

LIGHTING SYMBOLS	
F1	DESIGNATES FIXTURE NUMBER - REFER TO FIXTURE SCHEDULE
EM	DESIGNATES EMERGENCY FIXTURE
CL	CLOCK
OS	OCCUPANCY SENSOR
FLUORESCENT FIXTURES	
	SURFACE OR RECESSED 1X2 FIXTURE
	SURFACE OR RECESSED 1X4 FIXTURE
	SURFACE OR RECESSED 18X4 FIXTURE
	SURFACE OR RECESSED 1X8 FIXTURE
	SURFACE OR RECESSED 2X2 FIXTURE
	SURFACE OR RECESSED 2X4 FIXTURE
	SHADED AREA INDICATES EMERGENCY BATTERY PACK
	SURFACE OR RECESSED 4X4 FIXTURE
	4 FOOT STRIP
	8 FOOT STRIP
	SUSPENDED PENDANT MOUNTED FIXTURE
	1X4 WALL MOUNTED FIXTURE
	2 FOOT WALL MOUNTED FIXTURE
	4 FOOT WALL MOUNTED FIXTURE
EXIT FIXTURES	
	QUADRANTS INDICATE FACES ILLUMINATED
	SURFACE OR CEILING
	WALL MOUNTED
	WITH DIRECTIONAL ARROWS
	WITH EMERGENCY LIGHTS
	EMERGENCY FIXTURE

EXTERIOR LIGHTS	
	WALL PAK FIXTURE
	WARNING LIGHT
POLE MOUNTED FIXTURES	
	SINGLE POLE MOUNTED FIXTURE. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS
	DUAL POLE MOUNTED FIXTURE. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS.
OR	
	TRIPLEX POLE MOUNTED FIXTURES. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS.
OR	
	QUAD POLE MOUNTED FIXTURES. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS.
INCANDESCENT FIXTURES	
	SURFACE MOUNTED
	WALL MOUNTED
	FLOOD LIGHT

POWER ONE-LINE SYMBOLS	
	ANTENNA
	EQUIPMENT GROUND CONNECTION
	TRANSFER SWITCH ATS: AUTOMATIC TRANSFER SWITCH MTS: MANUAL TRANSFER SWITCH
	VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER
	FUSED DISCONNECT SWITCH
	NON-FUSED DISCONNECT SWITCH
	COMBINATION STARTER
	MAGNETIC CONTROLLER
	MOTOR (HP SHOWN)
	GENERATOR
	CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
	POWER FACTOR CAPACITOR
	CIRCUIT BREAKER
	POWER FEED
	CONNECTION POINT
	LUG
	DELTA WYE

GROUNDING SYMBOLS	
	UTILITY METERING SOCKET WITH CIRCUIT BREAKER
	EXISTING UTILITY METERING SOCKET
	UTILITY METERING SOCKET
	FUTURE UTILITY METERING SOCKET
	UTILITY METERING CURRENT TRANSFORMER
	MOTOR STARTER
	SURGE PROTECTOR
	TRANSFORMER
	FUSED SWITCH
	FUSE IN HOLDER
	EXISTING POWER DISTRIBUTION PANEL
	POWER DISTRIBUTION PANEL
	FUTURE POWER DISTRIBUTION PANEL

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

CONTROL ONE-LINE SYMBOLS	
	ENCLOSURE OR CONTROL PANEL
	HOME RUN TO POWER PANEL "A" CIRCUIT "XX"
	LIGHT A: AMBER LENS G: GREEN LENS R: RED LENS W: WHITE LENS
	COMBINATION MOTOR STARTER F: FUSED BLANK: CIRCUIT BREAKER
	EQUIPMENT IDENTIFICATION TAG
	ELECTRICAL CONNECTION POINT
	SINGLE RECEPTACLE

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

WIRING DEVICES	
	20 AMP RATED RECEPTACLE SINGLE STROKE = SINGLE DOUBLE STROKE = DUPLEX RECEPTACLE MODIFIERS: X-X = CIRCUIT NUMBER AF = ARK FAULT CIRCUIT INTERRUPTER S = SURFACE MOUNTED IG = ISOLATED GROUND WP = WEATHER PROOF
	EXISTING RECEPTACLE
	GFCI RECEPTACLE

