

ADDENDUM #2

DATE: **September 20, 2022**

TO CONTRACT DOCUMENTS ENTITLED:

**EAST CAMPUS CHILLER PLANT – INSTALL WATER COOLED CHILLER
PROJECT NUMBER: CP212233**

**At University of Missouri
Columbia, Missouri 65211**

ADVERTISEMENT DATE: August 25, 2022

PREPARED FOR: The Curators of the University of Missouri

CONSULTANT Ross & Baruzzini, Inc.
6 South Old Orchard
St. Louis, Missouri 63119
314-918-8383

Drawings and Specifications for the above noted project and the work covered thereby are herein modified as follows, and except as set forth herein, otherwise remain unchanged and in full force and effect:

Drawings:

1. SHEET G000 – COVER SHEET
 - a. Refer to reissued sheet for revisions.
 - i. MODIFY Codes Enforced list.
2. SHEET M101 – MECHANICAL – GROUND LEVEL – NEW WORK PLAN - SOUTH
 - a. Refer to reissued sheet for revisions.
 - i. MODIFY plan to show flow meter installed in 12-inch TWR to have minimum of 5 pipe diameters of straight pipe up stream and minimum 3 pipe diameters of straight pipe downstream.
3. SHEET M102 – MECHANICAL – GROUND LEVEL – NEW WORK PLAN – SOUTH – TOWER WATER SYSTEM
 - a. Refer to reissued sheet for revisions.
 - i. MODIFY plan to show flow meter installed in 12-inch TWR to have minimum of 5 pipe diameters of straight pipe up stream and minimum 3 pipe diameters of straight pipe downstream.
4. SHEET M201 – MECHANICAL SECTION VIEWS
 - a. Refer to reissued sheet for revisions.
 - i. MODIFY detail 2 SECTION VIEW AT FRONT OF CHILLER (CH-9) AND EXISTING CHILLER CH-4 – NEW WORK to show flow meter installed in 12-inch CHWS to have minimum of 5 pipe diameters of straight pipe up stream and minimum 3 pipe diameters of straight pipe downstream.
 - ii. MODIFY detail 4 SECTION VIEW AT CHILLER (CH-9) AND EXISTING PUMP HXP-1 – NEW WORK to show flow meter installed in 12-inch TWR to have

minimum of 5 pipe diameters of straight pipe up stream and minimum 3 pipe diameters of straight pipe downstream.

5. SHEET M600 – SCHEDULES

- a. Refer to reissued sheet for revisions.
 - i. MODIFY WATER CHILLER SCHEDULE – (OWNER PROVIDED) plan to modify NPLV/IP (KW/TON) and MAX. FULL LOAD (KW/TON) as shown on chiller shop drawings.
 - ii. ADD WATER CHILLER SCHEDULE – keyed notes 4 and 5 clarifying what is provided by the manufacturer loose and field installed by contractor.
 - iii. MODIFY PUMP SCHEDULE plan to modify keyed note 3 with correct electrical drawing reference.

Attachments:

Sheet G000, M101, M102, M201 and M600.

END OF ADDENDUM #2

EAST CAMPUS CHILLER PLANT - INSTALL WATER COOLED CHILLER

PROJECT NO. CP212233

ADVERTISEMENT FOR BIDS: AUGUST 25, 2022

UNIVERSITY OF MISSOURI - COLUMBIA

FOR THE CURATORS OF THE UNIVERSITY OF MISSOURI

CODE DATA

JURISDICTION: UNIVERSITY OF MISSOURI

CODES ENFORCED:

- INTERNATIONAL BUILDING CODE 2021
- INTERNATIONAL MECHANICAL CODE 2021
- INTERNATIONAL FIRE CODE 2021
- INTERNATIONAL PLUMBING 2021
- NATIONAL ELECTRICAL CODE 2020
- ASHRAE 90.1 (2019)
- NO SPECIAL INSPECTIONS REQUIRED (2021 IBC 107.1 & 1704.3)
- NO DEFERRED SUBMITTALS ANTICIPATED (2021 IBC 107.3.4.1)
- CONSTRUCTION TYPE: TYPE II B, NON-COMBUSTIBLE, UNPROTECTED
- OCCUPANCY: F-2, FACTORY - LOW HAZARD, B - BUSINESS USE.
- RISK CATEGORY: 2
- SEISMIC LOADS PER ASCE 7
 - 1. SITE SEISMIC: $S_s=0.196$, $S_I=0.088$
 - 2. IMPORTANCE FACTOR 1.00 (LFRS AND COMPONENTS).

