

File Path: M:\21.030 - Provo Storm Water PSD\Drawings\E101.dwg Mar 10, 2022, 2:33pm

GENERAL DRAWING SYMBOLS AND REFERENCES	
	REFERENCE NOTE
	DEMOLITION NOTE
	REVISION NOTE
	IDENTIFICATION NOTE
	PHOTO REFERENCE
	HPE DETAIL BUBBLE
	EQUIPMENT REFERENCE
	WIRE SIZE REFERENCE
	PHOTO REFERENCE
	SECTION/ELEVATION REFERENCE
	EQUIPMENT ID TAG
PLAN SYMBOLS	
	CIRCUIT DISTRIBUTION PANELBOARD SURFACE MOUNTED
	CIRCUIT DISTRIBUTION PANELBOARD RECESSED
	POWER DISTRIBUTION PANELBOARD SURFACE OR FLOOR MOUNTED DOORS DESIGNATE FRONT OF PANEL MDP DESIGNATES MAIN DISTRIBUTION PANEL
	CONTROL PANEL ENCLOSURE
	LIGHTING CONTROL PANEL
	DISCONNECT
HVAC EQUIPMENT	
	UNIT HEATER, WALL MOUNTED
	UNIT HEATER, CEILING MOUNTED
	CONDENSING UNIT, PAD MOUNTED, SIDE DISCHARGE
	CONDENSING UNIT, PAD MOUNTED, UP FLOW
	ROOFTOP MOUNTED EQUIPMENT
CONDUIT AND RACEWAYS	
	RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR OR CONCEALED IN WALL OR BEHIND STRUCTURE OR EQUIPMENT OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASUREMENT
	FLEX CONDUIT
	RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED
	HOMERUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
	JUNCTION BOX
	RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)
	RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)
	RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION OR DISTANCE FROM VIEWER
	CONDUIT STUB AND CAP

LIGHTING SYMBOLS	
F1	DESIGNATES FIXTURE NUMBER - REFER TO FIXTURE SCHEDULE
EM	DESIGNATES EMERGENCY FIXTURE
CL	CLOCK
OS	OCCUPANCY SENSOR
LED FIXTURES	
	SURFACE OR RECESSED 1X2 FIXTURE
	SURFACE OR RECESSED 1X4 FIXTURE
	SURFACE OR RECESSED 18"x4" FIXTURE
	SURFACE OR RECESSED 1X8 FIXTURE
	SURFACE 2X2 FIXTURE
	SURFACE OR RECESSED 2X4 FIXTURE SHADED AREA INDICATES EMERGENCY BATTERY PACK
	RECESSED 2X2 FIXTURE
	4 FOOT WALL MOUNTED FIXTURE
LED FIXTURES	
	SURFACE MOUNTED
	PENDANT MOUNTED
	WALL MOUNTED
	RECESSED CANISTER FIXTURE
	RECESSED DIRECTIONAL OR WALL WASH FIXTURE
	WALL MOUNTED SCONCE
	FLOOD LIGHT
	4 BLADE FAN
	5 BLADE FAN
WIRING DEVICES	
	20 AMP RATED RECEPTACLE SINGLE STROKE = SINGLE DOUBLE STROKE = DUPLEX RECEPTACLE MODIFIERS: X-X = CIRCUIT NUMBER AF = ARC FAULT CIRCUIT INTERRUPTER S = SURFACE MOUNTED IG = ISOLATED GROUND WP = WEATHER PROOF
	EXISTING RECEPTACLE
	GANGED RECEPTACLES IN COMMON BOX WITH COMMON COVER PLATE
	GFCI RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	RECESSED FLOOR DUPLEX RECEPTACLE
	480 VOLT RECEPTACLE
	CABLE TELEVISION COAX CABLE CONNECTION
	DATA JACK ONLY
	VOICE JACK ONLY
	DATA/VOICE JACK
	RECESSED FLOOR DATA/VOICE JACK
	PHOTOELECTRIC CONTROL UNIT
	OCCUPANCY SENSOR

TRACK LIGHTING	
	TRACK LIGHT FIXTURE
	TRACK LIGHT FIXTURE HEAD
EXIT FIXTURES	
	SURFACE OR CEILING
	WALL MOUNTED
	WITH DIRECTIONAL ARROWS
	WITH EMERGENCY LIGHTS
	EMERGENCY FIXTURE
EXTERIOR LIGHTS	
	WALL PAK FIXTURE
	WARNING LIGHT
LIGHT SWITCHES	
S	SINGLE POLE SWITCH
\$\$	GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
\$ ^a	SWITCH SUPERScript MODIFIER, LOWER CASE LETTER INDICATES CIRCUIT CONTROLLER -- a,b,c ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 3b
\$ ₃	SWITCH SUBSCRIPT MODIFIER, UPPER CASE LETTER OR NUMBER: 2 = DOUBLE POLE 3 = THREE WAY 4 = FOUR WAY K = KEY OPERATED M = HORSEPOWER RATED MANUAL STARTER MC = MOMENTARY CONTACT, THREE POSITION MS = MANUAL (STARTER) OR SWITCH D = DIMMER S = SURFACE F = FLUSH OS = OCCUPANCY SENSOR
ONE-LINE SYMBOLS	
	POWER FEED
	TRANSFORMER
	EQUIPMENT GROUNDING
	CONNECTION DOT
	CIRCUIT BREAKER
	PANELBOARD
	AMPS AND POLES
	MOTOR
GROUNDING SYMBOLS	
	GROUND ROD (3/4" x 10' COPPER COATED STEEL)
	GROUND ROD (3/4" x 10' COPPER COATED STEEL) IN WELL
	BOLTED GROUND CONNECTION (ABOVE GROUND)
	WELDED GROUND CONNECTION (BELOW GRADE)
	GROUND CONDUCTOR (#2/0 BARE COPPER)

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

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H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH AMERICAN FORK, UT 84003 FAX (801) 642-2154
HPE PROJECT: 21.030 ©2021
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

- GENERAL NOTES:**
- VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO ENSURE NEC CODE CLEARANCE REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
 - CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ECT.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN.
 - SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
 - ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
 - FOR PACKAGE EQUIPMENT PROVIDED ON THE PROJECT, SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY THE EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDED ALL NECESSARY ELECTRICAL INFORMATION TO ELECTRICAL SUBCONTRACTOR FOR INCLUSION WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS.
 - IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ELECTRICAL REQUIREMENTS AND CONTROL REQUIREMENTS OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

DESCRIPTION	
DATE	
BY	
REV#	

ISSUE DATE: OCT 4, 2020
DRAWN BY: G. SORENSON
CHECKED BY: K. HEGERHORST
PROJECT MANAGER: M. CHAMBERLAIN

PROVO CITY ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
03/10/2022
STATE OF UTAH

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PROVO CITY
PROVO AIRPORT PUMP STATION
ELECTRICAL LEGEND, SHT. 1

PROJECT NUMBER: 2019-0033
SHEET OF 41
SHEET NUMBER: E101

CONDUIT/CONDUCTOR SCHEDULE *					
THHN, THWN, THWN-2					
AMP RATING	WIRE ID.	CONDUCTOR QTY.	CONDUCTOR SIZE	MIN. CONDUIT SIZE	EXCEPTIONS
20	212	2	#12	3/4"	
	312	3		3/4"	
	412	4		3/4"	
30	20	2	#10	3/4"	
	30	3		3/4"	
	40	4		3/4"	
50	28	2	#8	3/4"	
	38	3		3/4"	
	48	4		3/4"	
65	26	2	#6	3/4"	
	36	3		3/4"	
	46	4		3/4"	1"(C9)
85	24	2	#4	3/4"	1"(C2,C9)
	34	3		1"	3/4"(C4), 1-1/4"(C9)
	44	4		1"	1-1/4"(C9)
115	22	2	#2	1"	
	32	3		1"	1-1/4"(C9)
	42	4		1-1/4"	
130	21	2	#1	1-1/4"	1"(C3,C4)
	31	3		1-1/4"	1"(C3)
	41	4		1-1/4"	1-1/2"(C2,C9,C10)
150	210	2	1/0	1-1/4"	
	310	3		1-1/4"	1-1/2"(C3,C9)
	410	4		1-1/2"	2"(C9)
175	220	2	2/0	1-1/4"	1-1/2"(C3,C4,C9)
	320	3		1-1/2"	
	420	4		2"	
200	230	2	3/0	1-1/2"	1-1/4"(C4)
	330	3		1-1/2"	2"(C3,C9)
	430	4		2"	
230	240	2	4/0	1-1/2"	2"(C3)
	340	3		2"	
	440	4		2"	2-1/2"(C9)
255	225	2	250 KCMIL	2"	1-1/2"(C4)
	325	3		2"	2-1/2"(C1,C8)
	425	4		2-1/2"	2"(C4)
310	235	2	350 KCMIL	2"	2-1/2"(C9)
	335	3		2-1/2"	2"(C4)
	435	4		3"	2-1/2"(C1,C4)
380	250	2	500 KCMIL	2-1/2"	2"(C4)
	350	3		3"	2-1/2"(C1,C4)
	450	4		3"	3-1/2"(C9)
475	275	2	750 KCMIL	3"	
	375	3		3-1/2"	3"(C1,C7,C8)
	475	4		4"	3-1/2"(C1,C4,C8)

* CONDUCTOR QUANTITY DOES NOT INCLUDE GROUNDING CONDUCTOR. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZE.

WHERE: C1 = ELECTRICAL METALLIC TUBING
 C2 = ELECTRICAL NON-METALLIC TUBING
 C3 = FLEXIBLE STEEL CONDUIT
 C4 = INTERMEDIATE METALLIC CONDUIT
 C7 = LIQUIDTIGHT FLEXIBLE METAL CONDUIT
 C8 = RIGID METALLIC CONDUIT
 C9 = PVC SCHEDULE 80 CONDUIT
 C10 = PVC SCHEDULE 40 CONDUIT

GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM

COPPER CONDUCTOR	WIRE SIZE
#2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0
>600 KCMIL THRU 1100 KCMIL	2/0
>1100 KCMIL	3/0

EQUIPMENT GROUNDING CONDUCTORS

FUSE OR CB SIZE	SIZE (COPPER)
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

EQUIPMENT				
TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
CP-1	MAIN CONTROL PANEL/RTU	OUTSIDE	CONTRACTOR	CONTRACTOR
CP-2	SMALL MOTOR CONTROL PANEL	OUTSIDE	CONTRACTOR	CONTRACTOR
MDP	PANELBOARD MDP	OUTSIDE	CONTRACTOR	CONTRACTOR
PNL-L	PANELBOARD L	OUTSIDE	CONTRACTOR	CONTRACTOR
XFMR-L	TRANSFORMER L	OUTSIDE	CONTRACTOR	CONTRACTOR
XFMR	UTILITY TRANSFORMER	OUTSIDE	UTIL. COMPANY	UTIL. COMPANY
MSD	MAIN SERVICE DISCONNECT	OUTSIDE	CONTRACTOR	CONTRACTOR
CTE	METERING CT ENCLOSURE	OUTSIDE	CONTRACTOR	CONTRACTOR
MS	METER SOCKET	OUTSIDE	CONTRACTOR	CONTRACTOR
UM	UTILITY METER	OUTSIDE	UTIL. COMPANY	UTIL. COMPANY
SP-1	SUMP PUMP	OUTSIDE	CONTRACTOR	CONTRACTOR
LP-1	LUBE PUMP	OUTSIDE	CONTRACTOR	CONTRACTOR
LP-2	LUBE PUMP	OUTSIDE	CONTRACTOR	CONTRACTOR
LP-3	LUBE PUMP	FUTURE	FUTURE	FUTURE
SP-2	SCREW PUMP	OUTSIDE	CONTRACTOR	CONTRACTOR
SP-3	SCREW PUMP	OUTSIDE	CONTRACTOR	CONTRACTOR
SP-4	SCREW PUMP	FUTURE	FUTURE	FUTURE
RVSS-1	MOTOR CONTROLLER	OUTSIDE	CONTRACTOR	CONTRACTOR
RVSS-2	MOTOR CONTROLLER	OUTSIDE	CONTRACTOR	CONTRACTOR
RVSS-3	MOTOR CONTROLLER	FUTURE	FUTURE	FUTURE

INSTRUMENTS				
TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
LT-1	LEVEL TRANSMITTER	OUTSIDE	CONTRACTOR	CONTRACTOR

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 FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

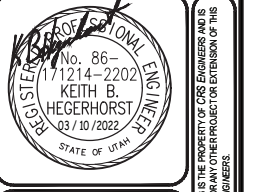
GENERAL NOTES:

1. NOT USED

SHEET KEYNOTES:

1. NOT USED

REV#	BY	DATE	DESCRIPTION



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IF THE SCALE BAR AT LEFT DOES NOT MEASURE 1 INCH EXACTLY, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SPECIFIED IN THE DRAWING TAKE PRECEDENCE TO SCALED DIMENSIONS.