LIGHT SWITCHES	
	SINGLE POLE SWITCH
	GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
	SWITCH SUPERSCRIPIT MODIFIER, LOWER CASE LETTER INDICATES CIRCUIT CONTROLLER --- a,b,c ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 3b
	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

MOTOR AND EQUIPMENT	
	MOTOR (HP SHOWN)
	FRACTIONAL HORSEPOWER MOTOR
	MOTOR STARTER, INDIVIDUAL, NOT LOCATED IN A MOTOR CONTROL CENTER (MCC) OR SIMILAR GROUP ASSEMBLY
	COMBINATION MOTOR STARTER ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
	MAGNETIC CONTACTOR ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
	DISCONNECT, NON-FUSED, 3 POLE, 100A RATED
	FUSED DISCONNECT SWITCH
	FIELD CONNECTION OR ELECTRICAL TERMINATION AT A FIELD DEVICE
	EQUIPMENT DESIGNATION

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 756-0070
752 EAST 1180 SOUTH, STE 140 AMERICAN FORK, UT 84003 FAX (801) 756-0080
HPE PROJECT 11033 ©2011
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT ALFONSO CARDENAS

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, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN.
- SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
- THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH ELECTRICAL ROOMS OR SPACES; OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN THE OTHER AREAS.
- 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 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.

PLAN SYMBOLS	
	CIRCUIT DISTRIBUTION PANELBOARD SURFACE MOUNTED
	CIRCUIT DISTRIBUTION PANELBOARD RECESSED
	POWER DISTRIBUTION PANELBOARD SURFACE OR FLOOR MOUNTED DOORS DESIGNATE FRONT OF PANEL MOP 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

REV	DATE	BY	DESCRIPTION

SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

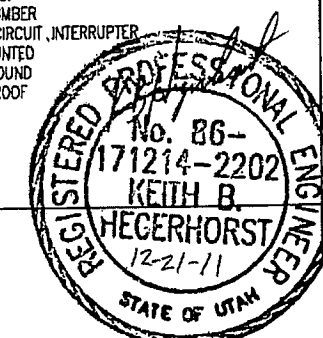
HORROCKS ENGINEERS

2162 West Grove Parkway
Suite 400
Pleasant Grove, UT 84052
(801) 763-5100

SANDY CITY - NEW SEVERSON WELLHOUSE

SYMBOLS LEGEND

DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	24 OF 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E1.0