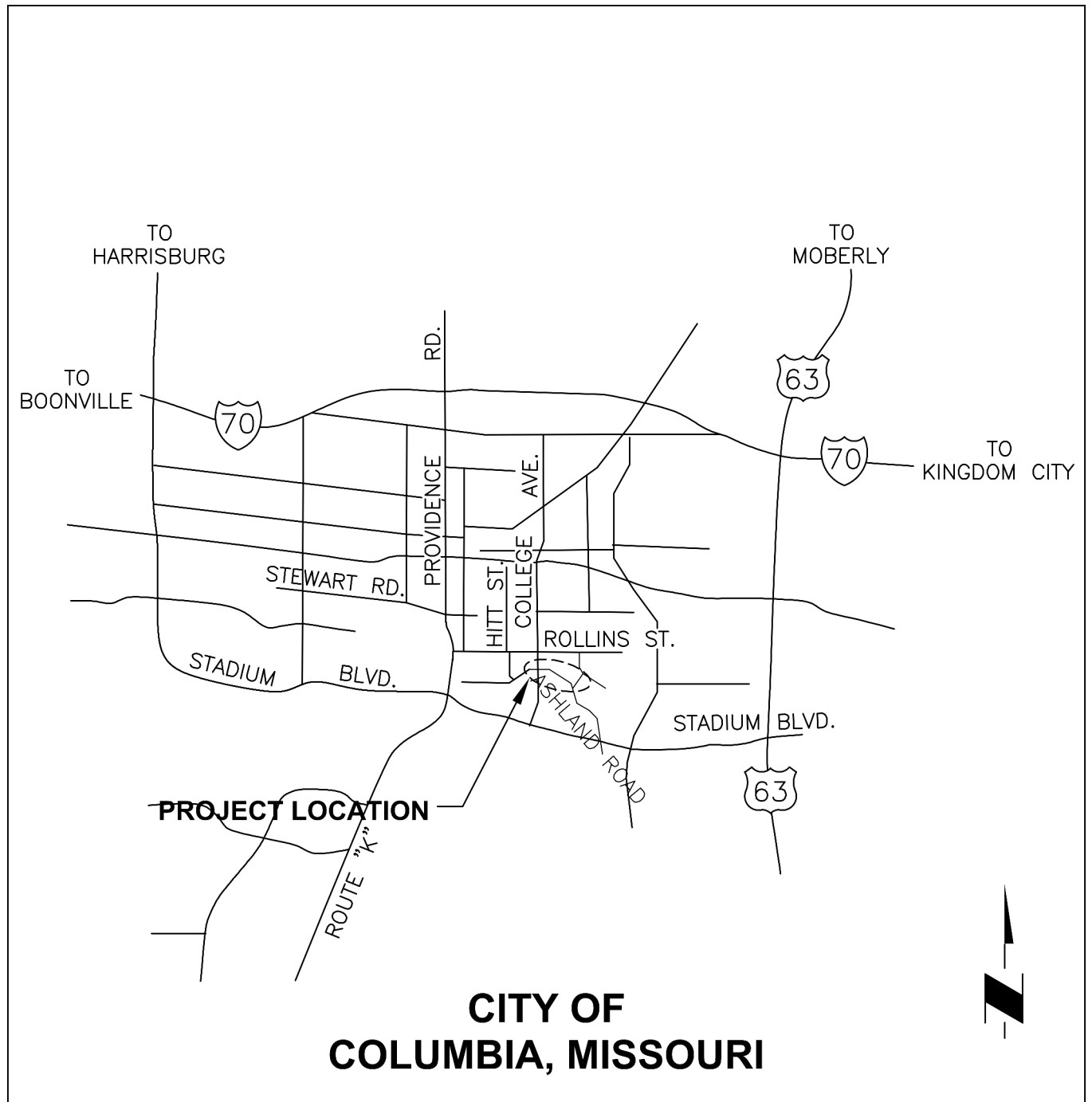
ROSS & BARUZZINI, INC.
6TH SOUTH OLD ORCHARD AVENUE
ST. LOUIS, MISSOURI 63119-3203
TEL. (314) 918-8383