PROVO CITY
 PROVO AIRPORT PUMP STATION
 ELECTRICAL LEGEND, SHT. 2

PROJECT NUMBER: 2019-0033	SHEET OF 27 41	SHEET NUMBER: E102
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ISSUE DATE: OCT 4, 2020
 DRAWN BY: G. SORENSON
 CHECKED BY: K. HEGERHORST
 PROJECT MANAGER: M. CHAMBERLAIN

PANELBOARD MDP

LOCATION: PLATFORM	MFR: SQUARE D COMPANY	600 AMPS	VOLTS: 480Y/277
DIMENSIONS: 20"Wx 6"Dx 26"H	TYPE: F-LINE	X M.L.O	PHASE: 3
MOUNTING: SURFACE	NEMA: 3R	22,000 A.I.C.	WIRES: 4
FED: BOTTOM	X SURGE PROTECTION FED FROM: UTILITY		

BRKR	A	P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS					
								A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
15	2		TRANSFORMER L	212	1,350	720	1	850	0	500	720		
200	3		SCREW PUMP NO. 1 (100 HP)	320	102,970		2	34,323	0	34,323	0	34,323	0
200	3		SCREW PUMP NO. 2 (100 HP)	320		102,970	3	0	34,323	0	34,323	0	34,323
200	3		SCREW PUMP NO. 3 (FUT. 100 HP)	320		102,970	4	0	34,323	0	34,323	0	34,323
50	3		CP-2 SMALL MOTOR CP	38	17,438	2,367	5	5,813	789	5,813	789	5,813	789
			3 SURGE DEVICE	-			6						
			3 SPACE				7						
TOTAL WATTS:					121,758	209,026		40,986	69,435	40,636	70,155	40,136	69,435
CONTINUOUS LOAD:					121,758								
CONTINUOUS LOAD * 125%:					152,198								
NON-CONTINUOUS LOAD:					209,026								
DESIGN WATTS:					361,223								
MIN. RATING (AMPS):					435								

TRANSFORMER L

LOCATION: PLATFORM	5.0 PRIMARY AMPS	PRIMARY VOLTS: 480
DIMENSIONS:	10.0 SECONDARY AMPS	SECONDARY VOLTS: 240/120
MOUNTING: WALL		KVA: 3
FED: S SIDE		FED FROM: PNL MDP

	CONT. WATTS	N-CONT. WATTS	PHASE LOADS			
			A CONT.	A N-CONT.	B CONT.	B N-CONT.
CP-1 CONTROL PANEL	1,350	720	850	0	500	720
TOTAL WATTS:	1,350	720	850	0	500	720
CONTINUOUS LOAD:	1,350					
CONTINUOUS LOAD * 125%:	1,688					
NON-CONTINUOUS LOAD:	720					
DESIGN WATTS:	2,408					

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 HPE PROJECT: 21.030 ©2021
 FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED

SHEET KEYNOTES:

1. NOT USED

PANELBOARD L

LOCATION: PLATFORM	MFR: SQUARE D	100 AMPS	VOLTS: 240/120
DIMENSIONS: 20"W x 5.75"D x 38"H	TYPE: NQ	40 M.C.B.	PHASE: 1
MOUNTING: SURFACE	NEMA: 3R	10,000 A.I.C.	WIRES: 3
FED: TOP	X SPD FED FROM: TRANSFORMER L		

BRKR	A	P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS				BRKR
								A CONT.	A N-CONT.	B CONT.	B N-CONT.	
20	1		LTS, STANTION MOUNTED	212	350		1	850	0			20
20	1		RECPT.	21		720	3			500	720	20
20	1		SPARE				5	0	0			20
			1 SPACE				7			0	0	1
			1 SPACE				9	0	0			1
			1 SPACE				11			0	0	1
			1 SPACE				13	0	0			1
			1 SPACE				15			0	0	1
			1 SPACE				17	0	0			1
TOTAL WATTS:					350	720		850	0	500	720	
CONTINUOUS LOAD:					1,350							
CONTINUOUS LOAD * 125%:					1,688							
NON-CONTINUOUS LOAD:					720							
DESIGN WATTS:					2,408							
MIN. RATING (AMPS):					7							

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER		FX VA	LAMP	LUMENS	KELVIN	MOUNTING	NOTES:
		NAME	CATALOG NO.						
F1A	LED AREA LIGHT, STANTION MOUNTED W/STANTION MOUNT BRACKET	DIALIGHT	STW-00-070-1111-212, 70W, 180 DEG	70	LED	N/A	4500	STANTION	
F1B	POLE	DUROSITE	HZC-3000	0	0	0	0	0	

NOTES: 1)

CP-2 SMALL MOTOR CONTROL PANEL

LOCATION: PLATFORM	MFR: CUSTOM	AMPS	VOLTS: 480
DIMENSIONS: 36"Wx 12"Dx 42"H	TYPE:	M.L.O	PHASE: 3
MOUNTING: SURFACE	NEMA: 3R	A.I.C.	WIRES: 3
FED: BOTTOM	FED FROM: MDP		

BRKR	A	P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS				
								A CONT.	A N-CONT.	B CONT.	B N-CONT.	
40	2		SUMP PUMP (15 HP)	30	17,438			5,813	0	5,813	0	5,813
15	3		LUBE PUMP NO. 1 (1/3 HP)	312		789	2	0	263	0	263	0
15	3		LUBE PUMP NO. 2 (1/3 HP)	312		789	2	0	263	0	263	0
15	3		LUBE PUMP NO. 3 (1/3 HP)	312		789	3	0	263	0	263	0
			CONTROL POWER				4					
TOTAL WATTS:					17,438	2,367		5,813	789	5,813	789	5,813
CONTINUOUS LOAD:					17,438							
CONTINUOUS LOAD * 125%:					21,798							
NON-CONTINUOUS LOAD:					2,367							
DESIGN WATTS:					24,165							
MIN. RATING (AMPS):					29							



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PROVO CITY
 PROVO AIRPORT PUMP STATION
 ELECTRICAL SCHEDULES

PROJECT NUMBER: 2019-0033
 SHEET OF: 28 OF 41
 SHEET NUMBER: E201

File Path: M:\21.030 - Provo Storm Water PSD\Drawings\E201.dwg Mar 10, 2022, 2:33pm

ISSUE DATE: OCT 4, 2020
 DRAWN BY: G. SORENSON
 CHECKED BY: K. HEGERHORST
 PROJECT MANAGER: M. CHAMBER PE

ELECTRICAL UTILITY INSTALLATION

UTILITY INFORMATION	
UTILITY COMPANY:	PROVO CITY POWER
UTILITY COMPANY CONTACT:	
CONTACT INFORMATION: PHONE:	
WORK ORDER NUMBER:	

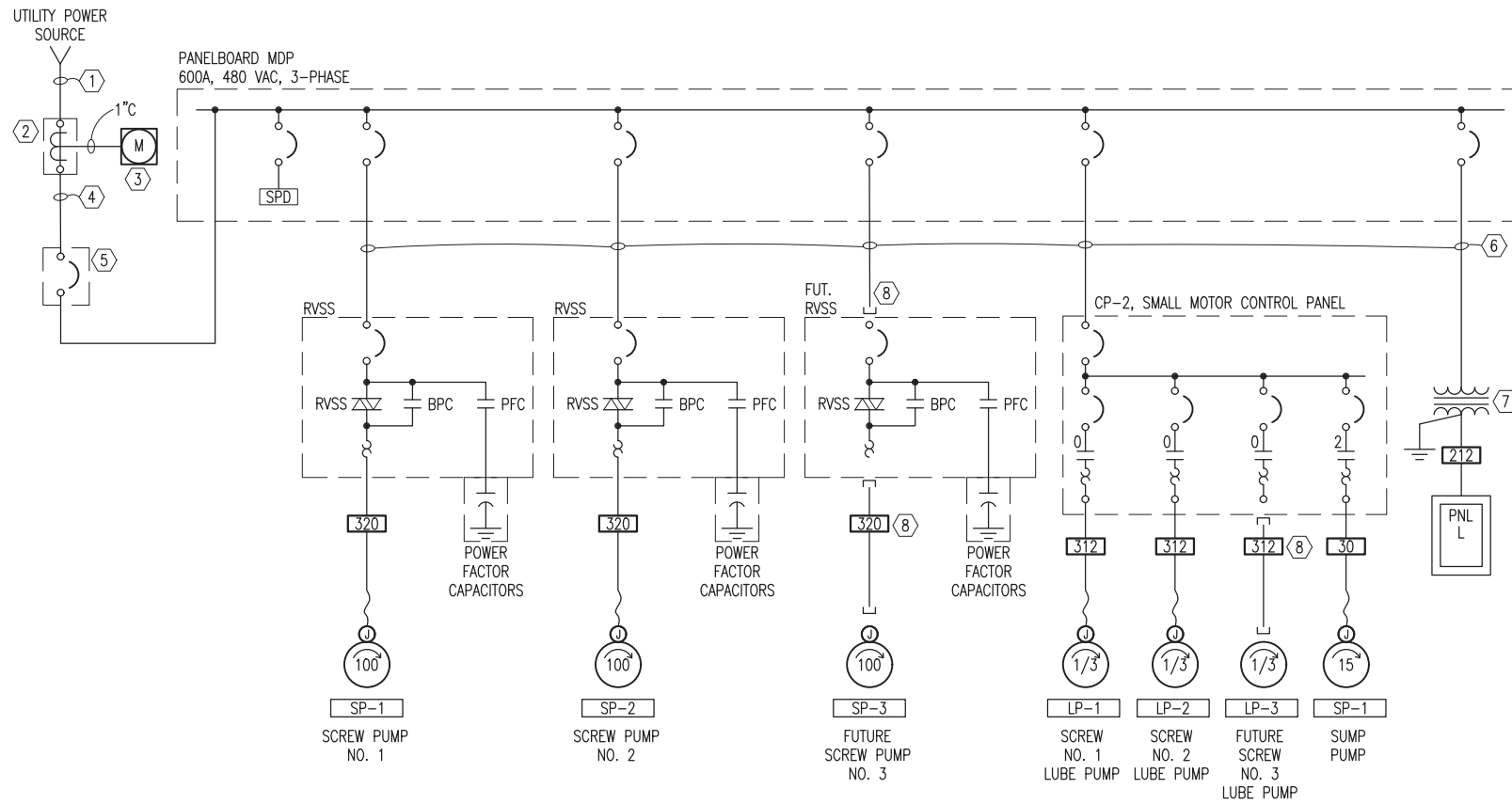
SERVICE PRIMARY		
PRIMARY TRENCHING/BACKFILL	SUPPLIED BY:	INSTALLED BY:
PRIMARY CONDUIT	CONTRACTOR	CONTRACTOR
PRIMARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY

SERVICE TRANSFORMER		
TRANSFORMER PAD	SUPPLIED BY:	INSTALLED BY:
TRANSFORMER	UTILITY COMPANY	UTILITY COMPANY

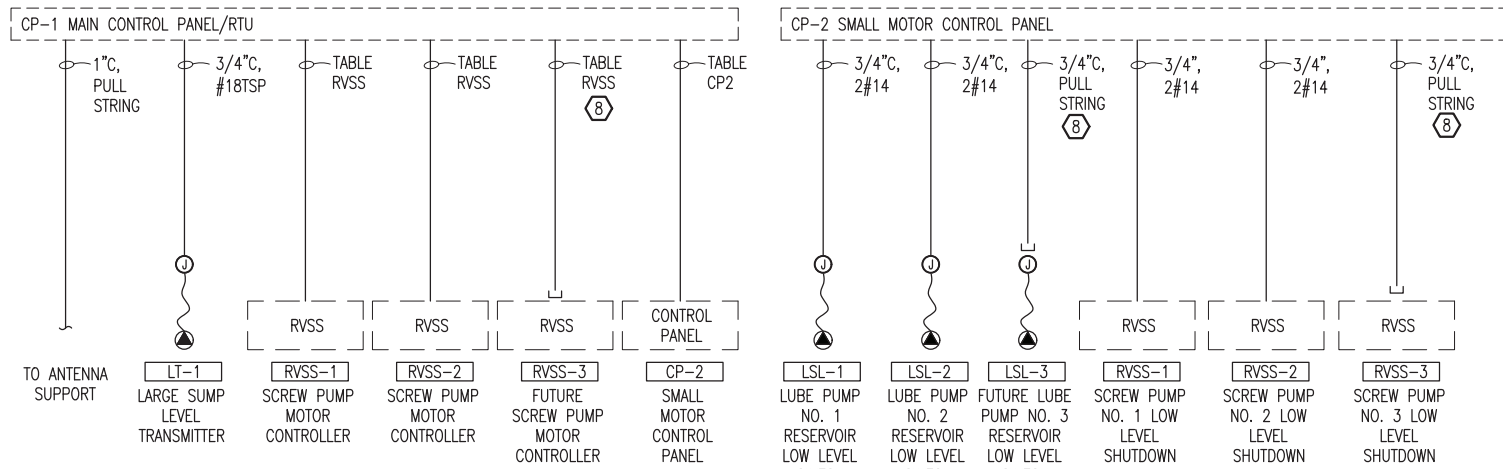
SERVICE SECONDARY		
SECONDARY TRENCHING/BACKFILL	SUPPLIED BY:	INSTALLED BY:
SECONDARY CONDUIT	CONTRACTOR	CONTRACTOR
SECONDARY CONDUCTOR	CONTRACTOR	CONTRACTOR

METERING EQUIPMENT		
METER	SUPPLIED BY:	INSTALLED BY:
METER SOCKET	UTILITY COMPANY	UTILITY COMPANY
COMBO METER/MAIN	CONTRACTOR	CONTRACTOR
CURRENT TRANSFORMER ENCL.	CONTRACTOR	CONTRACTOR
MAIN SERVICE DISCONNECT	CONTRACTOR	CONTRACTOR
CT ENCL. TO METER SOCKET WIRING	CONTRACTOR	CONTRACTOR
CT ENCL. TO METER SOCKET CONDUIT	UTILITY COMPANY	UTILITY COMPANY

MAIN SERVICE DISCONNECT		
CIRCUIT BREAKER	SUPPLIED BY:	INSTALLED BY:
FUSED DISCONNECT SWITCH	CONTRACTOR	CONTRACTOR



1 POWER ONE-LINE DIAGRAM
SCALE: 1" = 1'-0"



2 INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM
SCALE: 1" = 1'-0"

9 TABLE CP2 (CP-1 TO CP-2)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	FUT. LUBE PUMP #3 LOW LEVEL SHDN
	1	#14	FUT. LUBE PUMP NO. 3 HOA IN AUTO
	1	#14	FUT. LUBE PUMP NO. 3 HOA IN HAND
	1	#14	FUT. LUBE PUMP NO. 3 ON
	1	#14	LUBE PUMP #1 LOW LEVEL SHDN
	1	#14	LUBE PUMP #2 LOW LEVEL SHDN
	1	#14	LUBE PUMP NO. 1 HOA IN AUTO
	1	#14	LUBE PUMP NO. 1 HOA IN HAND
	1	#14	LUBE PUMP NO. 1 ON
	1	#14	LUBE PUMP NO. 2 HOA IN AUTO
	1	#14	LUBE PUMP NO. 2 HOA IN HAND
	1	#14	LUBE PUMP NO. 2 ON
4	#14	SPARE	
3/4"	-	-	SPARE

TABLE RVSS (CP-1 TO RVSS)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1"	1	#14	INPUT COMMON
	1	#14	OUTPUT COMMON
	1	#14	SCREW PUMP HOA IN HAND
	1	#14	SCREW PUMP HOA IN AUTO
	1	#14	SCREW PUMP ON
	1	#14	SCREW PUMP RVSS FAILED
	1	#14	SPARE
3/4"	-	-	SPARE

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POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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HPE PROJECT: 21.030 ©2021
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

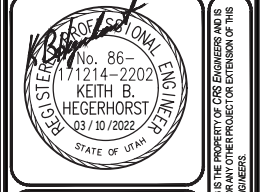
GENERAL NOTES:

1. ALL ELECTRICAL ENCLOSURES INSTALLED OUTDOORS SHALL BE LOCKABLE.

SHEET KEYNOTES:

- 4°C.
- CT ENCLOSURE: 600A, 480 VAC, 3-PHASE, NEMA 3R ENCLOSURE.
- UTILITY METER SOCKET: PROVIDE AS REQUIRED BY UTILITY COMPANY.
- (2) 4°C.
- MAIN SERVICE DISCONNECT: 480 VAC, 600A, 3-PH, 4-W, LOCKABLE NEMA 3R ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" AND AS REQUIRED BY NEC 110.24.
- REFER TO PANELBOARD SCHEDULE FOR CIRCUIT ID, THEN REFER TO THE CONDUIT/CONDUCTOR TABLE ON E201 FOR THE WIRE AND CONDUIT REQUIREMENTS.
- TRANSFORMER L: 3 KVA, PRI: 480 VAC, SEC: 120/240 VAC, 1-PHASE.
- INSTALL ONLY CONDUIT WITH PULL STRING. DO NOT INSTALL CONDUCTORS FOR FUTURE EQUIPMENT. PROVIDE PERMANENT CAP (NO DUCT TAPE.)
- INSTALL CONDUCTORS FOR FUTURE EQUIPMENT. LEAVE 48-INCHES INSIDE ENCLOSURE AND LABEL EACH CONDUCTOR.

