRESENTATION AND MAY NOT MATCH THE COMPLETED ARCHITECTURE FOR THIS PROJECT. DIVISION 230900 SHALL DETERMINE EXACT ARCHITECTURE FOR THE SYSTEM BEING PROVIDED AND SHALL BE INCLUDE IN THE SUBMITTALS. NOT ALL OF THE EXISTING EQUIPMENT IS SHOWN HERE, AND NOT ALL OF THE EXISTING PROTOCOLS ARE INDICATED. DIVISION 230900 TO PROVIDE NECESSARY ROUTERS AND GATEWAYS REQUIRED TO BRING THE EXISTING EQUIPMENT TO THE NEW SYSTEM.
3. CRITICAL BAS NETWORK AND ENTERPRISE LEVEL CONTROLLERS, ALONG WITH ANY OTHER CRITICAL CONTROLLERS OR COMPONENTS SHALL BE ON EMERGENCY POWER AND SHALL BE PROVIDED BY DIVISION 230900, INSTALLED BY DIVISION 26, WITH UNINTERRUPTIBLE POWER SUPPLIES (UPS) AS REQUIRED TO MAINTAIN AN OPERABLE SYSTEM. UPS SHALL BE EQUAL TO KELE PSH SERIES UPS'S WITH STATUS CONTACTS, OR OTHER ENGINEER APPROVED EQUAL.
4. REFER TO CONTROL DIAGRAMS FOR HARD WIRED POINTS AND INTERLOCKS. THIS SYSTEM RISER DIAGRAM IS FOR COMMUNICATION WIRING ONLY AND DOES NOT COVER POINT TO POINT WIRING DETAILS. COMMUNICATION CONTROL OF IDENTIFIED HARD WIRED CONTROLLED POINTS IS NOT ALLOWED UNLESS EXPLICITLY EXPRESSED IN THE CONTRACT DOCUMENTS OR UNLESS WRITTEN APPROVAL IS PROVIDED BY THE ENGINEER OF RECORD.
5. PROVIDE AN UNLIMITED NUMBER OF OPERATOR LICENSES FOR THE PROJECT. OWNER SHALL BE PROVIDED WITH ALL TOOLS AND LICENSING REQUIRED TO EDIT GRAPHICS, ALTER PROGRAMMING, AND MANAGE THE SYSTEM.
6. ALL NEW CONTROLS SHALL BE OPEN BACNET PROTOCOL, LICENSED, AND SETUP ACCORDINGLY.
7. STRATEGICALLY LOCATE PROGRAMMING IN CONTROLLERS TO ALLOW STAND ALONE FUNCTION IF THE FACILITY NETWORK IS DOWN. PROVIDE COMMUNICATION CHECKS THAT ALLOW REMOTELY LOCATED CONTROLLERS TO FUNCTION TO LAST COMMANDS AND SET POINTS IF THE NETWORK IS DOWN. PROVIDE ALARMS FOR LOSS OF COMMUNICATION INDICATED ON MAIN PLANT GRAPHICS.

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10. EXISTING EQUIPMENT CONTROLLER TO BE MOVED FROM AN EXISTING ALERTON MS/TP SUBNET TO A NEW MS/TP SUBNET UNDER THE SIEMENS SYSTEM.
11. PLACEHOLDER FOR CLIMA-CHECK JACE SCOPE.
12. PLACEHOLDER FOR METERING SCOPE.

DEMO WORK KEYED NOTES:

1. DIVISION 230900 TO MIGRATE ALL FEATURES AND FUNCTIONALITIES OF CURRENT SIEMENS DESIGO SYSTEM FOR THE CLINTON PRESIDENTIAL CENTER TO NEW SIEMENS DESIGO SERVER ON-SITE.
2. DISCONNECT EXISTING EQUIPMENT CONTROLLERS (CHILLERS, BOILERS, VARIABLE FREQUENCY DRIVES) FROM SIEMENS MS/TP SUBNET. SUBNET TO REMAIN INTACT FOR ANY CONTROLLERS THAT ARE NOT BEING MOVED TO THE NEW NIAGARA SYSTEM.

1 CSED BUILDING AUTOMATION SYSTEM NETWORK RISER DIAGRAM (CONT.)

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CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

NETWORK ARCHITECTURE DIAGRAM

SHEET NUMBER:

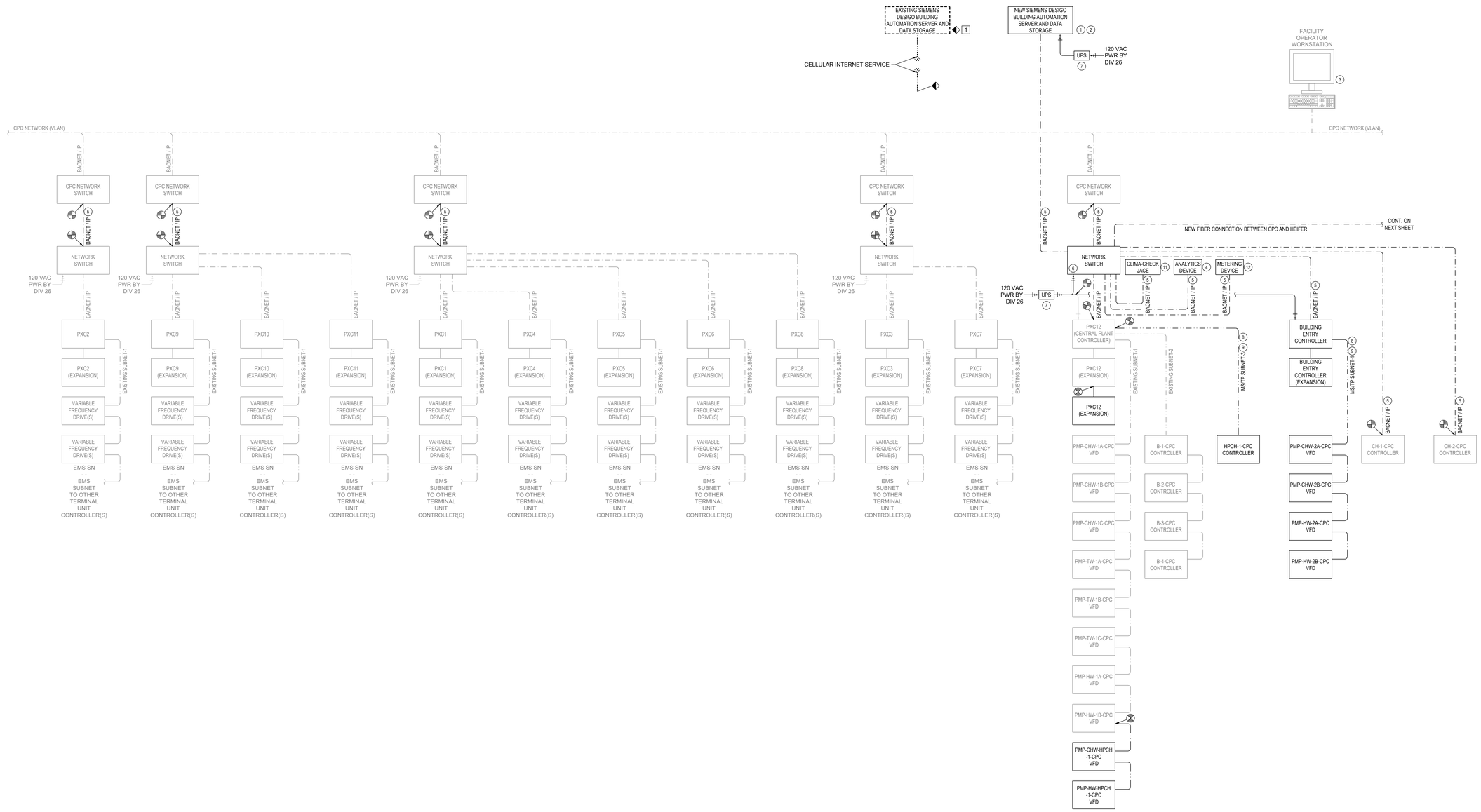
ATC004

CLINTON PRESIDENTIAL CENTER
NETWORK RISER

ENTERPRISE LEVEL (INTEGRATION & DASHBOARD LEVEL CONTROLLERS)

NETWORK LEVEL CONTROLLERS

EQUIPMENT LEVEL CONTROLLERS



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11. JACE 9000 FOR CLIMA-CHECK FURNISHED BY ENFRA AND INSTALLED BY DIVISION 230900.
12. PLACEHOLDER FOR METERING SCOPE.

DEMO WORK KEYED NOTES:

1. DIVISION 230900 TO MIGRATE ALL FEATURES AND FUNCTIONALITIES OF CURRENT SIEMENS DESIGO SYSTEM FOR THE CLINTON PRESIDENTIAL CENTER TO NEW SIEMENS DESIGO SERVER ON-SITE.
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1 CSED BUILDING AUTOMATION SYSTEM NETWORK RISER DIAGRAM

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1 GALLERIA BLVD.
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METARIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11/20/2025
PROJECT NUMBER:		561470540

SHEET TITLE:

NETWORK ARCHITECTURE DIAGRAM

SHEET NUMBER:

ATC003

DIFFERENTIAL PRESSURE SENSORS

DESIGNATION	REFERENCE PRODUCT	SERVES	APPLICATION RANGE (PSID)	SENSOR MEASURING SPAN	STATIC PRESSURE RATING (PSIG)	TYPE	DIRECTION	FLUID TYPE	SENSOR TURN-DOWN	ACCURACY (% F.S.)	ELECTRICAL REQUIREMENTS	REMARKS
DPS-CHW-HPCH-1-CPC	ROSEMOUNT 3051S 3051S2CD	HPCH-1-CPC EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-HPCH-1-CPC	ROSEMOUNT 3051S 3051S2CD	HPCH-1-CPC CONDENSER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-HEADER-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-TW-CH-HEADER-CPC	ROSEMOUNT 3051S 3051S2CD	CPC TW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-BLDG-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-DIST-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-BLDG-CPC	ROSEMOUNT 3051S 3051S2CD	CPC HW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-DIST-CPC	ROSEMOUNT 3051S 3051S2CD	CPC HW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-1-HIH	ROSEMOUNT 3051S 3051S2CD	CH-1-HIH EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-2-HIH	ROSEMOUNT 3051S 3051S2CD	CH-2-HIH EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-HEADER-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-TW-CH-HEADER-HIH	ROSEMOUNT 3051S 3051S2CD	HIH TW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-BLDG-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-DIST-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-BLDG-HIH	ROSEMOUNT 3051S 3051S2CD	HIH HW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-DIST-HIH	ROSEMOUNT 3051S 3051S2CD	HIH HW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLIINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

PROJECT NUMBER: 561470540

SHEET TITLE:

SCHEDULES - CONTROLS

SHEET NUMBER:

ATC002

RENOVATION GENERAL NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. REFER TO ALL PROJECT DRAWINGS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS.
3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FULL COORDINATION OF PROJECT INCLUDING THE EQUIPMENT AND INSTALLATION OF THE MECHANICAL WORK.
4. CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF THESE NOTES AS WELL AS OTHER NOTES SHOWN ON THE CONTRACT DOCUMENTS.
5. THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIC REFERENCE PRODUCTS (SEE SCHEDULES), THE SELECTION OF WHICH HAS INFLUENCED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC.). IF SUBSTITUTE MANUFACTURERS, SIZES, OR MODEL NUMBERS SUBMITTED, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND ALL HIS SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES. ALL COSTS OF ALL TRADES ASSOCIATED WITH THE SUBSTITUTION SHALL BE INCLUDED.
6. COORDINATION OF ALL MODIFICATIONS TO EACH DISCIPLINE WHICH RESULT FROM SUBSTITUTION OF EQUIPMENT OR MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUBSTITUTIONS WHICH ARE INSTALLED AND SUBSEQUENTLY ARE PROVEN UNSATISFACTORY BY OWNER AND/OR ENGINEER, WITHIN THE WARRANTY PERIOD, SHALL BE REMOVED COMPLETELY BY THE CONTRACTOR AND REPLACED WITH THE ORIGINAL DESIGN OR CORRECTED AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.
7. ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, OR COMPONENT.
8. INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.
9. CONTRACTOR SHALL NOT SCALE DRAWINGS. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY THE CONTRACT DOCUMENTS.
10. UNLESS NOTED OTHERWISE, THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR
11. EXACT LOCATIONS OF ALL EQUIPMENT, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH OTHER TRADES. SLOPED PIPING (PLUMBING), LIGHTING, AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING GRID AND LIGHTING LAYOUT FOR COORDINATION OF FINAL DIFFUSER LOCATIONS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHERS. REFER TO ARCHITECTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION PRIOR TO BID.
13. NO OTHER TRADES, I.E., ELECTRICAL, CEILING, PLUMBING, ETC., SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM DUCTWORK OR PIPING.
14. REPLACE ALL ARCHITECTURAL FEATURES REMOVED OR DAMAGED DURING THE COURSE OF THE WORK.

HVAC GENERAL NOTES:

1. REFER TO GENERAL NOTES ON DRAWING FOR ADDITIONAL REQUIREMENTS.
2. ALL HVAC WORK TO BE PER SMACNA AND ALL APPLICABLE CODES.
3. BALANCE AIR SYSTEM TO PROVIDE INDICATED AIR FLOWS. SEE SPECIFICATIONS FOR OTHER TEST AND BALANCE REQUIREMENTS. SUBMIT FINAL BALANCE OF AIR AND WATER SYSTEMS (FLOW AND TEMPERATURE) FOR REVIEW.
4. MECHANICAL CONTRACTOR (MC) SHALL COORDINATE AND VERIFY THE FOLLOWING WITH THE ELECTRICAL CONTRACTOR (EC) PRIOR TO BID:
5. COORDINATE FINAL PLACEMENT OF ALL THERMOSTATS WITH OWNER AND ENGINEER. ANY THERMOSTAT THAT IS REQUIRED TO BE MOUNTED ON AN EXTERIOR WALL SHALL BE MOUNTED ON AN INSULATED PAD.

ONE LINE PIPE SYMBOLS

—TWS—	SUPPLY FROM TOWER
—TWR—	RETURN TO TOWER
—HWS—	HEATING WATER SUPPLY
—HWR—	HEATING WATER RETURN
—DHWS—	DISTRICT HEATING WATER SUPPLY
—DHWR—	DISTRICT HEATING WATER RETURN
—CHS—	CHILLED WATER SUPPLY
—CHR—	CHILLED WATER RETURN
—DCHS—	DISTRICT CHILLED WATER SUPPLY
—DCHR—	DISTRICT CHILLED WATER RETURN
—SCHS—	SECONDARY CHILLED WATER SUPPLY
—SCHR—	SECONDARY CHILLED WATER RETURN
—D—	CONDENSATE DRAIN
—S12—	STEAM SUPPLY (PRESSURE NOTED)
—SR12—	STEAM RETURN (PRESSURE NOTED)
—PSR—	PUMPED STEAM RETURN
—BFW—	BOILER FEEDWATER
	BALL VALVE OR SEGMENTED BALL VALVE
	BUTTERFLY VALVE (LEVER HANDLE)
	BUTTERFLY VALVE (GEAR OPERATOR)
	BUTTERFLY VALVE (PNEUMATIC OPERATOR)
	BUTTERFLY VALVE (ELECTRONIC OPERATOR)
	GATE VALVE
	OS & Y GATE VALVE
	GLOBE VALVE
	CHECK VALVE (SWING CHECK)
	CHECK VALVE (BUTTERFLY CHECK)
	PRESSURE REDUCING VALVE
	FLOW LIMITING VALVE (AUTOMATIC CIRCUIT SETTER)
	CALIBRATED BALANCING VALVE (MANUAL CIRCUIT SETTER)
	VALVE AT RISER
FM	GPM FLUID FLOW METER

ONE LINE PIPE SYMBOLS

	EMERGENCY SHUT-OFF VALVE WITH FUSIBLE LINK
	FLEXIBLE PIPE CONNECTOR
	METAL BELLOWS PUMP CONNECTOR
H	AIR VENT (A - AUTO, H - HAND)
	PRESSURE AND TEMPERATURE TAP
	PRESSURE GAUGE
	PRESSURE GAUGE W/ SIPHON
	THERMOMETER W/ INSERTION WELL
	FLANGE
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	RISE OR DROP IN PIPE
	ELBOW
	TEE, SIDE CONNECTION
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CAPPED OUTLET
	CAPPED PIPE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	STEAM TRAP (DRIP LEG)
	STEAM TRAP
	DIRECTION OF PITCH
TFD	PIPE TO FLOOR DRAIN
	THERMOWELL
	STRAINER W/ DRAIN VALVE
	UNION
	PRESSURE RELIEF VALVE
	TRIPLE DUTY VALVE