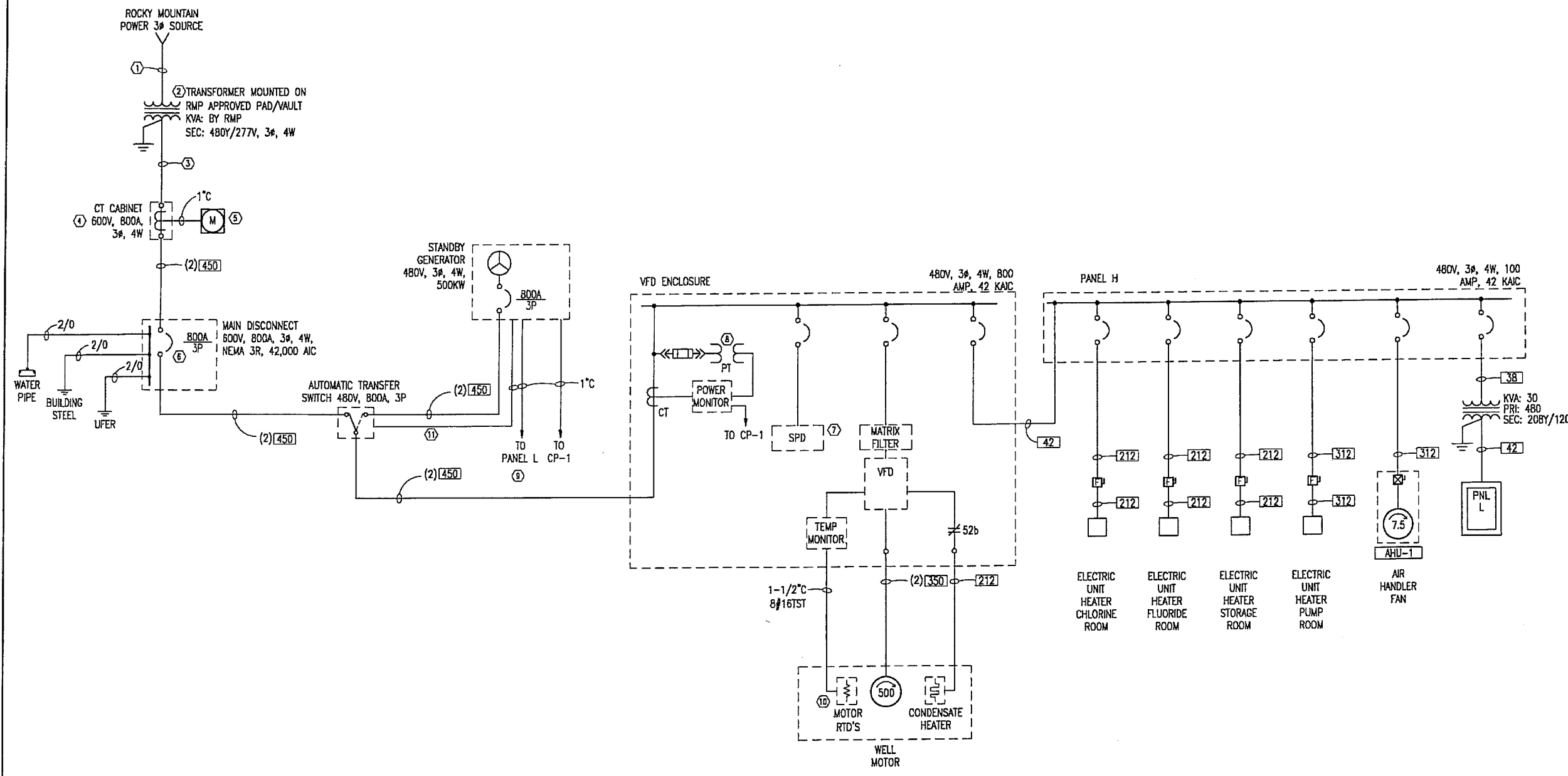


GENERAL SHEET NOTES

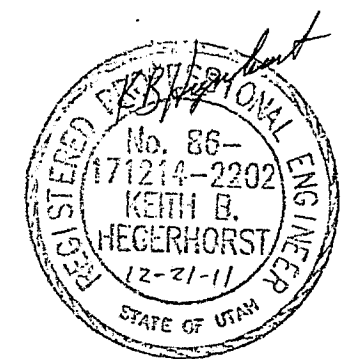
1. REFER TO ELECTRICAL PLANS FOR EQUIPMENT LOCATIONS.
2. SEE SCHEDULES FOR CONDUIT/CONDUCTOR & BREAKER INFORMATION.
3. TST: TWISTED-SHIELDED TRIPLEX.