REV#	DATE	DESCRIPTION



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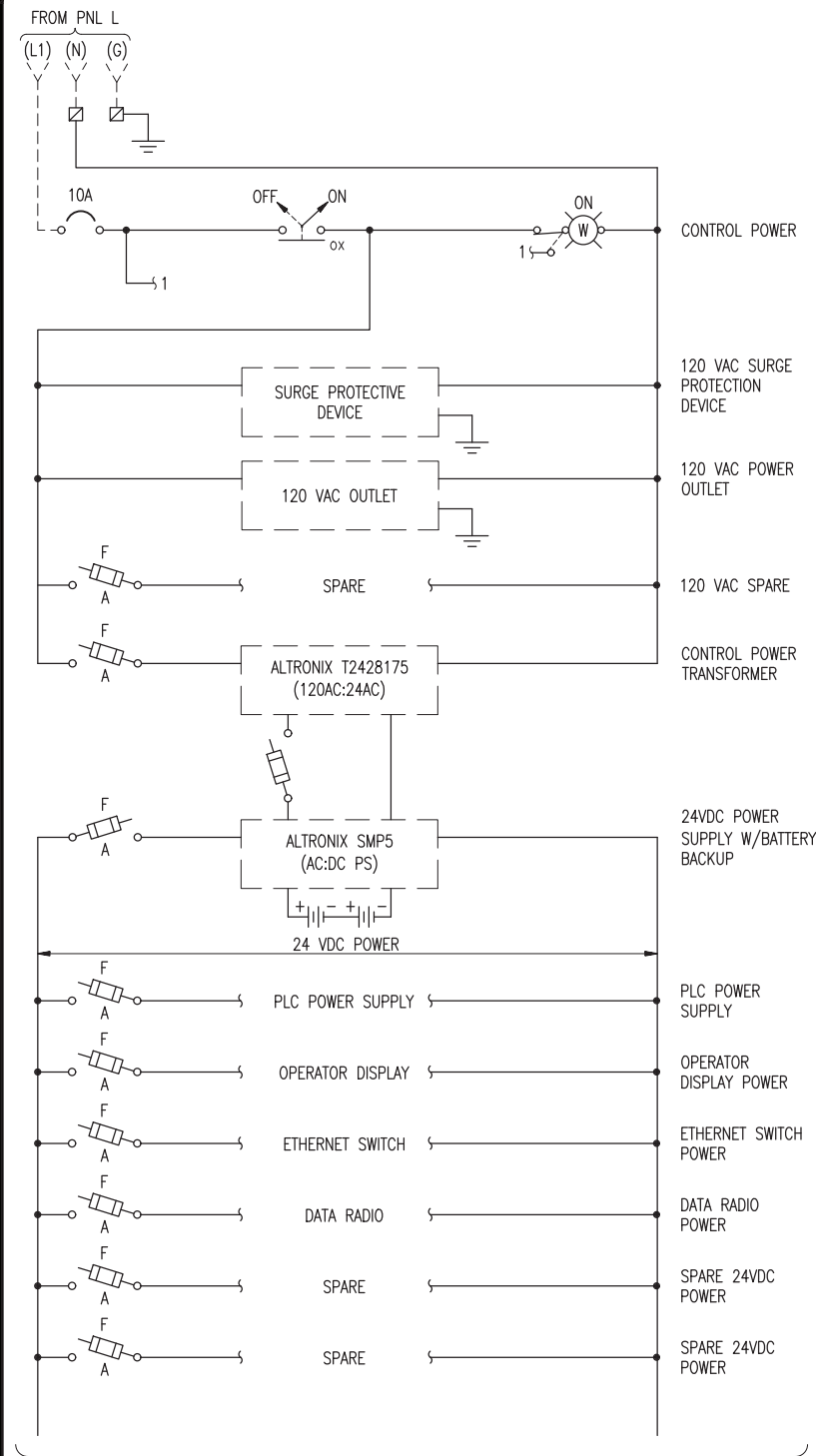
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IF THE SCALE BAR LET DOES NOT MEASURE 1 INCH EXACTLY, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SHOWN IN THE DRAWING TAKE PRECEDENCE TO SCALED DIMENSIONS.

PROVO CITY
PROVO AIRPORT PUMP STATION
ONE-LINE DIAGRAMS

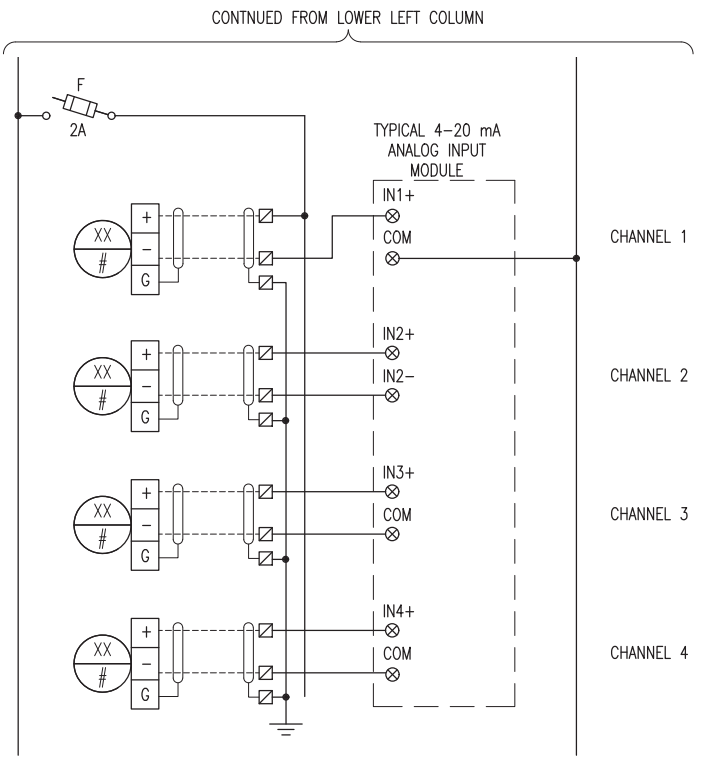
PROJECT NUMBER: 2019-0033	SHEET OF 29 OF 41	SHEET NUMBER: E301
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File Path: M:\21.030 - Provo Storm Water PSD\Drawings\E302.dwg Mar 10, 2022, 2:33pm

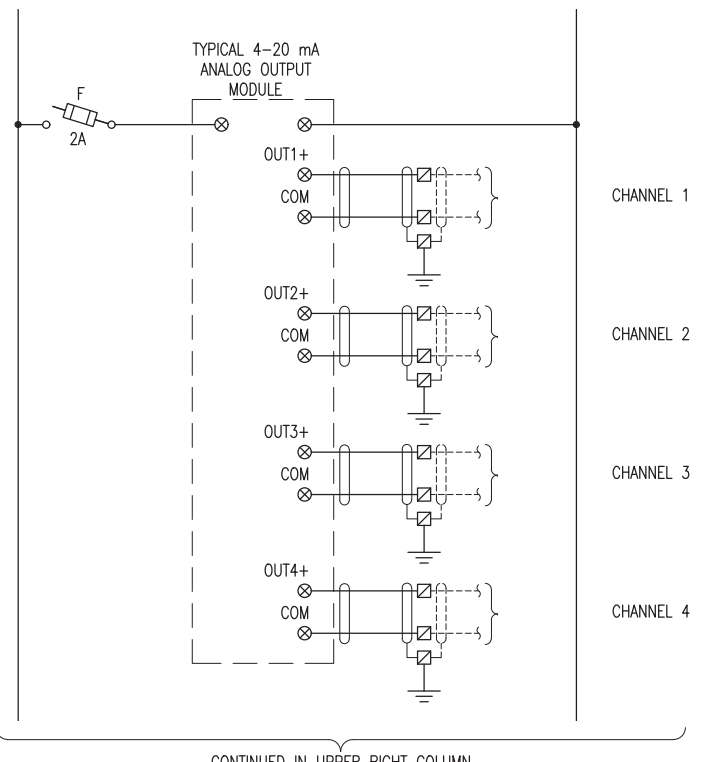


1 POWER LOGIC
SCALE: N/A

CONTINUED IN UPPER RIGHT COLUMN



2 TYPICAL ANALOG INPUT MODULE
SCALE: NTS



3 TYPICAL ANALOG OUTPUT MODULE
SCALE: NTS

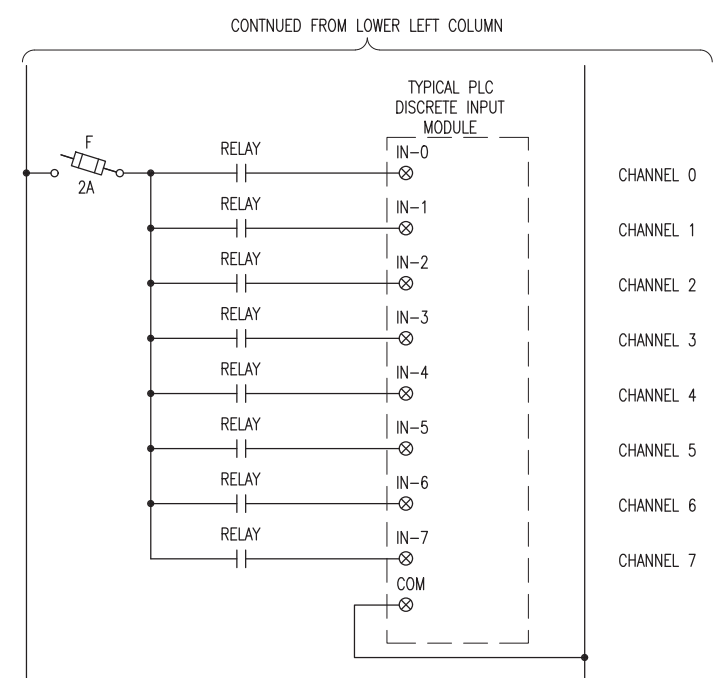
CONTINUED IN UPPER RIGHT COLUMN

- TERMINAL LEGEND**
- FIELD TERMINAL
 - ☒ CP-1 MAIN CONTROL PANEL/RTU
 - ⊗ CP-2 SMALL MOTOR
 - ⊙ RVSS MOTOR CONTROLLER

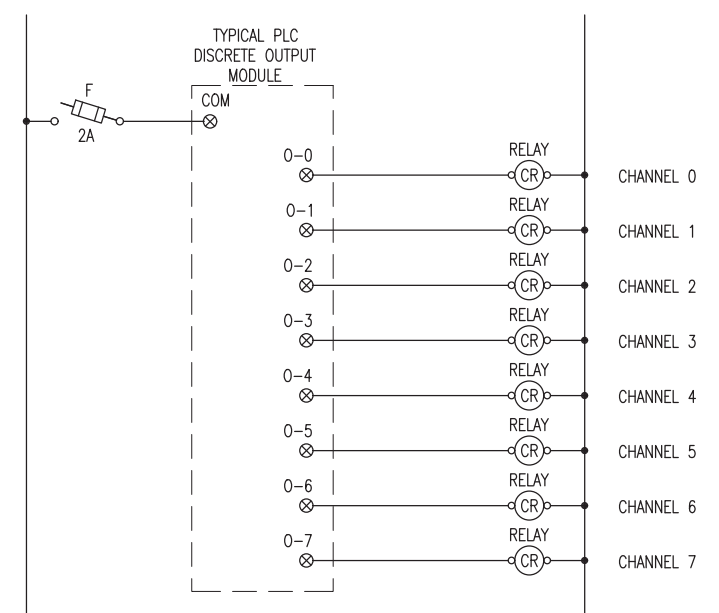
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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH AMERICAN FORK, UT 84003 FAX (801) 642-2154
HPE PROJECT: 21.030 FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST ©2021

- GENERAL NOTES:**
- CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR FOR THE DEVICES USED.
 - CONTRACTOR SHALL PROVIDE WIRE, TERMINAL AND FUSE NUMBERS AS REQUIRED.

- SHEET KEYNOTES:**
- NOT USED.

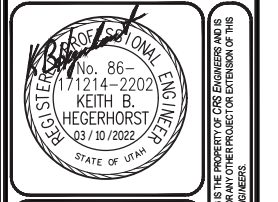


4 TYPICAL DISCRETE INPUT MODULE
SCALE: NTS



5 TYPICAL DISCRETE OUTPUT MODULE
SCALE: NTS

REV#	BY	DATE	DESCRIPTION



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PROVO CITY
PROVO AIRPORT PUMP STATION
CP-1 TYPICAL WIRING DIAGRAM, SHT. 1

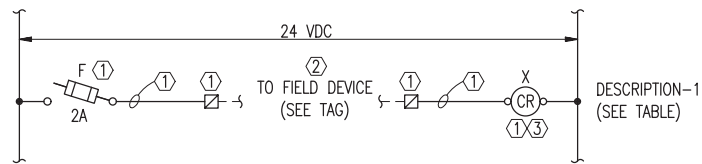
PROJECT NUMBER: 2019-0033	SHEET OF 30 41	SHEET NUMBER: E302
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ISSUE DATE
OCT 4, 2020
DRAWN BY
K. HEGERHORST
CHECKED BY
M. CHAMBER PE
PROJECT MANAGER
K. HEGERHORST

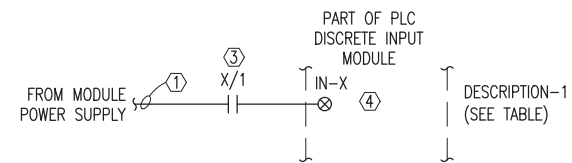
IF THE SCALE BAR AT LET DOES NOT MEASURE 1 INCH IN LENGTH, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SPECIFIED IN THE DRAWING TAKE PRECEDENCE TO SCALED DIMENSIONS. PROJECT CREDIT BY FUSE NUMBERS TO SCALED DIMENSIONS.

