

# MAINTENANCE FACILITY ELECTRICAL UPGRADE ALBIA, IOWA



IOWA DEPARTMENT OF  
TRANSPORTATION

## UTILITY COORDINATION NOTES

COORDINATE ALL ELECTRIC UTILITY WORK WITH CHARITON VALLEY R.E.C.

CHARITON VALLEY R.E.C. CONTACTS:  
BILL FLAHIVE OR LANCE HENDERSON  
641-932-7126  
BFLAHIVE@CVREC.COM OR LHENDERSON@CVREC.COM

LOCATE ALL LOCAL UTILITIES IN WORK AREA PRIOR TO STARTING WORK.  
CONTACT IOWA ONE CALL PRIOR TO DIGGING.

IOWA ONE CALL:  
811 or 1-800-292-8989

## ELECTRICAL NOTES - GENERAL

ALL WORK SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF THE  
2014 NATIONAL ELECTRIC CODE (NEC).

DETERMINE EXISTING CONDITIONS THAT MAY AFFECT THIS WORK, BY  
ON-SITE INSPECTION PRIOR TO BIDDING.

LABEL CIRCUIT BREAKER NUMBER & PANEL DESIGNATION ON EACH  
JUNCTION BOX COVER INSTALLED OR ACCESSED AS PART OF THE WORK.

VERIFY POWER REQUIREMENTS AND EXACT LOCATION OF EQUIPMENT  
FURNISHED. COMPLY WITH ELECTRICAL ROUGH-IN REQUIREMENTS FOR  
THIS EQUIPMENT.

ALL CIRCUITS SHALL BE IN CONDUIT AND SHALL INCLUDE AN EQUIPMENT  
GROUNDING CONDUCTOR, GREEN #12 STRANDED COPPER MINIMUM.

ALL CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MINIMUM.  
INCREASE CONDUCTOR SIZES A MINIMUM OF ONE SIZE OVER NEC TABLE  
310-16 IN CIRCUITS WITH A LENGTH OVER 75 FEET.

IF EXISTING WIRING IS CALLED OUT TO BE REUSED, INSPECT CONDITION  
AND CURRENT RATING OF WIRE TO DETERMINE IF IT IS SAFE TO REUSE.  
REPORT ANY UNSATISFACTORY OR UNSAFE CONDITIONS TO THE ENGINEER.

## ELECTRICAL DEMOLITION NOTES

DEMOLITION OF ALL ELECTRICAL DEVICES, CIRCUITS, AND OTHER  
MISCELLANEOUS MATERIALS IS TO BE BY THE ELECTRICAL CONTRACTOR.

DEMOLISH ALL EXISTING ABOVE GROUND CONDUIT OF CIRCUITS TO BE  
DEMOLISHED. CUT EXISTING CONDUIT TO 2' BELOW GRADE, PLUG WITH  
GROUT OR OTHER APPROVED METHOD AFTER CONDUCTORS HAVE BEEN  
REMOVED.

INCLUDE IN REMOVAL OF CIRCUITS: WIRING, BOXES, CONDUITS, STRAPS,  
AND OTHER MISCELLANEOUS MATERIALS BACK TO THE BRANCH PANEL OR  
TO A JUNCTION BOX THAT IS TO REMAIN. CIRCUITS THAT TERMINATE IN  
A JUNCTION BOX MAY BE LEFT FOR FUTURE USE AFTER MARKING AS  
NOTED BELOW.

CIRCUITS THAT ARE REMOVED, AND NOT REUSED, SHALL BE  
DISCONNECTED AT THE CIRCUIT BREAKER IN THE EXISTING PANEL. FOLD  
OVER ENDS OF WIRE, DOUBLE WRAP WITH UL LISTED BLACK VINYL TAPE,  
AND TAG TO IDENTIFY TO WHICH JUNCTION BOX THE CIRCUIT IS  
TERMINATED. LABEL UNUSED CIRCUIT BREAKERS AS "SPARE".

REMOVE DEMOLISHED MATERIALS PROMPTLY FROM THE SITE AND DISPOSE  
OF PROPERLY.

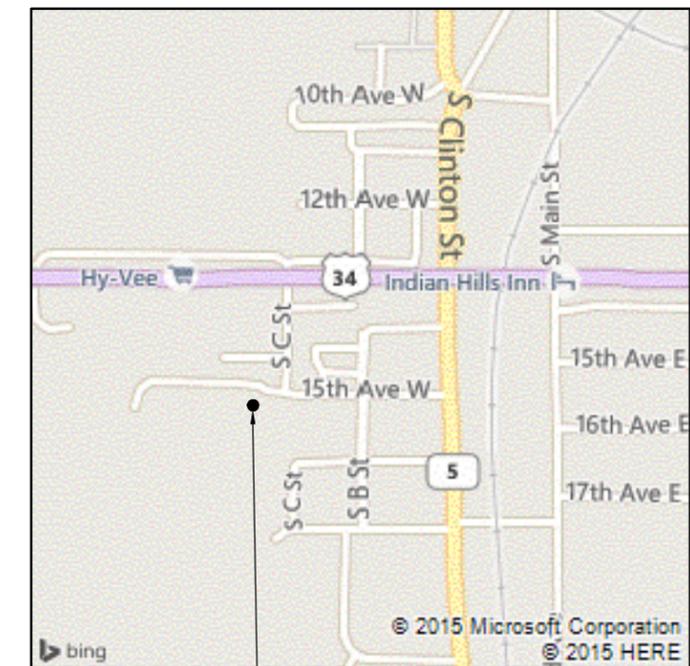
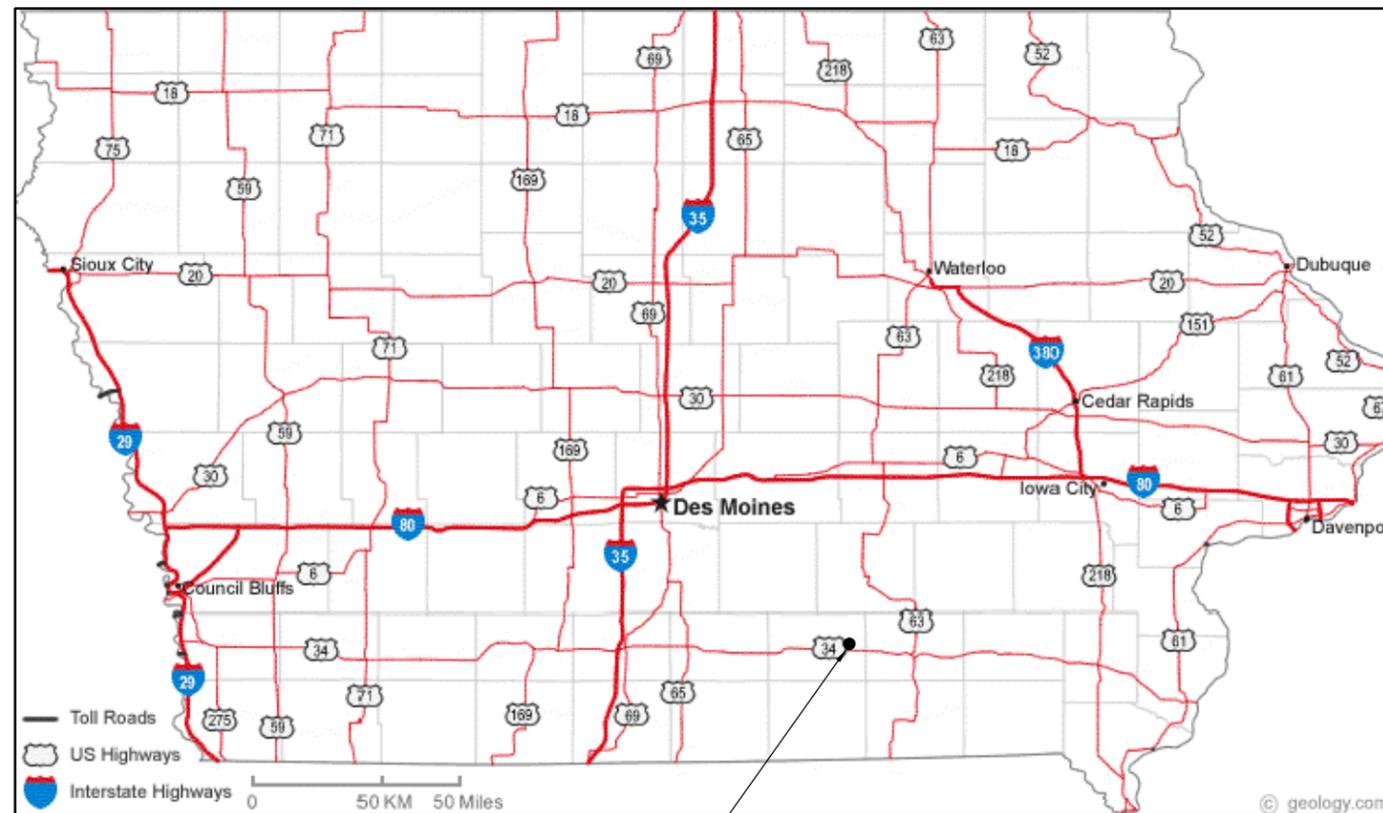
LEAVE OLD CIRCUITS INTACT UNTIL NEW CIRCUITS ARE INSTALLED AND  
FULLY FUNCTIONAL.