○ SHEET KEYNOTES

1. PROVIDE AND INSTALL 1-4" CONDUIT FOLLOWING ROCKY MOUNTAIN POWER (RMP) REQUIREMENTS. CONDUCTORS SHALL BE PROVIDED AND INSTALLED BY RMP. VERIFY CONDUIT REQUIREMENT WITH RMP BEFORE INSTALLING.
2. UTILITY TRANSFORMER BY RMP. TRANSFORMER PAD/VAULT BY CONTRACTOR. REFER TO RMP STANDARD DETAILS.
3. PROVIDE AND INSTALL 6-4" CONDUIT FOLLOWING ROCKY MOUNTAIN POWER (RMP) REQUIREMENTS. CONDUCTORS SHALL BE PROVIDED AND INSTALLED BY RMP. VERIFY CONDUIT REQUIREMENT WITH RMP BEFORE INSTALLING.
4. PROVIDE AND INSTALL CURRENT TRANSFORMER (CT) CABINET FOLLOWING RMP REQUIREMENTS.
5. PROVIDE AND INSTALL METER SOCKET ENCLOSURE FOLLOWING RMP REQUIREMENTS. METER BY RMP. INSTALL A 1" RMC BETWEEN CT AND METER SOCKET. CONDUCTORS BY RMP.
6. LABEL BREAKER AS "MAIN SERVICE DISCONNECT"
7. PROVIDE A 3-PHASE, 480V, SURGE PROTECTION DEVICE.
8. EQUIPMENT SUPPLIER SHALL SIZE PT'S AND CTs.
9. SEE PANEL SCHEDULE AND CONTROL PANEL ONE-LINE FOR CONDUCTOR REQUIREMENTS.
10. MOTOR SHALL HAVE 6 WINDING AND 2 BEARING RTD'S.
11. CONDUIT FOR CONTROL CONDUCTORS BETWEEN ATS AND GENERATOR. COORDINATE WITH GENERATOR SUPPLIER FOR QUANTITY AND AWG SIZE.



POWER ONE-LINE DIAGRAM



REV	DATE	BY	DESCRIPTION

SCALE	WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
HORIZONTAL	
VERTICAL	



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 Pleasant Grove, UT 84062
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SANDY CITY - NEW SEVERSON WELLHOUSE
 POWER ONE-LINE DIAGRAM

DESIGNED	DATE	PROJECT NO
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO
DC	10/2011	25 of 45
CHECKED	DATE	DRAWING NO
KBH	12/2011	E2.0

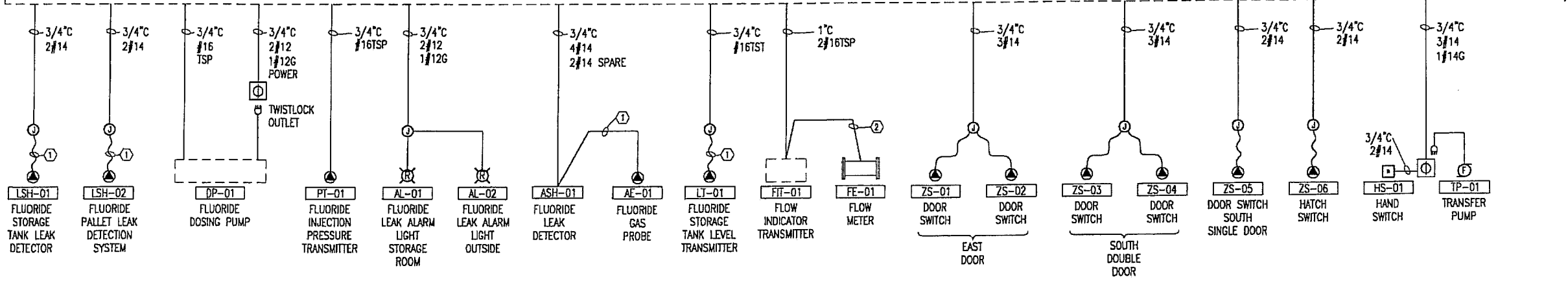
GENERAL SHEET NOTES

- FOR LOCATIONS OF INSTRUMENTS, PANELS AND DEVICES, REFER TO ELECTRICAL PLANS.
- CONTRACTOR MAY COMBINE CONDUITS AND JUNCTION BOXES. DO NOT INSTALL DISCRETE AND ANALOG SIGNALS IN SAME RACEWAY.
- SEE POWER PLANS AND PANEL SCHEDULES FOR POWER REQUIREMENTS TO EQUIPMENT.
- CITY CONTRACTS WITH SKM INC TO MAINTAIN THEIR TELEMETRY SYSTEM.
- CONTRACTOR REQUIRED TO UTILIZE SKM INC IN PERFORMING TELEMETRY AND CONTROL WORK.
- SKM INC HAS REVIEWED THE PLANS AND HAS PROVIDED THE CITY WITH AN ESTIMATE TO PROVIDE THE NECESSARY PROGRAMING AND EQUIPMENT BEYOND WHAT IS SHOWN IN THE DRAWINGS.
- CONTACT AT SKM INC.
MARK JEPSON
PHONE #: (801)-677-0011
- CONTRACTOR'S PRICE SHALL INCLUDE PRICE BY SKM INC AND ANY ADDITIONAL FUND REQUIRED FOR A COMPLETE AND FUNCTIONAL PUMP STATION.