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR MAY COMBINE CONDUCTORS IN COMMON CONDUIT TO DEVICES IN SAME PROXIMITY.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.
4. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



INTERPOSE RELAY LOGIC

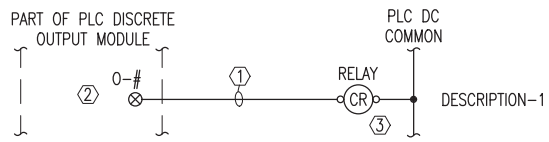


PLC DISCRETE INPUT LOGIC

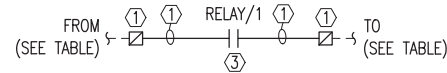


NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.



PLC DISCRETE OUTPUT LOGIC



INTERPOSE RELAY LOGIC



TERMINAL LEGEND

- FIELD TERMINAL
- CP-1 MAIN CONTROL PANEL/RTU
- CP-2 SMALL MOTOR
- RVSS MOTOR CONTROLLER

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GENERAL NOTES:

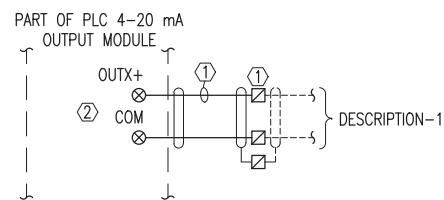
1. NOT USED

SHEET KEYNOTES:

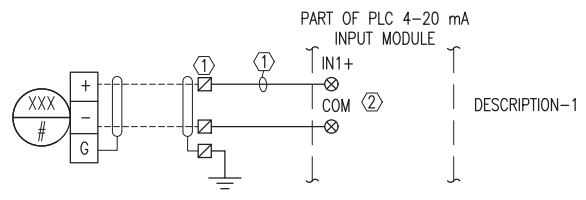
1. NOT USED

NOTES:

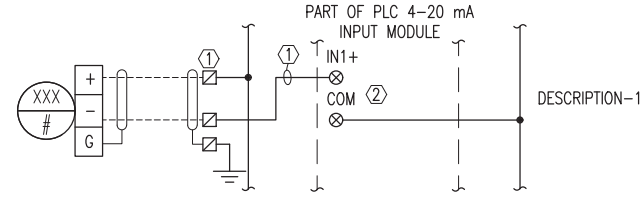
1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



PLC ANALOG OUTPUT



PLC ANALOG INPUT TYPE 1



PLC ANALOG INPUT TYPE 2

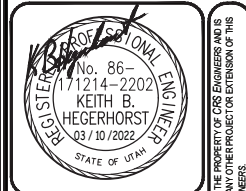
NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



File Path: M:\21.030 - Provo Storm Water PSD\Drawings\E303.dwg Mar 10, 2022, 2:34pm

REV#	DATE	DESCRIPTION



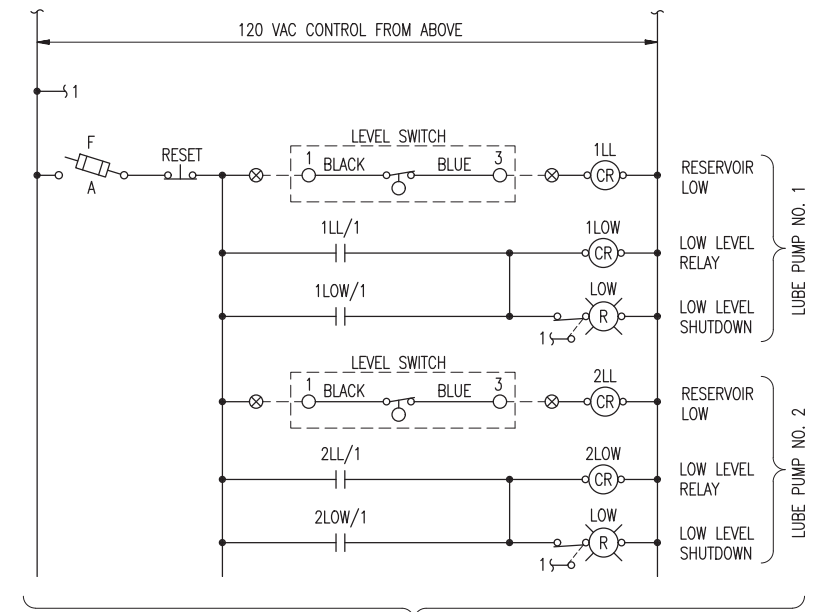
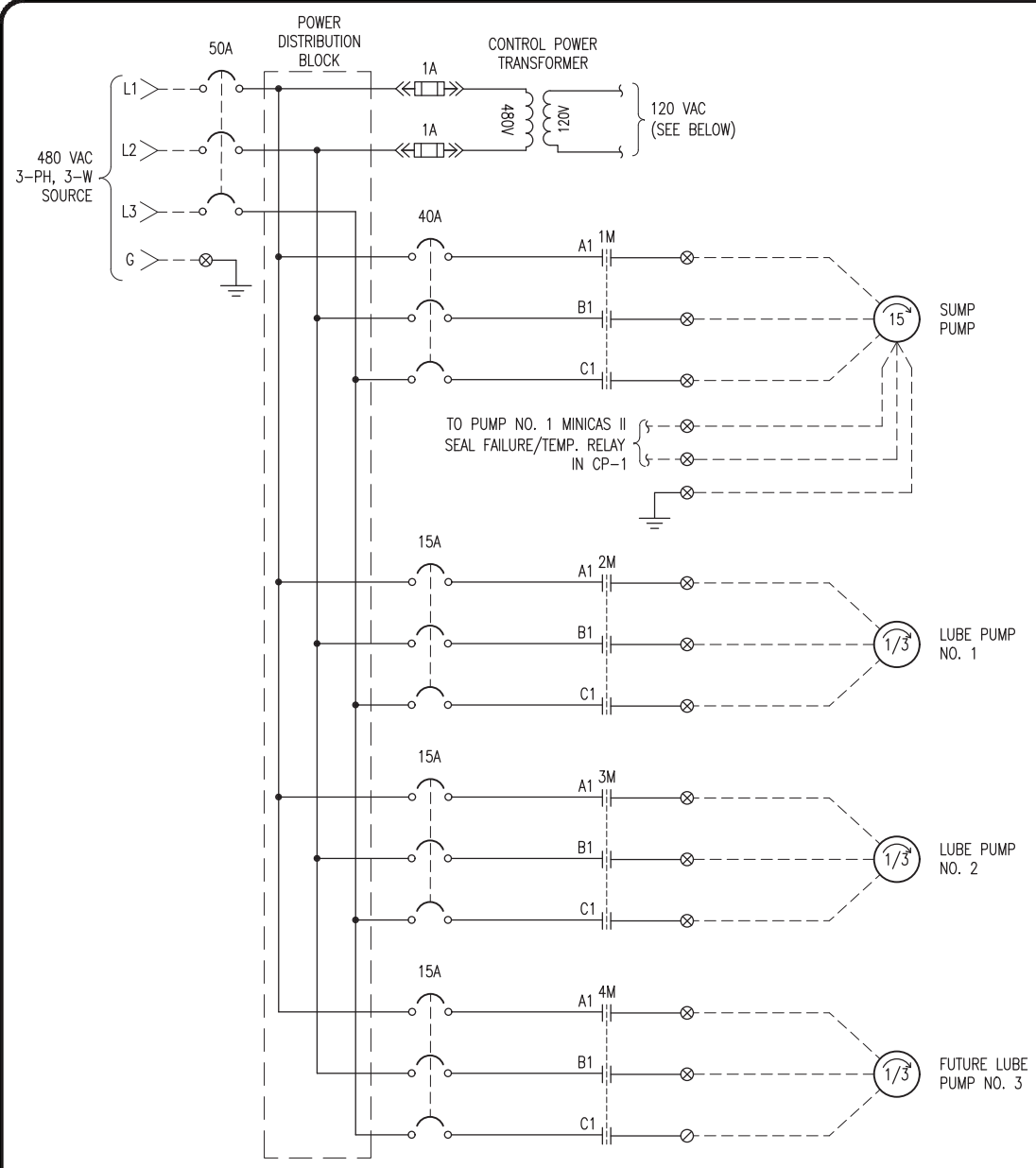
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PROVO CITY
PROVO AIRPORT PUMP STATION
 CP-1 TYPICAL WIRING DIAGRAM, SHT. 2

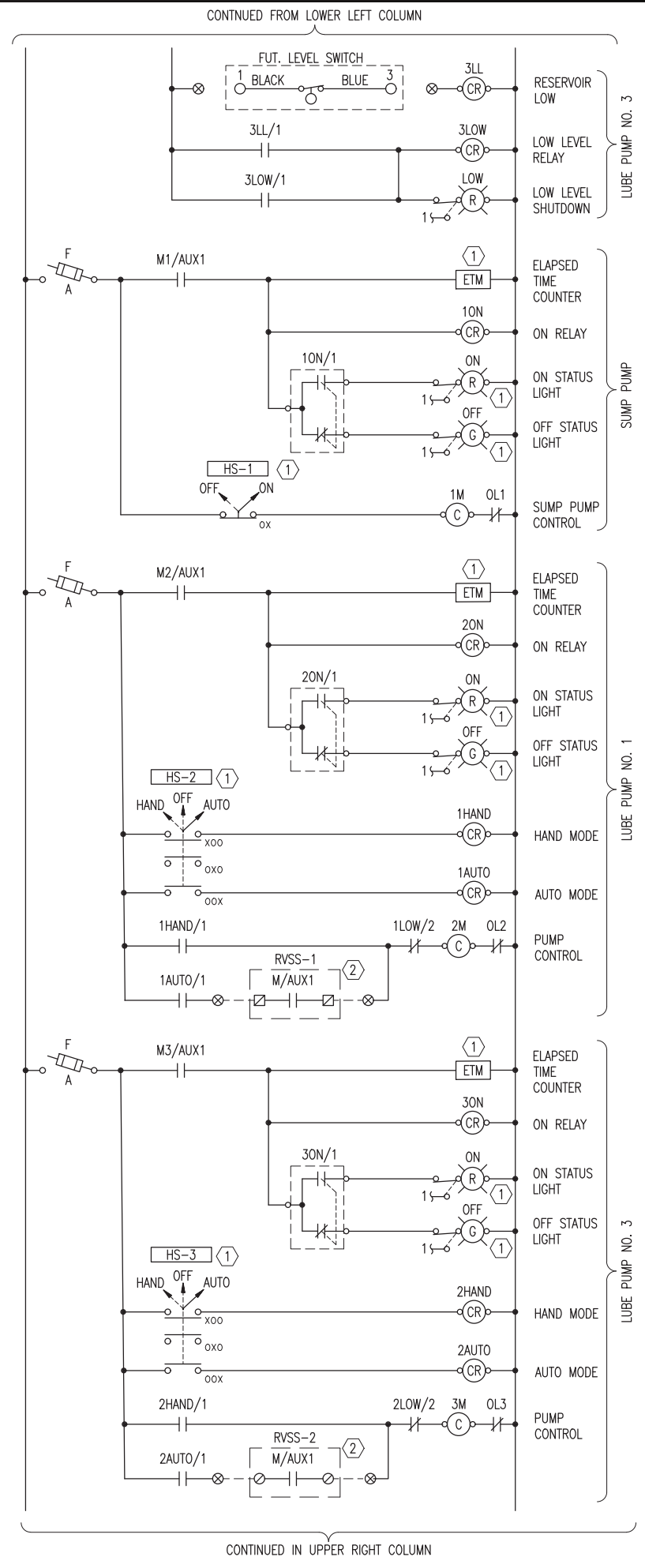
PROJECT NUMBER: 2019-0033	OF SHEET 41
SHEET 31	SHEET NUMBER: E303

IF THE SCALE BAR LET DOES NOT MEASURE 1 INCH IN LENGTH, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SHOWN IN THE DRAWING TAKE PRECEDENCE TO SCALED DIMENSIONS. PROJECT CHECKED BY: FUSE WITH CRS ENGINEERS. PROJECT MANAGER: M. CHAMBERLAIN. DRAWN BY: K. HEGERHORST. ISSUE DATE: OCT 4, 2020.

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CONTINUED IN UPPER RIGHT COLUMN



CONTINUED IN UPPER RIGHT COLUMN

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HPE PROJECT: 21.030 FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST
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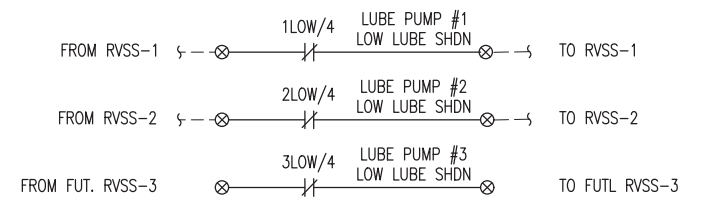
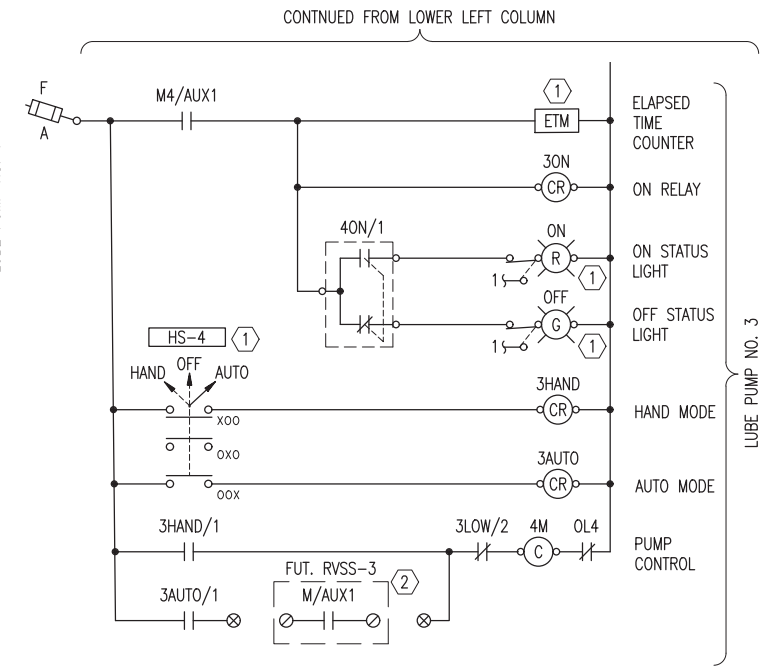
GENERAL NOTES:

- DIAGRAM IS TYPICAL AND AS ANTICIPATED. MODIFY AS REQUIRED FOR THE DEVICES PROVIDED.
- ENCLOSURE ARRANGEMENT SHOWN ON EXXX.
- CONTRACTOR SHALL PROVIDE TERMINAL NUMBERS, WIRE NUMBERS AND FUSE NUMBERS AS REQUIRED.