## ELECTRICAL SYMBOLS

- EXPOSED CONDUIT
- INDICATES PHASE CONDUCTOR(S)
- INDICATES NEUTRAL CONDUCTOR
- INDICATES EQUIPMENT GROUNDING CONDUCTOR
- CIRCUIT KEYED NOTE REFERENCE
- KEYED NOTE REFERENCE
- DETAIL NUMBER REFERENCE
- PAGE NUMBER REFERENCE

## ABBREVIATIONS

- APPROX. - APPROXIMATE
- BLDG. - BUILDING
- EJ - EXPANSION JOINT
- GALV - GALVANIZED
- J-BOX - JUNCTION BOX
- NEC - NATIONAL ELECTRICAL CODE
- OP - OVERHEAD PRIMARY ELECTRIC
- R.G.S. - RIGID GALVANIZED STEEL
- SCH - SCHEDULE
- S.S. - STAINLESS STEEL
- TYP - TYPICAL



1501 S. C STREET  
ALBIA, IA 52531

PROJECT LOCATION

MERCER ENGINEERING, P.C.  
3079 COLDWATER CREEK RD.  
CRESCO, IA 52136

515-360-5995  
RMERCER@MERCERENG.COM  
© COPYRIGHT 2015  
MERCER ENGINEERING, P.C.

MAINTENANCE FACILITY  
ELECTRICAL UPGRADE

ALBIA, IOWA

SHEET TITLE  
COVER SHEET

SCALE:  
AS NOTED

DRAWN BY:  
M.C.

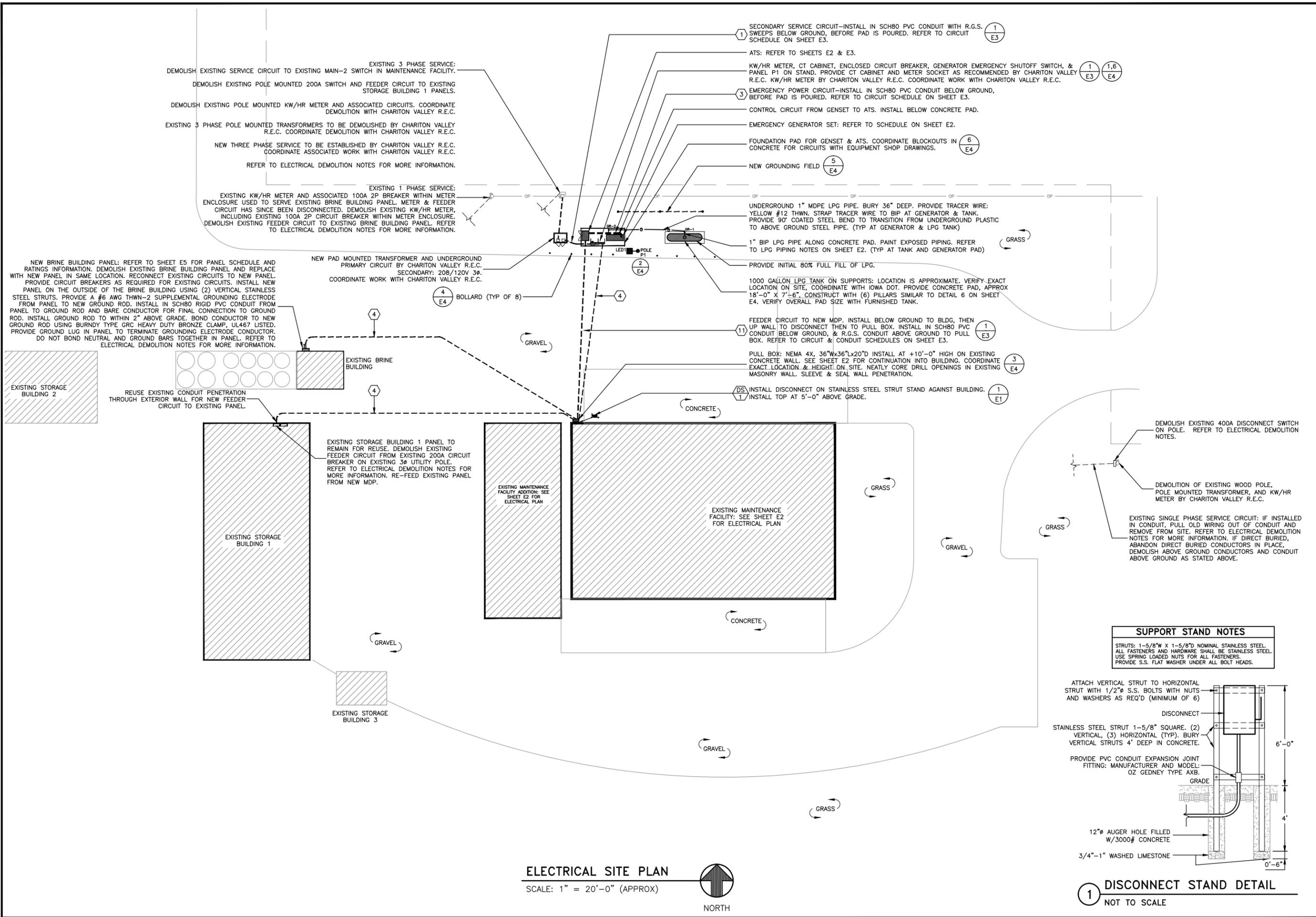
APPROVED:  
R.M.

REVISIONS:

DATE:  
JUNE 14, 2016

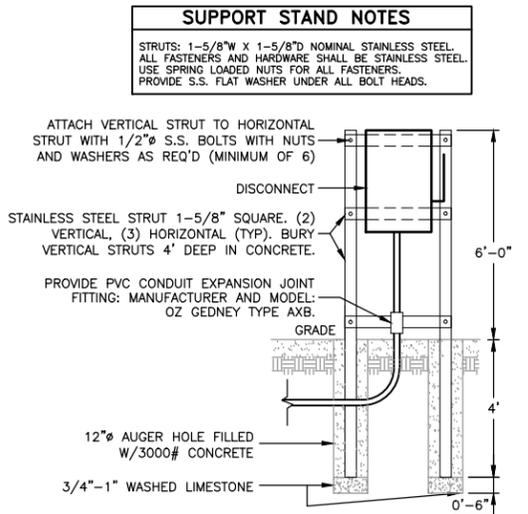
PROJECT NO.:  
ME 1517

SHEET NO.:  
CS



**ELECTRICAL SITE PLAN**  
 SCALE: 1" = 20'-0" (APPROX)

NORTH



**1 DISCONNECT STAND DETAIL**  
 NOT TO SCALE

**MERCER ENGINEERING, P.C.**  
 3079 COLDWATER CREEK RD.  
 CRESO, IA 52136  
 515-360-5995  
 RMERCER@MERCERENG.COM  
 © COPYRIGHT 2016  
 MERCER ENGINEERING, P.C.