DUCTWORK SYMBOLS

T	THERMOSTAT
	THERMOSTAT WIRING
H	HUMIDISTAT
TS	TEMPERATURE SENSOR
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT
EA	EXHAUST AIR DUCT
CFM	CUBIC FEET PER MINUTE
EMS	ENERGY MANAGEMENT SYSTEM
ATC	AUTOMATIC TEMP CONTROLS
CO2	CARBON DIOXIDE
PPM	PARTS PER MILLION
Ø	ROUND DIAMETER
	FLAT OVAL (MAJOR/MINOR)

DEMOLITION AND RENOVATION SYMBOLS

	EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN
	NEW EQUIPMENT
	POINT OF CONNECTION TO EXISTING
	TERMINATION OF DEMOLITION
	DUCT TO BE REMOVED
	EXISTING DUCT TO REMAIN
	NEW DUCT
	PIPING TO BE REMOVED
	EXISTING PIPING TO REMAIN
	NEW PIPING

ABBREVIATIONS

HWS	HEATING WATER SUPPLY	OAF	OUTSIDE AIRFLOW	DB	DRY BULB	SFST	SERIES FAN SUPPLY TERMINAL
HWR	HEATING WATER RETURN	OAT	OUTSIDE AIR TEMPERATURE (DRY BULB)	WB	WET BULB	UH	UNIT HEATER
CHS	CHILLED WATER SUPPLY	OAH	OUTSIDE AIR HUMIDITY	RH	RELATIVE HUMIDITY	VVET	VARIABLE VOLUME EXHAUST TERMINAL
CHR	CHILLED WATER RETURN	RA	RETURN AIR	ILK	INTERLOCK	VVRT	VARIABLE VOLUME RETURN TERMINAL
DTS	DUAL TEMPERATURE SUPPLY	RAF	RETURN AIRFLOW	AHU	AIR HANDLING UNIT	VVST	VARIABLE VOLUME SUPPLY TERMINAL
DTR	DUAL TEMPERATURE RETURN	RAT	RETURN AIR TEMPERATURE	BCCO	BLOWER COIL UNIT COOLING ONLY		
TWS	TOWER WATER SUPPLY	RAH	RETURN AIR HUMIDITY	BCU	BLOWER COIL UNIT		
TWR	TOWER WATER RETURN	SA	SUPPLY AIR	CVET	CONSTANT VOLUME EXHAUST TERMINAL		
CHP	CHILLED WATER PUMP	SAF	SUPPLY AIRFLOW	CVRT	CONSTANT VOLUME RETURN TERMINAL		
HWP	HEATING WATER PUMP	SAT	SUPPLY AIR TEMPERATURE	CVST	CONSTANT VOLUME SUPPLY TERMINAL		
TWP	TOWER WATER PUMP	MA	MIXED AIR	FCCO	FAN COIL UNIT COOLING ONLY		
SETP.	SETPOINT	MAT	MIXED AIR TEMPERATURE	FCHO	FAN COIL UNIT HEATING ONLY		
SP	STATIC PRESSURE	MAH	MIXED AIR HUMIDITY	FCU	FAN COIL UNIT		
DP	DIFFERENTIAL PRESSURE	DAT	DISCHARGE AIR TEMPERATURE	IUH	INDUCTION UNIT HEATER		
OA	OUTSIDE AIR	DAH	DISCHARGE AIR HUMIDITY	PFST	PARALLEL FAN SUPPLY TERMINAL		

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11/20/2025
PROJECT NUMBER:	561470540

SHEET TITLE:

PIPE AND DUCTWORK SYMBOLS AND GENERAL NOTES - CONTROLS

SHEET NUMBER:

ATC001

GENERAL NOTES APPLICABLE TO ALL CONTROL DIAGRAMS:

1. ALL CONTROL DEVICES SHOWN ON THE CONTROL DIAGRAMS ARE FURNISHED BY DIVISION 230900 UNLESS OTHERWISE NOTED OR SPECIFIED.
2. ALL COMPONENTS REQUIRED FOR THE SEQUENCES OF OPERATION, SHOWN ON THE CONTROL DIAGRAMS, DESCRIBED IN THE SPECIFICATION, OR AS REQUIRED FOR A PROPERLY OPERATING SYSTEM SHALL BE FURNISHED AND INSTALLED BY DIVISION 230900 UNLESS OTHERWISE NOTED, SHOWN, OR SPECIFIED.
3. DIVISION 230900 IS RESPONSIBLE TO FURNISH, INSTALL, AND WIRE ALL COMPONENTS REQUIRED FOR INTEGRATION OF INFORMATION SHOWN TO BE ACCESSED BY THE EMS FROM OTHER SYSTEMS AND EQUIPMENT UNLESS OTHERWISE NOTED OR SPECIFIED.
4. ALL POWER WIRING AND TRANSFORMERS FOR SENSORS, ACTUATORS, AND OTHER CONTROL COMPONENTS AS REQUIRED FOR THE EMS AND/OR DDC SYSTEMS TO FUNCTION PROPERLY, SHALL BE FURNISHED AND INSTALLED BY DIVISION 230900 UNLESS OTHERWISE SHOWN, NOTED, OR SPECIFIED.
5. ALL POWER WIRING FOR SENSORS, ACTUATORS, AND OTHER DEVICES SHALL BE FROM THE EQUIPMENT CONTROLLERS DDC PANELS OR THE FEP PANELS OF THE ASSOCIATED SYSTEM.
6. ALL CONTROL, INTERLOCK, AND POWER WIRING SHALL BE INSTALLED PER THE DIVISION 26, LOCAL, STATE, AND NATIONAL CODES. RACEWAY SHALL BE INSTALLED PER THE ELECTRICAL SPECIFICATIONS.
7. ALL CONTROL POINTS SHOWN ON THE CONTROL DIAGRAMS SHALL BE PROVIDED AND INTEGRATED INTO AN EMS SYSTEM GRAPHIC REPRESENTATIVE OF THE CONTROL DIAGRAMS.
8. ALL CONTROL BANDS, SETPOINTS, SETPOINT LIMITS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, ALARM LIMITS, AND OTHER PARAMETERS SHALL BE ADJUSTABLE FROM THE EMS.
9. ALL CONTROL BANDS, SETPOINTS, TIME DELAYS, CONTROL LOOPS, AND OTHER PARAMETERS SHALL BE COMMISSIONED BY DIVISION 230900 TO PROVIDE STABLE CONTROL OF ALL SYSTEMS.
10. ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE EMS SYSTEM GRAPHIC(S).
11. SPACE SETPOINTS SHALL BE ADJUSTABLE FROM THE ROOM SENSOR UNLESS OTHERWISE SHOWN ON DRAWINGS OR SPECIFIED.
12. THE EMS SYSTEM GRAPHICS SHALL BE LINKED WITH ASSOCIATED BUILDING FLOOR PLANS FROM THE SPACE SENSOR OR AREA SERVED.
13. WHERE ONE SYSTEM IS ASSOCIATED WITH ANOTHER SYSTEM, THE SYSTEM GRAPHIC SHALL BE LINKED TO THE ASSOCIATED GRAPHIC AS WELL AS THE BUILDING FLOOR PLAN GRAPHIC. EXAMPLE - AN AIR HANDLING UNIT SYSTEM GRAPHIC SHALL BE LINKED TO THE CHILLED WATER SYSTEM GRAPHIC IN ADDITION TO BOTH BEING LINKED TO THE BUILDING FLOOR PLAN.
14. THE BUILDING FLOOR PLAN SHALL DISPLAY THE SPACE TEMPERATURE AND THE ACTIVE SET POINT AT EACH SPACE SENSOR LOCATION WITH AREA SERVED DISPLAYED IN SEPARATE COLORS BASED ON THE CONDITION OF THE ZONE. AREAS WITH HUMIDITY AND PRESSURE CONTROL WILL ALSO HAVE THOSE VALUES DISPLAYED. EXAMPLE - ALARM, NORMAL, HIGH OR LOW TEMPERATURE, HIGH OR LOW HUMIDITY, ETC.
15. ALL GRAPHICS (SCHEDULES, PLANS, AND DIAGRAMS) WILL INDICATED EQUIPMENT , POINTS, AND AREAS IN ALARM VIA A RED ALARM INDICATOR, RED TEXT, AND/OR A RED HIGHLIGHT. OVERRIDDEN POINTS WILL BE INDICATED WITH PURPLE.
16. THE BUILDING FLOOR PLAN SHALL DISPLAY THE DUCTWORK AND THE PIPING LAYOUT. THE DUCTWORK AND PIPING SHALL BE ABLE TO TOGGLE ON AND OFF INDEPENDENTLY.
17. ALL BUILDING FLOOR PLANS AND SYSTEM GRAPHICS SHALL DISPLAY OUTSIDE AIR TEMPERATURE AND HUMIDITY.
18. THE FLOOR PLAN GRAPHICS SHALL BE LINKED TO A BUILDING GRAPHIC WITH A DIGITAL PHOTOGRAPH BACKGROUND OF THE ACTUAL BUILDING. DURING CONSTRUCTION A TEMPORARY GRAPHIC MAY BE USED THAT IS REPRESENTATIVE OF THE BUILDING.
19. ALL GRAPHICS SHALL BE SUBMITTED IN COLOR WITH THE ATC SUBMITTAL. FAILURE TO INCLUDE ALL GRAPHICS IN SUBMITTAL SHALL BE CAUSE FOR REJECTION OF COMPLETE SUBMITTAL.
20. VARIABLE FREQUENCY DRIVES ARE FURNISHED BY DIVISION 230900, INSTALLED AND WIRED BY DIVISION 26. REFER TO VARIABLE FREQUENCY DRIVE SCHEDULE. VERIFY ALL EXISTING MOTOR HORSEPOWER AND ELECTRICAL RATINGS PRIOR TO SUBMITTAL AND ORDERING VARIABLE FREQUENCY DRIVES.
21. POWER WIRING (PWR) FROM POWER SOURCE TO VARIABLE FREQUENCY DRIVES AND FROM VARIABLE FREQUENCY DRIVES TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
22. POWER WIRING (PWR) FROM POWER SOURCE TO MOTOR STARTERS AND FROM MOTOR STARTERS TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
23. POWER WIRING (PWR) FROM POWER SOURCE TO DDC, AND FEP PANELS SHALL BE FURNISHED AND INSTALLED BY THE DIVISION 26 UNLESS OTHERWISE NOTED ON DRAWINGS.
24. GLOBAL DDC SYSTEM POINTS ARE DEFINED AS A SINGLE POINT USED IN ALL SYSTEMS IN A BUILDING OR CAMPUS TO MAINTAIN CONSISTENCY OF CONTROL ACTIONS THROUGHOUT THE BUILDING OR CAMPUS. EXAMPLE: OUTSIDE AIR TEMPERATURE POINT SAMPLED ON THE NORTH SIDE OF A BUILDING USED TO ENABLE/DISABLE AIRSIDE ECONOMIZER OPERATION THROUGHOUT THE BUILDING OR CAMPUS.
25. THE PROJECT SEQUENCES ARE WRITTEN IN A GENERAL FORM INTENDED FOR IMPLEMENTATION BY ANY CONTROLS SYSTEM AND CONTRACTOR. DIVISION 230900 SHALL REVIEW ALL SPECIFICATIONS AND CONTROL SEQUENCES FOR CONSTRUCTABILITY, COMPATIBILITY, AND FEASIBILITY WITH ACTUAL CONDITIONS, BUILDING EQUIPMENT, AND THEIR OWN HARDWARE AND SOFTWARE LIMITATIONS AND CAPABILITIES. CONTROL SEQUENCES ARE INTENDED TO BE THE GENERAL STRUCTURE OF THE CONTRACTORS PROGRAMING, BUT DO NOT NECESSARILY CONTAIN ALL THE REQUIRED DETAILS (LOOP AND TABLE STATEMENT TUNING, RAMPS, LIMITS, ETC) AND BEST PRACTICES FOR THE FINAL PRODUCT. DIVISION 23 SHALL PROVIDE A COMPLETE, OPERABLE, AND TUNED CONTROL SYSTEM THAT MEETS THE INTENDED SEQUENCES AND THE SPECIFIC EQUIPMENT REQUIREMENTS. UPON IMPLEMENTATION IT IS DISCOVERED THAT ADDITIONAL PROGRAMMING IS REQUIRED TO MEET THE INTENDED DESIGN OF THE CONTROLS SYSTEM, DIVISION 23 SHALL PROVIDE THE ADDITIONAL PROGRAMMING AT NO ADDITIONAL COST. ALL PROGRAMMING (GRAPHICAL AND/OR TEXT BASED) SHALL BE REVIEWED WITH DIVISION 230900 AS PART OF THE SUBMITTAL AND COMMISSIONING PROCESSES. DIVISION 23 WILL PROVIDE A SUBMITTAL OF THE GRAPHICAL AND/OR TEXT BASED PROGRAMMING FOR A SIDE TO SIDE COMPARISON WITH THE CONTRACT DOCUMENTS. THIS REVIEW WILL PART OF A SCHEDULED MEETING INVOLVING THE BAS CONTROLS DESIGN TEAM, DIVISION 230900, AND THE COMMISSIONING AGENT. LIBERTIES TAKEN BY DIVISION 230900 ARE ALLOWED AFTER REVIEW AND APPROVAL FROM THE BAS DESIGN TEAM AND COMMISSIONING AGENT. ALL MODIFICATIONS SHALL BE RECORDED IN THE AS-BUILT DOCUMENTS. DIVISION 230900 SHALL BE REQUIRED SET UP TRENDING AS INDICATED BY THE CONSTRUCTION DOCUMENTS, AND AS REQUESTED BY THE BAS DESIGN AND COMMISSIONING TEAM(S).
26. ALL EQUIPMENT SHALL HAVE THE OPTION OF BEING EXCLUDED FROM INDIVIDUAL RESET STRATEGIES BY EQUIPMENT SUMMARY SCHEDULES AND BY EQUIPMENT GRAPHICS.
27. ALL EQUIPMENT CONTROLLERS IN THIS PROJECT SHALL BE HARD WIRED. NO WIRELESS SENSORS SHALL BE ALLOWED UNLESS WRITTEN APPROVAL IS GIVEN BY THE OWNER AND EOR AND THE WIRELESS FREQUENCY BANDS ARE COORDINATED WITH THE OWNER.
28. DIVISION 230900 SHALL COORDINATE ALARM REPORTING WITH THE FACILITY. IN GENERAL, ALARMS ARE TO BE CATEGORIZED FOR PLANT PERSONNEL, HVAC SHOP PERSONNEL, ADMINISTRATION, AND ANY OTHER HOSPITAL OPERATIONS AS REQUIRED (CALL CENTER, LABS, REFRIGERATORS, SPECIFIC INDIVIDUALS, ETC). FURTHER DEMARCATION BETWEEN BUILDINGS ON A CAMPUS SHALL ALSO BE COORDINATED.
29. AN ALARM SUMMARY SHALL BE CREATED FOR REVIEW OF HOSPITAL PERSONNEL DAILY. ALARM SUMMARY TO BE CAPABLE OF BEING SORTED BY ALARM LEVEL, SYSTEMS, OPERATOR, AND TIME OF ALARMS.
30. DIVISION 230900 SHALL COORDINATE USER ACCESS WITH THE FACILITY. IN GENERAL, ACCESS IS TO BE CATEGORIZED FOR PLANT PERSONNEL, HVAC SHOP PERSONNEL, ADMINISTRATION, AND ANY OTHER HOSPITAL OPERATIONS AS REQUIRED (SPECIFIC INDIVIDUALS, SUB CONTRACTORS, ETC). FURTHER DEMARCATION BETWEEN BUILDINGS ON A CAMPUS SHALL ALSO BE COORDINATED. AN OVERRIDE SUMMARY SHALL BE PROVIDED FOR ALL OVERRIDES AND SHALL BE CAPABLE OF BEING SORTED BY BUILDING, DATE, DURATION, AND OPERATOR.
31. CONTROL LOGIC AND COMPONENTS SHALL BE ADJUSTED TO OBTAIN AT A MINIMUM THE FOLLOWING RESULTS.
    - 31.A. TEMP CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 0.2°F WITH PERIODS OF LESS THAN 1 MINUTE.
    - 31.A. AIRFLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT, OR SET POINT FOR THAT BRANCH OF SYSTEM, WITHIN A PERIOD OF LESS THAN 5 MINUTES.
    - 31.B. HYDRONIC FLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT, OR SET POINT FOR THAT BRANCH OF SYSTEM, WITHIN A PERIOD OF LESS THAN 5 MINUTES.
    - 31.C. ACTUATORS SHALL NOT OSCILLATE MORE THAN 1% WITHIN A 5 MINUTE PERIOD.
    - 31.D. VARIABLE FREQUENCY DRIVE COMMANDS SHALL NOT OSCILLATE MORE THAN 1% IN A 5 MINUTE PERIOD.
32. ALL NEW PROGRAMMING AND GRAPHICS SHALL INDICATE 0% VALVE COMMAND AS BEING CLOSED AND 100% AS BEING FULLY OPEN UNLESS INDICATED OTHERWISE. WHERE THIS STANDARD IS DEVIATED FROM, THE GRAPHIC SHALL IDENTIFY 0% AS OPEN AND 100% AS CLOSED.