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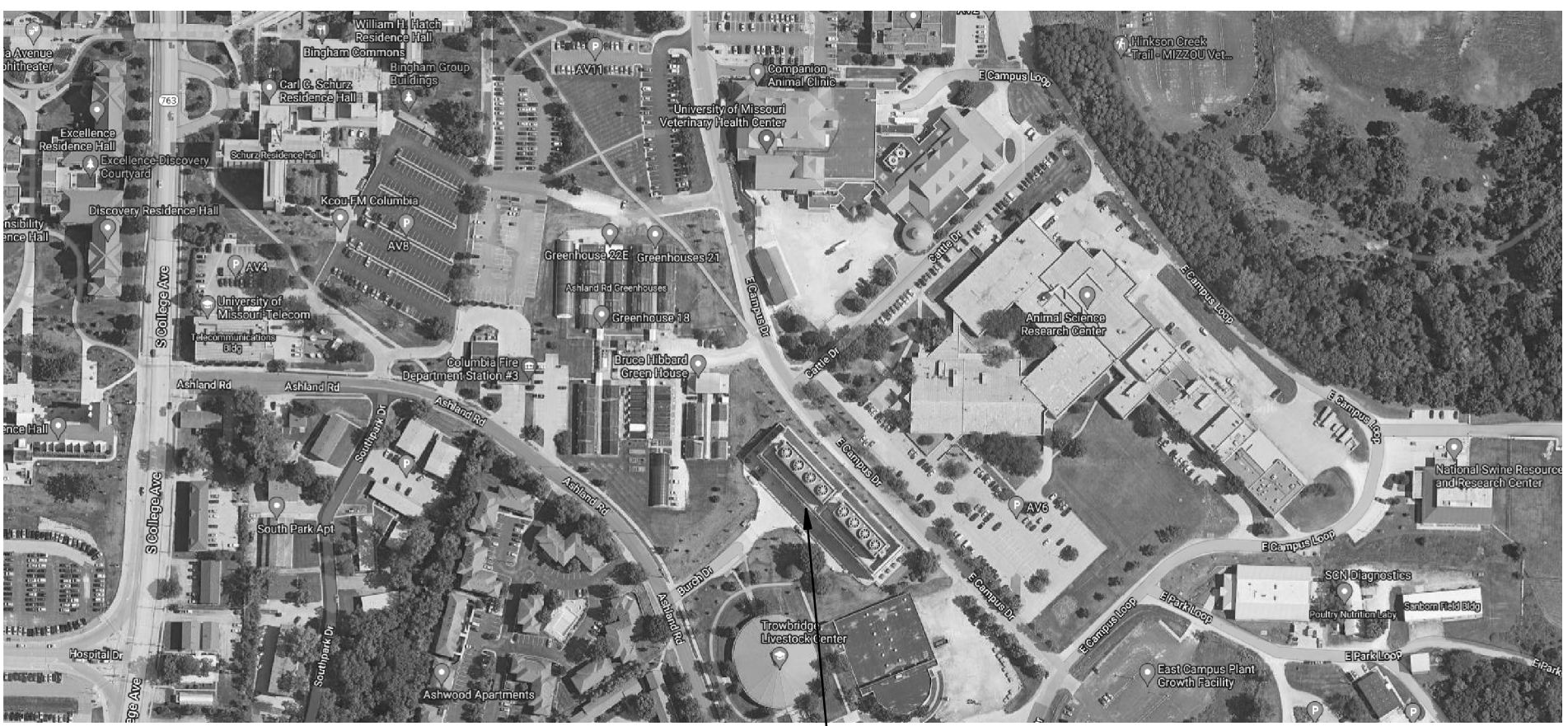
SIGNATURE