**MAINTENANCE FACILITY ELECTRICAL UPGRADE**  
 ALBIA, IOWA

SHEET TITLE  
**ELECTRICAL SITE PLAN**

SCALE:  
 AS NOTED

DRAWN BY:  
 M.C.

APPROVED:  
 R.M.

REVISIONS:

DATE:  
 JUNE 14, 2016

PROJECT NO.:  
 ME 1517

SHEET NO.:  
**E1**

**LPG PIPING NOTES**

SUMMARY OF WORK: PROVIDE A FULLY FUNCTIONAL LPG FUEL PIPING SYSTEM FOR THE GENSET.  
 COORDINATE WITH GENSET SUPPLIER AND ENSURE PROPANE VAPOR IS DELIVERED AT THE RIGHT PRESSURE AND QUANTITY AS REQUIRED BY THE GENSET.  
**CODES**  
 AT A MINIMUM, CONFORM TO THE FOLLOWING:  
 UNIFORM PLUMBING CODE (LATEST ADOPTED EDITION)  
 NATIONAL FUEL GAS CODE-NFPA 54  
 INTERNATIONAL FUEL GAS CODE (LATEST ADOPTED EDITION)

**PRODUCTS**  
 STEEL GAS PIPING:  
 STEEL GAS PIPING, ABOVE GROUND AS NOTED ON THE DRAWING: SCHEDULE 40 BLACK STEEL PIPE, ASTM A53, WITH ANSI/ASME B16.3 MALLEABLE IRON FITTINGS AND SCREWED JOINTS.  
 GAS PIPING UNIONS: BLACK MALLEABLE IRON, GROUND JOINT WITH BRASS SEAT, ANSI B16.39.

MEDIUM DENSITY POLYETHYLENE (MDPE) GAS PIPING:  
 PROVIDE MDPE PIPING FOR UNDERGROUND PIPING AS NOTED ON THE DRAWING. PROVIDE YELLOW TRACER WIRE THROUGHOUT LENGTH.

**VALVES**  
 BALL VALVES: 200 PSI WOG @ 150 F, ALL BRASS OR BRONZE, STRAIGHT WAY PLUG, SCREWED, SQUARE HEAD.  
 PROVIDE VALVES WITH CSA LABEL.

**MISCELLANEOUS MATERIALS**  
 INCLUDE MISCELLANEOUS MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

**INSTALLATION IN GENERAL:**  
 COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 54, AND THE INTERNATIONAL FUEL GAS CODE PROTECT PIPING FROM DIRT BY CAPPING ENDS UNTIL READY TO USE.  
 SUPPORT PIPING INDEPENDENTLY SO THAT WEIGHT OF PIPE WILL NOT BE SUPPORTED BY THE EQUIPMENT.

**EXECUTION**  
 SECURELY ANCHOR ALL EQUIPMENT, HANGERS, AND SIMILAR ITEMS IN PLACE. SUPPORT EACH ITEM INDEPENDENTLY FROM OTHER PIPES. DO NOT USE WIRE OR METAL STRAPS FOR HANGING OR STRAPPING PIPES.  
 PROVIDE UNION AND SHUT-OFF VALVES SUITABLY LOCATED TO FACILITATE MAINTENANCE AND REMOVAL OF EQUIPMENT AND APPARATUS.  
 SECURELY MOUNT REGULATORS (REFER TO SECTION 16190).

TESTING NATURAL GAS PIPING SYSTEM:  
 COMPLY WITH NFPA 54.  
 SUBMIT A TEST REPORT TO THE ENGINEER.

**GAS REGULATOR SCHEDULE**

TAG	SERVES	MANUFACTURER	PRESSURE		PIPE SIZE		1000 BTU/HR	FLOW RATE (CFH)	NOTES
			INLET	OUTLET	INLET	OUTLET			
GR-1	GENSET (AT LPG TANK)	(SEE NOTE 4)	(SEE NOTE 2)	10 PSI	1"	1"	1250	500	3-5
GR-2	GENSET (AT GENSET)	(SEE NOTE 4)	10 PSI	11" W.C.	1"	1"	1250	500	1,2,4,5

- NOTES:**
- GAS REGULATOR SPECIFICATIONS MAY CHANGE DEPENDING ON MANUFACTURER OF THE GENERATOR. VERIFY AND COORDINATE GAS REGULATOR RATINGS BASED ON THE GENERATOR SET MANUFACTURERS RECOMMENDATIONS.
  - CONNECT REGULATOR TO LPG INLET OF GENERATOR.
  - TANK VAPOR PRESSURE: TYPICALLY 25-100 PSI.
  - PROVIDE A CSA APPROVED BALL GAS SHUTOFF VALVE AT EACH REGULATOR.
  - MAXITROL, FISHER, OR APPROVED EQUAL.

**GENERATOR SET SCHEDULE**

TAG	POWER RATING				NAMEPLATE RATING (kW)	FUEL	NOTES
	VOLTS	PHASE	AMPS	FREQ.			
GENSET	208/120	3	347	60 Hz	125	NATURAL GAS/LPG	1-3

- NOTES:**
- ACCEPTABLE MANUFACTURERS: CATERPILLAR, KOHLER, GENERAC.
  - REFER TO SECTION 16355 FOR ADDITIONAL REQUIREMENTS.
  - GENSET WILL BE INITIALLY FUELED BY LPG ONLY, NATURAL GAS CAPABILITY IS FOR FUTURE USE.

**AUTOMATIC TRANSFER SWITCH SCHEDULE**

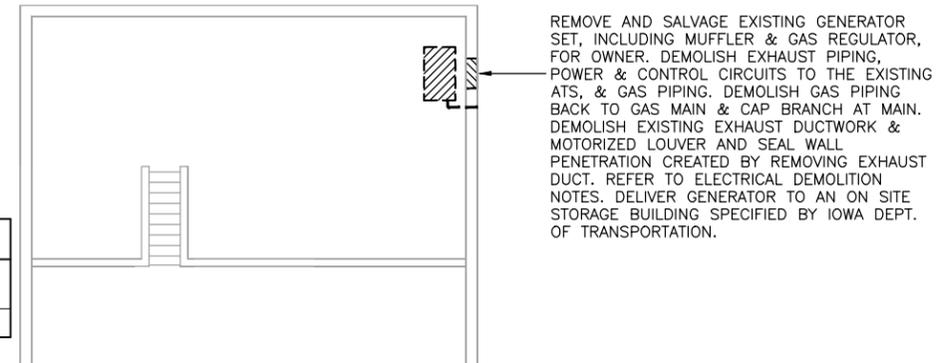
TAG	TYPE	MANUFACTURER	MODEL	RATINGS					ENCLOSURE RATING	NOTES
				VOLTS	POLES	AMPS	FREQ.	SCR		
ATS	AUTOMATIC	ASCO	7000 SERIES	240	4	600	60 Hz	65kA	NEMA 4X	1-4

- NOTES:**
- INCLUDE OPEN TRANSITION MAINTENANCE BYPASS WITHIN ENCLOSURE.
  - REFER TO SECTION 16495 FOR ADDITIONAL REQUIREMENTS.
  - AMP MODEL EQUIVALENT TO THE ASCO 7000 SERIES IS ACCEPTABLE.
  - SWITCHED NEUTRAL.

**TVSS SCHEDULE**

TAG	MANUFACTURER	MODEL	RATINGS			SURGE CURRENT RATING (kA)	MODES PROTECTED	NOTES
			VOLTS	PHASE	WIRES			
TVSS-1	SQUARE D	TVS21MA240	208	3	4+GRND.	240	L-N/L-L/L-G/N-G	1
TVSS-2	SQUARE D	SDSA2040	208	3	4+GRND.	40	L-N/L-L/L-G/N-G	2

- NOTES:**
- FACTORY INSTALLED INTEGRAL TO PANEL. SHALL NOT TAKE UP ANY CIRCUIT BREAKER SPACES.
  - NIPPLE MOUNTED TO BOTTOM OF ENCLOSED CIRCUIT BREAKER.