ANALOG INPUT SENSORS:

- T — DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- T — OUTSIDE AIR TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- T — STRAP ON TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. STRAP ON SENSORS ONLY ALLOWED WHERE SPECIFICALLY INDICATED ON DRAWINGS.
- T — ROOM TEMPERATURE SENSOR WITH SETPOINT, AND OVERRIDE PUSHBUTTON: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- H — ROOM HUMIDITY SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- CO2 — DUCT CARBON DIOXIDE SENSOR WITH DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- BSP (L U H) — BUILDING STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. REFER TO DETAIL F.
- DPS (L U H) — DIFFERENTIAL PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED AND WIRED BY DIVISION 230900.
- FM LIQ — LIQUID FLOW METER - FURNISHED AND WIRED BY DIVISION 230900. INSTALLED IN PIPING BY DIVISION 23 PIPING.
- FM STM — STEAM FLOW METER - FURNISHED AND WIRED BY DIVISION 230900. INSTALLED IN PIPING BY DIVISION 23 PIPING.
- FHC — FUME HOOD CONTOL WITH DISPLAY AND KEYPAD; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- HOOD PROX — FUME HOOD PROXIMITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- CO — CARBON MONOXIDE SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- VAC P — VACUUM PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY DIVISION 23 PIPING.
- GAS P — GAS PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY DIVISION 23 PIPING. COORDINATE PRESSURE REQUIREMENTS.
- AFMS ATC — AIR FLOW MEASURING STATION; FURNISHED AND WIRED BY DIVISION 230900; INSTALLED BY DIVISION 23 SHEETMETAL.
- T — AVERAGING DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. REFER TO DETAIL F.
- T — PIPE TEMPERATURE SENSOR; FURNISHED AND WIRED BY DIVISION 230900; THERMAL WELL INSTALLED IN THE PIPING BY DIVISION 23 PIPING.
- T — ROOM TEMPERATURE SENSOR WITH SETPOINT, OVERRIDE PUSHBUTTON, AND DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- H — ROOM HUMIDITY SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- H — DUCT RELATIVE HUMIDITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- CO2 — ROOM CARBON DIOXIDE SENSOR WITH DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- DSP (L U H) — DUCT STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED AND WIRED BY DIVISION 230900.
- DPS WM — DIFFERENTIAL PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. ISOLATION VALVES AND TAPS IN PIPING BY DIVISION 23 PIPING.
- TFM LIQ — LIQUID FLOW METER - FURNISHED AND WIRED BY DIVISION 230900. INSTALLED IN PIPING BY DIVISION 23 PIPING.
- FM GAS — GAS FLOW METER - FURNISHED AND WIRED BY DIVISION 230900. INSTALLED IN PIPING BY DIVISION 23 PIPING.
- RPS — ROOM PRESSURE SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- RPM — ROOM PRESSURE MONITOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- STM P — STEAM PRESSURE SENSOR WITH STEAM SIPHON; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY DIVISION 23 PIPING.
- WM P — WET MEDIA STATIC PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY DIVISION 23 PIPING.
- AIR P — AIR PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY DIVISION 23 PIPING.
- EXHAUST AIRFLOW MEASURING DEVICE; FURNISHED BY DIVISION 230900; INSTALLED BY THE DIVISION SHEETMETAL; DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900.

DIGITAL INPUT SENSORS:

- TLL — LOW LIMIT TEMPERATURE SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. REFER TO DETAIL E.
- OCC — OCCUPANCY SWITCH; FURNISHED AND WIRED BY THE DIVISION 230900, INSTALLED IN LIGHTING CIRCUIT BY DIVISION 26.
- ES — END SWITCH: FURNISHED, INSTALLED AND WIRED BY DIVISION 230900 UNLESS OTHERWISE NOTED, SHOWN ON THE DRAWINGS, OR SPECIFIED.
- WFS — WATER FLOW SWITCH FURNISHED BY DIVISION 230900; INSTALLED BY DIVISION 23 PIPING; WIRED BY DIVISION 230900.
- RM OCC — WALL MOUNTED ROOM OCCUPANCY SWITCH; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- MS — MOISTURE SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- KS — KEYED SWITCH; FURNISHED, INSTALLED AND WIRED BY DIVISION 230900.
- HSL — HIGH/LOW STATIC PRESSURE LIMIT SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. ORIENT FOR STATIC PRESSURE SENSING.
- CSR — CURRENT SENSING RELAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- FIL DP SW — FILTER DIFFERENTIAL PRESSURE SWITCH; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- DP SW WM — DIFFERENTIAL PRESSURE SWITCH FOR WET MEDIA; FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900. PRESSURE TAPS IN PIPING BY DIVISION 23 PIPING.
- RM OCC — CEILING MOUNTED ROOM OCCUPANCY SWITCH. FURNISHED, INSTALLED, AND WIRED BY DIVISION 230900.
- PE SW — PRESSURE TO ELECTRIC SWITCH: FURNISHED, INSTALLED, PNEUMATIC PIPING, AND ELECTRICAL WIRING BY DIVISION 230900.
- EFS — ELECTRONIC WATER FLOW SENSOR; FURNISHED, AND WIRED BY DIVISION 230900; INSTALLED IN PIPING BY DIVISION 23 PIPING.

OTHER CONTROL DEVICES:

- FEP — FIELD EQUIPMENT PANEL (FEP); FURNISHED AND INSTALLED BY DIVISION 230900. POWER WIRING TO FEP BY DIVISION 26.
- FILTER GAUGE: FURNISHED WITH FILTERS; INSTALLATION AND INSTRUMENT PIPING BY DIVISION 230900.
- DDC — DIRECT DIGITAL CONTROL PANEL (DDC); FURNISHED AND INSTALLED BY DIVISION 230900. POWER WIRING TO DDC PANEL BY DIVISION 26.
- BALL-IN-TUBE VISUAL OFFSET INDICATOR FURNISHED AND INSTALLED BY DIVISION 230900.

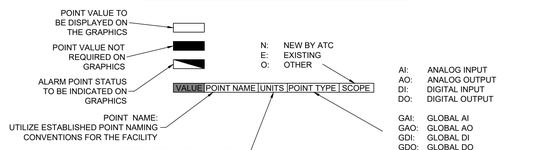
OUTPUT DEVICES:

- VA — CONTROL BALL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR
- VA — CONTROL BALL VALVE (3-WAY) ELECTRIC OR ELECTRONIC
- VA — BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR
- VA (NO C NC) — BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR
- VA — GLOBE CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR
- VA (C NC NO) — GLOBE CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR
- VA ES — CONTROL BALL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA ES — CONTROL BALL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA ES — BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA ES (NO C NC) — BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA ES — GLOBE CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA ES (C NC NO) — GLOBE CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH
- VA POS — CONTROL BALL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- VA POS — CONTROL BALL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- VA POS — BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- VA POS (NO C NC) — BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- VA POS — GLOBE CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- VA POS (C NC NO) — GLOBE CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL POSITION FEEDBACK
- SDA — SMOKE DAMPER ACTUATOR(S) FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. REFER TO DETAIL K.
- F/SDA — FIRE/SMOKE DAMPER ACTUATOR(S): FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. REFER TO DETAIL K.
- DA — ELECTRONIC OR ELECTRIC DAMPER ACTUATOR
- VA PNEU — PNEUMATIC VALVE ACTUATOR(S); FURNISHED, INSTALLED, AND PNEUMATIC PIPING BY DIVISION 230900.
- EPT — PNEUMATIC VALVE ACTUATOR WITH ELECTRO-PNEUMATIC TRANSDUCER
- AFMS ATC — AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND WIRED BY DIVISION 230900; INSTALLED BY DIVISION 23 SHEETMETAL.
- SDA ES — SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH: FURNISHED AND INSTALLED BY DIVISON 23 SHEETMETAL. REFER TO DETAIL K.
- F/SDA ES — FIRE/SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH: FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. REFER TO DETAIL K.
- DA ES — ELECTRONIC OR ELECTRIC DAMPER ACTUATOR WITH INTEGRAL END SWITCH
- DA PNEU — PNEUMATIC DAMPER ACTUATOR(S): FURNISHED, INSTALLED, AND PNEUMATIC PIPING BY DIVISION 230900.
- EPT — PNEUMATIC DAMPER ACTUATOR WITH ELECTRO-PNEUMATIC TRANSDUCER
- SDA PNEU — FIRE/SMOKE DAMPER ACTUATOR(S): FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. REFER TO DETAIL K. PNEUMATIC PIPING BY DIVISION 230900.
- F/SDA PNEU — FIRE/SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH: FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. REFER TO DETAIL K. PNEUMATIC PIPING BY DIVISION 230900.
- DA POS — DAMPER ACTUATOR WITH INTEGRAL POSITION FEEDBACK
- EPT — ELECTRIC TO PRESSURE TRANSDUCER: FURNISHED, INSTALLED. PIPED, AND WIRED BY DIVISION 230900.
- EPT — PNEUMATIC DAMPER ACTUATOR WITH ELECTRO-PNEUMATIC TRANSDUCER AND END SWITCH

OUTPUT DEVICE NOTES:

1. ACTUATORS AND CONTROL WIRING PROVIDED BY DIVISION 230900.
2. CONTROL VALVES ARE PROVIDED BY DIVISION 230900 AND INSTALLED IN PIPING BY DIVISION 23 PIPING.
3. CONTROL DAMPERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED IN DUCT WORK BY DIVISION 23 SHEETMETAL.
4. 120V POWER WIRING FOR ACTUATORS IS PROVIDED BY DIVISION 26 UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
5. PNEUMATIC COMPONENTS PROVIDED BY DIVISION 230900.

DIRECT DIGITAL CONTROL POINT TYPES



DDC POINT TYPE NOTES:

1. ALL ANALOG, DIGITAL, AND INTERLOCKED POINTS ARE HARDWIRED POINTS
2. GLOBAL POINTS ARE HARDWIRED POINTS BUT THEIR VALUE IS DISTRIBUTED ACROSS THE NETWORK TO VARIOUS CONTROLLERS.
3. VIRTUAL POINTS ARE USED IN THE PROGRAMING, BUT ONLY RESIDE IN A PROGRAM.
4. COM POINTS ARE INTEGRATED POINTS FROM OR TO CONTROLLERS OVER NETWORK OR SUB-NETWORK UTILIZING COMMUNICATION PROTOCOLS.
5. INTERLOCKED POINTS ARE HARD WIRED POINTS FOR SAFETY OPERATION. SOFTWARE INTERLOCKS ARE NOT ALLOWED AS A SUBSTITUTION FOR HARD WIRED INTERLOCKS.
6. SCOPE DEFINES IF THE SENSOR OR VALUE THAT IS INDICATED IS NEW, IF AN EXISTING SENSOR WILL BE RE-USED, OR IF SOME OTHER OPTION EXISTS. NEW SENSORS IMPLIES NEW WIRING. EXISTING WIRING CAN BE RE-USED IF IT'S FUNCTION IS VERIFIED. EXISTING SENSORS THAT ARE RE-USED SHALL BE VERIFIED FOR OPERATION AND REQUIRES FUNCTIONAL VERIFICATION JUST LIKE ANY NEW SENSOR.
7. MULTI STATE VARIABLES FROM INTEGRATIONS ARE TO BE LABELED WITH ACCURATE DESCRIPTIONS IF THEY ARE NOT WHEN INITIALLY INTEGRATED. THE OPERATOR SHALL NOT HAVE TO REFER TO A MANUAL OR A LOOK UP TABLE TO INTERPRET A NUMBER OR AN NON-DESCRIPTIVE POINT NAME.
8. AUXILIARY POINTS ARE HARD WIRED POINTS USED TO ACTIVATE OTHER COMPONENTS (FOR EXAMPLE, A DAMPER INTERLOCKED WITH A FAN).
9. REFER TO ALARM SCHEDULE IN GENERAL NOTES FOR CRITERIA OF ALARMS.

LEGEND

- THREE PHASE POWER WIRING; FURNISHED AND INSTALLED BY DIVISION 26 (PWR)
- SINGLE PHASE POWER WIRING; FURNISHED AND INSTALLED BY DIVISION 26 (PWR)
- CONTROL AND INTERLOCK WIRING, FURNISHED AND INSTALLED BY DIVISION 230900 (ILK)
- EMS ETHERNET LAN COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 230900 (EMS LAN)
- EMS SUB-NETWORK COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 230900 (EMS SN)
- ROOM SENSOR COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 230900 (EMS RS)
- COMMUNICATION WIRING FOR OTHER HVAC SYSTEMS, FURNISHED AND INSTALLED BY DIVISION 230900 (EMS OTH)
- PNEUMATIC CONTROL TUBING, FURNISHED AND INSTALLED BY DIVISION 230900
- CONTROL PIPING, FURNISHED AND INSTALLED BY DIVISION 230900
- LOCAL AREA NETWORK DATA PORT DROP, FURNISHED AND INSTALLED BY DIVISION 26.
- NC — NORMALLY CLOSED - POWERED OPEN
- NO — NORMALLY OPEN - POWERED CLOSED
- NORMALLY CLOSED - POWERED OPEN RELAY CONTACT
- NORMALLY OPEN - POWERED CLOSED RELAY CONTACT
- TFD — TO FLOOR DRAIN
- (S) — PNEUMATIC CONTROL SUPPLY AIR CONNECTION
- E-PWR — EMERGENCY (ESSENTIAL) ELECTRICAL POWER

CONTROL DEVICES FURNISHED BY OTHER TRADES:

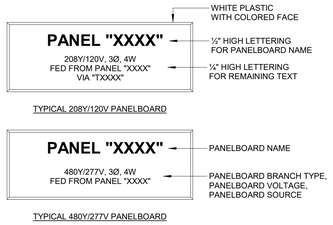
- EQ CNTRL — FIELD EQUIPMENT PANEL (FEP); FURNISHED AND INSTALLED BY DIVISION 230900. POWER WIRING TO FEP BY DIVISION 26.
- VA EQ — CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR; FURNISHED WITH EQUIPMENT (EQ); WIRED BY DIVISION 230900; INSTALLED IN PIPING BY DIVISION 23 PIPING.
- HHL EQ — HUMIDITY HIGH LIMIT SENSOR; FURNISHED WITH THE STEAM HUMIDIFIER; INSTALLED AND WIRED BY DIVISION 230900.
- CENTRIFUGAL FAN INLET BELL HOUSING AIRFLOW MEASURING STATION FURNISHED AND INSTALLED BY THE FAN MANUFACTURER.
- SV FOS — FUEL OIL SYSTEM SOLENOID VALVE; FURNISHED AND INSTALLED BY THE FUEL OIL SYSTEM SUPPLIER, WIRED BY DIVISION 230900.
- VA WSHP — WATER SOURCE HEAT PUMP ISOLATION VALVE; FURNISHED WITH THE WSHP, INSTALLED BY DIVISION 23 PIPING, WIRED BY DIVISION 230900.
- LVL CDP — CONDENSATE PUMP LEVEL SENSOR; FACTORY FURNISHED WITH THE CONDENSATE PUMP, WIRED BY DIVISION 230900.
- FS FOS — FUEL OIL SYSTEM FLOW SWITCH; FURNISHED AND INSTALLED WITH FUEL OIL SYSTEM BY DIVISION 23 PIPING; WIRED BY DIVISION 230900.
- AFMS EQ — AIR FLOW MEASURING STATION; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING FROM THE AFMS TO THE DDC PANEL BY DIVISION 230900. POWER WIRING BY DIVISION 26.
- AFMS EQ (NC) — AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING TO DDC SYSTEM BY DIVISION 230900.
- FAR SMK — FIRE ALARM PROGRAMMABLE RELAY (FAR) FOR SMOKE PURGE OPERATION (SMK); FURNISHED, INSTALLED, AND PROGRAMMED BY DIVISION 28. FAR SHALL BE LOCATED IN SAME ROOM AS HVAC EQUIPMENT SERVED PER NFPA. ALL WIRING FROM FAR TO FIRE ALARM SYSTEM BY DIVISION 28. INTERLOCK WIRING FROM FAR TO ATC PANEL BY DIVISION 230900.
- DSD — DUCT MOUNTED SMOKE DETECTOR(S); FURNISHED, INSTALLED, AND WIRED BY DIVISION 28 AS PART OF THE FIRE ALARM SYSTEM.
- CONTROL DAMPER; FURNISHED AND INSTALLED BY DIVISION 23 SHEETMETAL. DAMPER ACTUATOR FURNISHED INSTALLED AND WIRED BY DIVISION 230900. (NC)
- WFS EQ — WATER FLOW SWITCH FURNISHED WITH EQUIPMENT; INSTALLED BY DIVISION 23 PIPING; WIRED BY DIVISION 230900.
- PLENUM FAN INLET BELL HOUSING

