

① ④ ⑤ ⑥ **LIGHTING FIXTURE SCHEDULE** (P.E.C.)

FIXT. LTR.	MANUFACTURER CATALOG NUMBER	MANUFACTURER CATALOG NUMBER	MANUFACTURER CATALOG NUMBER	MANUFACTURER CATALOG NUMBER	DESCRIPTION SEE NOTES	LAMP TYPE NO.	LAMP VOLTS	LENS/LOUVER/ FINISH REMARKS	W	L	D
CCE	WILLIAMS 92-4-232-A	COLUMBIA LU4-232-EB8-PAF	LITHONIA DM-232-PAF	METALUX VT2-232DR-DL	② 4' DAMP LABEL	F32/835	2	UNV ENCLOSED AND GASKETED	6.771	4.333	
RDE	KIM WD14D3/232PL		LITHONIA ASW1-2/32IRT-SR3-DOB1		② WALL DIRECTOR	32W T11/35K 4-PIN	2	GLASS LENS TYPE III	1.08	1.22	.74

- GENERAL CONTRACTOR SHALL PROVIDE FIREPROOFING AROUND RECESSED FIXTURES INSTALLED IN FIRE RATED CEILING PER U.L. REQUIREMENTS. ELECTRICAL CONTRACTOR WILL COORDINATE.
- LIGHT FIXTURES SHALL BE PROVIDED WITH ELECTRONIC BALLASTS. COMPACT FLUORESCENT ELECTRONIC BALLASTS SHALL HAVE END-OF-LIFE PROTECTION CIRCUIT TO PREVENT WELDING OF LAMPS IN SOCKETS OR LAMP BREAKAGE. SEE THE SPECIFICATIONS. ALL FLUORESCENT LAMPS SHALL BE LOW MERCURY AND SHALL MEET ALL E.P.A. GUIDELINES FOR PASSING "TCLP" TESTS. ALL INDOOR FLUORESCENT BALLASTS SHALL HAVE A DISCONNECTING MEANS MEETING THE REQUIREMENTS OF NEC SECTION 410.130(G), EXCEPT FOR THOSE INSTALLED IN CORD-AND-PLUG CONNECTED FIXTURES. ELECTRONIC BALLASTS FOR EXTERIOR LOCATED LIGHT FIXTURES SHALL HAVE A MINIMUM STARTING TEMPERATURE OF -20 DEGREES FAHRENHEIT.
- PROVIDE ARROWS AND FACES AS INDICATED ON THE DRAWINGS.
- MANUFACTURERS LISTED IN THIS SCHEDULE OR APPROVED BY WRITTEN ADDENDUM WILL BE THE ONLY APPROVED MANUFACTURERS TO BID THE LIGHTING FIXTURES FOR THIS PROJECT. CONTRACTORS AND SUPPLIERS USING PRICING FROM MANUFACTURERS NOT LISTED ON SCHEDULE OR BY ADDENDUM DO SO AT THEIR OWN RISK.
- LIGHT FIXTURE SELECTIONS ARE BASED ON THE MANUFACTURER IN THE LEFT MOST COLUMN AS LISTED IN THE SCHEDULE. FIXTURES APPROVED AS EQUALS IN THIS SCHEDULE OR BY ADDENDUM SHALL BE EQUAL TO THE UNIT SPECIFIED IN THE LEFT MOST COLUMN, IE: SPRING LOADED LATCHES, POST PAINTED FINISH, AND PHOTOMETRICS.
- ALL LIGHT FIXTURES SHALL BE SECURED TO THE CEILING FRAMING SYSTEM BY MECHANICAL MEANS (SUCH AS BOLTS, SCREWS, OR RIVETS) OR BY CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING MEMBER AND LIGHT FIXTURE.
- TO COMPLY WITH NEC SECTION 410.130(G), ALL EXISTING OR RELOCATED FLUORESCENT LIGHT FIXTURES WITHOUT A BALLAST DISCONNECTING MEANS SHALL HAVE A BALLAST DISCONNECTING MEANS PROVIDED AND INSTALLED UNDER ANY OF THE FOLLOWING CONDITIONS:
 - WHEN AN EXISTING BALLAST IS REPLACED.
 - WHEN AN EXISTING LIGHT FIXTURE IS RELOCATED.
 - WHEN AN EXISTING LIGHT FIXTURE IS RECIRCUITED.