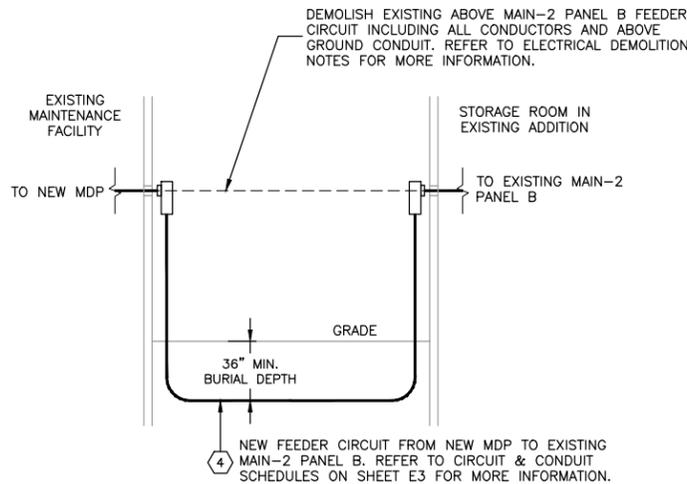
**SECOND FLOOR ELECTRICAL PLAN**

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

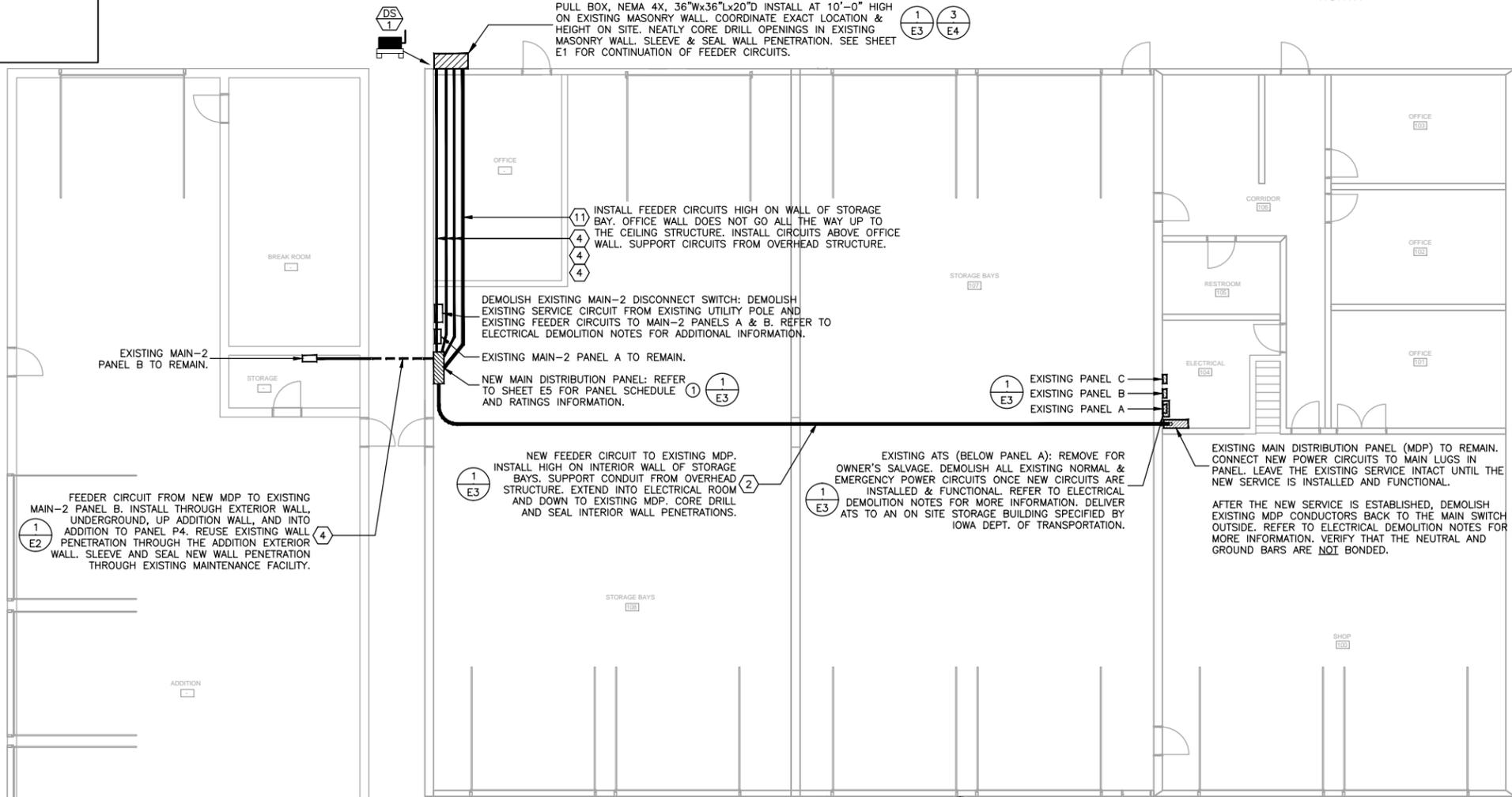


**ELECTRICAL KEYED NOTES**

1 CUT AND SHORTEN EXISTING WIRE TROUGH TO MAKE ROOM FOR NEW MDP ADJACENT TO EXISTING MAIN-2 PANEL A. DEMOLISH EXISTING FEEDER CIRCUIT TO EXISTING MAIN-2 PANEL B. DEMOLISH ALL ABOVE GROUND CONDUIT AND LB FITTINGS. PATCH OPENING IN MASONRY WALL WITH NON-SHRINK GROUT. REFER TO ELECTRICAL DEMOLITION NOTES FOR MORE INFORMATION.