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PANELBOARD	J	JUNCTION BOX		LOW-VOLTAGE WIRING - TYPE INDICATED ON PLANS
	DISTRIBUTION PANELBOARD	A/V-(X) A/V	AUDIO / VISUAL BOX - REFER TO ARCH ELEVATIONS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCH"		EMERGENCY CIRCUIT IN CONDUIT
	PAD MOUNTED TRANSFORMER	TV-(X) TV	RECESSED BOX, COMBO LV OUTLETS/DUPLEX RCPT - REFER TO ARCH ELEVATIONS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCH"	SMR	MOTOR-RATED TOGGLE SWITCH
	PAD MOUNTED ELECTRICAL EQUIPMENT	PST	PLUMBING SENSOR TRANSFORMER - PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR, LOW-VOLTAGE WIRING FROM XFMR TO SENSOR BY PLUMBING CONTR.	SMS	MANUAL MOTOR STARTER, WITH TOGGLE OVERLOADS AND RED PILOT LIGHT
	MOTOR	MSD	MECHANICAL SMOKE DAMPER DEVICES - REFER TO "SMOKE DAMPER SYMBOLS" DETAIL FOR MORE INFO	Sa Sb	MULTI-ZONE SWITCHES: Sa - A ZONE SWITCH, Sb - B ZONE SWITCH
	NON-FUSED DISCONNECT SWITCH	PWR	POWER-OPERATED DOOR	S	SINGLE POLE SWITCH
	FUSED DISCONNECT SWITCH	GAP	GENERATOR ANNUNCIATOR PANEL	S3	THREE WAY SWITCH
	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH	EZ (X) X"	FIRE-STOP THRU-WALL FITTING - NUMBERS BELOW SYMBOL INDICATE QUANTITY AND WIDTH OF SLEEVE FITTINGS, EZ PATH IF SHOWN WITH "EZ"	S4	FOUR WAY SWITCH
	DISCONNECT SWITCH - PROVIDED WITH EQUIPMENT	[XXXX]	ELECTRICAL EQUIPMENT CIRCUIT LABEL - REFER TO "EQUIPMENT SCHEDULE" FOR MORE INFORMATION.	S(X)	LIGHTING CONTROL SWITCH - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION
	ENCLOSED CIRCUIT BREAKER		BRANCH CIRCUIT HOMERUN - PANEL & CIRCUIT NUMBER INDICATED	AC / AFF NS / AFG XX" / WP	ABOVE COUNTER / ABOVE FINISHED FLOOR NON-SWITCHED / ABOVE FINISHED GRADE MOUNTING HEIGHT OF DEVICE / WEATHER PROOF
	VARIABLE FREQUENCY DRIVE (VFD) - PROVIDED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE		CONDUIT CONCEALED IN OR BELOW FLOOR SLAB		EXISTING - EXISTING-TO-REMAIN DEMOLISH NEW - INSTALL UNDER THIS PROJECT

TELE/DATA LEGEND

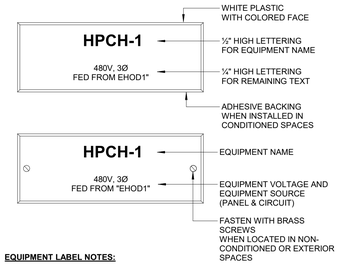
SYMBOL	DESCRIPTION
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
	DATA OUTLET - WALL MOUNTED, 1 DATA DROP
	DATA OUTLET - WALL MOUNTED, 2 DATA DROPS
	DATA OUTLET - WALL MOUNTED, 3 DATA DROPS
	DATA OUTLET - FLOOR MOUNTED, 4 DATA DROPS
	DATA OUTLET - CEILING MOUNTED, 1 DATA DROP
W	WIRELESS ACCESS POINT - CEILING MOUNTED, 1 DATA DROP
	TELEPHONE TERMINAL BOARD



PANELBOARD LABEL NOTES:

1. PROVIDE AND INSTALL ENGRAVED PANEL & SWITCHBOARD LABELS WITH INFORMATION IN THE FORMAT SHOWN ABOVE.

1 PANELBOARD LABEL DETAIL
NOT TO SCALE



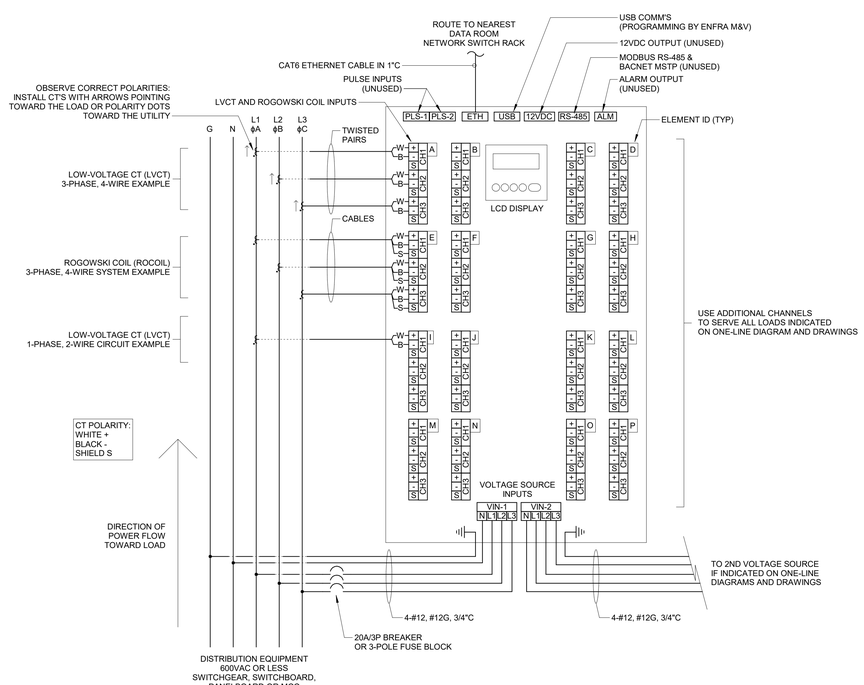
EQUIPMENT LABEL NOTES:

1. PROVIDE AND INSTALL ENGRAVED EQUIPMENT LABELS ON EQUIPMENT WITH INFORMATION IN THE FORMAT SHOWN ABOVE.

2 EQUIPMENT LABEL DETAIL
NOT TO SCALE

GENERAL NOTES

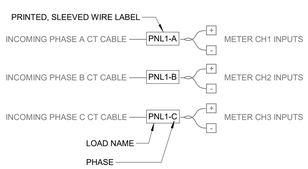
1. EACH CIRCUIT SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUND CONDUCTOR SIZE SHALL NOT BE LESS THAN #12 AWG OR AS INDICATED ON THE DRAWINGS.
2. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER, AND ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER UNLESS BOLTED LUGS AT TERMINALS.
3. MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED. LOW-VOLTAGE SYSTEMS BACKBOX CONDUIT STUB-UPS SHALL BE 1" MINIMUM UNLESS OTHERWISE NOTED.
4. ALL WIRING DEVICES SHALL BE INSTALLED PLUMB, SQUARE, AND TRUE; AND ALL DEVICES INSTALLED AT A SINGLE LOCATION SHALL BE ALIGNED.
5. MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE SPECIFIED.
6. ALL WORK SHALL COMPLY WITH THE **2020** EDITION OF THE NATIONAL ELECTRICAL CODE.
7. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL ELEVATIONS AND MILLWORK DETAILS FOR EXACT LOCATIONS OF ALL WIRING DEVICES.
8. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LAY-IN LIGHT FIXTURES.
9. CONTRACTOR SHALL REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL, VENDOR SITE SPECIFIC, AND OTHER DISCIPLINE DRAWINGS FOR COMPLETE INFORMATION.
10. ALL EXISTING BRANCH CIRCUITS NOT USED SHALL BE REMOVED BACK TO PANEL. THE CIRCUIT BREAKERS SHALL BE LABELED AS SPARE, TURNED OFF, AND EXISTING CONDUIT SHALL REMAIN FROM PANEL TO ABOVE ACCESSIBLE CEILING SPACE.
11. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION IN AREAS OF RENOVATION. ALL WIRING DEVICES, LIGHT FIXTURES, WIRE, AND CONDUIT THAT IS TO BE REMOVED SHALL BE STORED, AS DIRECTED BY THE OWNER, OR RELOCATED, AS SHOWN ON THE NEW FLOOR PLANS. APPROPRIATE MEASURES SHALL BE TAKEN TO ASSURE CONTINUITY OF EXISTING CIRCUITS WHERE REQUIRED. ALL OUTAGES WHICH MAY RESULT SHALL BE COORDINATED WITH THE OWNER PRIOR TO THE WORK. REFER TO ARCHITECTURAL PLANS FOR DEMOLITION ITEMS SUCH AS CEILINGS AND WALLS.
12. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING SCHEDULES IN ALL ELECTRICAL PANELS THAT ARE AFFECTED BY THIS WORK. UPDATED SCHEDULES ARE TO BE TYPEWRITTEN.
13. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL SWITCHES, RECEPTACLES, AND FIXED EQUIPMENT WITH THE BRANCH CIRCUIT PANEL NAME AND NUMBER SERVING EACH DEVICE.
14. ALL CONDUIT SHALL BE INSTALLED AS HIGH AS POSSIBLE (MOUNT TO BOTTOM OF STRUCTURE) TO AVOID CONFLICTS WITH DUCTWORK AND PIPING. THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION WITH THE MECHANICAL, PLUMBING AND FIRE PROTECTION CONTRACTORS.
15. DO NOT USE MULTI-WIRE BRANCH CIRCUITS (CIRCUITS CONNECTED WITH A COMMON NEUTRAL). MORE THAN THREE CIRCUITS IN ANY ONE CONDUIT IS NOT ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
16. COORDINATE WITH MECHANICAL CONTRACTOR ON ANY NECESSARY ROUGH-IN LOCATIONS FOR MECHANICAL CONTROLS DEVICES AND WIRING.
17. LOW-VOLTAGE WIRING ABOVE INACCESSIBLE CEILINGS SHALL BE INSTALLED IN CONDUIT. LOW-VOLTAGE SYSTEMS CONDUITS (1" TRADE SIZE MINIMUM) SHALL BE STUBBED-UP ABOVE AN ACCESSIBLE CEILING SPACE TO WITHIN 1" OF A J-HOOK OR CABLE TRAY PATH. LOW-VOLTAGE WIRING INSTALLED WHERE EXPOSED TO A STRUCTURE SHALL BE INSTALLED IN CONDUIT.
18. JUNCTION BOXES AND OTHER ELECTRICAL DEVICES LOCATED ABOVE CEILINGS SHALL BE INSTALLED ABOVE AN ACCESSIBLE CEILING SPACE. JUNCTION BOXES FOR LIGHTING FIXTURES IN HARD CEILINGS SHALL BE INSTALLED WHERE ACCESSIBLE FROM THE LIGHT FIXTURE CEILING PENETRATION.
19. THE CONTRACTOR TO REMOVE, REPLACE, PATCH, AND REPAIR MATERIALS AND SURFACES CUT OR DAMAGED DURING INSTALLATION BY METHODS AND WITH MATERIALS TO MATCH SURROUNDING FINISHES.



GENERAL NOTES:

1. BASIS-OF-DESIGN: DENT POWERSCOUT #PS48HD-C-D-N. REFER TO MANUFACTURER'S INSTRUCTIONS FOR WIRING INFORMATION. INSTALL METER AND CT'S WHERE INDICATED ON ONE-LINE DIAGRAM. MAX (16) 3-PHASE CIRCUITS MAY BE CONNECTED TO THE MULTI-METERING UNIT (MMU).
2. ALWAYS TERMINATE WIRING AS SHOWN BELOW. KEEP PHASING CONSISTENT BETWEEN VOLTAGE SOURCE LEADS AND CURRENT TRANSFORMER PLACEMENT. "PHASE A VOLTAGE GOES WITH PHASE A CT'S".
   VOLTAGE SOURCE LEADS
   PHASE A (BROWN OR BLACK) TERMINATES TO L1.
   PHASE B (ORANGE OR RED) TERMINATES TO L2.
   PHASE C (YELLOW OR BLUE) TERMINATES TO L3.
   NEUTRAL (WHITE) TERMINATES TO N.
   CURRENT TRANSFORMERS
   PHASE A TERMINATES TO CHANNEL CH1.
   PHASE B TERMINATES TO CHANNEL CH2.
   PHASE C TERMINATES TO CHANNEL CH3.
3. ONLY PROCURE CURRENT TRANSFORMERS FROM DENT. MATCH LVCT SIZE TO INDICATED CIRCUIT SIZE. FOR CIRCUITS OR FEEDERS ABOVE 800A AMPACITY, INSTALL ROGOWSKI COIL (ROCOIL) CT'S IN LIEU OF LVCT'S.
4. METER PROGRAMMING BY ENFRA M&V.

LABEL WIRE ENDS INSIDE METER ENCLOSURE AS SHOWN BELOW:



4 MULTI-METERING UNIT (MMU) WIRING DIAGRAM
NOT TO SCALE

ENFRA
MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

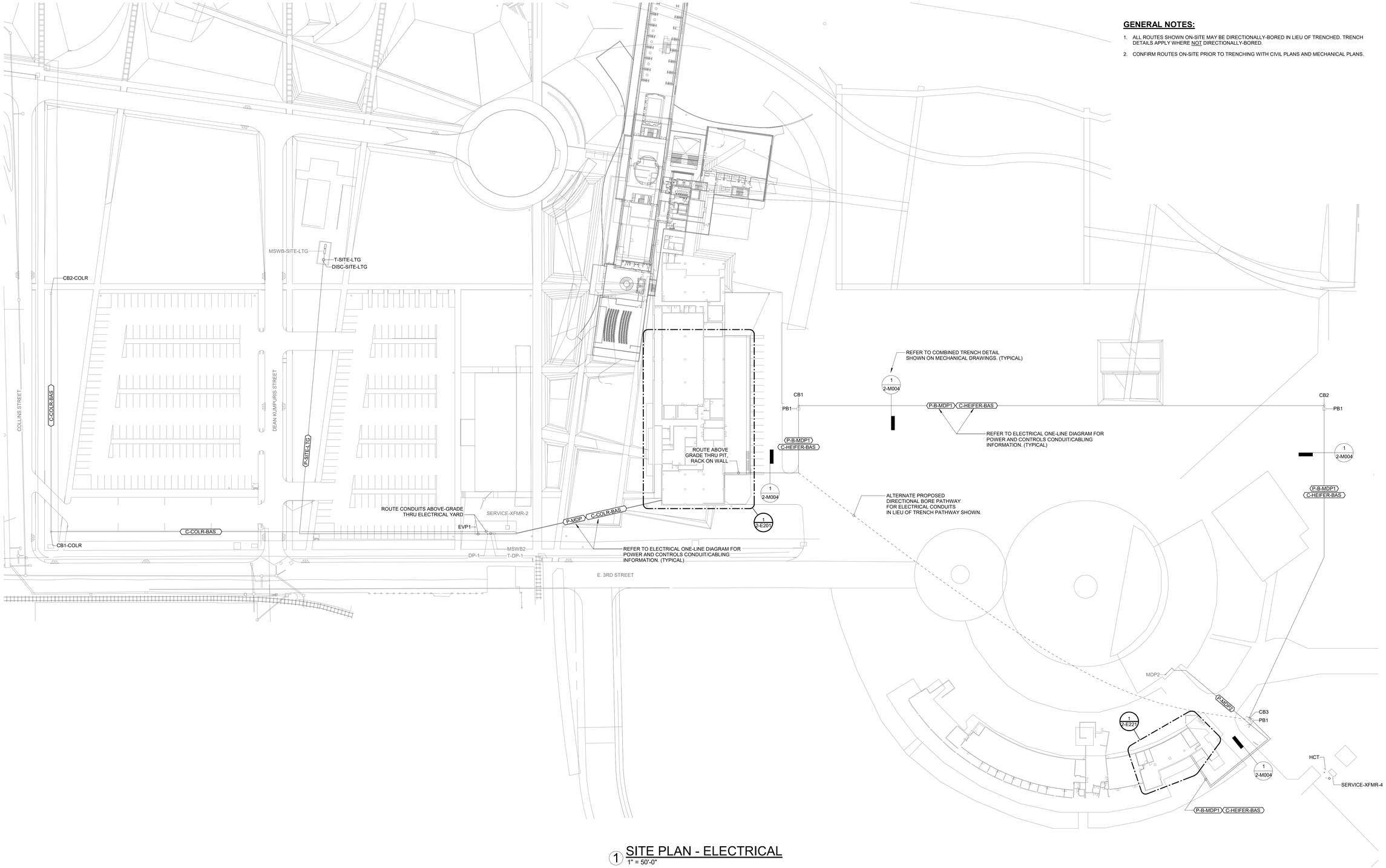
ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

LEGENDS, GENERAL NOTES, AND DETAILS - ELECTRICAL

SHEET NUMBER:

E000



GENERAL NOTES:

1. ALL ROUTES SHOWN ON-SITE MAY BE DIRECTIONALLY-BORED IN LIEU OF TRENCHED. TRENCH DETAILS APPLY WHERE NOT DIRECTIONALLY-BORED.
2. CONFIRM ROUTES ON-SITE PRIOR TO TRENCHING WITH CIVIL PLANS AND MECHANICAL PLANS.