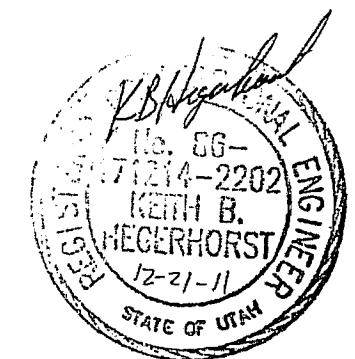
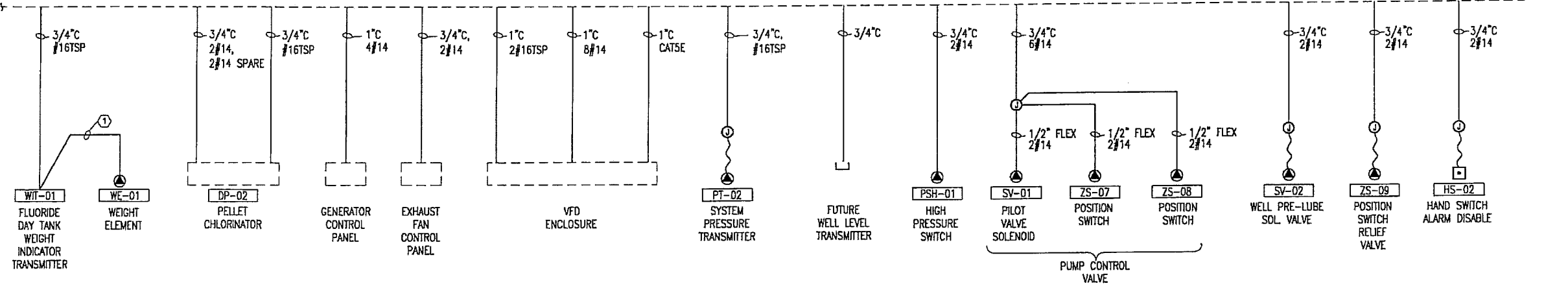
○ SHEET KEYNOTES

- CONDUCTOR/CABLE BY SUPPLIER. VERIFY LENGTH PRIOR TO ORDERING CONDUCTOR/CABLE.
- CONDUCTORS BY FLOW METER SUPPLIER. CONDUIT SIZE AND QUANTITY OF CONDUCTORS VARY DEPENDING ON FLOW METER SUPPLIED. COORDINATE WITH FLOW METER SUPPLIER PRIOR TO ROUGH-IN. VERIFY LENGTH OF CONDUCTORS BEFORE ORDERING.

CONTROL PANEL (CP-1)



CONTROL PANEL (CP-1) CONTINUED



REV	DATE	BY	DESCRIPTION
REVISIONS			

SCALE
 HORIZONTAL AS SHOWN
 VERTICAL AS SHOWN

WARNING
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SANDY CITY - NEW SEVERSON WELLHOUSE
 CONTROL ONE-LINE DIAGRAMS

DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	26 OF 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E2.1

PANEL SCHEDULE H

LOCATION: STORAGE ROOM MFR: SQUARE D 100 AMPS VOLTS: 480Y/277
 DIMENSIONS: 20"Wx5.75"Dx32"H TYPE: NF PHASE: 3
 MOUNTING: SURFACE NEMA: 1 WIRES: 4
 FEED: BOTTOM X M.L.O. 42,000 A.I.C.
 PHASE LOADS