DRAWING INDEX

- G000 - COVER SHEET
X1 - STAGING
- M000 - SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
MD101 - MECHANICAL - GROUND LEVEL - DEMOLITION PLAN - SOUTH
MD201 - MECHANICAL SECTION VIEWS - DEMOLITION PLAN
M101 - MECHANICAL - GROUND LEVEL - NEW WORK PLAN - SOUTH
M102 - MECHANICAL - GROUND LEVEL - NEW WORK PLAN - TOWER WATER SYSTEM
M103 - MECHANICAL - GROUND LEVEL - NEW WORK PLAN - CHILLED WATER SYSTEM
M201 - MECHANICAL SECTION VIEWS
M202 - MECHANICAL SECTION VIEWS
M500 - DETAILS
M501 - DETAILS
M502 - DETAILS
M600 - SCHEDULES
M700 - CONTROLS
M701 - CONTROLS
- P000 - PLUMBING SYMBOLS AND ABBREVIATIONS
P101 - PLUMBING - GROUND LEVEL & UNDERFLOOR DEMOLITION AND NEW WORK PLAN
- E000 - ELECTRICAL SYMBOLS AND ABBREVIATIONS
ED100 - ELECTRICAL - FINISH FLOOR LEVEL - DEMO & NEW WORK PLAN - NORTH
ED101 - ELECTRICAL - FINISH FLOOR LEVEL - DEMOLITION PLAN - SOUTH
ED200 - ELECTRICAL - EQUIPMENT PLATFORM LEVEL - DEMOLITION PLAN - NORTH
E101 - ELECTRICAL - FINISH FLOOR LEVEL - NEW WORK PLAN - SOUTH
E102 - ELECTRICAL - FINISH FLOOR LEVEL - NEW WORK PLAN - RM 200
E200 - ELECTRICAL - EQUIPMENT PLATFORM LEVEL - NEW WORK PLAN - NORTH
E201 - ELECTRICAL - EQUIPMENT PLATFORM LEVEL - NEW WORK PLAN - SOUTH
E202 - ELECTRICAL - EQUIPMENT PLATFORM LEVEL - NEW WORK PLAN - RM 200
E400 - ELECTRICAL SWBD-6 & 7 ONE-LINE DIAGRAMS - DEMO AND NEW WORK
E401 - ELECTRICAL SWBD 2 ONE-LINE DIAGRAMS - DEMO & NEW WORK
E402 - ELECTRICAL DETAILS



LOCATION MAP



SITE MAP

Ross & Baruzzini
6 SOUTH OLD ORCHARD
ST. LOUIS, MO 63119
TEL. (314) 918-8383
WWW.ROSS-AND-BARUZZINI.COM

ROSS & BARUZZINI
MISSOURI STATE CERTIFICATE OF
AUTHORITY #000148



UNIVERSITY OF MISSOURI
EAST CAMPUS CHILLER PLANT
INSTALL WATER COOLED CHILLER
UM PROJECT NUMBER CP212233
COLUMBIA, MISSOURI



RANDY J. DIEMER
ENG. LIC. NO. PE-2017015702

The Professional Engineer, whose signature and seal are on this drawing, assumes responsibility for the design, specification, and construction of the project. The Professional Engineer shall be responsible for the design, specification, and construction of the project. The Professional Engineer shall be responsible for the design, specification, and construction of the project.