1 SITE PLAN - ELECTRICAL

1" = 50'-0"

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CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

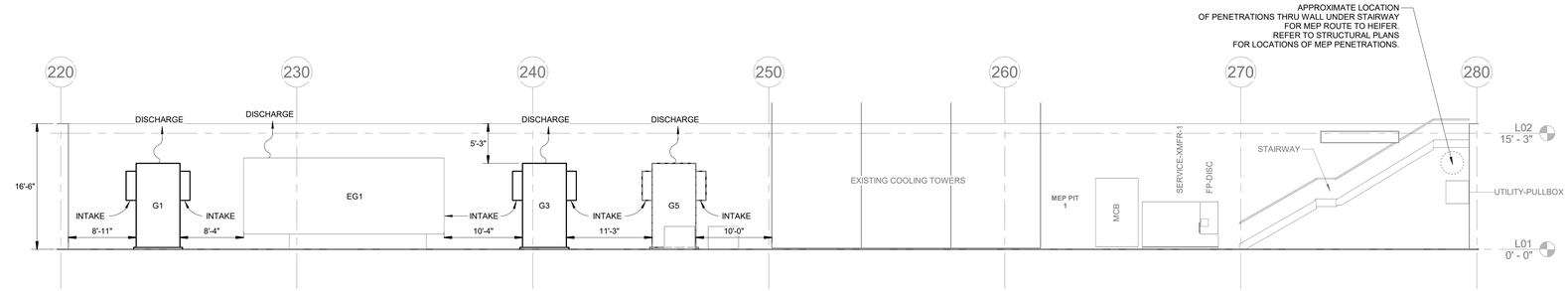
MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:
CLINTON SUSTAINABLE ENERGY DISTRICT - ELECTRICAL OVERALL SITE PLAN

SHEET NUMBER:

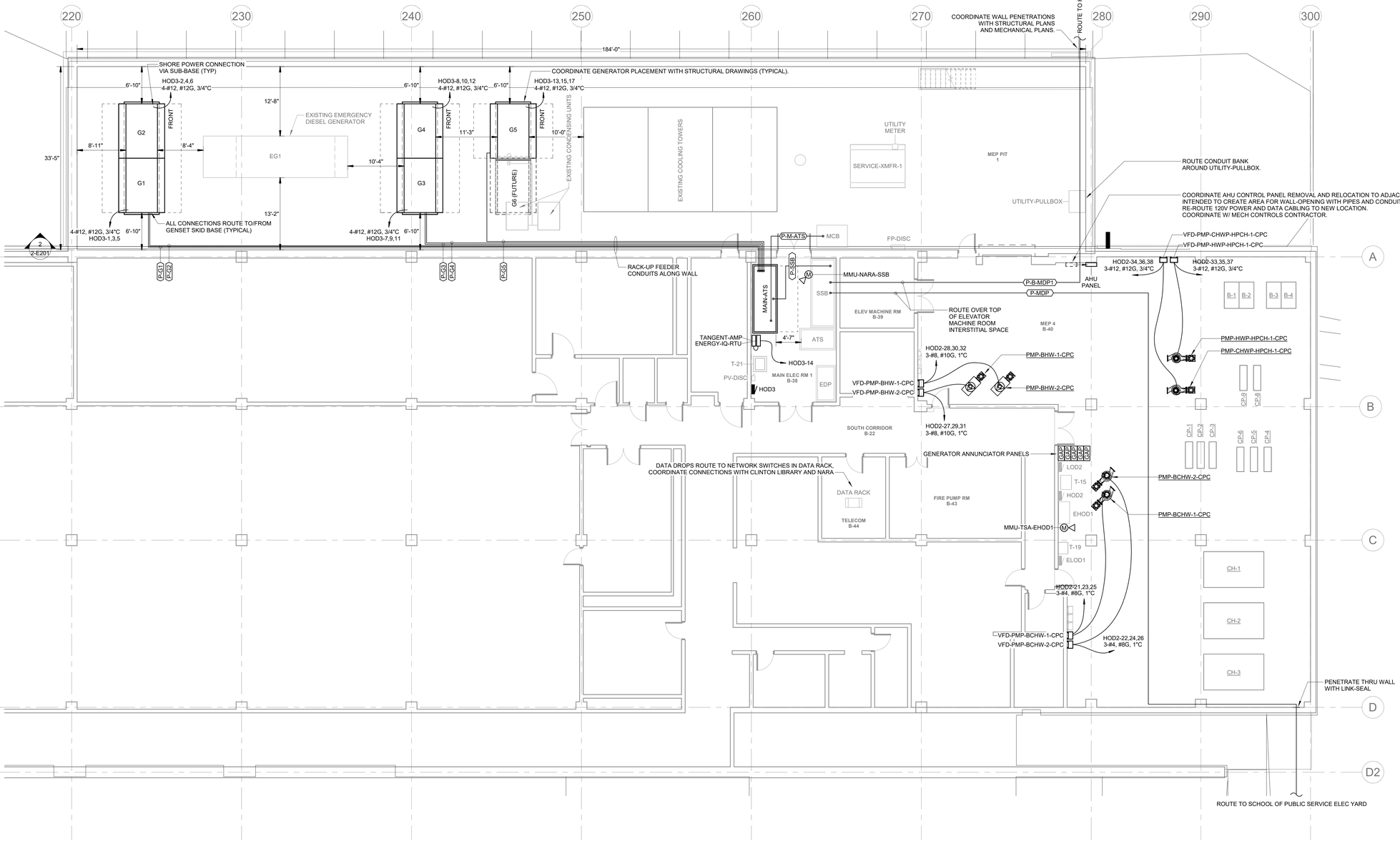
E100



2 CENTRAL UTILITY PLANT - SECTION - ELECTRICAL
1/8" = 1'-0"

GENERAL NOTES:

1. REFER TO SHEETS E401 AND E501 FOR ONE-LINE DIAGRAM AND CONTROLS RISER DIAGRAM FOR ADDITIONAL CABLE AND CONDUIT INFORMATION.



1 WILLIAM J. CLINTON - BASEMENT FLOOR PLAN - ELECTRICAL RENOVATION
1/8" = 1'-0"

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1 GALLERIA BLVD.
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11-20-2025
PROJECT NUMBER:		561470540

SHEET TITLE:
WILLIAM J. CLINTON CENTRAL UTILITY PLANT - BASEMENT FLOOR PLAN - ELECTRICAL RENOVATION

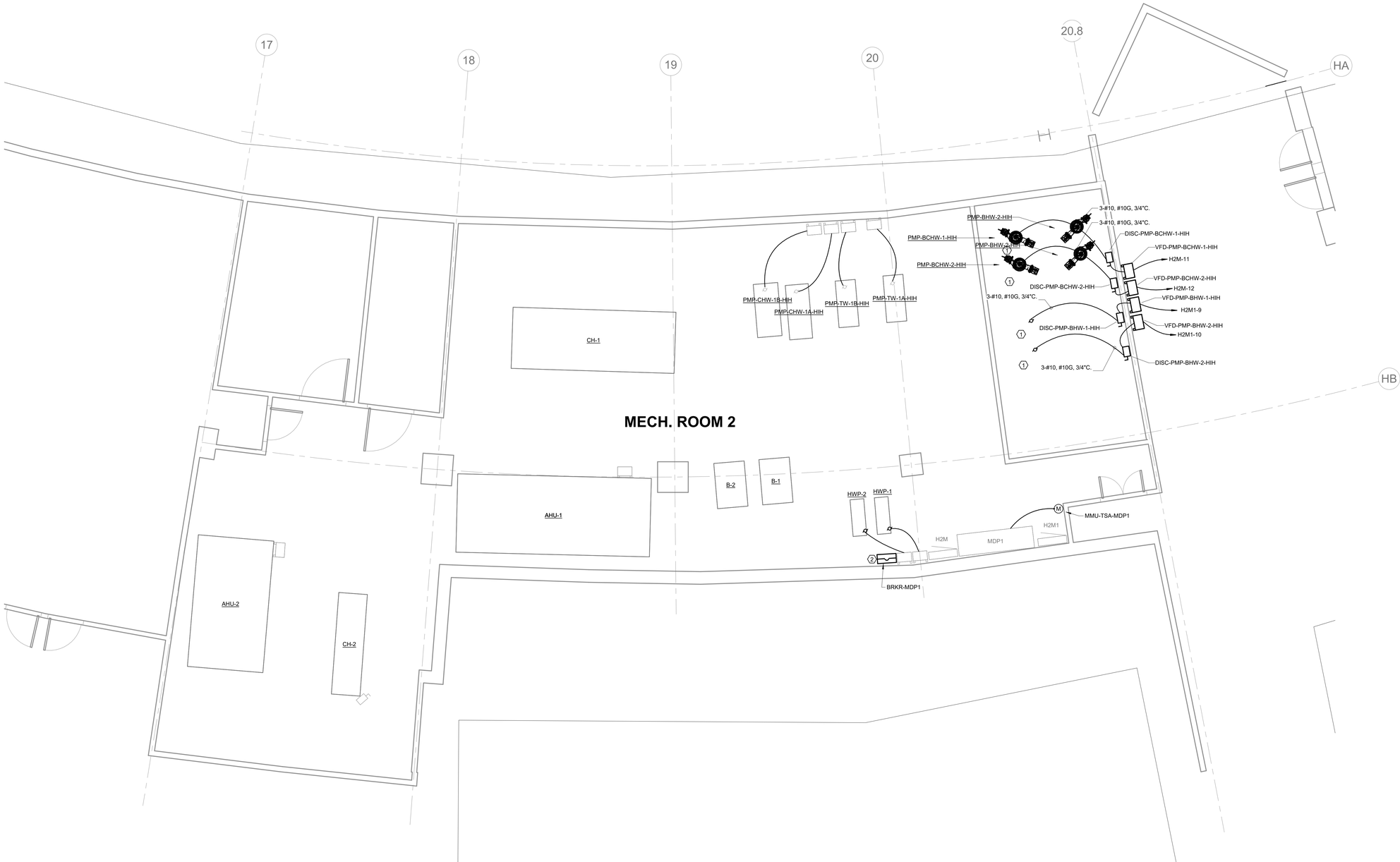
SHEET NUMBER:
E201

GENERAL ELECTRICAL NOTES:

1. ALL EQUIPMENT SHOWN IS EXISTING TO REMAIN UNLESS NOTED.

(#) KEY ELECTRICAL NOTES:

1. INSTALL NEW VFDS, NEMA 1 DISCONNECTS, FEEDERS, AND CONDUIT
2. INSTALL NEW ENCLOSED DISCONEECT



1 HEIFER INTL. - CENTRAL ENERGY PLANT - FIRST FLOOR - ELECTRICAL RENOVATION

1/4" = 1'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

HEIFER INTL. CENTRAL UTILITY PLANT - FIRST FLOOR PLAN - ELECTRICAL RENOVATION

SHEET NUMBER:

E221

GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL PERFORM BREAKER COORDINATION AND ARC FLASH STUDY FOR THE SCOPE SHOWN.
2. ELECTRICAL SUB-METERING AND DATA LOGGER DEVICES DETERMINED BY ENFRA M&V PLAN. ADDITIONAL SETUP, TESTING, AND VERIFICATION DATA ACCORDING TO ENFRA M&V PLAN.
3. REFER TO SITE PLAN AND FLOOR PLANS FOR LOCATIONS OF EQUIPMENT AND ADDITIONAL INFORMATION.
4. PENETRATIONS THRU WALLS BELOW-GRADE SHALL BE VIA LINK-SEAL.
5. REFER TO DETAILS SHEETS FOR METERING WIRING DIAGRAMS.
6. REFER TO CLINTON LIBRARY ONE-LINES FOR LOCATIONS OF ADDITIONAL MULTI-METERING UNITS FOR SUB-METERING NARA LOADS.

SEQUENCE-OF-OPERATIONS:

THE INTENT OF THE GENERATOR SYSTEM AND ATS SWITCHBOARD IS FOR PARTICIPATION IN THE ENTERGY OISR PROGRAM AND FOR FACILITY BACKUP.

UTILITY MODE TO GENERATOR MODE
1. WHEN SIGNALED BY ENTERGY (CALL/EMAIL/TEXT), A DISPATCHER (REMOTELY SIGNALED) INITIATES A CLOSED TRANSITION (LESS THAN 100ms) FROM THE UTILITY TO GENERATORS APPROXIMATELY 30 MINUTES BEFORE THE CALLED EVENT.
2. THE GENERATORS START, COME TO THE BUS, AND PARALLEL WITH ON-BOARD PARALLELING CONTROL.
3. THE ATS PROVIDES A MINIMUM 5 MINUTE PRE-SIGNAL TO THE HVAC SYSTEM TO RAMP DOWN TO A SYSTEM MINIMUM CONDITION UNDER A TEMPORARY LOAD SHED.
4. THE ATS COMPLETES THE TRANSITION ONTO THE GENERATORS WITH A LIMITED EXCURSION ALLOWING A BLIPLESS TRANSFER.
5. THE PRE-SIGNAL RELEASES AND ALLOWS THE HVAC SYSTEM AND ELEVATOR SYSTEMS TO RESUME NORMAL OPERATION.

GENERATOR MODE TO UTILITY MODE
1. AT THE END OF THE CURTAILMENT PERIOD, A DISPATCHER INITIATES A CLOSED TRANSITION FROM THE GENERATORS TO THE UTILITY.
2. AFTER A SET TIME DELAY, THE ATS PERFORMS THE CLOSED TRANSITION BACK TO UTILITY.
3. THE GENERATOR BREAKERS OPEN, GENERATORS RUN FOR A COOLDOWN AND SHUTS DOWN.

THE FIRE PUMP IS SHALL NOT BE TESTED DURING A CURTAILMENT.