① ② **EQUIPMENT CONNECTION SCHEDULE**

MECHANICAL EQUIPMENT CONNECTIONS

UNIT DESIG.	UNIT VOLTAGE	LOAD			PANEL DEVICE		DEVICE AT UNIT		FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	REMARKS OR SEE THE INDICATED NOTES BELOW
		H.P.	FLA	KVA	CIRCUIT NUMBER	BKR/SW FUSE	BKR/SW FUSE	START. SIZE		
AC	AIR-CONDITIONER									
1	240/11.9KVA	45.5	10.92	MPZ:1	60			60/60/2	NEMA-3R	1 2 #4 AWG THHN; #10 AWG GRD; 1" C.
EF	EXHAUST FAN									
1	120/11.5	9.8	1.176	MPZ:2	20				FUSTAT	1 2 #12 AWG THHN; #12 AWG GRD; 1/2" C.

- ALL CONNECTIONS AND ELECTRICAL EQUIPMENT LISTED IN SCHEDULE SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. FIELD VERIFY CONNECTION REQUIREMENTS AND EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH-IN.
- REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTIONS OF INTERLOCKING, THERMOSTAT LOCATIONS, EXHAUST FAN CONTROL SWITCHES, AND OTHER CONTROLS OF MECHANICAL EQUIPMENT.

① ② **EQUIPMENT CONNECTION SCHEDULE**

PROCESS EQUIPMENT CONNECTIONS

UNIT DESIG.	UNIT VOLTAGE	LOAD			PANEL DEVICE		DEVICE AT UNIT		FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	REMARKS OR SEE THE INDICATED NOTES BELOW
		H.P.	FLA	KVA	CIRCUIT NUMBER	BKR/SW FUSE	BKR/SW FUSE	START. SIZE		
P	PUMP									
② 1	480/3	15	21.0	17.45	CP:1	45		3	VFD	1 3 #6 AWG THHN; #10 AWG GRD; 1" C.
② 2	480/3	15	21.0	17.45	CP:2	45		3	VFD	1 3 #6 AWG THHN; #10 AWG GRD; 1" C.
CP	CONTROL PANEL									
① 1	480/3	15	36.0	29.92	H:1	60		3		1 3 #4 AWG THHN; #10 AWG GRD; 1-1/4" C.

- CONTROL PANEL 'CP-1' PROVIDED BY PUMP SUPPLIER. COORDINATE ALL CONNECTION REQUIREMENTS WITH EQUIPMENT PROVIDED.
- LOCAL DISCONNECT FOR PUMP TO BE LOCATED WITH CONTROL PANEL 'CP-1' WITHIN SITE OF EQUIPMENT AND PROVIDED WITH EQUIPMENT.