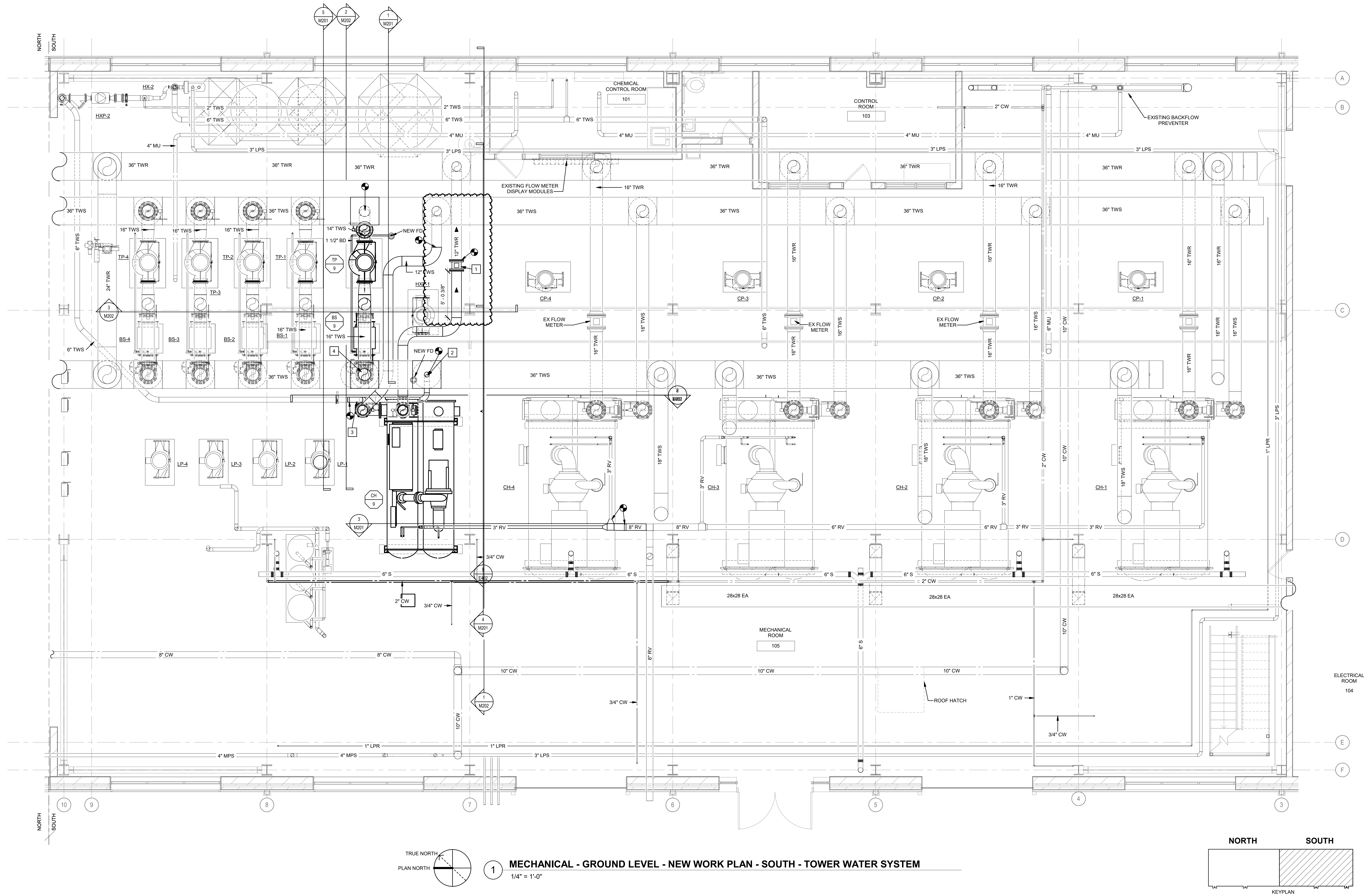
WHEN THIS DRAWING IS
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SCALE THIS BAR = 1" INCH

REVISIONS:
DATE DESCRIPTION
08/25/2022 Addendum #2

DESIGNED BY: RJD
CHECKED BY: JRC
MU PROJ. NO.: CP212233
RB PROJ. NO.: 0011484.000
ISSUE DATE: 08/25/2022
DRAWING TITLE:
COVER SHEET

DRAWING NO.:
G000

9/20/2022 10:09:06 AM



- #
- KEYED NOTES
1.

EXISTING FLOW METER RE-LOCATED. METER WAS REMOVED DURING DEMO OF EXISTING PLATE AND FRAME HEAT EXCHANGER. EXTEND CONTROL WIRING AS REQUIRED. DO NOT SPLICE CONTROL WIRING. REFER TO SHEET M701 DETAIL B.
2.