SHEET KEYNOTES:

- DEVICE INSTALLED ON INTERIOR SWING-OUT PANEL AND AVAILABLE TO THE OPERATOR.
- DEVICE INSTALLED IN SCREW PUMP MOTOR CONTROLLER.
- NOT USED

- TERMINAL LEGEND**
- FIELD TERMINAL
 - ⊠ CP-1 MAIN CONTROL PANEL/RTU
 - ⊗ CP-2 SMALL MOTOR
 - ⊙ RVSS MOTOR CONTROLLER



CONTINUED TOP LEFT COLUMN, E305

1 CP-2 CONTROL DIAGRAM
SCALE: NTS

REV#	BY	DATE	DESCRIPTION

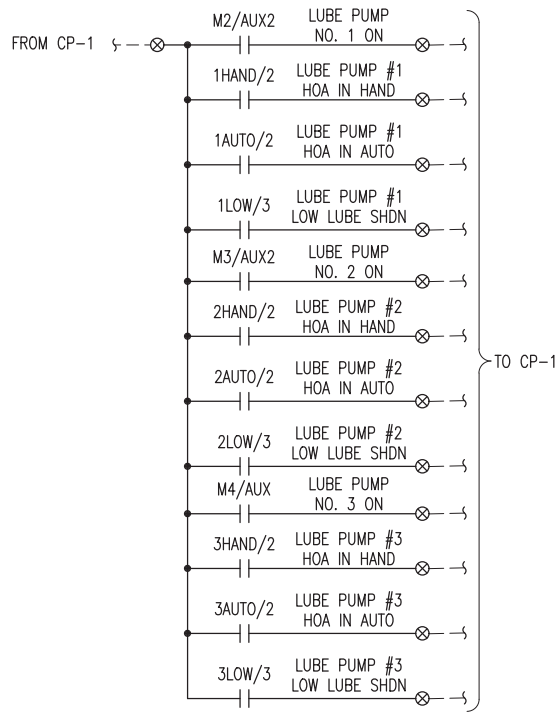
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PROVO CITY ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
03/10/2022
STATE OF UTAH

PROVO CITY
PROVO AIRPORT PUMP STATION
CP-2 TYPICAL CONTROL DIAGRAM, SHT. 1

PROJECT NUMBER: 2019-0033	SHEET OF 32 41	SHEET NUMBER: E304
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CONTINUED FROM LOWER RIGHT COLUMN, E304



1 CP-2 CONTROL DIAGRAM
SCALE: NTS

TERMINAL LEGEND

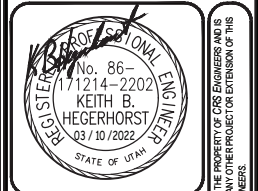
- FIELD TERMINAL
- ☒ CP-1 MAIN CONTROL PANEL/RTU
- ⊗ CP-2 SMALL MOTOR
- ⊙ RVSS MOTOR CONTROLLER

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FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

- REFER TO E5-3 FOR NOTES.

REV#	DATE	DESCRIPTION	PROJECT MANAGER	CHECKED BY	DRAWN BY	ISSUE DATE
			M. CHAMBER, PE	K. HEGERHORST	G. SORENSON	OCT 4, 2020



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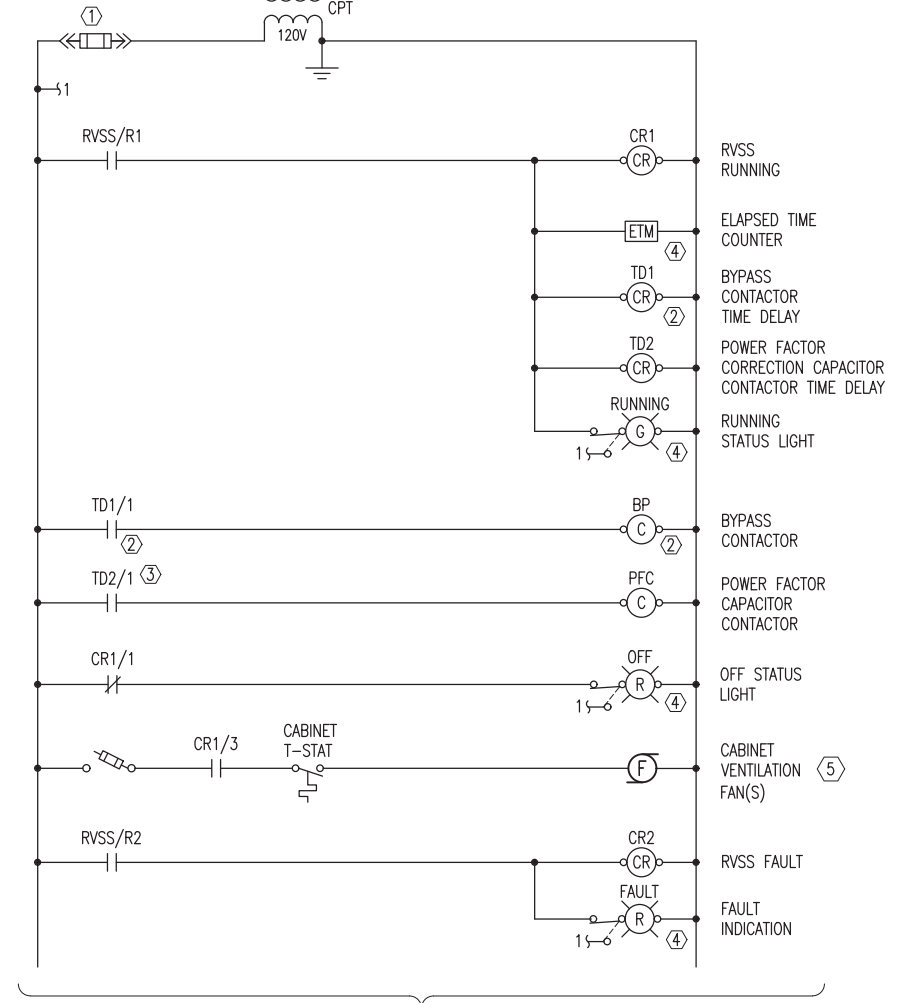
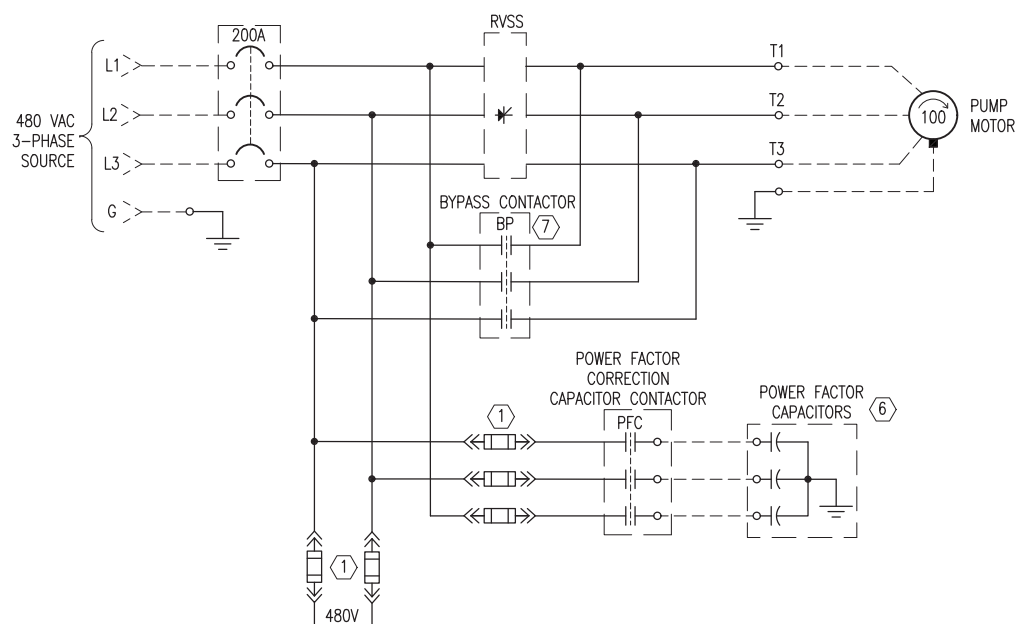
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1 IF THE SCALE BAR AT LEFT DOES NOT MEASURE 1 INCH IN LENGTH, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SPECIFIED IN THE DRAWING TAKE PRECEDENCE TO SCALED MEASUREMENTS.

PROVO CITY
PROVO AIRPORT PUMP STATION
CP-2 TYPICAL CONTROL DIAGRAM, SHT. 2

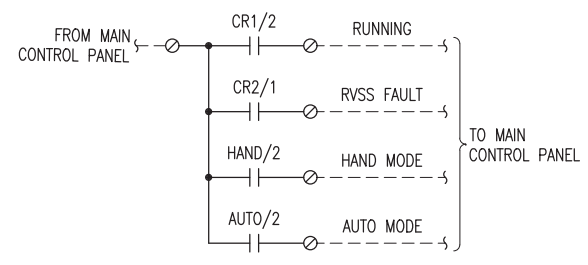
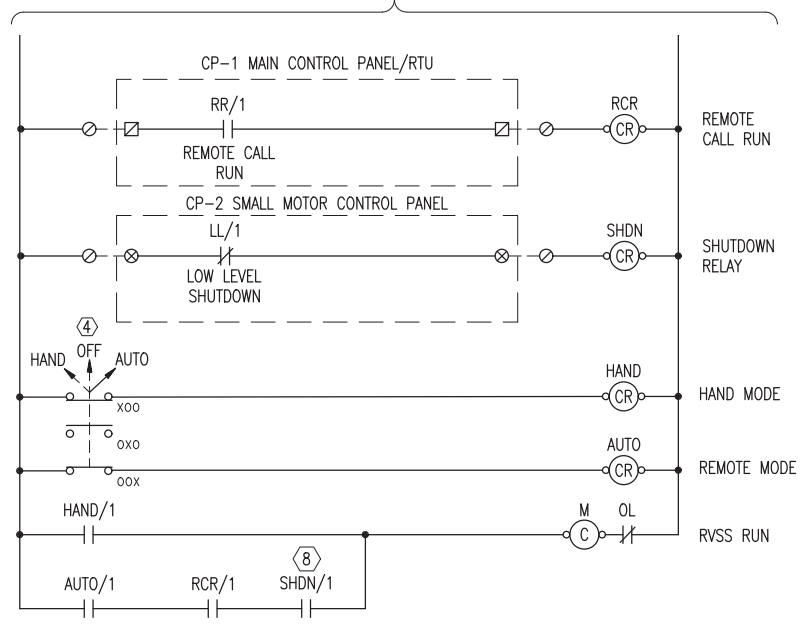
PROJECT NUMBER: 2019-0033	SHEET OF 33 41	SHEET NUMBER: E305
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File Path: M:\21.030 - Provo Storm Water PSD\Drawings\E306.dwg Mar 10, 2022, 2:34pm



CONTINUED IN UPPER RIGHT COLUMN

CONTINUED FROM LOWER LEFT COLUMN



1 TYPICAL RVSS CONTROL DIAGRAM
SCALE: NTS

- TERMINAL LEGEND**
- FIELD TERMINAL
 - ☑ CP-1 MAIN CONTROL PANEL/RTU
 - ⊗ CP-2 SMALL MOTOR
 - ⊙ RVSS MOTOR CONTROLLER

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FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

- GENERAL NOTES:**
- CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR FOR THE SPECIFIC EQUIPMENT SUPPLIED. MODIFY AS REQUIRED FOR LIFT PUMP NO. 2.
 - PROVIDE A BLIND DOOR LOCKABLE ENCLOSURE WITH STAINLESS STEEL HARDWARE FOR THE RVSS UNIT. INSTALL OPERATOR DEVICES ON AN INTERNAL SWING-OUT PANEL. ENCLOSURE SHALL BE SIZED BY CONTRACTOR AS REQUIRED FOR THE MOTOR CONTROL DEVICES.

- SHEET KEYNOTES:**
- SUPPLIER SHALL SIZE FUSES.
 - BYPASS CONTACTOR TIME DELAY FUNCTIONS MAY BE BUILT INTO THE RVSS UNIT.
 - POWER FACTOR CAPACITORS SHALL BE ENERGIZED AFTER MOTOR IS RUNNING FULL SPEED AND ON THE BY-PASS CONTACTOR.
 - DEVICE SHALL BE INSTALLED ON THE MOTOR CONTROLLER INTERIOR SWING-OUT PANEL.
 - CABINET VENTILATION FAN SHALL OPERATE WHEN BOOSTER PUMP RVSS IS RUNNING AND CABINET TEMPERATURE IS ABOVE T-STAT SET POINT.
 - CONTRACTOR SHALL INSTALL POWER FACTOR CAPACITORS NEAR RVSS ENCLOSURES. COORDINATE WITH THE PUMP SUPPLIER FOR THE MOTOR POWER FACTOR AND SIZE CAPACITORS TO A PF OF 0.95 OR BETTER.
 - BYPASS CONTACTOR SHALL BE RATED AT MOTOR FLA TIMES 1.25% (MIN.).
 - LOW LUBE LEVEL SHUTDOWN SHALL OPERATE WHEN IN AUTO MODE ONLY.