BRKR	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	PHASE A				PHASE B				WIRE SIZE	DESCRIPTION	BRKR
					NO	CONT.	N-CONT.	NO	CONT.	N-CONT.	NO	CONT.			
20 1	UHR-031-BAAT (CHLORINE RM)		3,000		1	6,333	0					2	3,333		20 3
20 1	UHR-031-BAAT (FLORIDE RM)		3,000		3		6,333	0				4	3,333		
20 1	UHR-031-BAAT (STORAGE RM)		3,000		5			6,333	0			6	3,333		
20 3	SPARE				7	3,048	0					8	3,048		20 3
					9		3,048	0				10	3,048		
					11			3,048	0			12	3,048		
	SPACE				13	0	0					14			
	SPACE				15	0	0					16			
	SPACE				17			0	0			18			
	SPACE				19	0	0					20			
	SPACE				21			0	0			22			
	SPACE				23					0		24			
50 3	TRANSFORMER PANEL L		3,900	540	25	3,900	540					26			
			4,526	700	27		4,526	700				28			
			1,630	1,100	29			1,630	1,100			30			
TOTAL WATTS:			19,056	2,340		13,281	540	13,907	700	11,011	1,100		0	19,143	
CONTINUOUS LOAD:			38,199												
CONTINUOUS LOAD * 125%:			47,749												
NON-CONTINUOUS LOAD:			2,340												
DESIGN WATTS:			50,089												
MIN. RATING (AMPS):			60												

* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES

FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	NAME	CATALOG #	VA	LAMP TYPE	MOUNTING	REMARKS
F1	ENCLOSED FIBERGLASS FLUORESCENT TWO LAMP, HIGH IMPACT LENS 120 VOLT, ELECTRONIC BALLAST	LITHONIA	DMW 2 32 120 GEB10	59	F32T8/SP35	SURFACE	
F2	ENCLOSED FIBERGLASS FLUORESCENT FOUR LAMP, HIGH IMPACT LENS 120 VOLT, ELECTRONIC BALLAST	LITHONIA	TDMW 4 32 120 GEB10	112	F32T8/SP35	SURFACE	
F3	WALL MOUNTED CUTOFF MINI AREA LIGHTER, POLYCARBONATE REFRACTOR 120 VAC, BLACK	LITHONIA	TWAC 26DIT 120	26	26W CFL	WALL	PHOTOCELL CONTROLLED
F4	WALL MOUNTED SMALL FLOOD LIGHT COMPACT FLUORESCENT 120 VAC, BLACK	COOPER	CFMS-K-HF-42-120	42	42W CFL	WALL ON MOUNTING ARM	PHOTOCELL & MOTION CONTROLLED WALL MOUNTING ARM MS/WMA & TOP VISOR MS/TV INCLUDED

PANEL SCHEDULE L

LOCATION: STORAGE ROOM MFR: SQUARE D 100 AMPS VOLTS: 208Y/120
 DIMENSIONS: 20"Wx5.75"Dx44"H TYPE: NO PHASE: 3
 MOUNTING: SURFACE NEMA: 1 WIRES: 4
 FEED: BOTTOM 100 M.C.B. 10,000 A.I.C.
 PHASE LOADS

BRKR	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	PHASE A				PHASE B				WIRE SIZE	DESCRIPTION	BRKR
					NO	CONT.	N-CONT.	NO	CONT.	N-CONT.	NO	CONT.			
20 1	CONTROL PANEL (CP-1)	212	200		1	200	540					4	800	212	20 1
20 1	TRANSFER PUMP (TP-01)	212		200	3			800	200			6	800	212	20 1
20 1	DOSING PUMP (DP-01)	212		200	5					0	1,100	6	900	212	20 1
20 1	FLOW IND. TRANS. (FIT-01)	212	200		7	2,200	0					8	2,000	20	30 2
20 1	INTERIOR LIGHTS	212	1,526		9			3,526	0			10	2,000		
20 1	EXTERIOR LIGHTS	212	130		11					1,130	0	12	1,000	212	20 2
20 1	FLUORIDE LEAK DET. (ASH-01)	212	200		13	1,200	0					14	1,000		
20 1	WEIGHT SCALE (WIT-01)	212	200		15			200	500			16	500	212	20 1
20 2	PELLET CHLORINATOR (DP-02)	212	300		17					500	0	18	200	212	20 1
			300		19	300	0					20			
	SPACE				21		0					22			
	SPACE				23						0	24			
	SPACE				25							26			
	SPACE				27							28			
	SPACE				29							30			
TOTAL WATTS:			3,056	400		3,900	540	4,526	700	1,630	1,100		1,940	7,000	
CONTINUOUS LOAD:			10,056												
CONTINUOUS LOAD * 125%:			12,570												
NON-CONTINUOUS LOAD:			2,340												
DESIGN WATTS:			14,910												
MIN. RATING (AMPS):			41												