INSTALL 6-INCH TWS TO 36-INCH TWS MAIN.
3.

OFFSET 6-INCH TWS AS REQUIRED TO ALLOW FOR NEW 12-INCH TWS AND 12-INCH TWR TO NEW CHILLER (CH-9).
4.

INSTALL 16-INCH TWS TO 36-INCH TWS MAIN.

Ross & Baruzzini

6 SOUTH OLD ORCHARD
ST. LOUIS, MO 63119
P 314.916.8383
F 314.916.8383
WWW.ROSSBARUZZINI.COM

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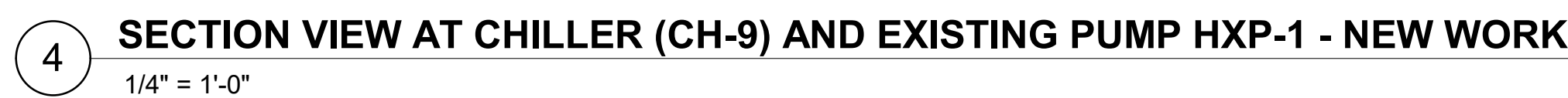
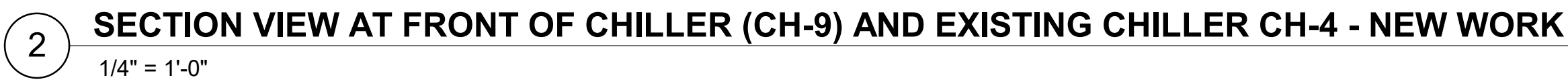
MU PROJ. NO.: CP212233