REV#	BY	DATE	DESCRIPTION



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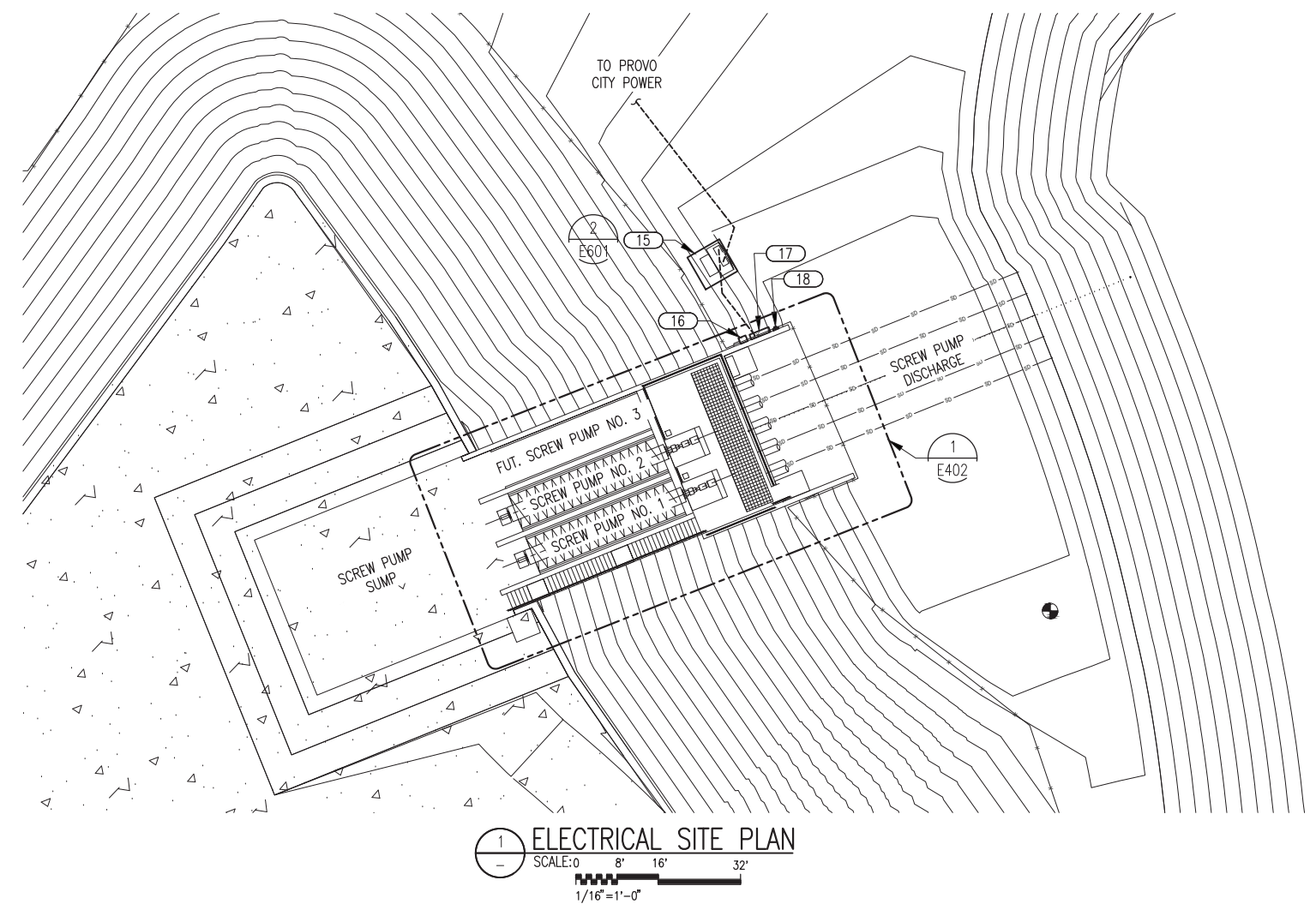
PROVO CITY
PROVO AIRPORT PUMP STATION
TYPICAL RVSS CONTROL DIAGRAM

PROJECT NUMBER: 2019-0033	OF SHEET 41	SHEET NUMBER: E306
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ISSUE DATE
OCT 4, 2020
DRAWN BY
G. SORENSON
CHECKED BY
K. HEGERHORST
PROJECT MANAGER
M. CHAMBER PE

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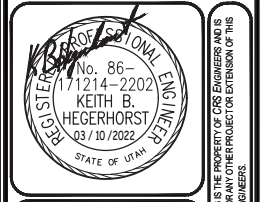
PROVO STORM WATER SITE LIST (E401)

DRAWING ID	TAG	DESCRIPTION	LOCATION
15	XFMR	UTILITY TRANSFORMER	OUTSIDE
16	MSD	MAIN SERVICE DISCONNECT	OUTSIDE
17	CTE	METERING CT ENCLOSURE	OUTSIDE
18	MS	METER SOCKET	OUTSIDE

- GENERAL NOTES:**
- REFER TO ONE-LINE DIAGRAM AND/OR PANELBOARD SCHEDULES FOR CIRCUIT ID, THEN REFER TO THE CONDUIT/CONDUCTOR TABLE FOR THE WIRE AND CONDUIT REQUIREMENTS.
 - NOT USED

- SHEET KEYNOTES:**
- NOT USED

REV#	DATE	DESCRIPTION



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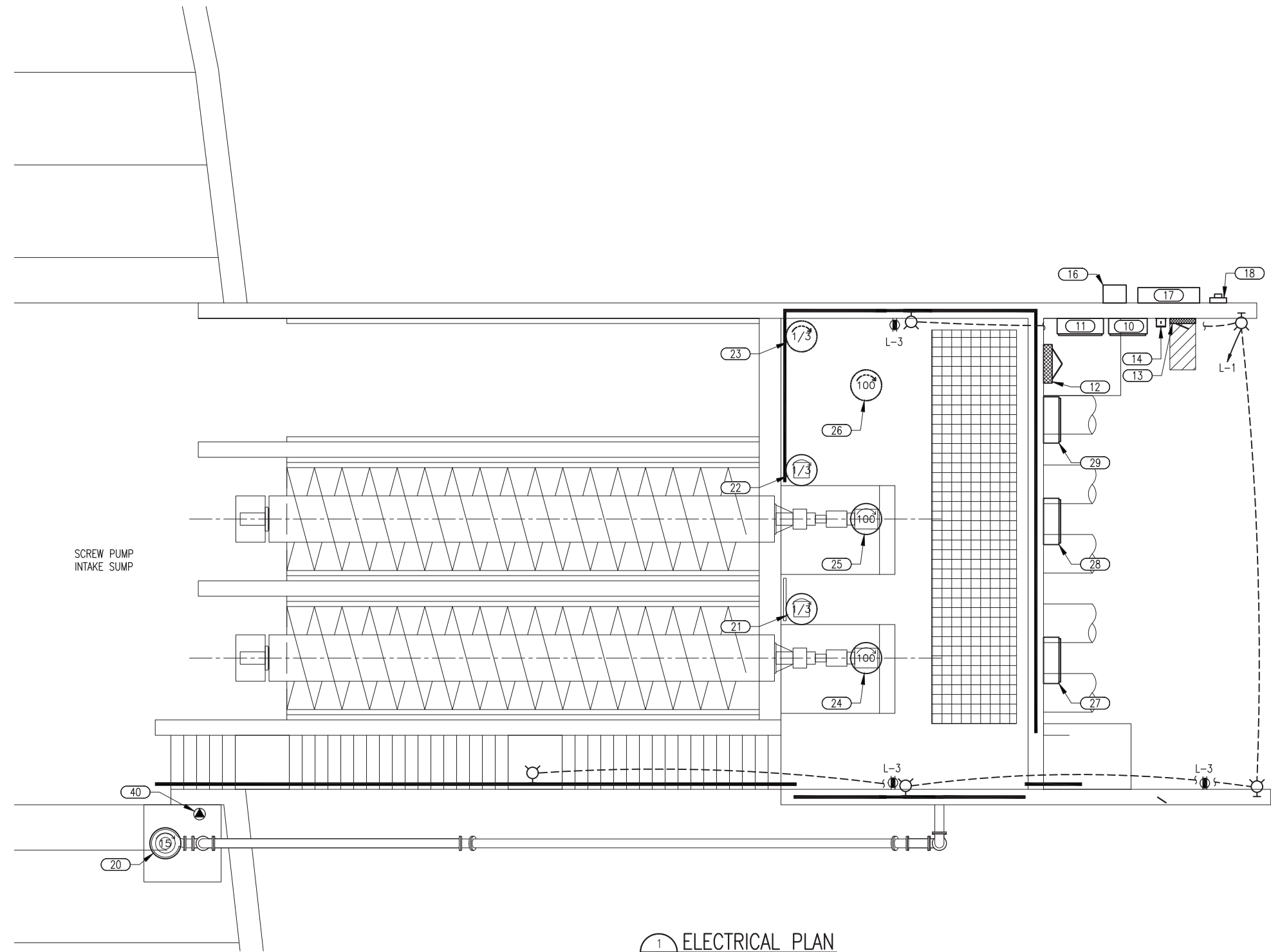
IF THE SCALE BAR AT LEFT DOES NOT MEASURE 1 INCH IN LENGTH, DO NOT USE THIS DRAWING FOR SCALING PURPOSES. DIMENSIONS AND MEASUREMENTS SPECIFIED IN THE DRAWING TAKE PRECEDENCE TO SCALED DIMENSIONS.

PROVO CITY
 PROVO AIRPORT PUMP STATION
 ELECTRICAL SITE PLAN

PROJECT NUMBER: 2019-0033	SHEET OF 35 41	SHEET NUMBER: E401
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ISSUE DATE
OCT 4, 2020
 DRAWN BY
G. SORENSON
 CHECKED BY
K. HEGERHORST
 PROJECT MANAGER
M. CHAMBER, PE

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1 ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

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AMERICAN FORK, UT 84003
HPE PROJECT: 21.030 ©2021
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

LIFT STATION ELECTRICAL LIST (E402)

DRAWING ID	TAG	DESCRIPTION	LOCATION
10	CP-1	MAIN CONTROL PANEL/RTU	OUTSIDE
11	CP-2	SMALL MOTOR CONTROL PANEL	OUTSIDE
12	MDP	PANELBOARD MDP	OUTSIDE
13	PNL-L	PANELBOARD L	OUTSIDE
14	XFMR-L	TRANSFORMER L	OUTSIDE
16	MSD	MAIN SERVICE DISCONNECT	OUTSIDE
17	CTE	METERING CT ENCLOSURE	OUTSIDE
18	MS	METER SOCKET	OUTSIDE
19	UM	UTILITY METER	OUTSIDE
20	SP-1	SUMP PUMP	OUTSIDE
21	LP-1	LUBE PUMP	OUTSIDE
22	LP-2	LUBE PUMP	OUTSIDE
23	LP-3	LUBE PUMP	FUTURE
24	SP-2	SCREW PUMP	OUTSIDE
25	SP-3	SCREW PUMP	OUTSIDE
26	SP-4	SCREW PUMP	FUTURE
27	RVSS-1	MOTOR CONTROLLER	OUTSIDE
28	RVSS-2	MOTOR CONTROLLER	OUTSIDE
29	RVSS-3	MOTOR CONTROLLER	FUTURE
40	LT-1	LEVEL TRANSMITTER	OUTSIDE

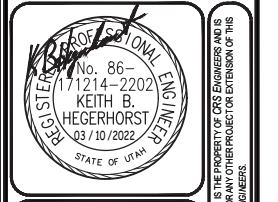
GENERAL NOTES:

- REFER TO ONE-LINE DIAGRAMS ON E301 OR PANELBOARD SCHEDULES ON E201 FOR CIRCUIT ID, THEN REFER TO CONDUIT/CONDUCTOR TABLE ON E102 FOR THE WIRE AND CONDUIT REQUIREMENTS.
- INSTALL EXTERIOR OUTLETS AT +16" AFS AND PROVIDE IN-SERVICE WEATHER PROOF COVER.

SHEET KEYNOTES:

- NOT USED

REV#	BY	DATE	DESCRIPTION



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PROVO CITY
PROVO AIRPORT PUMP STATION
ELECTRICAL POWER PLAN

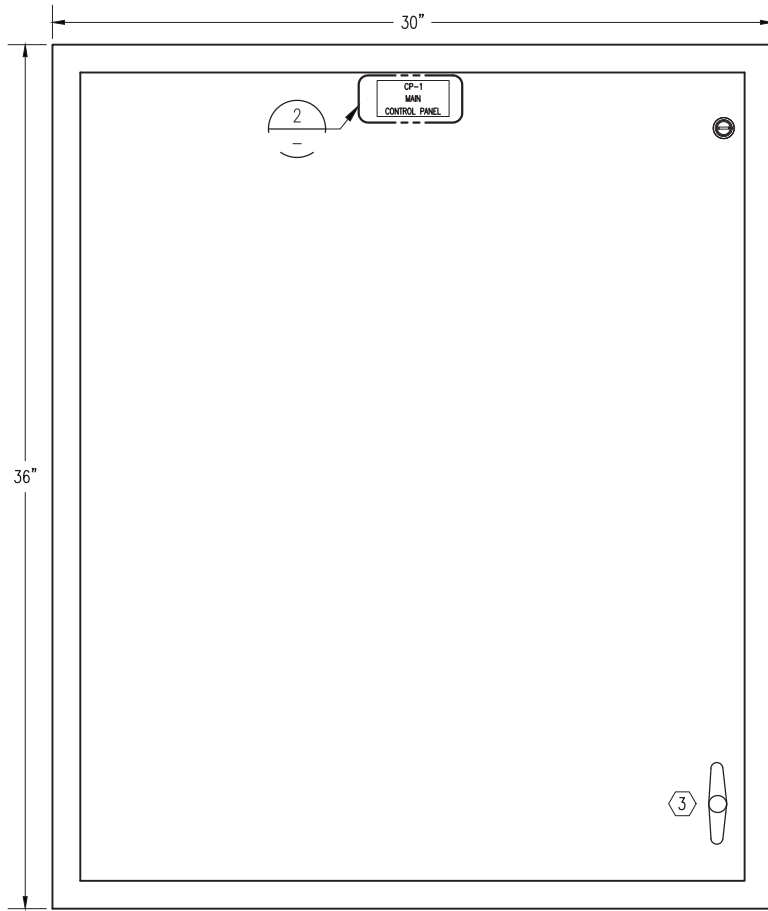
PROJECT NUMBER: 2019-0033	OF SHEET 41
SHEET NUMBER: E402	36

ISSUE DATE
OCT 4, 2020

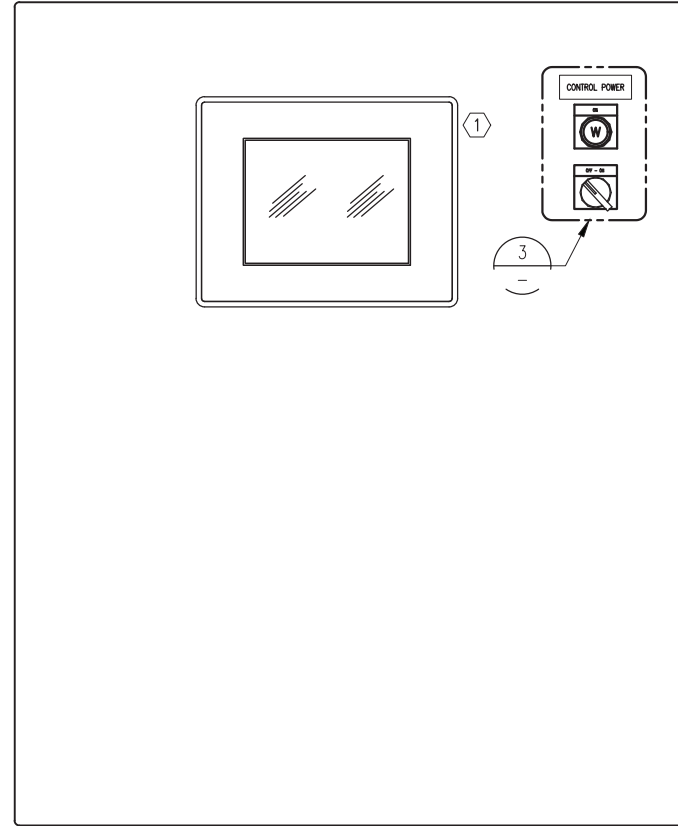
DRAWN BY
G. SORENSON

CHECKED BY
K. HEGERHORST

PROJECT MANAGER
M. CHAMBERLAIN

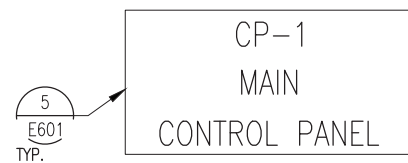


EXTERIOR DOOR ARRANGEMENT



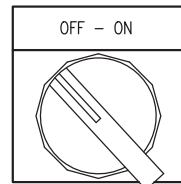
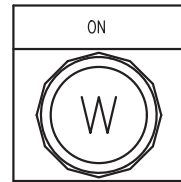
INTERIOR SWING-OUT PANEL ARRANGEMENT (2)