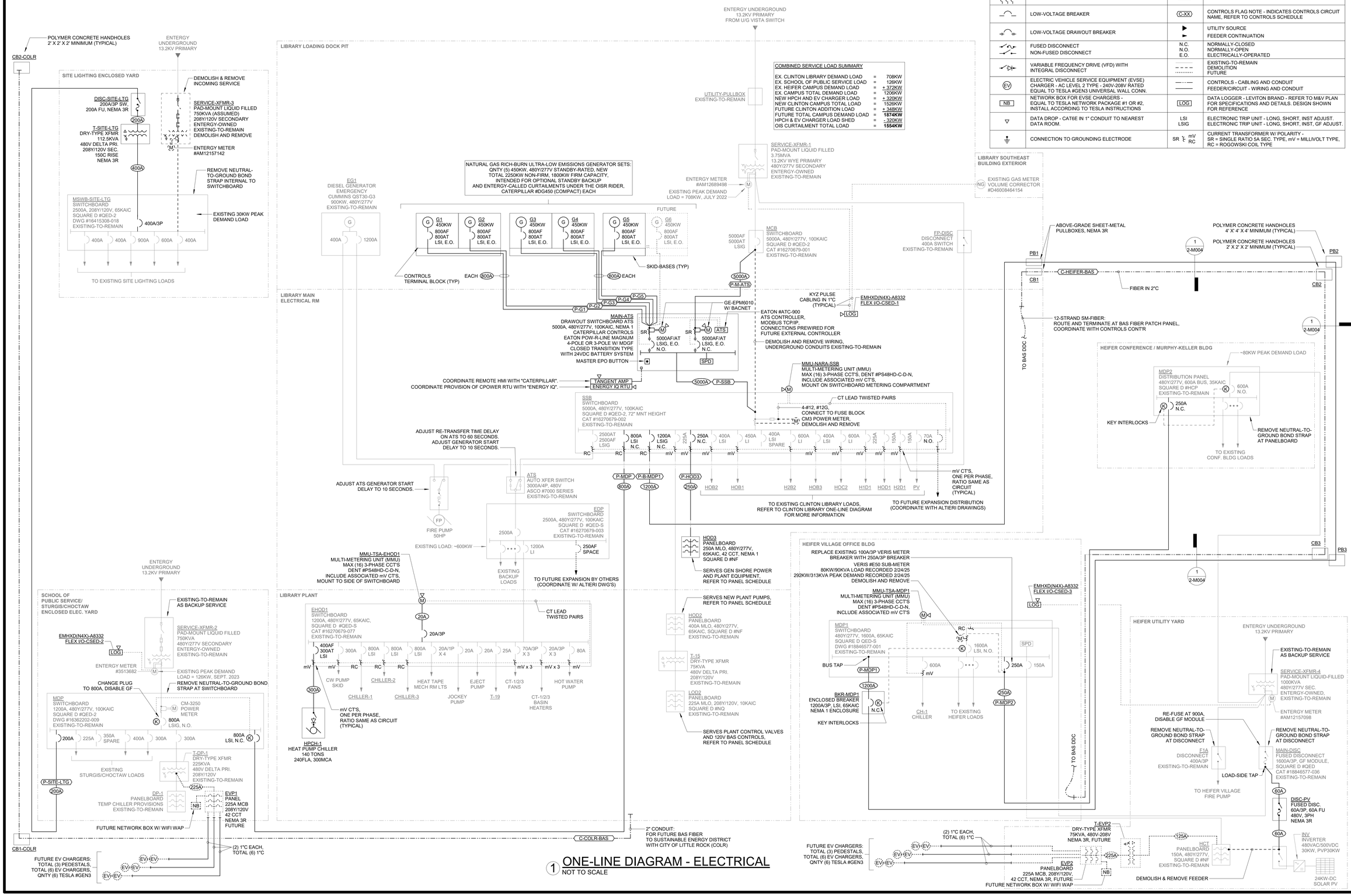
FEEDER SCHEDULE

OVAL NOTE	FEEDER SIZE	OCP SIZE
5000A	(12 SETS) 4-600 KCMIL, 600 KCMIL G, 4"C	5000A/3P
1200A	(4 SETS) (AL) 4-500 KCMIL, 250 KCMIL G, 4"C	1200A/3P
800A	(2 SETS) 4-500 KCMIL, #1/0G, 4"C	800A/3P
400A	4-500 KCMIL, #3G, 3"C	400A/3P
300A	3-350 KCMIL, #4G, 3"C	300A/3P
250A	4-250 KCMIL, #4G, 2 1/2"C	250A/3P
225A	4-#4/0, #4G, 2 1/2"C	225A/3P
200A	3-#3/0, #6G, 2"C	200A/3P
125A	3-#1, #6G, 1 1/2"C	125A/3P
60A	3-#6, #10G, 1"C	60A/3P
20A	4-#12, #12G, 3/4"C	20A/3P

NOTES: ALL CONDUCTORS SHOWN ARE COPPER UNLESS NOTED OTHERWISE AS ALUMINUM (AL).

ONE-LINE DIAGRAM LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(G)	GENERATOR	(M)	ELECTRIC METER
	TRANSFORMER - WINDING CONFIGURATION SHOWN	(K) (K)	KEY INTERLOCKS - PAIRS SHOWN
	AUTOMATIC TRANSFER SWITCH	SPD	SURGE-PROTECTIVE DEVICE
	AUTOMATIC TRANSFER SWITCH - BYPASS ISOLATION	XX	FEEDER OVAL NOTE - REFER TO FEEDER SCHEDULE
	PANELBOARD	P-XX	POWER FLAG NOTE - INDICATES FEEDER/CIRCUIT NAME
	LOW-VOLTAGE BREAKER	C-XX	CONTROLS FLAG NOTE - INDICATES CONTROLS CIRCUIT NAME, REFER TO CONTROLS SCHEDULE
	LOW-VOLTAGE DRAWOUT BREAKER	▶ ▶	UTILITY SOURCE FEEDER CONTINUATION
	FUSED DISCONNECT NON-FUSED DISCONNECT	N.C. N.O. E.O.	NORMALLY-CLOSED NORMALLY-OPEN ELECTRICALLY-OPERATED
	VARIABLE FREQUENCY DRIVE (VFD) WITH INTEGRAL DISCONNECT		EXISTING-TO-REMAIN DEMOLITION FUTURE
EV	ELECTRIC VEHICLE SERVICE EQUIPMENT (EVSE) CHARGER - AC LEVEL 2 TYPE - 240V-208V RATED EQUAL TO TESLA #GEN3 UNIVERSAL WALL CONN.		CONTROLS - CABLING AND CONDUIT FEEDER/CIRCUIT - WIRING AND CONDUIT
NB	NETWORK BOX FOR EVSE CHARGERS - EQUAL TO TESLA NETWORK PACKAGE #1 OR #2, INSTALL ACCORDING TO TESLA INSTRUCTIONS	LOG	DATA LOGGER - LEVITON BRAND - REFER TO M&V PLAN FOR SPECIFICATIONS AND DETAILS. DESIGN SHOWN FOR REFERENCE
	DATA DROP - CAT5E IN 1" CONDUIT TO NEAREST DATA ROOM.	LSI LSIG	ELECTRONIC TRIP UNIT - LONG, SHORT, INST ADJUST. ELECTRONIC TRIP UNIT - LONG, SHORT, INST, GF ADJUST.
	CONNECTION TO GROUNDING ELECTRODE	SR	mV RC CURRENT TRANSFORMER W/ POLARITY - SR = SINGLE RATIO 5A SEC. TYPE, mV = MILLIVOLT TYPE, RC = ROGOWSKI COIL TYPE



1 ONE-LINE DIAGRAM - ELECTRICAL
NOT TO SCALE

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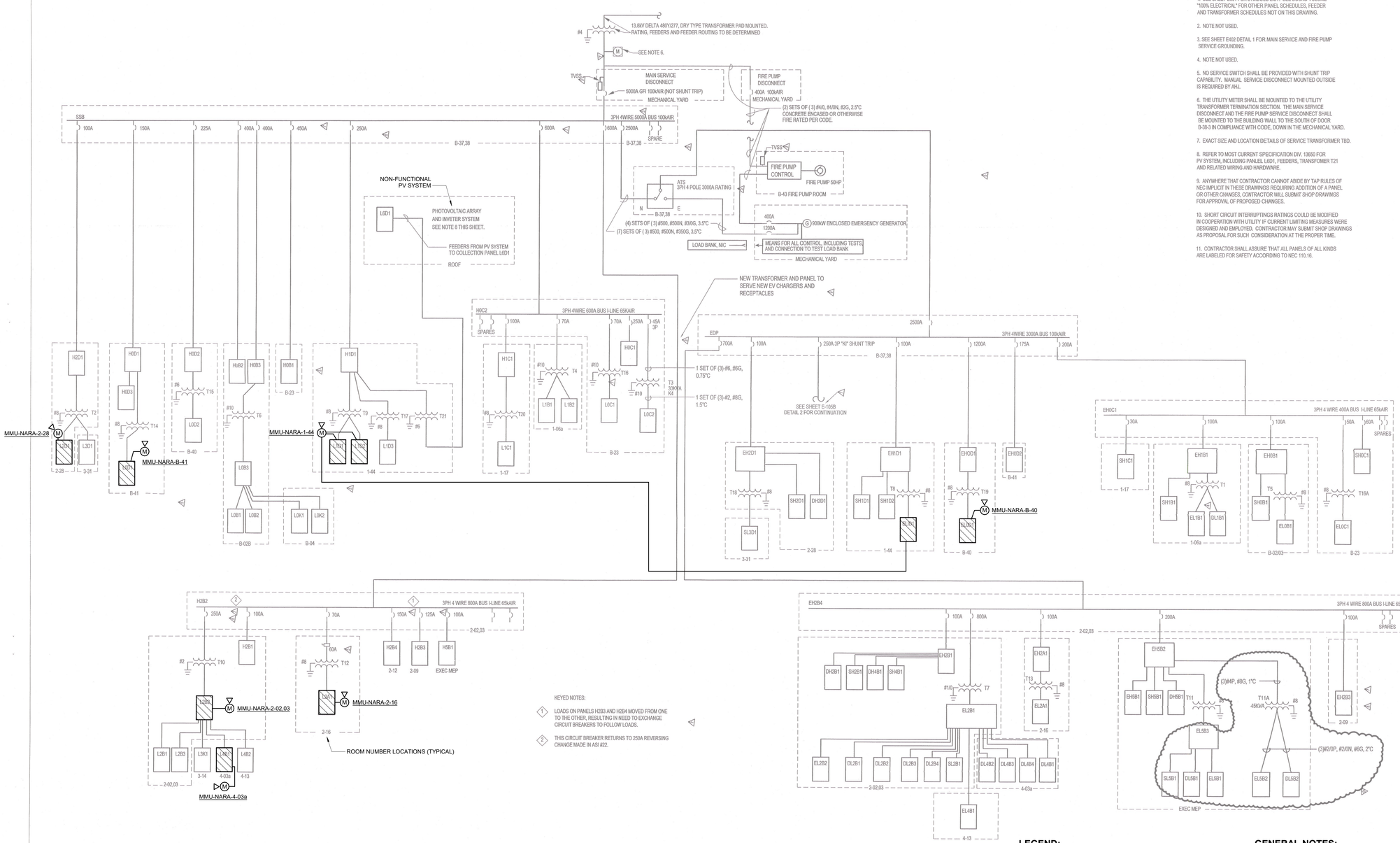
CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11-20-2025
PROJECT NUMBER:		561470540

SHEET TITLE:
OVERALL ONE-LINE DIAGRAM - ELECTRICAL

SHEET NUMBER:
E401



1 ELECTRICAL SINGLE LINE DIAGRAM
E500 | E500 NO SCALE

LEGEND:

- PANEL SERVING DIRECT, NON-HVAC-RELATED NARA LOADS REQUIRING CIRCUIT-LEVEL SUB-METERING
- (M) MULTI-METERING UNIT (MMU) FOR PANEL SUB-METERING: DENT #PS48HD-C-D-N. INCLUDE (QNTY 24) 50A:333mV REVENUE-GRADE SPLIT-CORE CURRENT TRANSFORMERS PER MMU EQUAL TO #CT-SRS-050-U/B
- CONNECTION OF MMU TO SUB-METERED PANEL. INCLUDES VOLTAGE LEAD WIRES AND CT LEAD WIRES IN CONDUIT
- DATA DROP: (1) CAT6 ETHERNET CABLE IN 1"C TO NEAREST DATA CLOSET NETWORK SWITCH

GENERAL NOTES:

1. EACH MMU SHALL BE POWERED FROM ITS ASSOCIATED SUB-METERED PANEL FROM A 20A/3P BREAKER.
2. EACH MMU WILL SUB-METER NARA-RELATED, NON-HVAC LOADS (TO BE DETAILED IN A LATER REVISION INCLUDING WIRING DIAGRAMS AND SPECIFIC LOADS).

DRAWING SHOWN FOR REFERENCE

RECORD

FOR OFFICIAL USE ONI

1 CLINTON LIBRARY - EXISTING ONE-LINE DIAGRAM
NOT TO SCALE

GENERAL NOTES:

1. SEE SHEET E001 FOR SYMBOLS LIST. SEE BOUND VOLUME "100% ELECTRICAL" FOR OTHER PANEL SCHEDULES, FEEDER AND TRANSFORMER SCHEDULES NOT ON THIS DRAWING.
2. NOTE NOT USED.
3. SEE SHEET E402 DETAIL 1 FOR MAIN SERVICE AND FIRE PUMP SERVICE GROUNDING.
4. NOTE NOT USED.
5. NO SERVICE SWITCH SHALL BE PROVIDED WITH SHUNT TRIP CAPABILITY. MANUAL SERVICE DISCONNECT MOUNTED OUTSIDE IS REQUIRED BY AHJ.
6. THE UTILITY METER SHALL BE MOUNTED TO THE UTILITY TRANSFORMER TERMINATION SECTION. THE MAIN SERVICE DISCONNECT AND THE FIRE PUMP SERVICE DISCONNECT SHALL BE MOUNTED TO THE BUILDING WALL TO THE SOUTH OF DOOR B-38-3 IN COMPLIANCE WITH CODE, DOWN IN THE MECHANICAL YARD.
7. EXACT SIZE AND LOCATION DETAILS OF SERVICE TRANSFORMER TBD.
8. REFER TO MOST CURRENT SPECIFICATION DIV. 13650 FOR PV SYSTEM, INCLUDING PANEL L6D1, FEEDERS, TRANSFOMER T21 AND RELATED WIRING AND HARDWARE.
9. ANYWHERE THAT CONTRACTOR CANNOT ABIDE BY TAP RULES OF NEC IMPLICIT IN THESE DRAWINGS REQUIRING ADDITION OF A PANEL OR OTHER CHANGES, CONTRACTOR WILL SUBMIT SHOP DRAWINGS FOR APPROVAL OF PROPOSED CHANGES.
10. SHORT CIRCUIT INTERRUPTINGS RATINGS COULD BE MODIFIED IN COOPERATION WITH UTILITY IF CURRENT LIMITING MEASURES WERE DESIGNED AND EMPLOYED. CONTRACTOR MAY SUBMIT SHOP DRAWINGS AS PROPOSAL FOR SUCH CONSIDERATION AT THE PROPER TIME.
11. CONTRACTOR SHALL ASSURE THAT ALL PANELS OF ALL KINDS ARE LABELED FOR SAFETY ACCORDING TO NEC 110.16.