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ISSUE DATE: 08/25/2022

DRAWING TITLE:
MECHANICAL - GROUND
LEVEL - NEW WORK PLAN -
SOUTH - TOWER WATER
SYSTEM

DRAWING NO.:
M102



- ## KEYED NOTES
1. INSTALL 9'-0" x 1'-6" x 6" CONCRETE PAD AT EACH END CENTERED UNDER CHILLER BEARING REF. (TWO (2) CHILLERS). COORDINATE WITH MECHANICAL CHILLER MANUFACTURER. PROVIDE (4) #6 LONG WAY IN TOP OF PAD (1-INCH CLEAR) WITH HOOK EACH END, TURNED DOWN AND EMBEDDED 4-INCH MINIMUM INTO EXISTING SLAB WITH HILTI HIT-HY200 ADHESIVE. AT CONTACT SURFACES BETWEEN PADS AND EXISTING SLAB, SANDBLAST EXISTING CONCRETE AND COAT WITH SIKADUR 32 HI-MOD BONDING. FOLLOW Sika INSTRUCTIONS. AT EACH FOOT, CHILLER SHALL SIT ON ELECTROMETRIC ISO-PIR PAD (1" SHA) (MATCH CHILLER) ATTACHED TO NEW CONCRETE BASE WITH ANCHOR BOLTS. REFER TO SPECIFICATIONS.
 2. HINGED MARINE STYLE WATER BOX (TYPICAL FOR CONDENSER AND EVAPORATOR ON EACH END).
 3. 3/4" HOSE DRAIN VALVE AND CAP. INSTALL ON CHWS, CHWR, TWS AND TWR PIPING AT CHILLER (TYPICAL).
 4. INSTALL FLOW STRAIGHTENER FLANGE UPSTREAM OF CHECK VALVE. STRAIGHTENER SHALL BE METAFLEX VANE FLARE FLANGE, MODEL VFFV. FLANGE SHALL BE CARBON STEEL, WITH 304 STAINLESS STEEL VANES. TYPICAL FOR NEW TWR AND EXISTING PUMP HRP-1).
 5. NEW METAFLEX STYLE 90° GLOBE SILENT CHECK VALVE OR APPROVED EQUAL.
 6. EXISTING 12-INCH BUTTERFLY TYPE SHUT OFF VALVE. VALVE WAS REMOVED DURING DEMO OF EXISTING PLATE AND FRAME HEAT EXCHANGER.
 7. RE-INSULATE PIPING AT PUMP. REFER TO SPECIFICATIONS.
 8. WELD CAP EXISTING PIPE. INSULATE CAP PER SPECIFICATIONS.
 9. PRESSURE AND TEMPERATURE TEST PLUG. INSTALL AT SAME ELEVATION ON SUPPLY AND RETURN PIPING EXISTING TO WATER AND CONDENSER WATER AT CHILLER (TYPICAL).
 10. EXISTING TEMPERATURE TRANSMITTER INSTALLED ON NEW CHWS, CHWR, TWS AND TWR PIPING AT CHILLER (TYPICAL). TRANSMITTER WAS REMOVED DURING DEMO OF EXISTING PLATE AND FRAME HEAT EXCHANGER.
 11. EXISTING FLOW METER RE-LOCATED. METER WAS REMOVED DURING DEMO OF EXISTING PLATE AND FRAME HEAT EXCHANGER.
 12. SHORT RADIUS ELBOW USED TO MAINTAIN MAXIMUM DISTANCE FROM EXISTING CHEMICAL TREATMENT TANK. NEW PIPING TO BE 1/2" GRADE. OFFSET IN PIPE TO ALIGN TO CONNECT TO 36-INCH MAIN.
 13. 16-INCH BY-PASS AROUND BASKET STRAINER. INSTALL AT A HEIGHT TO ALLOW BASKET STRAINER TO BE COMPLETELY REMOVED FOR MAINTENANCE.
 14. PIPING AND EQUIPMENT LAYOUT FROM NEW 16-INCH TWS CONNECTION AT 36-INCH TWS MAIN TO SUCTION CONNECTION ON NEW PUMP. PIPING TO BE 1/2" GRADE. EXACTLY PIPING AND EQUIPMENT LAYOUT OF EXISTING TOWER PUMPS INSTALLED ADJACENT.
 15. EXISTING 12-INCH CONTROL VALVE. VALVE WAS REMOVED DURING DEMO OF EXISTING PLATE AND FRAME HEAT EXCHANGER.
 16. NEW BUTTERFLY TYPE SHUT OFF VALVE.
 17. INSTALL 5'-4" x 5'-4" x 6" CONCRETE PAD CENTERED UNDER PUMP. PROVIDE (4) #6 LONG WAY IN TOP OF PAD (1-INCH CLEAR) WITH HOOK EACH END, TURNED DOWN AND EMBEDDED 4-INCH MINIMUM INTO EXISTING SLAB WITH HILTI HIT-HY200 ADHESIVE. AT CONTACT SURFACES BETWEEN PADS AND EXISTING SLAB, SANDBLAST EXISTING CONCRETE AND COAT WITH SIKADUR 32 HI-MOD BONDING. FOLLOW Sika INSTRUCTIONS. REFER TO SPECIFICATIONS.
 18. INSTALL 3'-2" x 3'-2" x 6" CONCRETE PAD CENTERED UNDER BASKET STRAINER. PROVIDE (4) #6 LONG WAY IN TOP OF PAD (1-INCH CLEAR) WITH HOOK EACH END, TURNED DOWN AND EMBEDDED 4-INCH MINIMUM INTO EXISTING SLAB WITH HILTI HIT-HY200 ADHESIVE. AT CONTACT SURFACES BETWEEN PADS AND EXISTING SLAB, SANDBLAST EXISTING CONCRETE AND COAT WITH SIKADUR 32 HI-MOD BONDING. FOLLOW Sika INSTRUCTIONS. REFER TO SPECIFICATIONS.
 19. PRESSURE GAUGE WITH BALL VALVES TO ISOLATE SUCTION AND DISCHARGE READINGS (TYP).
 20. ROUTE 1 1/2" DRAIN FROM NEW FLOOR DRAIN. TURN DOWN OVER FLOOR DRAIN. SUPPORT PIPE WITH DOWNER LINE DRAIN. SUPPORT PIPE MINIMUM EVERY 4'-0".