1 EXISTING MAIN-2 PANEL B FEEDER CIRCUIT  
 NOT TO SCALE



**FIRST FLOOR ELECTRICAL PLAN**

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



## ELECTRIC DISTRIBUTION NOTES

- ① FURNISH & INSTALL CIRCUIT BREAKERS AS SHOWN ON PANEL SCHEDULE (TYP).
- ② APPLY ANTIOXIDANT PASTE TO ALL CONDUCTORS WHERE THEY CONNECT TO LUGS. TORQUE ALL CONNECTIONS TO VALUES RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- ③ GENERATOR FRAME MOUNTED CIRCUIT BREAKER: INSTALL CB SO IT IS ACCESSIBLE FROM GROUND AT HEIGHT NO GREATER THAN 6'-0" ABOVE GROUND.
- ④ ROUTE GROUNDING CONDUCTORS AS SHORT & DIRECT AS POSSIBLE. MINIMIZE BENDS. MAKE REQ'D BENDS W/ LARGE RADIUS. STRAP CONDUIT TO WALL W/ PVC STRAPS. INSTALL GROUNDING CONDUCTOR IN CONDUIT EVERYWHERE ABOVE GRADE AND BELOW GRADE TO BURIAL DEPTH IN 1" SCH80 PVC.
- ⑤ PROVIDE PENETRATION OF EXTERIOR WALL WITH SCH. 40 GALV. STEEL SLEEVE. EXTEND CONDUIT THROUGH EXISTING WALL. FILL AREA BETWEEN SLEEVE AND CONDUIT WITH SPRAY FOAM. APPLY NEAT FILLET OF URETHANE BASED SEALANT AROUND PERIMETER ON BOTH SIDES OF WALL.
- ⑥ PROVIDE A 4" RIGID GALVANIZED CONDUIT EXPANSION JOINT FROM AN APPROVED MANUFACTURER.
- ⑦ PROVIDE PULL BOX—REFER TO SHEET E1 & E2.
- ⑧ CADWELD UFER GROUNDING CONDUCTOR TO REBAR IN CONCRETE PAD.
- ⑨ EXISTING KW/HR METER BY ALLIANT ENERGY TO REMAIN. SHOWN FOR REFERENCE.
- ⑩ EXISTING MDP: VERIFY THAT THE FOLLOWING GROUNDING CONNECTIONS EXIST AT THE EXISTING MDP. REPORT ANY THAT DO NOT EXIST OR ANY UNSAFE CONDITIONS TO THE ENGINEER:  
-MDP GROUNDING BAR BONDED TO COLD WATER PIPE AT WATER SERVICE ENTRANCE.  
-JUMPER ACROSS WATER METER AT WATER SERVICE ENTRANCE.  
-GROUNDING BAR BONDED TO BUILDING STEEL IF APPLICABLE.  
-VERIFY THAT THE NEUTRAL AND GROUND BARS ARE NOT BONDED. REMOVE BOND IF IT DOES EXIST.  
AFTER THE NEW SERVICE IS ESTABLISHED, DEMOLISH EXISTING CONDUCTORS BACK TO THE DISCONNECT SWITCH OUTSIDE. DEMOLISH ALL ABOVE GROUND PORTIONS OF THE CONDUIT. CUT EXISTING CONDUIT 2' BELOW GRADE AND ABANDON EXISTING CONDUIT BELOW GRADE. PLUG EXISTING CONDUIT WITH GROUT OR OTHER APPROVED METHOD AFTER EXISTING CONDUCTORS HAVE BEEN REMOVED. REFER TO ELECTRICAL DEMOLITION NOTES FOR MORE INFORMATION.
- ⑪ GENERATOR EMERGENCY SHUTOFF SWITCH. INSTALL ON STAND NEXT TO PANEL P1. REFER TO DETAIL 2 ON SHEET E3 AND SPECIFICATION SECTION 16355 FOR MORE INFORMATION.
- ⑫ BOND NEUTRAL AND GROUND BARS TOGETHER AT ONE POINT ONLY.
- ⑬ PROVIDE 120V 20A INDUSTRIAL GRADE DUPLEX GFCI RECEPTACLE IN A 4"x4"x2-1/8" STEEL BOX, MOUNTED WITHIN THE GENSET WEATHER ENCLOSURE FOR BATTERY CHARGER & BATTERY HEATER.
- ⑭ VERIFY ENGINE HEATER WATTAGE WITH GENERATOR MANUFACTURER. PROVIDE EITHER A HARDWIRED CONNECTION OR 20A GFCI RECEPTACLE AS REQUIRED BY GENERATOR MANUFACTURER.
- ⑮ PROVIDE (1) 120V 20A SWITCH IN A 4"x4"x2-1/8" STEEL BOX FOR LED2'S WITHIN GENERATOR. MOUNT SO SWITCH IS EASILY ACCESSIBLE ON SIDE WALL OF GENSET ENCLOSURE. CIRCUIT TO 20A CIRCUIT BREAKER IN PANEL P1.
- ⑯ PROVIDE 120V 20A WEATHERPROOF RECEPTACLE ON EQUIPMENT STAND. CIRCUIT TO NEW PANEL P1.
- ⑰ PROVIDE NEW ENCLOSED CIRCUIT BREAKER ON STAND NEXT TO GENERATOR EMERGENCY CIRCUIT BREAKER. SEE DETAIL 1 ON SHEET E4 FOR MOUNTING DETAIL.
- ⑱ PROVIDE ENGRAVED PLASTIC LABELS ON MAIN CIRCUIT BREAKER COVER. THE TOP ONE SHALL SAY "MAIN SERVICE DISCONNECT" AND THE BOTTOM SHALL SAY "ELECTRICAL SYSTEM IS EQUIPPED WITH AN EMERGENCY GENERATOR. PUSH ADJACENT GENERATOR STOP SWITCH TO DISCONNECT ALL POWER". REFER TO SPECIFICATION SECTION 16195 FOR ADDITIONAL INFORMATION.

## CIRCUIT SCHEDULE

TAG	CIRCUIT SERVES	# OF SETS	CONDUCTOR INFORMATION	CONDUIT SIZE
①	SECONDARY SERVICE/ENCLOSED CIRCUIT BREAKER	(2)	(4) 350 kcmil THWN-2	4"
①A	ATS NORMAL POWER	(2)	(4) 350 kcmil THWN-2 + (1) #1 AWG THWN-2 E.G.C.	4"
②	EXISTING MDP	(1)	(3) 600 kcmil THWN-2 + (1) #3 AWG THWN-2 E.G.C.	4"
③	ATS EMERGENCY POWER	(1)	(4) 600 kcmil THWN-2 + (1) #3 AWG THWN-2 E.G.C.	4"
④	EXISTING & NEW PANELS	(1)	(4) #4/0 AWG THWN-2 + (1) #4 AWG THWN-2 E.G.C.	3"
⑤	GENERATOR RECEPTACLE (GENERAL MAINTENANCE)	(1)	(2) #10 AWG THWN-2 + (1) #12 AWG THWN-2 E.G.C.	1-1/2"
⑥	GENERATOR RECEPTACLE (ENGINE HEATER)	(1)	(2) #10 AWG THWN-2 + (1) #12 AWG THWN-2 E.G.C.	WITH ABOVE
⑦	GENERATOR RECEPTACLE (BATTERY CHARGER & HEATER)	(1)	(2) #10 AWG THWN-2 + (1) #12 AWG THWN-2 E.G.C.	WITH ABOVE
⑧	EXISTING PANEL A	(1)	(3) #3 AWG THWN-2 + (1) #8 AWG THWN-2 E.G.C.	2"
⑨	GROUNDING CONDUCTORS	(1)	(1) #2/0 AWG THWN-2 E.G.C.	④
⑩	GENSET EMERGENCY SHUTOFF SWITCH	(1)	(2) #12 AWG THWN-2 + (1) #12 AWG THWN-2 E.G.C.	3/4"
⑪	NEW MDP	(2)	(4) 350 kcmil THWN-2 + (1) #1 AWG THWN-2 E.G.C.	4"

## LIGHT FIXTURE SCHEDULE

TAG	FIXTURE TYPE	MANUFACTURER	MODEL	VOLTS	LAMPS	NOTES
LED1	EXTERIOR LED PARKING LOT FIXTURE	GARDCO	ECOFORM ECF-1-5-135LA-6470-NW-UNV-BRP-PC	MULTI	135W LED	1-3
LED2	GENERATOR ENCLOSURE LED	LUMINAIRE LED	SWP610-15W-3500K-120-277-BLK	120V	15W LED	3
P1	PARKING LOT LIGHTING POLE (25'-0")	KWI	SSP25-5.0-7-BRZ-DM10-BC	-	-	3-4

- NOTES:
1. INCLUDE BUILT-IN PHOTOCELL & PHOTOCELL SWITCH.
  2. HOUSING COLOR: DARK BRONZE.
  3. EQUIVALENT PRODUCTS FROM LITHONIA, DAYBRITE, & HUBBELL ARE APPROVED AS EQUALS.
  4. INCLUDE BASE COVER, ANCHOR BOLTS, HANDHOLE, GROUNDING LUG, 12" MOUNTING ARMS, & ALL HARDWARE REQUIRED TO INSTALL THE SPECIFIED LED1 FIXTURE.

## CONDUIT SCHEDULE

REFER TO SECTION 16110 FOR FITTINGS & ADDITIONAL REQUIREMENTS.

PROVIDE CONDUIT IN THE SIZES SHOWN ON THE CIRCUIT SCHEDULE & OF THE TYPES AS FOLLOWS (UNLESS NOTED OTHERWISE ON DRAWINGS):

BELOW GROUND: SCH80 RIGID PVC

ABOVE GROUND, OUTSIDE: SCH40 RIGID GALVANIZED STEEL

SWEEPS OR ELBOWS, OUTSIDE: SCH40 RIGID GALVANIZED STEEL

GROUNDING CONDUCTOR, ABOVE GROUND: SCH80 RIGID PVC

ABOVE GROUND, WITHIN THE BUILDING: EMT.

## SPECIAL CONDITIONS

WORK INVOLVING SIGNIFICANT POWER DISRUPTIONS MUST BE PERFORMED WITHOUT MAJOR DISRUPTION TO THE OWNER'S NORMAL ACTIVITIES. REFER TO SPEC SECTION 16010-1.