PANELBOARD: H 480/277 VOLTS, 3 PHASE, 4 WIRE
100 AMP MLO, SURFACE MTD.
50000 AIC LABELED

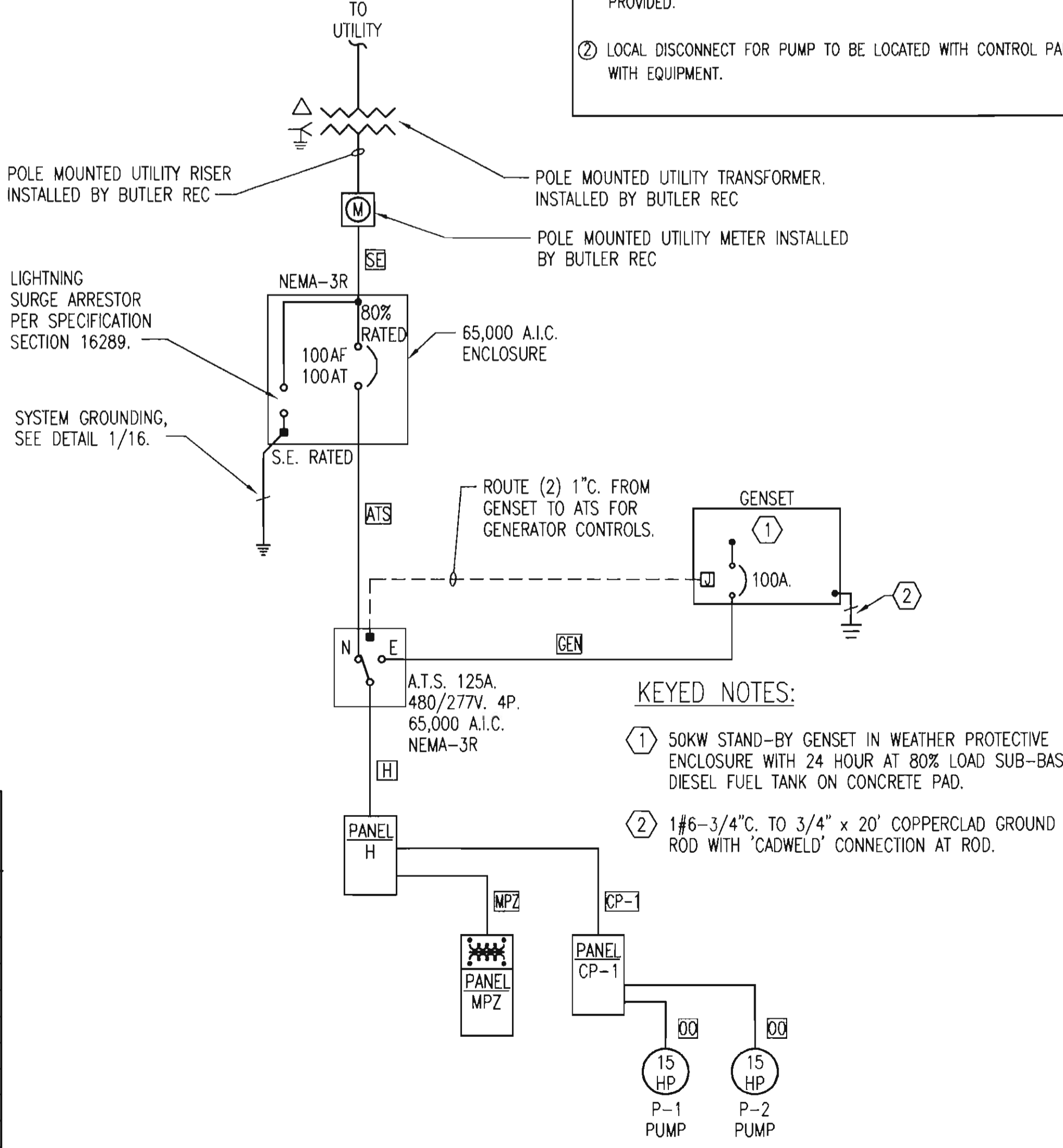
CIRC. NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	P.	AMP SIZE	WIRE SIZE	AMP SIZE	WIRE SIZE	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC. NO.
1	29916	MTR	CP-1	3	60	A	70	B	TRANSFORMER: MPZ			2
3									SPACE			4
5									SPACE			6
7									SPACE			8
9									SPACE			10
11									SPACE			12
13									SPACE			14
15									SPACE			16
17									SPACE			18