CH #																												
PLAN MARK		MANUFACTURER	MODEL	COMPRESSOR TYPE	LOCATION	SERVICE	REFRIGERANT TYPE	NOMINAL TONS	EVAPORATOR PERFORMANCE						CONDENSER DATA								NPLV/IP (KW/TON)	MAX. FULL LOAD (KW/TON)	MAX SND PRESSURE (dBA)	ELECTRICAL DATA		NOTES
									EWT (°F)	LWT (°F)	FLOW (GPM)	MAX WATER PD (FT)	NO OF PASSES	DESIGN FOULING FACTOR	EWT (°F)	LWT (°F)	MINIMUM CONT. RUN (°F)	FLOW (GPM)	MAX WATER PD (FT)	NO OF PASSES	DESIGN FOULING FACTOR	kW				V/PH/HZ		
CH	9	YORK - JOHNSON CONTROLS	YMC2	MAGNETIC BEARING CENTRIFUGAL	EAST CAMPUS CHILLER PLANT	CAMPUS CHILLED WATER LOOP	R134a	1020	56	43	1890	15	2	0.0001	87	97.12	36	2860	20	2	0.0002	0.3179	0.5746	84	614.2	460/60/3	ALL APPLY	
<div>NOTES:</div> <div>1. CHILLER IS OWNER PURCHASED AND PROVIDED. CONTRACTOR SHALL COORDINATE DELIVERY TO THE SITE AND SHALL BE RESPONSIBLE FOR UNLOADING AND INSTALLING CHILLER.</div> <div>2. CHILLER SHIPPING WEIGHT: 33,729 LBS.</div> <div>3. SHOP DRAWINGS OF CHILLER HAVE BEEN PROVIDED IN SPECIFICATIONS.</div> <div>4. CHILLER IS SHIPPED FULLY ASSEMBLED AND FULLY CHARGED WITH REFRIGERANT.</div> <div>5. NEOPRENE ISOLATION PADS SHIPPED WITH CHILLER CONTRACTOR SHALL INSTALL.</div>																												

PUMP SCHEDULE														
PLAN MARK	MANUFACTURER	MODEL	TYPE	LOCATION	SERVICE	GPM	TDH (FT)	IMPELLER (IN)	MIN EFF	NPSH REQD (FT)	RPM	HP/BHP	<div>1</div> VOLTS / PHASE	NOTES
TP-9	ARMSTRONG	4300-14X14X15	VERTICAL INLINE	EAST CAMPUS CHILLER PLANT	TOWER PUMP	4,800	67	15.2	88.3	10	1200	100 / 91.76	460/3	ALL APPLY
NOTES: 1. REFER TO EQUIPMENT DATA SCHEDULE FOR ELECTRICAL REQUIREMENTS. 2. PROVIDE WITH INVERTER-DUTY MOTOR WITH AEGIS SHAFT GROUNDING RING ON MOTOR SHAFT AND INSULATED BEARINGS. 3. REFER TO ELECTRICAL ONE-LINE (E400). 4. PROVIDE TWO (2) STAINLESS STEEL SUPPORT STANCHION PLATES FOR MOUNTING ON CONCRETE PAD. 5. PROVIDE FLUSH LINE SEPARATOR.														

BS #										BASKET STRAINER SCHEDULE
MARK	MFR	MODEL	TYPE	LOCATION	SERVICE	FLOW (GPM)	LINE SIZE (INCH)	MAX PRESSURE DROP (PSIG)	NOTES	
BS-9	EATON	SIMPLEX - 73	STRAIGHT FLOW SIMPLEX	EAST CAMPUS CHILLER PLANT MECHANICAL ROOM	CONDENSER WATER	4800	16	1.5	ALL APPLY	
NOTES:										
1. BASKET STRAINER SHALL BE PROVIDED WITH FACTORY EPOXY COATING INSIDE AND OUT.										
2. PROVIDE TWO (2) STAINLESS STEEL 316 PERFORATED STRAINER SCREENS WITH 5/32-INCH OPENINGS AND 62-PERCENT OPEN AREA.										

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6 SOUTH OLD ORCHARD
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DRAWING TITLE:
SCHEDULES

DRAWING NO.:
M600