WILLIAM J. CLINTON PRESIDENTIAL CENTER

LITTLE ROCK, ARKANSAS

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Coordinating Architects
POLK STANLEY YEARY ARCHITECTS, Ltd
700 South Schiller Street
Little Rock, Arkansas 72201
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WITSELL EVANS RASCO
901 West Third Street
Little Rock, Arkansas 72201
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WOODS CARADINE ARCHITECTS
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Curtainwall Consultant
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Seal

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 6859 — PAUL W. FRANKLIN

ASI #39	09/03/04
ASI #30	03/12/04
ASI #24	10/24/03
ASI #23	09/12/03
ASI #22	08/01/03
ASI #19	05/07/03
ASI #11	01/31/03
ASI #8	01/10/03
ADDENDUM #7	12/20/02
ADDENDUM #5	11/27/02
100% Construction Documents	09/27/02
90% Progress Printing	08/30/02
100% Design Development	03/01/02
Issue	Date

Job No. POLSHEK & PARTNERS ARCH. 9908
CROMWELL AE 99-114

Scale

Date NONE
SEPTEMBER 27, 2002

Title
ELECTRICAL SINGLE LINE DIAGRAM

Sheet No. ADD
E-500

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:		11-20-2025
PROJECT NUMBER:		561470540

SHEET TITLE:
CLINTON LIBRARY - EXISTING ONE-LINE DIAGRAM

SHEET NUMBER:
E402

SWITCHBOARD: SSB — EXISTING

LOCATION: CLINTON LIBRARY - ELEC. ROOM
SUPPLY FROM: SERVICE-XMFR-1
MOUNTING: FLOOR
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 100,000
MAINS RATING: 5000 A
MCB RATING: 5000 A

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	(E) HOB2	3	600	300	0	
2	-SPACE-	3	--	--	--	
3	(E) HOB1	3	600	450	**0**	
4	**(N) MDP1**	**3**	**1200**	**1200**	**189515**	
5	-SPARE-	3	600	400	0	
6	**(N) HOD3**	**3**	**250**	**250**	**23300**	
7	(E) H2B2	3	600	400	0	
8	(E) H1D1	3	250	225	0	
9	(E) HOB3	3	600	400	0	
10	(E) HOD2	3	250	225	193459	
11	(E) HOC2	3	600	600	0	
12	**(N) SWB2**	**3**	**1200**	**800**	0	
13	(E) HOD1	3	250	150	0	
14	(E) H2D1	3	125	100	0	
15	(E) P V	3	125	70	0	
16	(E) CW PUMPS (MCCB)	3	400	300	0	
17						
18	(E) ATS	3	2500	2500	235942	
19						
20						
				TOTAL LOAD:	642216 VA	
				TOTAL AMPS:	772 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
MOTOR EQUIPMENT	220482 VA	104.90%	231290 VA		
POWER, OTHER	58552 VA	100.00%	58552 VA	**CONNECTED LOAD:**	642216 VA
Spare	363182 VA	100.00%	363182 VA	**ESTIMATED DEMAND:**	653024 VA
MOTOR/EQUIPMENT	0 VA	0.00%	0 VA	**CONNECTED CURRENT:**	772 A
				EST. DEMAND CURRENT:	785 A

BRANCH PANEL: HOD2 — EXISTING

LOCATION: CLINTON LIBRARY MECH. ROOM
SUPPLY FROM: SSB
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
BUS RATING: 400 A
MCB RATING: 250 A

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)		B (VA)		C (VA)		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	SPARE	20	1	0	0					1	20	SPARE	2
3	SPARE	20	1			0	0			1	20	SPARE	4
5	SPARE	20	1					0	0	1	20	SPARE	6
7	(E) LIGHTING, MECH. ROOM B-41	20	1	0	0					1	20	SPARE	8
9	(E) T-15	125	3			16209	0			3	20	(E) AIR HANDLING UNIT B-10	10
11	--	--	--					16996	0	--	--	--	12
13	--	--	--	16260	0					--	--	--	14
15	(E) FREEZER CONDENSING UNIT	30	3			0	--			3	--	-SPACE-	16
17	--	--	--					0	--	--	--	--	18
19	--	--	--	0	--					--	--	--	20
21	(N) PMP-CHW-2A-CPC	70	3			14410	14410			3	70	(N) PMP-CHW-2B-CPC	22
23	--	--	--					14410	14410	--	--	--	24
25	--	--	--	14410	14410					--	--	--	26
27	(N) PMP-BHW-1-CPC	40	3			7482	7482			3	40	(N) PMP-BHW-2-CPC	28
29	--	--	--					7482	7482	--	--	--	30
31	--	--	--	7482	7482					--	--	--	32
33	(N) PMP-HWP-HPCH-1-CPC	20	3			2106	2106			3	20	(N) PMP-CHWP-HPCH-1-CPC	34
35	--	--	--					2106	2106	--	--	--	36
37	--	--	--	2106	2106					--	--	--	38
39	-SPACE-	--	1			--	--			1	--	-SPACE-	40
41	-SPACE-	--	1					--	--	1	--	-SPACE-	42
				TOTAL LOAD:		64258 VA		64207 VA		64994 VA			
				TOTAL AMPS:		232 A		232 A		235 A			

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
MOTOR EQUIPMENT	143994 VA	107.51%	154802 VA		
POWER, OTHER	0 VA	0.00%	0 VA	**CONNECTED LOAD:**	193459 VA
Spare	49465 VA	100.00%	49465 VA	**ESTIMATED DEMAND:**	204267 VA
				CONNECTED CURRENT:	233 A
				EST. DEMAND CURRENT:	246 A

BRANCH PANEL: HOD3 — NEW

LOCATION: MAIN ELEC RM 1 B-38
SUPPLY FROM: SSB
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
BUS RATING: 250 A
MCB RATING: MLO

NOTES:
SQUARE D #NF OR EQUAL

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)		B (VA)		C (VA)		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	GENSET G1 SHORE POWER	20	3	1553	1553					3	20	GENSET G2 SHORE POWER	2
3	--	--	--			1553	1553			--	--	--	4
5	--	--	--					1553	1553	--	--	--	6
7	GENSET G3 SHORE POWER	20	3	1553	1553					3	20	GENSET G4 SHORE POWER	8
9	--	--	--			1553	1553			--	--	--	10
11	--	--	--					1553	1553	--	--	--	12
13	GENSET G5 SHORE POWER	20	3	1553	0					1	20	TANGENT AMP, ENERGY IQ RTU	14
15	--	--	--			1553	--			1	--	-SPACE-	16
17	--	--	--					1553	--	1	--	-SPACE-	18
19	-SPACE-	--	1	--	--					1	--	-SPACE-	20
21	-SPACE-	--	1			--	--			1	--	-SPACE-	22
23	-SPACE-	--	1					--	--	1	--	-SPACE-	24
25	-SPACE-	--	1	--	--					1	--	-SPACE-	26
27	-SPACE-	--	1			--	--			1	--	-SPACE-	28
29	-SPACE-	--	1					--	--	1	--	-SPACE-	30
31	-SPARE-	30	3	0	0					3	30	-SPARE-	32
33	--	--	--			0	0			--	--	--	34
35	--	--	--					0	0	--	--	--	36
37	-SPARE-	20	3	0	0					3	20	-SPARE-	38
39	--	--	--			0	0			--	--	--	40
41	--	--	--					0	0	--	--	--	42
				TOTAL LOAD:		7767 VA		7767 VA		7767 VA			
				TOTAL AMPS:		28 A		28 A		28 A			

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
POWER, OTHER	23300 VA	100.00%	23300 VA		
				CONNECTED LOAD:	23300 VA
				ESTIMATED DEMAND:	23300 VA
				CONNECTED CURRENT:	28 A
				EST. DEMAND CURRENT:	28 A

SWITCHBOARD: EHOD1 — EXISTING

LOCATION: CLINTON LIBRARY - MECH. ROOM
SUPPLY FROM: EDP
MOUNTING: FLOOR
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 1200 A
MCB RATING: MLO

NOTES:
MCCB = MOLDED CASE CIRCUIT BREAKER, (N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	**(N) HEAT PUMP CHILLER**	**3**	**600**	**300**	199521	
2	(E) SPACE	1	--	--	--	
3	(E) CW PUMP SKID	3	600	300	0	
4	(E) CHILLER 1 (MMCB)	3	1200	800	0	
5	(E) SPACE	3	--	--	--	
6	(N) MMU-TSA-EHOD1	3	100	20	0	MULTI-METERING UNIT
7	(E) CHILLER 2 (MCCB)	3	1000	800	0	
8	(E) CHILLER 3 (MCCB)	3	1000	800	0	
9	(E) SPACE	3	--	--	--	
10	(E) LIGHTING XXXXED DOC	1	100	20	0	
11	(E) LIGHTING, XXX ROOM COMPACTER	1	100	20	0	
12	(E) COOLING TOWER HEAT TAPE	1	100	20	1600	
13	(E) MECHANICAL ROOM LIGHTS	1	100	20	0	
14	(E) JOCKEY PUMP	3	100	20	1500	
15	(E) EJECTOR PUMP 2	1	400	20	0	
16	(E) T-19	3	100	25	11820	
17	(E) COOLING TOWER 1	3	100	80	21501	
18	(E) HOT WATER PUMPS	3	100	80	0	
19	(E) COOLING TOWER 2	3	100	70	0	
20	(E) COOLING TOWER 3	3	100	70	0	
21	(E) BASIN HEAT COOLING TOWER 1	3	100	20	0	
22	(E) BASIN HEAT COOLING TOWER 2	3	400	20	0	
23	(E) BASIN HEAT COOLING TOWER 3	3	400	20	0	
24						
25						
26						
27						
28						
				TOTAL LOAD:	235942 VA	
				TOTAL AMPS:	284 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Spare	235942 VA	100.00%	235942 VA		
				CONNECTED LOAD:	235942 VA
				ESTIMATED DEMAND:	235942 VA
				CONNECTED CURRENT:	284 A
				EST. DEMAND CURRENT:	284 A

SWITCHBOARD: MDP1 — EXISTING

LOCATION: HEIFER INTL. - MECH. RM.
SUPPLY FROM: **SSB**
MOUNTING: FLOOR
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 1600 A
MCB RATING: **1200 A**

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	(E) VFD-1 (CHILLER)	3	1000	600	0	
2	(E) H-1	3	125	100	0	
3	(E) EL-1	3	125	50	0	
4	(E) H-2	3	125	100	0	
5	(E) TUSS	3	125	60	0	
6	(E) H-3	3	125	100	0	
7	(E) SURGE PROTECTIVE DEVICE	3	0	0	0	
8	(E) H-CT	3	250	150	0	
9	(E) SURGE PROTECTIVE DEVICE	3	0	0	0	
10	(E) T1	3	250	175	0	
11	(E) HCT	3	400	20	0	
12	(E) T2	3	250	175	0	
13	-SPACE-	1	--	--	--	
14	(E) T4	3	250	200	0	
15	(E) H2M	3	1000	300	116019	
16	(E) T3	3	250	175	0	
17	(E) FRT. ELE.	3	125	125	0	
18	-SPARE-	1	125	20	0	
19	**(N) MDP2**	**3**	**400**	**250**	**0**	
20	(E) H2M1	3	250	150	73496	
21	(E) ATS	3	1000	300	0	
22	(E) H4	3	125	100	0	
23	(E) ????	3	250	125	0	
24	**(E) VERIS POWER METER & (N) MDP2**	3	400	**250**	0	**REPLACE EXISTING BREAKER WITH 250 A BREAKER**
25	(E) ????	3	125	100	0	
26	(E) H1M	3	125	100	0	
27	(E) ????	3	1000	300	0	
28	(E) EL-2	3	125	50	0	
				TOTAL LOAD:	189515 VA	
				TOTAL AMPS:	228 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
MOTOR EQUIPMENT	76488 VA	106.25%	81269 VA		
POWER, OTHER	35252 VA	100.00%	35252 VA	**CONNECTED LOAD:**	189515 VA
Spare	77775 VA	100.00%	77775 VA	**ESTIMATED DEMAND:**	194296 VA
MOTOR/EQUIPMENT	0 VA	0.00%	0 VA	**CONNECTED CURRENT:**	228 A
				EST. DEMAND CURRENT:	234 A

SWITCHBOARD: H2M — EXISTING

LOCATION: HEIFER INTL. - MECH. RM.
SUPPLY FROM: MDP1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 225 A
MCB RATING: 300

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	(E) AHU-1E (5HP)	3	125	15	6315	
2	(E) OSA-1E (5HP)	3	125	15	6315	
3	(E) EF-3 (1.5HP)	3	125	15	2160	
4	-SPARE-	3	125	60	0	
5	(E) CHP-1 (15HP)	3	125	50	17451	
6	(E) CHP-2 (15HP)	3	125	50	17451	
7	(E) CWP-1 (20HP)	3	125	60	22437	
8	-SPARE-	3	125	60	0	
9	(E) AC-1	3	125	15	2823	
10	(E) RD-1	3	125	15	2823	
11	**(N) VFD-PMP-BCHW-1-HIH**	**3**	**400**	**30**	**19122**	
12	**(N) VFD-PMP-BCHW-2-HIH**	**3**	**400**	**30**	**19122**	
13	-SPARE-	3	125	15	0	
14	-SPARE-	3	125	15	0	
				TOTAL LOAD:	116019 VA	
				TOTAL AMPS:	140 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
MOTOR EQUIPMENT	38244 VA	112.50%	43025 VA		
POWER, OTHER	0 VA	0.00%	0 VA	**CONNECTED LOAD:**	116019 VA
Spare	77775 VA	100.00%	77775 VA	**ESTIMATED DEMAND:**	120800 VA
				CONNECTED CURRENT:	140 A
				EST. DEMAND CURRENT:	145 A

SWITCHBOARD: H2M1 — EXISTING

LOCATION: HEIFER INTL. - MECH. RM.
SUPPLY FROM: MDP1
MOUNTING: SURFACE
ENCLOSURE: NEMA 1
VOLTAGE: 480Y/277V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 225 A
MCB RATING: 150

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	(E) GWF	3	125	50	7809	
2	(E) HWP-1	3	125	20	17451	
3	(E) B-1	3	125	20	4996	
4	(E) B-2	3	125	20	4996	
5	(E) GFW AIR COMP	3	125	20	0	
6	SPARE	3	125	20	0	
7	SPARE	3	125	20	0	
8	(E) EXHAUST FAN - CHILLER AREA	3	125	15	0	
9	**(N) VFD-PMP-BHW-1-HIH**	**3**	**125**	**30**	**19122**	
10	**(N) VFD-PMP-BHW-2-HIH**	**3**	**125**	**30**	**19122**	
11	SPARE	3	125	15	0	
12	SPARE	3	125	15	0	
13	SPARE	3	125	15	0	
14						
				TOTAL LOAD:	73496 VA	
				TOTAL AMPS:	88 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
MOTOR EQUIPMENT	38244 VA	112.50%	43025 VA		
POWER, OTHER	35252 VA	100.00%	35252 VA	**CONNECTED LOAD:**	73496 VA
				ESTIMATED DEMAND:	78277 VA
				CONNECTED CURRENT:	88 A
				EST. DEMAND CURRENT:	94 A

BRANCH PANEL: EVP2 — NEW

LOCATION: HEIFER INTL. BLDG - ELEC. YARD
SUPPLY FROM: T-EVP2
MOUNTING: SURFACE
ENCLOSURE: NEMA 3R
VOLTAGE: 208Y/120V
PHASES: 3
WIRES: 4
AIC RATING: 10000
BUS RATING: 225 A
MCB RATING: 125

NOTES:
(F) RESERVED FOR FUTURE LOADS

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)		B (VA)		C (VA)		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1					0					2	60	(F) EV CHARGER	2
3							0			--	--	--	4
5									0	2	60	(F) EV CHARGER	6
7					0					--	--	--	8
9							0			2	20	POWER, OTHER	10
11									0	--	--	--	12
13	-SPACE-	--	1	--	--					1	--	-SPACE-	14
15	-SPACE-	--	1			--	--			1	--	-SPACE-	16
17	-SPACE-	--	1					--	--	1	--	-SPACE-	18
19	-SPACE-	--	1	--	--					1	--	-SPACE-	20
21	-SPACE-	--	1			--	--			1	--	-SPACE-	22
23	-SPACE-	--	1					--	--	1	--	-SPACE-	24
25	-SPACE-	--	1	--	--					1	--	-SPACE-	26
27	-SPACE-	--	1			--	--			1	--	-SPACE-	28
29	-SPACE-	--	1					--	--	1	--	-SPACE-	30
31	-SPACE-	--	1	--	--					1	--	-SPACE-	32
33	-SPACE-	--	1			--	--			1	--	-SPACE-	34
35	-SPACE-	--	1					--	--	1	--	-SPACE-	36
37	-SPACE-	--	1	--	--					1	--	-SPACE-	38
39	-SPACE-	--	1			--	--			1	--	-SPACE-	40
41	-SPACE-	--	1					--	--	1	--	-SPACE-	42
				TOTAL LOAD:		0 VA		0 VA		0 VA			
				TOTAL AMPS:		0 A		0 A		0 A			

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
POWER, OTHER	0 VA	0.00%	0 VA		
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

SWITCHBOARD: MSWB-SITE-LTG — EXISTING

LOCATION: NORTH LIGHTING SERVICE YARD
SUPPLY FROM:
MOUNTING: FLOOR
ENCLOSURE: NEMA 3R
VOLTAGE: 208Y/120V
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 2500 A
MCB RATING: MLO

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	-SPACE-	3	--	--	--	
2	-SPACE-	3	--	--	--	
3	-SPACE-	3	--	--	--	
4	-SPACE-	1	--	--	--	
5	(E) 1	3	600	400	0	
6	(E) 3	3	600	400	0	
7	(E) 5	3	1200	1000	0	
8	(E) 4 - AMPITHEATER SWITCH #2	3	1200	600	0	
9	(E) 2 - PANEL DP1	3	1200	400	0	
10	-SPACE-	3	--	--	--	
11	-SPACE-	1	--	--	--	
12	-SPACE-	3	--	--	--	
13	-SPACE-	3	--	--	--	
14	-SPACE-	3	--	--	--	
15	-SPACE-	3	--	--	--	
16	-SPACE-	3	--	--	--	
17						
18						
19						
20						
				TOTAL LOAD:	0 VA	
				TOTAL AMPS:	0 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