TRANSFORMER: MPZ 240/120 VOLTS, 1 PHASE, 3 WIRE
100 AMP MAIN BKR, WALL MTD.
18000 AIC LABELED

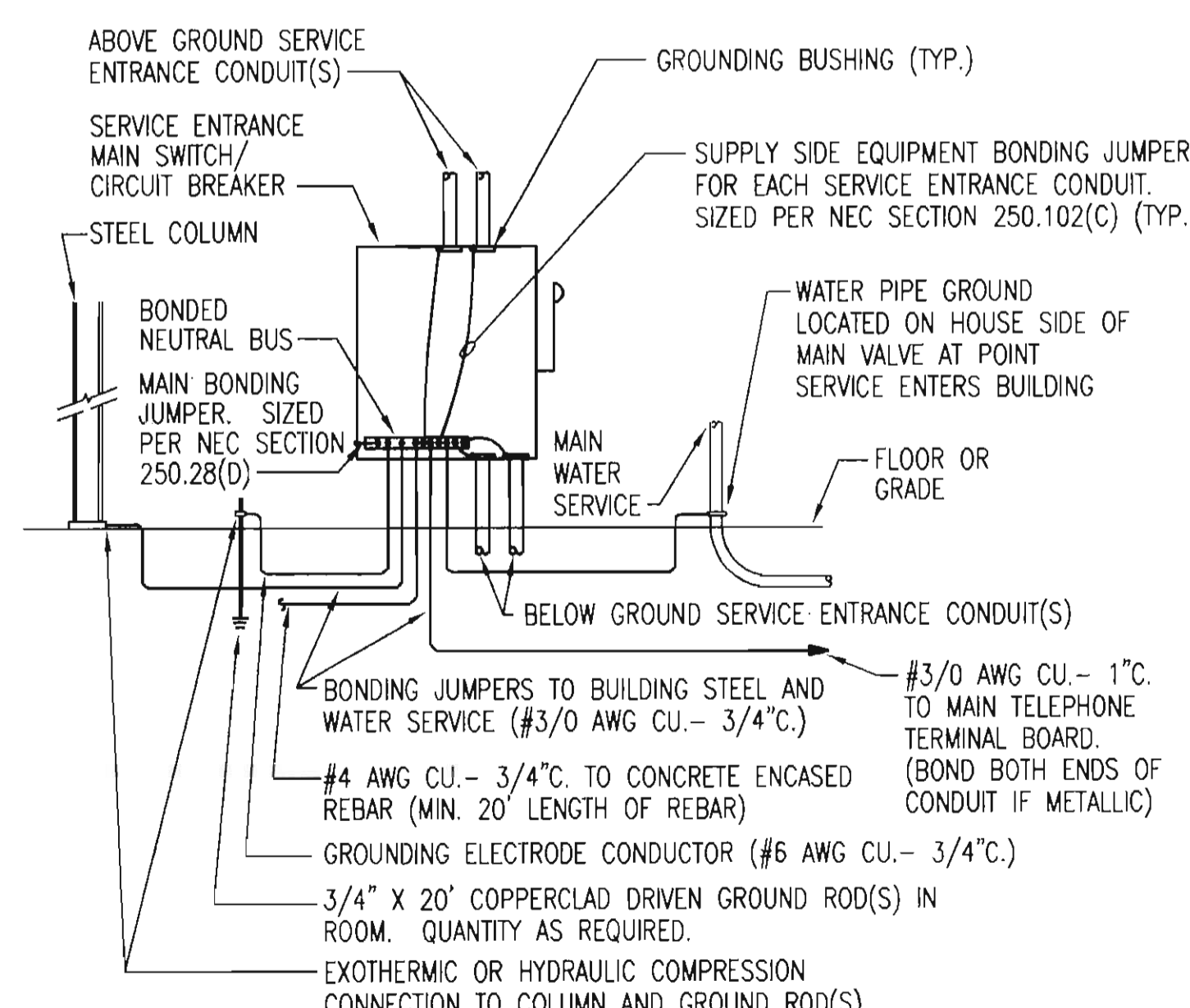
CIRC. NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	P.	AMP SIZE	WIRE SIZE	AMP SIZE	WIRE SIZE	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC. NO.
1	10920	MTR	AC-1	2	60	A	20	B	TRANSFORMER: MPZ			2
3									SPACE			4
5	400	MTR	CONV. REC.	1	20	A	20	B	CONTROL VALVES		800	4
7	300	LDG	LIGHTING	1	20	B	20	B	TELEMETRY		1000	6
9	3000	MTR	OIL HEATER	2	20	A			BLOCK HEATER		3000	8
11									SPACE			10
13									BATTERY CHARGER		1200	12
15									SPACE			14
17									SPACE			16
19									SPACE			18
21									SPACE			20
23									SPACE			24