## EXISTING WIRING

IF EXISTING WIRING IS CALLED OUT TO BE REUSED, INSPECT CONDITION AND CURRENT RATING OF WIRE TO DETERMINE IF IT IS SAFE TO REUSE. REPORT ANY UNSATISFACTORY OR UNSAFE CONDITIONS TO THE ENGINEER.

## ENCLOSED CIRCUIT BREAKER SCHEDULE

RATINGS				ENCLOSURE RATING	NOTES
VOLTS	POLES	AMPS	S.C.R.		
240	3	600	65kA	NEMA 4X	1-3

- NOTES:
1. SERVICE DISCONNECT.
  2. UL LISTED AS SUITABLE FOR SERVICE ENTRANCE.
  3. FULLY RATED. 65,000 AIC.

## DISCONNECT SWITCH SCHEDULE

TAG	DS	VOLTS (V)	SIZE (A)	NO. OF POLES	NEMA TYPE	TYPE	NOTES
1	①	240	600	3	4X	NON FUSED, HEAVY DUTY	1

- NOTES:
1. INSTALL ON STAINLESS STEEL STAND. SEE SHEET E1.

## EQUIPMENT LABELING

PROVIDE LABELING OF PANELS AND EQUIPMENT AS REQUIRED ON THE NEC AND SPECIFIED IN SPECIFICATION SECTION 16195. LABEL BOTH NEW AND EXISTING PANELS.

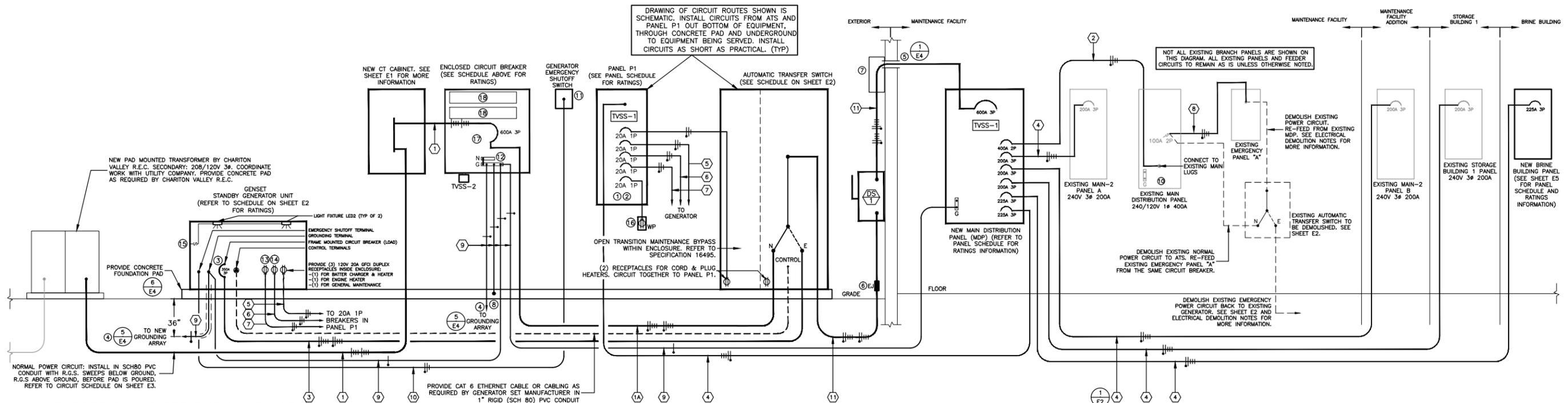
PROVIDE IDENTIFICATION OF WIRING AND JUNCTION BOXES AS SPECIFIED IN SECTION 16195.

TRACE EXISTING CIRCUITS FROM EXISTING PANELS ADEQUATE TO CREATE NEW PANEL SCHEDULES FOR EXISTING PANELS.

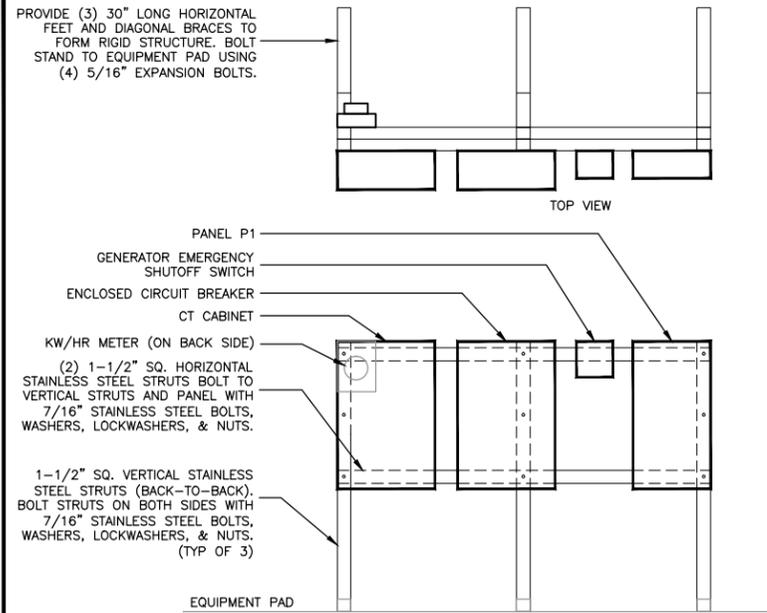
PROVIDE PANEL SCHEDULES FOR BOTH NEW AND ALL EXISTING PANELS AS SPECIFIED IN SECTION 16195.



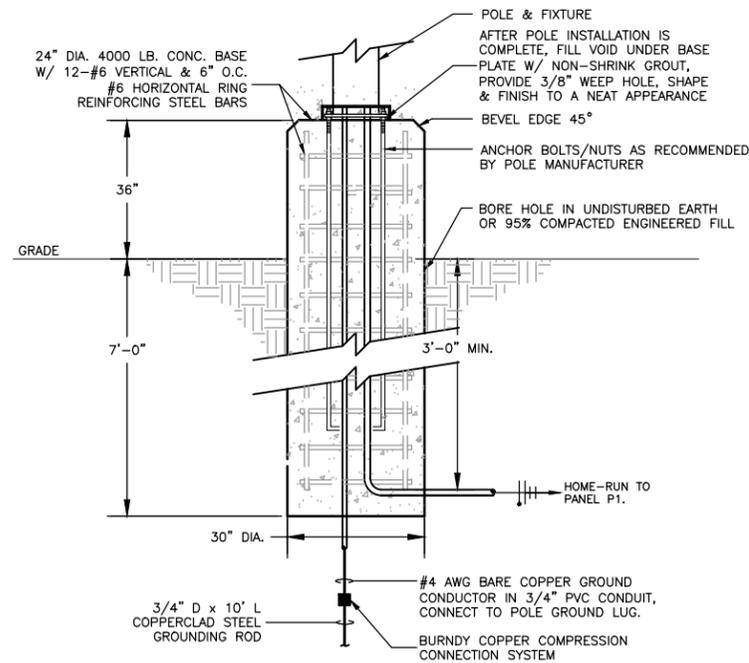
② GENERATOR EMERGENCY SHUTOFF SWITCH  
NOT TO SCALE



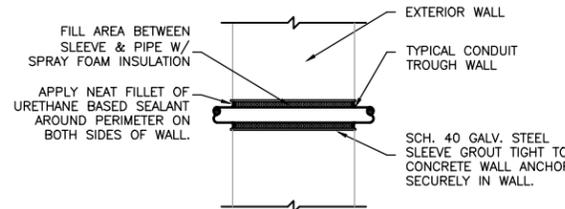
① ELECTRICAL DISTRIBUTION DIAGRAM  
NOT TO SCALE



**1** EQUIPMENT STAND DETAIL  
NOT TO SCALE



**2** POLE BASE DETAIL  
NOT TO SCALE



**3** SLEEVE & SEAL DETAIL - EXTERIOR  
NOT TO SCALE

**EQUIPMENT FOUNDATION SUMMARY**

CUT EXISTING SOD & SAVE FOR RE-USE. KEEP MOIST. EXCAVATE APPROX. 3 FT. & SAVE SOIL FOR RE-GRADING.