1 CP-1 MAIN CONTROL PANEL
SCALE: 3" = 1'-0"



2 ENLARGED NAMEPLATE
SCALE: 1" = 1'-0"

CONTROL POWER



3 ENLARGED SWITCH
SCALE: 1" = 1'-0"

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AMERICAN FORK, UT 84003
HPE PROJECT: 21.030 ©2021
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

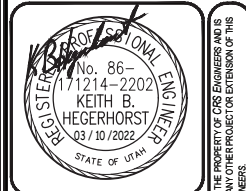
- ENCLOSURE DIMENSIONS SHOWN ARE ANTICIPATED. ENCLOSURE DIMENSIONS SHALL BE DETERMINED BY THE PANEL BUILDING BASED ON THE INTERNAL COMPONENTS.
- INTERNAL ARRANGEMENT SHALL BE DETERMINED BY THE PANEL FABRICATOR.
- REFER TO E302 AND E303 FOR TYPICAL WIRING DIAGRAMS.

SHEET KEYNOTES:

- PROVIDE A 10-IN COLOR OPERATOR TOUCH SCREEN
- INSTALL TOUCH SCREEN AND POWER SWITCH ON AN INTERNAL SWING-OUT PANEL.
- PANEL OUTER DOOR SHALL BE LOCKABLE.

REV#	BY	DATE	DESCRIPTION

PROJECT MANAGER: M. CHAMBERLAIN
CHECKED BY: K. HEGERHORST
DRAWN BY: G. SORENSON
ISSUE DATE: OCT 4, 2020



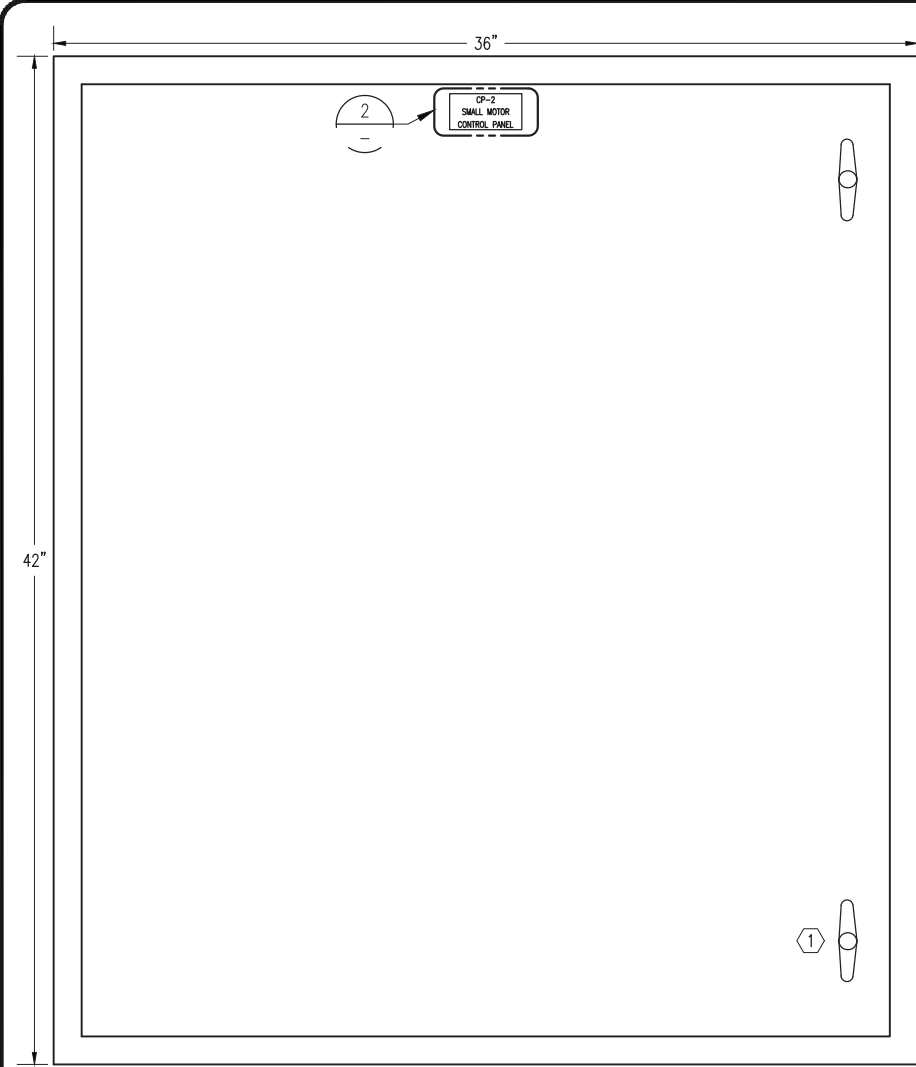
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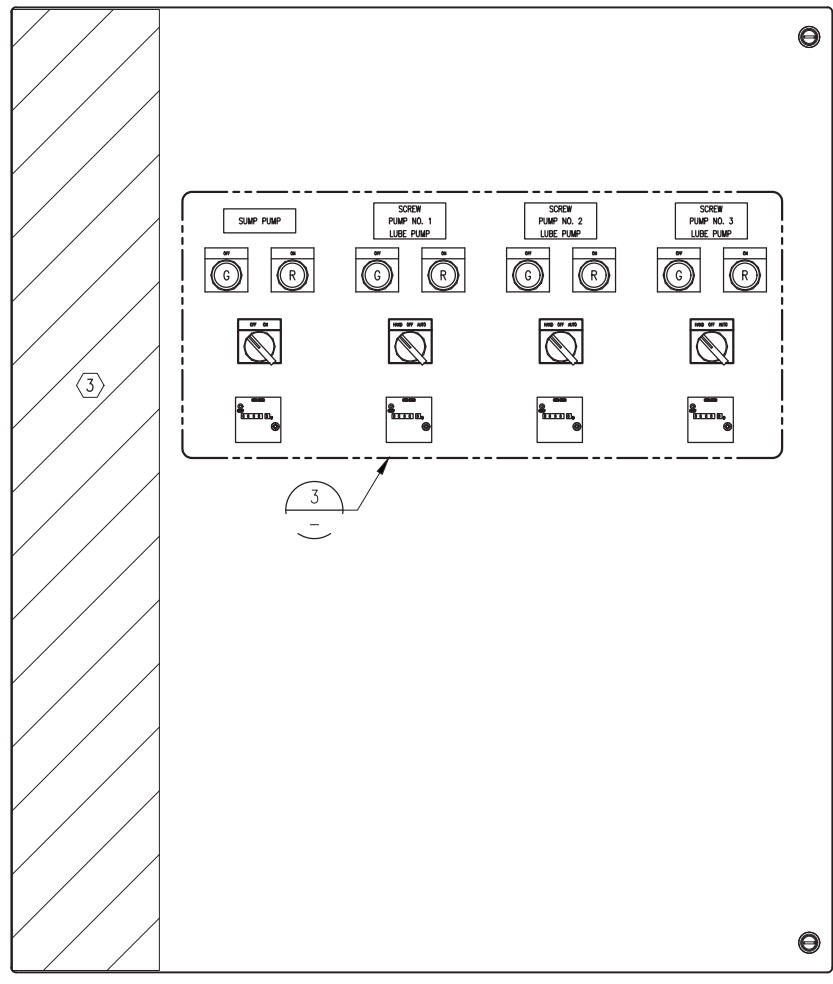
PROVO CITY
PROVO AIRPORT PUMP STATION
CP-1 MAIN CONTROL PANEL
ARRANGEMENT

PROJECT NUMBER: 2019-0033	OF SHEET 41
SHEET 37	SHEET NUMBER: E501

File Path: M:\21.030 - Provo Storm Water PSD Drawings\E502.dwg Mar 10, 2022 - 2:34pm



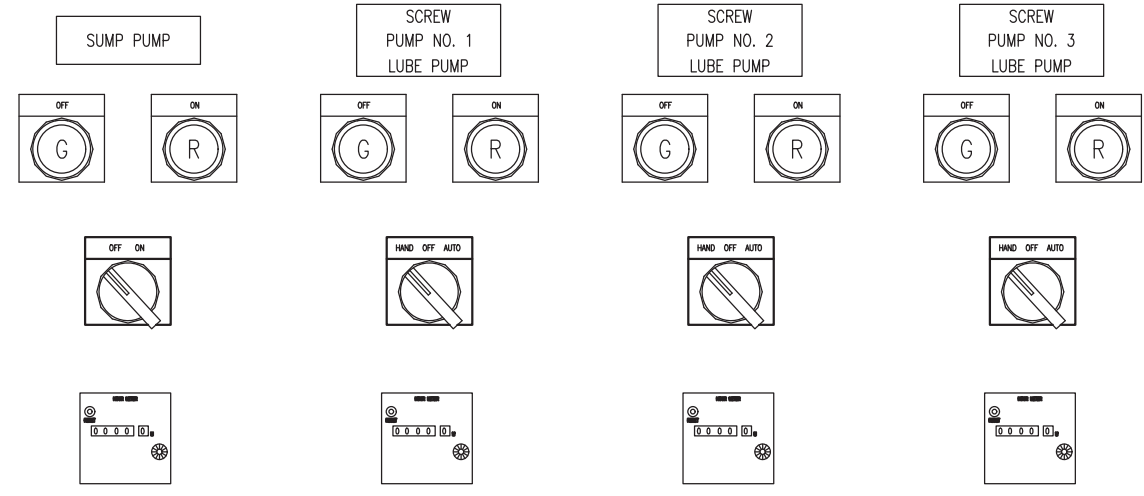
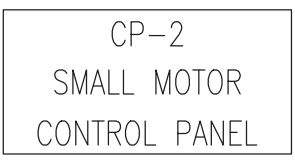
EXTERIOR DOOR ARRANGEMENT



INTERIOR SWING-OUT PANEL ARRANGEMENT

1 CP-2 SMALL MOTOR CONTROL PANEL ARRANGEMENT
SCALE: 3" = 1'-0"

2 ENLARGED NAMEPLATE
SCALE: 1" = 1'-0"



3 ENLARGED DEVICES
SCALE: 6" = 1'-0"

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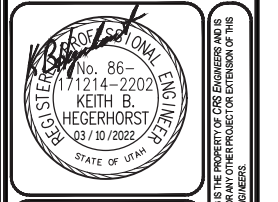
GENERAL NOTES:

- ENCLOSURE DIMENSIONS SHOWN ARE ANTICIPATED. ENCLOSURE DIMENSIONS SHALL BE DETERMINED BY THE PANEL BUILDING BASED ON THE INTERNAL COMPONENTS.
- INTERNAL ARRANGEMENT SHALL BE DETERMINED BY THE PANEL FABRICATOR.
- REFER TO E304 AND E305 FOR A TYPICAL WIRING DIAGRAM.

SHEET KEYNOTES:

- PANEL OUTER DOOR SHALL BE LOCKABLE.
- INSTALL ALL DEVICES ON AN INTERNAL SWING-OUT PANEL.
- LOCATE DEVICES SO THE INTERIOR DOOR CAN OPEN A FULL 90-DEGREES.

REV#	BY	DATE	DESCRIPTION



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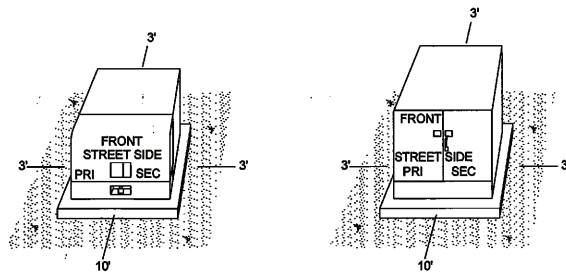
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PROVO CITY
PROVO AIRPORT PUMP STATION
CP-2 SMALL MOTOR CONTROL PANEL
ARRANGEMENT

PROJECT NUMBER: 2019-0033	OF SHEET 41
SHEET 38	SHEET NUMBER: E502

ISSUE DATE
OCT 4, 2020
DRAWN BY
G. SORENSON
CHECKED BY
K. HEGERHORST
PROJECT MANAGER
M. CHAMBERLAIN

8. TRANSFORMER AND PADMOUNTED EQUIPMENT ACCESS-CLEARANCES



RESIDENTIAL SINGLE-PHASE TRANSFORMER PADMOUNTED EQUIPMENT **COMMERCIAL 3-PHASE TRANSFORMER PADMOUNTED EQUIPMENT**

Figure 8.1 Access Clearances

8.1 Additional Requirements:

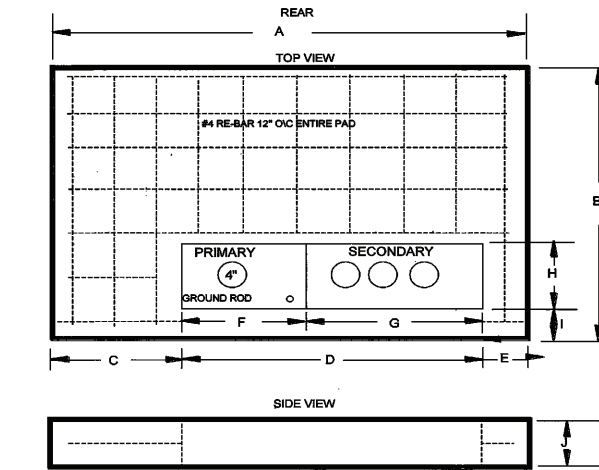
- 8.1.1 In the event of an equipment failure or power outage, it is necessary for utility crews to have adequate access to pad mounted equipment and transformers. Access to the front shall be ten feet, access to the rear and sides shall be three feet.
- 8.1.2 No trees, shrubs, fences, large landscape rocks, or other obstructions shall be permitted in access area.