FEEDER SCHEDULE

DESIG.	EQUIPMENT SERVED	CONDUCTORS			GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET
		SETS	NO.	SIZE			
0	SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE						
00	SEE PROCESS EQUIPMENT CONNECTION SCHEDULE						
SE	SERVICE ENTRANCE DISC.	1	4	#1 AWG CU	-	-	2"
ATS	AUTO. TRANS. SWITCH	1	4	#1 AWG CU	#8	-	2"
GEN	GENERATOR	1	4	#1 AWG CU	#8	-	2"
H	PANEL BOARD 'H'	1	4	#1 AWG CU	#8	-	2"
MPZ	MINI-POW. ZONE 'MPZ'	1	2	#1 AWG CU	#8	-	1-1/2"
CP-1	CONTROL PANEL 'CP-1'	1	4	#4 AWG CU	#10	-	1-1/4"



① **ELECTRICAL ONE-LINE DIAGRAM**
SCALE: 1" = 10'-0"



① **SYSTEM GROUNDING DETAIL - DISCONNECT**
NO SCALE

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
WP	WEATHERPROOF	
AF	ABOVE FINISHED FLOOR	
UN	UNLESS OTHERWISE NOTED	
⊕	DUPLEX GROUNDED RECEPTACLE	17" AFF
⊕	DOUBLE DUPLEX GROUNDED RECEPTACLE	17" AFF
⊕	GROUNDED FAULT DUPLEX RECEPTACLE	17" AFF
□	SPECIAL DEVICE (AS NOTED)	
⊠	JUNCTION BOX	
⊠	FUSTAT BUSS #SSY	
⊠	BRANCH CIRCUIT PANEL & PANEL DESIG.	72" TO TOP
⊠	ELECTRICAL DISTRIBUTION EQUIPMENT	
1	FEEDER DESIGNATION	
—	CONDUIT RUN 2#12 & 1#12 GRD.-	CEIL./WALL
—	1/2" C.	
—	CONDUIT RUN 2#12 & 1#12 GRD.-	EARTH/FLOOR
—	3/4" C.	
—	CONDUIT RUN 2 CIRCUITS, 3#12 & 1#12 GRD.-	EARTH/FLOOR
—	3/4" C.	
—	CONDUIT RUN PARTIAL CIRCUIT	
—	SEE GENERAL NOTE 7 & 8	
—	CONDUIT RUN TWO (2) CIRCUITS	CEIL./WALL
—	PHASE CONDUCTORS (#12 UON)	
—	NEUTRAL CONDUCTOR (#12 UON)	
—	SWITCH LEGS (#12 UON)	
—	GROUND CONDUCTOR (#12 UON)	
—	DISCRETE CONTROL CABLE (# OF PAIRS)	CEIL./WALL
—	ANALOG CONTROL CABLE (# OF SHIELDED PAIRS)	CEIL./WALL
FM	FLOW METER	

GENERAL NOTES

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
- REFER TO RELATED ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS FOR RELATED INFORMATION.
- REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
- E.C. SHALL REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTION OF INTERLOCKING AND CONTROLS OF MECHANICAL UNITS AND THERMOSTAT LOCATIONS.
- COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING OF BRICK OR BLOCK.
- ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
- CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
- WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.

Professional Engineer Seal: NICHOLAS S. MOORE, LICENSE # 21482, KANSAS PROFESSIONAL ENGINEER

Revision: _____ By: _____ Date: _____

CITY OF BENTON
BUTLER COUNTY, KANSAS
ELECTRICAL LEAD SHEET
MAIN BOOSTER PUMP STATION

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by NSM Job No. 35-10093-1558 Sht. 16 of 18
Drawn by NSM Date September 2010

Save: 06-27-2011 9:07:03 AM by NSM
Plot Scale: 1:10 06-27-2011 9:07:51 AM by NSM
E:\2010\10093\10093-E1