BORE (6) 12" DIA HOLES 6 FT. BELOW GRADE. PUT 3/4" WASHED LESTONE 6" DEEP IN BOTTOM OF EACH HOLE.

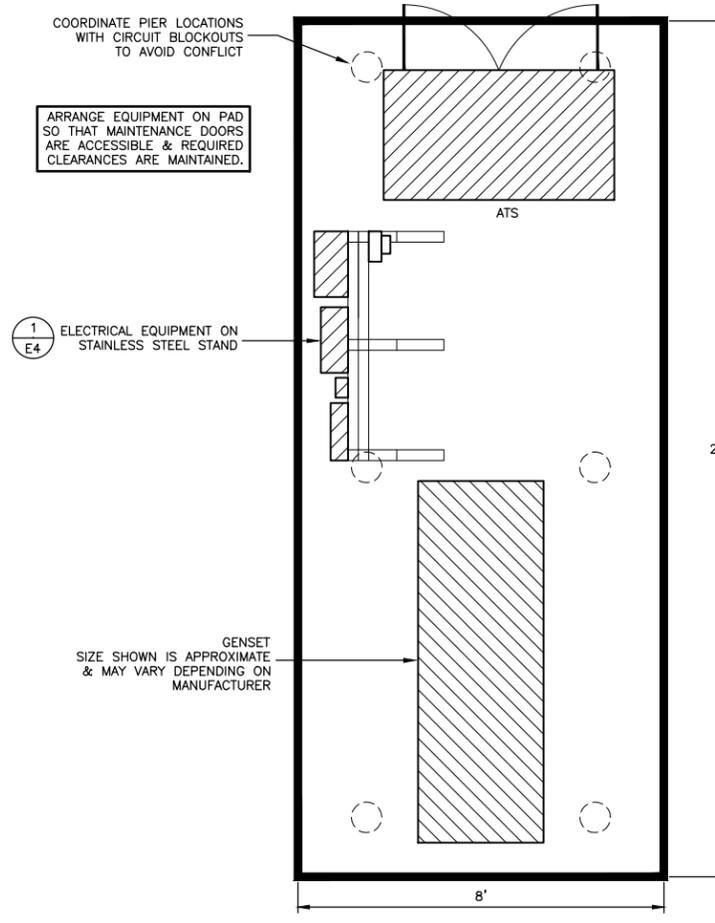
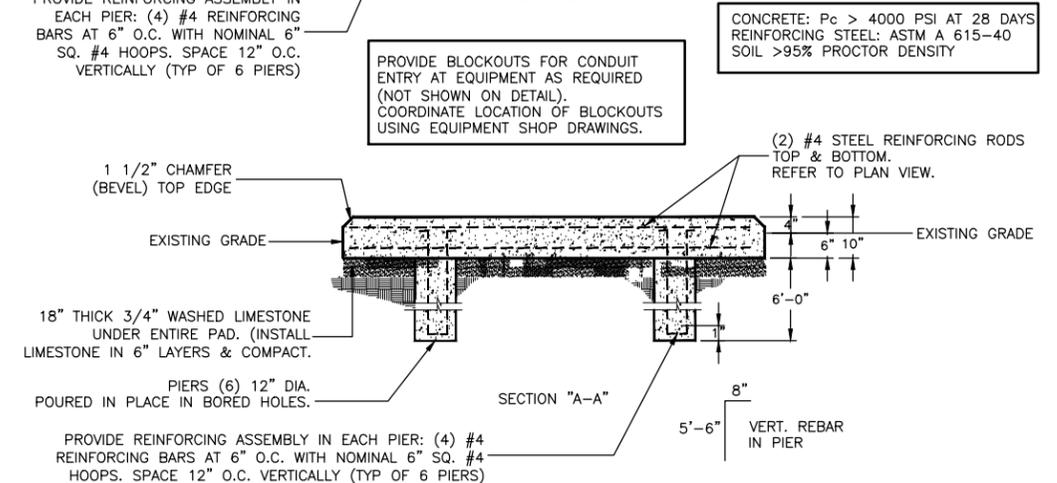
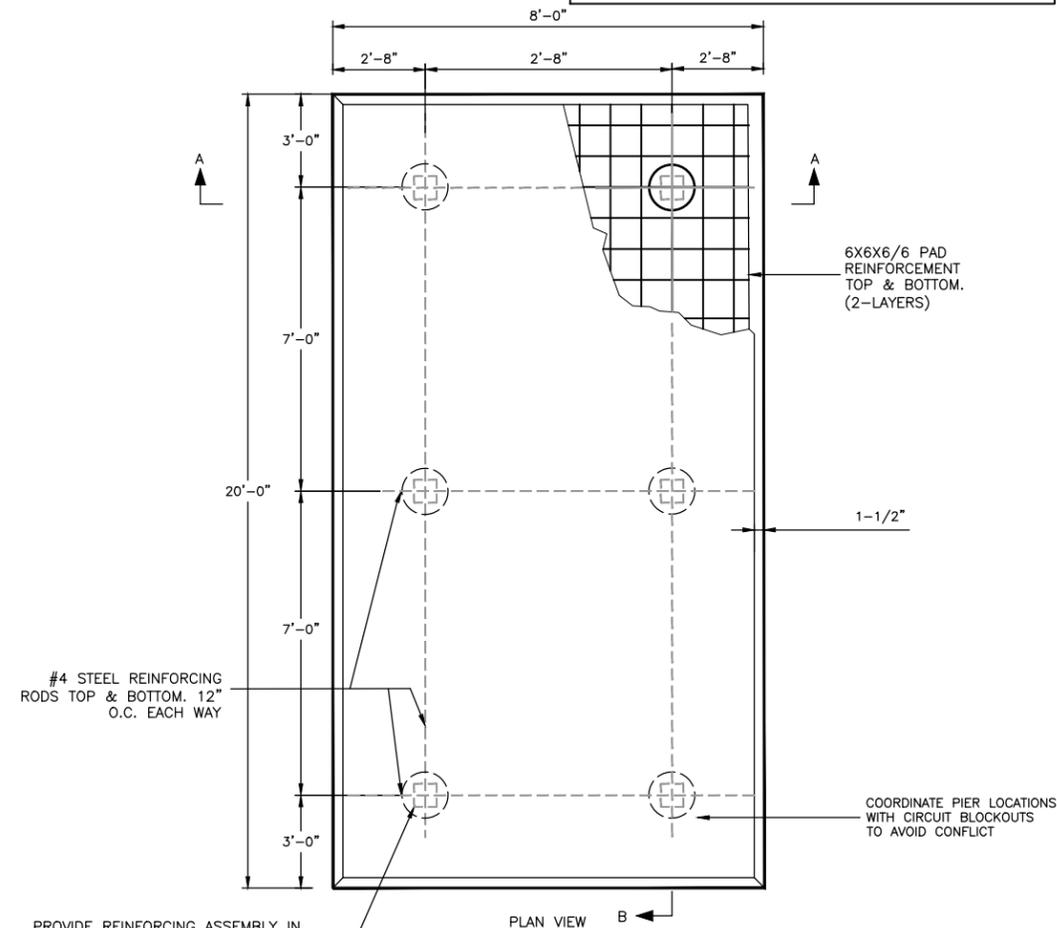
PROVIDE BLOCKOUTS FOR CONDUITS ENTERING EQUIPMENT.

INSTALL BELOW-PAD CONDUITS TO EQUIPMENT AS SHOWN ON THE DRAWINGS.

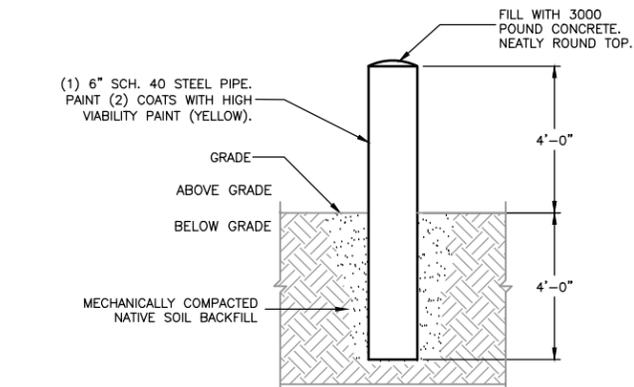
PROVIDE 8" BED OF 3/4" WASHED LESTONE IN BOTTOM OF PAD EXCAVATION.