ENFRA
MCC, LLC | MECHANICAL
1 GALLERIA BLVD.
SUITE 825
METAIRIE, LA 70001
Phone: (504) 883-8291

CORPORATE SEAL

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11-20-2025

PROJECT NUMBER: 561470540

SHEET TITLE:
PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:
E600

BRANCH PANEL: HCT — EXISTING

LOCATION: HEIFER UTILITY YARD | **VOLTAGE:** 480/277 Wye | **AIC RATING:** 10,000
SUPPLY FROM: MDP1 | **PHASES:** 3 | **MAINS RATING:** 150 A
MOUNTING: SURFACE | **WIRES:** 4 | **MCB RATING:** 150 A
ENCLOSURE: NEMA 3R

NOTES:
(D) EXISTING BREAKER AND LOAD TO BE DEMOLISHED, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	(E) COOLING TOWER 1 BASIN HEATER	1	125	30	0	
2	(E) COOLING TOWER 2 BASIN HEATER	1	125	30	0	
3	(E) COOLING TOWER FAN 1	1	125	25	0	
4	(E) COOLING TOWER FAN 2	1	125	25	0	
5	(E) SITE PUMP 1	1	125	30	0	
6	(E) SITE PUMP 2	1	125	25	0	
7	(E) IRRIGATION PUMP	1	125	15	0	
8	(E) CONTROL POWER TOWER VALVES	1	125	15	0	
9	(E) SPARE	1	125	20	0	
10	(E) SPARE	1	125	20	0	
11	(E) SPARE	1	125	20	0	
12	(E) SPARE	1	125	20	0	
13	(E) SPARE	1	125	20	0	
14	(E) SPARE	1	125	20	0	
15	(E) SPARE	1	125	20	0	
16	(E) SPARE	1	125	20	0	
17	(E) SPARE	1	125	20	0	
18	(E) SPARE	1	125	20	0	
19	(E) SPARE	1	125	20	0	
20	(E) SPARE	1	125	20	0	
21	(E) SPARE	1	125	20	0	
22	(E) SPARE	1	125	20	0	
23	(E) SPARE	1	125	20	0	
24	**(D) INVERTER**	**1**	**125**	**50**	**0**	
25						
26						
27						
28						

TOTAL LOAD: 0 VA
TOTAL AMPS: 0 A

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

BRANCH PANEL: MDP2 — EXISTING

LOCATION: MURPHY BLDG - EXTERIOR | **VOLTAGE:** 480Y/277V | **AIC RATING:** 65,000
SUPPLY FROM: SERVICE-XFMR-4 | **PHASES:** 3 | **BUS RATING:** 600 A
MOUNTING: FLOOR | **WIRES:** 4 | **MCB RATING:** 600 A
ENCLOSURE: NEMA 3R

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	-SPACE-	--	1	--	--					3	--	-SPACE-	2
3	-SPACE-	--	1			--	--			--	--	--	4
5	-SPACE-	--	3					--	--	--	--	--	6
7	--	--	--	--	0					**3**	**250**	**(N) MDP1**	8
9	--	--	--			--	0			--	--	--	10
11	(E) PANEL HM	100	3					0	0	--	--	--	12
13	--	--	--	0	0					3	100	(E) PANEL HA	14
15	--	--	--			0	0			--	--	--	16
17	(E) POWER METER	100	3					0	0	--	--	--	18
19	--	--	--	0	0					3	100	(E) SPARE	20
21	--	--	--			0	0			--	--	--	22
23	(E) TRANSFORMER T1	350	3					0	0	--	--	--	24
25	--	--	--	0	0					3	60	(E) TVSS	26
27	--	--	--			0	0			--	--	--	28
29	UNUSABLE SPACE	--	1					--	0	--	--	--	30
31	UNUSABLE SPACE	--	1	--	--					3	--	(E) SURGE PROTECTIVE DEVICE	32
33	(E) MAIN	600	3			0	--			--	--	--	34
35	--	--	--					0	--	--	--	--	36
37	--	--	--	0	--					2	--	(E) SURGE PROTECTIVE DEVICE	38
39	UNUSABLE SPACE	--	1			--	--			--	--	--	40
41													42
		TOTAL LOAD:		0 VA		0 VA		0 VA					
		TOTAL AMPS:		0 A		0 A		0 A					

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

SWITCHBOARD: MSWB2 — EXISTING

LOCATION: CSPS ELEC. YARD | **VOLTAGE:** 480Y/277V | **AIC RATING:** 65,000
SUPPLY FROM: MAIN-ATS | **PHASES:** 3 | **MAINS RATING:** 1200 A
MOUNTING: FLOOR | **WIRES:** 4 | **MCB RATING:** 800 A
ENCLOSURE: NEMA 3R

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	LOAD (VA)	REMARKS
1	**(N) T-SITE-LTG**	**3**	**400**	**200**	**0**	
2	-SPACE-	1	--	--	--	
3	-SPACE-	3	--	--	--	
4	-SPACE-	3	--	--	--	
5	(E) H1	3	250	225	0	
6	(E) CHILLER	3	600	350	0	
7	-SPACE-	3	--	--	--	
8	-SPACE-	3	--	--	--	
9	(E) M1	3	600	400	0	
10	(E) M2	3	600	300	0	
11	(E) DP-1	3	600	300	0	PANELS DP-1 & EVP1 VIA XFMR DP-1
12	**(N) MSWB - SSB**	**3**	**1200**	**800**	**0**	
13						
14						
15						
16						
17						
18						
19						
20						

TOTAL LOAD: 0 VA
TOTAL AMPS: 0 A

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
POWER, OTHER	0 VA	0.00%	0 VA		
MOTOR/EQUIPMENT	0 VA	0.00%	0 VA	**CONNECTED LOAD:**	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

BRANCH PANEL: EVP1 — FUTURE

LOCATION: CSPS - ELEC. YARD | **VOLTAGE:** 208/120V | **AIC RATING:** 10,000
SUPPLY FROM: T-DP-1 | **PHASES:** 1 | **BUS RATING:** 225 A
MOUNTING: SURFACE | **WIRES:** 3 | **MCB RATING:** 225
ENCLOSURE: NEMA 3R

NOTES:
(F) RESERVED FOR FUTURE LOADS

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)		B (VA)		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	2
3	--	--	--			0	0	--	--	--	4
5	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	6
7	--	--	--			0	0	--	--	--	8
9	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	10
11	--	--	--			0	0	--	--	--	12
13	-SPACE-	--	1	--	--			1	--	-SPACE-	14
15	-SPACE-	--	1			--	--	1	--	-SPACE-	16
17	-SPACE-	--	1	--	--			1	--	-SPACE-	18
19	-SPACE-	--	1			--	--	1	--	-SPACE-	20
21	-SPACE-	--	1	--	--			1	--	-SPACE-	22
23	-SPACE-	--	1			--	--	1	--	-SPACE-	24
25	-SPACE-	--	1	--	--			1	--	-SPACE-	26
27	-SPACE-	--	1			--	--	1	--	-SPACE-	28
29	-SPACE-	--	1	--	--			1	--	-SPACE-	30
31	-SPACE-	--	1			--	--	1	--	-SPACE-	32
33	-SPACE-	--	1	--	--			1	--	-SPACE-	34
35	-SPACE-	--	1			--	--	1	--	-SPACE-	36
37	-SPACE-	--	1	--	--			1	--	-SPACE-	38
39	-SPACE-	--	1			--	--	1	--	-SPACE-	40
41	-SPACE-	--	1	--	--			1	--	-SPACE-	42
		TOTAL LOAD:		0 VA		0 VA					
		TOTAL AMPS:		0 A		0 A					

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
POWER, OTHER	0 VA	0.00%	0 VA		
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	11-20-2025
PROJECT NUMBER:	561470540

SHEET TITLE:

PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:

E602

BRANCH PANEL: MDP2 — RENOVATION

LOCATION: MURPHY BLDG - EXTERIOR
SUPPLY FROM: SERVICE-XFMR-4
MOUNTING: FLOOR
ENCLOSURE: NEMA 3R

VOLTAGE: 480/277 Wye
PHASES: 3
WIRES: 4

AIC RATING: 65,000
BUS RATING: 600 A
MCB RATING: 600 A

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	SPACE	--	1	--	--					3	--	SPACE	2
3	SPACE	--	1			--	--			--	--	--	4
5	SPACE	--	3					--	--	--	--	--	6
7	--	--	--	--	0					**3**	**250**	**(N) MDP1**	8
9	--	--	--			--	0			--	--	--	10
11	(E) PANEL HM	100	3					0	0	--	--	--	12
13	--	--	--	0	0					3	100	(E) PANEL HA	14
15	--	--	--			0	0			--	--	--	16
17	(E) POWER METER	100	3					0	0	--	--	--	18
19	--	--	--	0	0					3	100	(E) SPARE	20
21	--	--	--			0	0			--	--	--	22
23	(E) TRANSFORMER T1	350	3					0	0	--	--	--	24
25	--	--	--	0	0					3	60	(E) TVSS	26
27	--	--	--			0	0			--	--	--	28
29	UNUSABLE SPACE	--	1					--	0	--	--	--	30
31	UNUSABLE SPACE	--	1	--	--					3	--	(E) SURGE PROTECTIVE DEVICE	32
33	(E) MAIN	600	3			0	--			--	--	--	34
35	--	--	--					0	--	--	--	--	36
37	--	--	--	0	--					2	--	(E) SURGE PROTECTIVE DEVICE	38
39	UNUSABLE SPACE	--	1			--	--			--	--	--	40
41													42
		TOTAL LOAD:		0 VA		0 VA		0 VA					
		TOTAL AMPS:		0 A		0 A		0 A					

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11-20-2025
PROJECT NUMBER: 561470540

SHEET TITLE:
MURPHY KELLER BLDG- PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:
E603

SWITCHBOARD: MSWB2 — RENOVATION

LOCATION: CSPS ELEC. YARD
SUPPLY FROM: MAIN-ATS
MOUNTING: FLOOR
ENCLOSURE: NEMA 3R
VOLTAGE: 480/277 Wye
PHASES: 3
WIRES: 4
AIC RATING: 65,000
MAINS RATING: 1200 A
MCB RATING: 800 A

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	LOAD (VA)	REMARKS
1	**(N) T-SITE-LTG**	**3**	**400**	**200**	**0**	
2	SPACE	1	--	--	--	
3	SPACE	3	--	--	--	
4	SPACE	3	--	--	--	
5	(E) H1	3	250	225	0	
6	(E) CHILLER	3	600	350	0	
7	SPACE	3	--	--	--	
8	SPACE	3	--	--	--	
9	(E) M1	3	600	400	0	
10	(E) M2	3	600	300	0	
11	(E) DP-1	3	600	300	0	PANELS DP-1 & EVP1 VIA XFMR DP-1
12	**(N) MSWB - SSB**	**3**	**1200**	**800**	**0**	
13						
14						
15						
16						
17						
18						
19						
20						
				TOTAL LOAD:	0 VA	
				TOTAL AMPS:	0 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
POWER, OTHER	0 VA	0.00%	0 VA		
MOTOR/EQUIPMENT	0 VA	0.00%	0 VA	**CONNECTED LOAD:**	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

BRANCH PANEL: EVP1 — RENOVATION

LOCATION: CSPS - ELEC. YARD
SUPPLY FROM: T-DP-1
MOUNTING: SURFACE
ENCLOSURE: NEMA 3R
VOLTAGE: 208/120V
PHASES: 1
WIRES: 3
AIC RATING: 10000
BUS RATING: 225 A
MCB RATING: 225

NOTES:
(F) RESERVED FOR FUTURE LOADS

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)		B (VA)		POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	2
3	--	--	--			0	0	--	--	--	4
5	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	6
7	--	--	--			0	0	--	--	--	8
9	(F) EV CHARGER	60	2	0	0			2	60	(F) EV CHARGER	10
11	--	--	--			0	0	--	--	--	12
13	SPACE	--	1	--	--			1	--	SPACE	14
15	SPACE	--	1			--	--	1	--	SPACE	16
17	SPACE	--	1	--	--			1	--	SPACE	18
19	SPACE	--	1			--	--	1	--	SPACE	20
21	SPACE	--	1	--	--			1	--	SPACE	22
23	SPACE	--	1			--	--	1	--	SPACE	24
25	SPACE	--	1	--	--			1	--	SPACE	26
27	SPACE	--	1			--	--	1	--	SPACE	28
29	SPACE	--	1	--	--			1	--	SPACE	30
31	SPACE	--	1			--	--	1	--	SPACE	32
33	SPACE	--	1	--	--			1	--	SPACE	34
35	SPACE	--	1			--	--	1	--	SPACE	36
37	SPACE	--	1	--	--			1	--	SPACE	38
39	SPACE	--	1			--	--	1	--	SPACE	40
41	SPACE	--	1	--	--			1	--	SPACE	42
				TOTAL LOAD:	0 VA	0 VA					
				TOTAL AMPS:	0 A	0 A					

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS	
POWER, OTHER	0 VA	0.00%	0 VA		
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11-20-2025

PROJECT NUMBER: 561470540

SHEET TITLE:
CLINTON SCHOOL ELECTRICAL YARD- PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:
E604

SWITCHBOARD: MDP — DEMOLITION

LOCATION: NORTH LIGHTING SERVICE YARD
SUPPLY FROM: SERVICE-XFMR-3
MOUNTING: FLOOR
ENCLOSURE: NEMA 3R

VOLTAGE: 120/208 Wye
PHASES: 3
WIRES: 4

AIC RATING: 65,000
MAINS RATING: 2500 A
MCB RATING: **(D) 2500 A**

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	SPACE	3	--	--	--	
2	SPACE	3	--	--	--	
3	SPACE	3	--	--	--	
4	SPACE	1	--	--	--	
5	(E) 1	3	600	400	0	
6	(E) 3	3	600	400	0	
7	(E) 5	3	1200	1000	0	
8	(E) 4 - AMPITHEATER SWITCH #2	3	1200	600	0	
9	(E) 2 - PANEL DP1	3	1200	400	0	
10	SPACE	3	--	--	--	
11	SPACE	1	--	--	--	
12	SPACE	3	--	--	--	
13	SPACE	3	--	--	--	
14	SPACE	3	--	--	--	
15	SPACE	3	--	--	--	
16	SPACE	3	--	--	--	
17						
18						
19						
20						
				TOTAL LOAD:	0 VA	
				TOTAL AMPS:	0 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

SWITCHBOARD: MDP — RENOVATION

LOCATION: NORTH LIGHTING SERVICE YARD
SUPPLY FROM: T-SITE-LTG
MOUNTING: FLOOR
ENCLOSURE: NEMA 3R

VOLTAGE: 120/208 Wye
PHASES: 3
WIRES: 4

AIC RATING: 65,000
MAINS RATING: 2500 A
MCB RATING: **400 A**

NOTES:
(N) NEW BREAKER FOR NEW LOAD, (E) EXISTING TO REMAIN, (R) EXISTING BREAKER TO BE REUSED FOR NEW LOAD.

CCT	CIRCUIT DESCRIPTION	# OF POLES	FRAME SIZE (A)	TRIP RATING (A)	Load	REMARKS
1	SPACE	3	--	--	--	
2	SPACE	3	--	--	--	
3	SPACE	3	--	--	--	
4	SPACE	1	--	--	--	
5	(E) 1	3	600	400	0	
6	(E) 3	3	600	400	0	
7	(E) 5	3	1200	1000	0	
8	(E) 4 - AMPITHEATER SWITCH #2	3	1200	600	0	
9	(E) 2 - PANEL DP1	3	1200	400	0	
10	SPACE	3	--	--	--	
11	SPACE	1	--	--	--	
12	SPACE	3	--	--	--	
13	SPACE	3	--	--	--	
14	SPACE	3	--	--	--	
15	SPACE	3	--	--	--	
16	SPACE	3	--	--	--	
17						
18						
19						
20						
				TOTAL LOAD:	0 VA	
				TOTAL AMPS:	0 A	

LOAD CLASSIFICATIONS	CONNECTED LOAD	DEMAND / DESIGN FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0 A
				EST. DEMAND CURRENT:	0 A

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 11-20-2025

PROJECT NUMBER: 561470540

SHEET TITLE:
LIGHTING ELECTRICAL YARD - PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:
E605