8.2 Note for New Services

- 8.2.1 Pad mounted equipment, transformers and secondary pedestals are locked for protection against electrical shock.
- 8.2.2 When installation of a new service requires access to a transformer or pedestal, owner/contractor should call Provo City Power at (801)852-6999.
- 8.2.3 All new conduit runs shall be installed by contractor into transformer/pedestal with Provo City Power supervision.
- 8.2.4 Blue stake laws prohibit any digging with equipment within the 2' safety zone. Please hand dig around any electrical equipment. For more details, please refer to www.bluestakes.org for complete details on excavation safety.

1 TRANSFORMER ACCESS-CLEARANCE
SCALE: N/A

9. SERVICES LARGER THAN 400 AMP 3 PHASE TRANSFORMER PAD SPECIFICATION



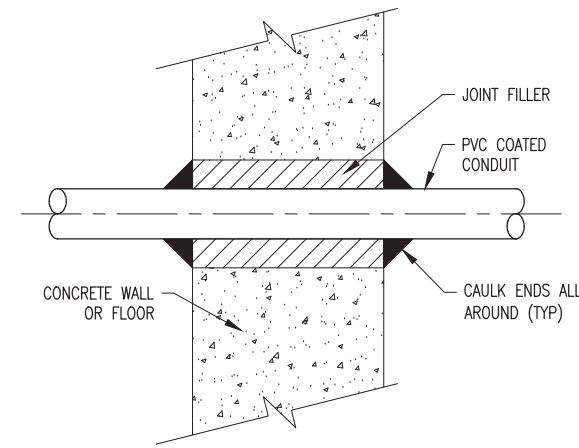
KVA	A	B	C	D	E	F	G	H	I	J
75-112.5	70"	70"	22"	32"	18"	18"	18"	17"	18"	8"
150-600	88"	88"	28"	42"	18"	21"	21"	17"	18"	8"
750-3000	102"	102"	31"	50"	21"	25"	25"	17"	18"	8"

Figure 9.1 Pad Specifications

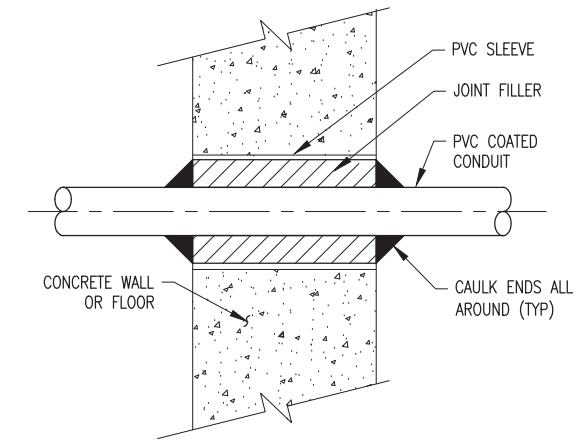
9.1 Additional Requirements:

- 9.1.1 Install #4 re-bar 12" o/c entire pad.
- 9.1.2 Install 5/8 x 8' copper clad ground rod within primary compartment.
- 9.1.3 Provo City Power to inspect pad prior to pour. Call (801)852-6852
- 9.1.4 3' min. clearance for both sides and rear of pad.
- 9.1.5 10' min. clearance in front of pad.

2 TRANSFORMER PAD CONSTRUCTION
SCALE: N/A



3 CONDUIT THRU EXISTING CONCRETE
SCALE: 3" = 1'-0"



4 CONDUIT THRU NEW CONCRETE
SCALE: 3" = 1'-0"

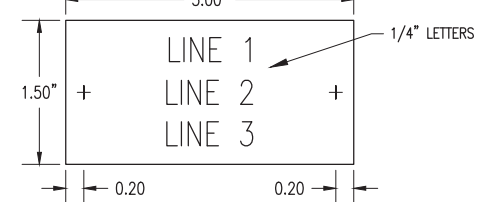
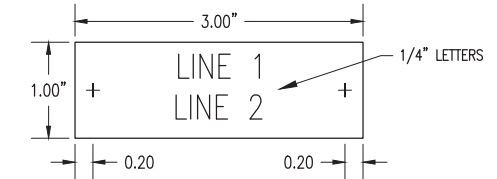
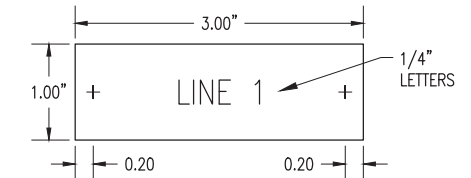
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GENERAL NOTES:

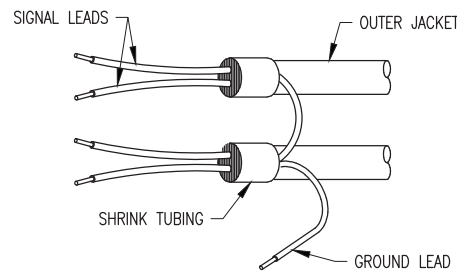
1. NOT USED

SHEET KEYNOTES:

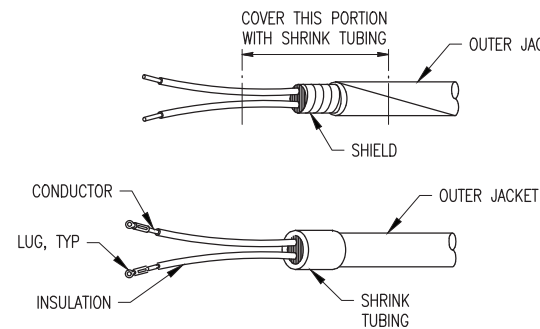
1. NOT USED



5 NAMEPLATES
SCALE: 1" = 1'-0"

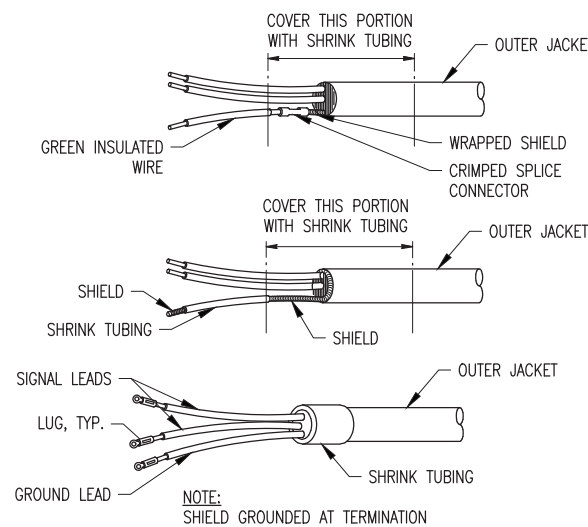


UNACCEPTABLE METHOD OF GROUNDING CONTROL CABLE SHIELD NTS



NOTE: SHIELD NOT GROUNDED AT TERMINATION.

TERMINATION OF SHIELDED CONTROL CABLE NTS



NOTE: SHIELD GROUNDED AT TERMINATION

TERMINATION OF SHIELDED CONTROL CABLE NTS

6 SIGNAL WIRE TERMINATIONS
SCALE: 1" = 1'-0"



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PROVO CITY
PROVO AIRPORT PUMP STATION
ELECTRICAL DETAILS, SHT. 1

PROJECT NUMBER: 2019-0033	OF SHEETS: 41	SHEET NUMBER: E601
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ISSUE DATE: OCT 4, 2020
DRAWN BY: K. HEGERHORST
CHECKED BY: M. CHAMBERLAIN
PROJECT MANAGER: G. SORENSON

17. ELECTRIC SERVICE REQUIREMENTS

17.1 Switchboard Metering

- 17.1.1 A EUSERC (EUSERC 354 outdoor) switchboard metering section is required when the service entrance rating is greater than 800 amperes. The metering current transformers will be located in the current transformer compartment. The meter and test switch will be mounted on the hinged cover of the compartment. The area below this compartment's barrier may be used as a main switch (breaker) compartment, or a load distribution compartment. The metering compartment shall be on the supply side of the main switch or breaker.
- 17.1.2 The mounting pad for all switchboard metering enclosures will be a minimum 4" thick concrete pad, extending 3' in front of the enclosure to ensure an adequate and safe work area.
- 17.1.3 The customer will provide and install:
- 17.1.4 The conduit and conductors, a maximum of 48 conductors (12 per phase) not to exceed 750 MCM maximum, conductor sized per NEC.
- 17.1.5 The switchboard service section, current transformer mounting base, panels, pulling section separate from the CT compartment, meter socket and provisions for a test switch.
- 17.1.6 Current transformer bus bars and terminating bolts must be secured in place and shall be provided with nuts, flat washer, spring washers, and all parts must be plated to prevent corrosion. Bus bars are required from the pull section into the service section.
- 17.1.7 All pull and termination sections shall be full front access. Cover panels shall be removable, sealable, and provided with two lifting handles, and limited to 9 square feet in area.
- 17.1.8 All removable panels and covers to the compartments used for terminating or routing conductors shall have sealing provisions.
- 17.1.9 Grounding must meet NEC requirements. Lugs for terminating the customer's ground wire shall be located outside of the sealable section and shall be designed to readily permit the customer's neutral system to be isolated, when necessary, from Provo City's neutral.
- 17.1.10 The NEC requires a clear workspace of 78"(h) x 70"(w) x 48"(d) in front of metering equipment.

17.2 Provo City Power Will Own, Provide and Install:

- 17.2.1 The meter and test switch.
- 17.2.2 The current transformers.
- 17.2.3 The wiring between the current transformers and the meter test switch.
- 17.2.4 Any changes or deviations must have prior written approval by Provo City Power metering division. (801)852-6855.

1 ELECTRICAL SERVICE REQUIREMENTS
SCALE: 1" = 1'-0"

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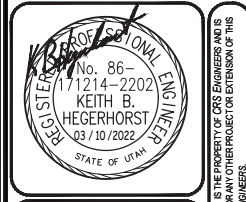
GENERAL NOTES:

- 1. NOT USED

SHEET KEYNOTES:

- 1. NOT USED

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PROVO AIRPORT PUMP STATION
ELECTRICAL DETAILS, SHT. 2

PROJECT NUMBER: 2019-0033
SHEET OF 39
SHEET NUMBER: E602

5. JOINT TRENCH TYPICAL DETAIL

COMMERCIAL / RESIDENTIAL SUBDIVISION

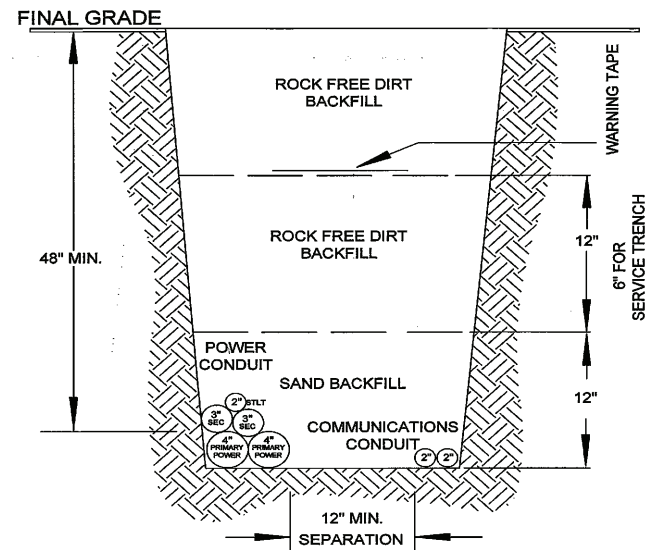


Figure 5.1 Trench Detail

5.1 Additional Requirements:

- 5.1.1 Provo City Power to approve backfill material
- 5.1.2 Provo City Power shall inspect trench/conduit prior to backfill.
- 5.1.3 Primary depth 48" minimum.
- 5.1.4 Secondary depth 48" minimum.
- 5.1.5 Service depth 24" minimum.

5.2 Required Trench Inspection for Projects:

- 5.2.1 For main line trench inspections: Call after conduit has been placed in trench and 12" of sand has been placed on conduit.

Provo City Power | PAGE 13 | COMMERCIAL QUICK REFERENCE | April 2020

1 TYPICAL POWER TRENCH
SCALE: N/A

- 5.2.2 Trench must be left open for inspection or you will be asked to re-open trench for inspection and for inspector to GPS conduit location.
- 5.2.3 Call the project engineer you have been working with. Provo Power Engineering: (801)852-6852
- 5.3 Required Trench Inspection for Services:**
- 5.3.1 Call for service trench inspection before doing any backfill on trench. Provo City Power Dispatch: (801)852-6999
- 5.4 Placing Elbows into Existing Power Equipment:**
- 5.4.1 Call after trench has been extended to base of power equipment, and conduit has been installed and left 2' short of power equipment (see pages 15-16). Leave trench open 8'-10' from equipment, provide fiberglass elbows and contact Provo City Power for assistance on installation. Call Power Dispatch: (801)852-6999
- 5.4.2 NEVER place conduit into live equipment.
- 5.5 Final Project Inspection:**
- 5.5.1 Call when boxes are installed at proper height and are level, ground rods have been installed, mule tape has been placed in conduit, and conduit is at proper height.
- 5.5.2 Curb and gutter must be in before setting boxes. Elevation needs to be set by a surveyor. If elevation is too low, boxes and conduit will need to be re-installed to meet proper height. DO NOT cut fiberglass elbows.
- 5.5.3 Call the project engineer you have been working with. Provo Power Engineering: (801)852-6852.

Provo City Power | PAGE 14 | COMMERCIAL QUICK REFERENCE | April 2020

2 TYPICAL POWER TRENCH
SCALE: N/A

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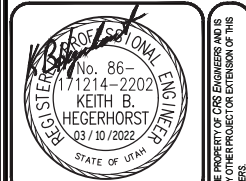
GENERAL NOTES:

- 1. NOT USED

SHEET KEYNOTES:

- 1. NOT USED

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ELECTRICAL DETAILS, SHT. 3

PROJECT NUMBER: 2019-0033
SHEET 41 OF 41
SHEET NUMBER: E603