PROVIDE REINFORCED CONCRETE FOUNDATION AS SHOWN BELOW. OVERALL SIZE SHOWN IS APPROXIMATE. COORDINATE EXACT OVERALL SIZE WITH EQUIPMENT SHOP DRAWINGS.

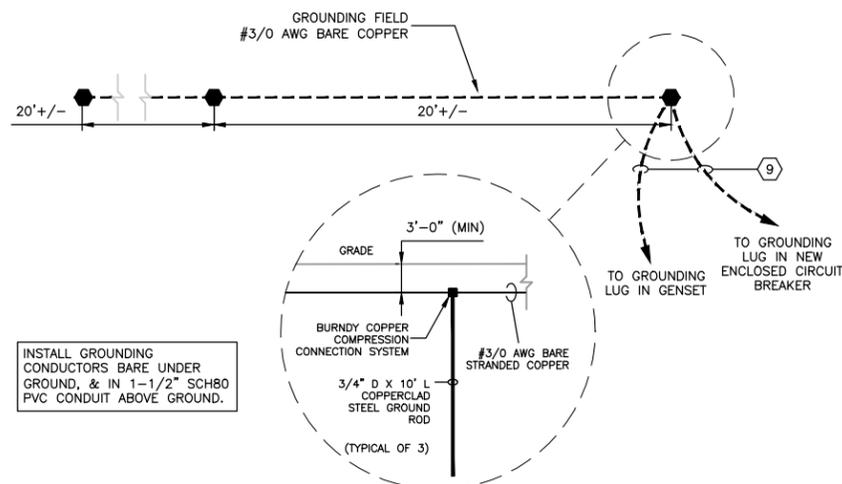
AFTER EQUIPMENT HAS BEEN INSTALLED, FINISH GRADE WITH SLIGHT SLOPE UP TO 4" BELOW TOP OF SLAB. SET REMOVED SOD TO COVER EXPOSED DIRT & WATER.



**6** ATS & GENERATOR SET CONCRETE PAD DETAIL  
NOT TO SCALE



**4** BALLARD DETAIL  
NOT TO SCALE



**5** GROUNDING ELECTRODE SYSTEM DETAIL  
NOT TO SCALE

## MAIN DISTRIBUTION PANEL (MDP)

LOCATION: MAINTENANCE FACILITY      VOLTS: 208/120V 3Ø 4W+G      AIC RATING: 65,000  
 ENCLOSURE TYPE: NEMA 12      MAINS RATING: 600A      600A 3P MAIN BREAKER  
 INSTALLATION: SURFACE      NEUTRAL: 100%

CKT. NO.	CIRCUIT BREAKER	CIRCUIT DESCRIPTION	CKT. NO.	CIRCUIT BREAKER	CIRCUIT DESCRIPTION
TVSS-1					
1	400A/2P	EXISTING MDP	2	200A/3P	EXISTING MAIN-2 PANEL A
3	200A/3P	EXISTING MAIN-2 PANEL B	4	200A/3P	STORAGE BUILDING 1 PANEL
5	225A/3P	NEW BRINE BUILDING PANEL	6	225A/3P	NEW PANEL P1
7	100A/3P	SPARE	8	100A/3P	SPARE
9	200A/3P	SPARE	10	200A/3P	SPACE
11	200A/3P	SPACE	12	200A/3P	SPACE

## PANEL P1

LOCATION: EQUIPMENT PAD      VOLTS: 208/120V 3Ø 4W+G      AIC RATING: 10,000  
 ENCLOSURE TYPE: NEMA 4X      MAINS RATING: 225A      MAIN LUGS ONLY  
 INSTALLATION: STAND      NEUTRAL: 100%

CKT. NO.	CIRCUIT BREAKER	LOAD kVA	CIRCUIT DESCRIPTION	CKT. NO.	CIRCUIT BREAKER	LOAD kVA	CIRCUIT DESCRIPTION
TVSS-1							
1	20A/1P	-	GENSET RECEPTACLE	2	20A/1P	-	ATS ENCLOSURE HEATERS
3	20A/1P	-	GENSET RECEPTACLE	4	20A/1P	-	RECEPTACLE
5	20A/1P	-	GENSET RECEPTACLE	6	20A/1P	-	GENSET LED2 FIXTURES
7	20A/2P	-	LED1	8	20A/1P	-	SPARE
9	20A/1P	-	SPARE	10	20A/1P	-	SPARE
11	20A/1P	-	SPARE	12	20A/1P	-	SPARE
13	20A/1P	-	SPARE	14	20A/1P	-	SPARE
15	20A/1P	-	SPACE	16	20A/1P	-	SPACE
17	20A/1P	-	SPACE	18	20A/1P	-	SPACE
19	20A/1P	-	SPACE	20	20A/1P	-	SPACE
21	20A/1P	-	SPACE	22	20A/1P	-	SPACE
23	20A/1P	-	SPACE	24	20A/1P	-	SPACE
25	20A/1P	-	SPACE	26	20A/1P	-	SPACE
27	20A/1P	-	SPACE	28	20A/1P	-	SPACE
29	20A/1P	-	SPACE	30	20A/1P	-	SPACE

## NEW BRINE BUILDING PANEL (BP)

LOCATION: BRINE BUILDING      VOLTS: 208/120V 3Ø 4W+G      AIC RATING: 10,000  
 ENCLOSURE TYPE: NEMA 4X      MAINS RATING: 225A      225A 3P MAIN BREAKER  
 INSTALLATION: SURFACE      NEUTRAL: 100%

CKT. NO.	CIRCUIT BREAKER	LOAD kVA	CIRCUIT DESCRIPTION	CKT. NO.	CIRCUIT BREAKER	LOAD kVA	CIRCUIT DESCRIPTION
1	20A/2P	-	EXISTING CIRCUIT	2	30A/2P	-	EXISTING CIRCUIT
3	20A/1P	-	EXISTING CIRCUIT	4	20A/1P	-	EXISTING CIRCUIT
5	20A/1P	-	EXISTING CIRCUIT	6	15A/1P	-	EXISTING CIRCUIT
7	20A/1P	-	EXISTING CIRCUIT	8	40A/2P	-	EXISTING CIRCUIT
9	15A/1P	-	EXISTING CIRCUIT	10	40A/2P	-	EXISTING CIRCUIT
11	60A/1P	-	EXISTING CIRCUIT	12	40A/2P	-	EXISTING CIRCUIT
13	20A/1P	-	SPARE	14	20A/1P	-	SPARE
15	20A/1P	-	SPARE	16	20A/1P	-	SPARE
17	20A/1P	-	SPARE	18	20A/1P	-	SPARE
19	20A/1P	-	SPACE	20	20A/1P	-	SPACE
21	20A/1P	-	SPACE	22	20A/1P	-	SPACE
23	20A/1P	-	SPACE	24	20A/1P	-	SPACE
25	20A/1P	-	SPACE	26	20A/1P	-	SPACE
27	20A/1P	-	SPACE	28	20A/1P	-	SPACE
29	20A/1P	-	SPACE	30	20A/1P	-	SPACE

**MERCER ENGINEERING, P.C.**  
 3079 COLDWATER CREEK RD.  
 CRESCO, IA 52136  
 515-360-5995  
 RMERCER@MERCERENG.COM  
 © COPYRIGHT 2016  
 MERCER ENGINEERING, P.C.

MAINTENANCE FACILITY  
 ELECTRICAL UPGRADE  
 ALBIA, IOWA

SHEET TITLE  
**ELECTRICAL PANEL SCHEDULES**

SCALE:  
 AS NOTED

DRAWN BY:  
 M.C.

APPROVED:  
 R.M.

REVISIONS:

DATE:  
 JUNE 14, 2016

PROJECT NO.:  
 ME 1517

SHEET NO.:  
**E5**