VFD ENCLOSURE

LOCATION: PUMP ROOM MFR: BY CONTRACTOR 800 AMPS VOLTS: 480Y/277
 DIMENSIONS: TYPE: NEMA: 1 PHASE: 3
 MOUNTING: FLOOR WIRES: 4
 FEED: BOTTOM 42,000 A.I.C.
 PHASE LOADS

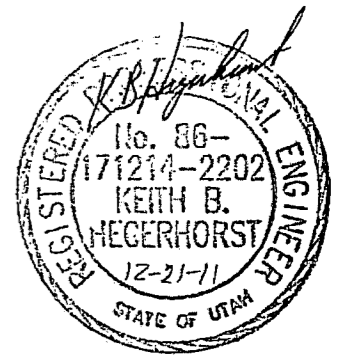
BRKR	DESCRIPTION	WIRE SIZE	PHASE A				PHASE B				HP	FLA
			125%	100%	NO	125%	100%	125%	100%	125%		
800 3	PUMP		489,936	1	163,312	0	163,312	0	163,312	0	500	590
100 3	SURGE PROTECTION DEVICE		300	2	100	0	100	0	100	0		
100 3	PANEL H		38,199	7	13,281	540	13,907	700	11,011	1,100		
TOTAL WATTS:			528,435		2,340	176,693	540	177,319	700	174,423	1,100	
CONTINUOUS LOAD:			528,435									
CONTINUOUS LOAD * 125%:			660,544									
NON-CONTINUOUS LOAD:			2,340									
DESIGN WATTS:			662,884									
MIN. RATING (AMPS):			798.3									

* = REFER TO ONE-LINE DIAGRAM FOR WIRE/CONDUIT SIZES

MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	EQUIPMENT RATING							DISCONNECT				STARTER		REMARKS	
		VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE		NEMA SIZE
UH-031-BAAT	UNIT HEATER PUMP FLUORIDE RM	277	1		3000			30	600	3	1		HARD-WIRED	INCL	INCL	SEE NOTE 1
UH-031-BAAT	UNIT HEATER CHLORINE RM	277	1		3000			30	600	3	1		HARD-WIRED	INCL	INCL	SEE NOTE 1
UH-031-BAAT	UNIT HEATER CHLORINE RM	277	1		3000			30	600	3	1		HARD-WIRED	INCL	INCL	SEE NOTE 1
UH-031-BAAT	UNIT HEATER PUMP ROOM	480	3		10000			30	600	3	1		HARD-WIRED	INCL	INCL	SEE NOTE 1
AHU-1	AIR HANDLER UNIT	480	3	7.5			11	30	600	3	1		HARD-WIRED	INCL	INCL	SEE NOTE 2
EF-1	CHLORINE ROOM EXHAUST FAN	120	1	F				20	120	1	SWITCH		HARD-WIRED	T-STAT	INCL	PROVIDE IN-LINE T-STAT
EF-2	FLUORIDE ROOM EXHAUST FAN	120	1	F				20	120	1	SWITCH		HARD-WIRED	T-STAT	INCL	PROVIDE IN-LINE T-STAT
EF-3	STORAGE ROOM EXHAUST FAN	120	1	F				20	120	1	SWITCH		HARD-WIRED	T-STAT	INCL	PROVIDE IN-LINE T-STAT
WH-1	WATER HEATER	240	1		4000			30	240	2	1		HARD-WIRED	INCL	INCL	

NOTE 1: PROVIDE UNIT HEATER WITH THERMOSTAT AND WALL MOUNTING BRACKET.
 NOTE 2: AIR HANDLER UNIT SHALL BE PROVIDED WITH A DISCONNECT



COMMERCIAL / INDUSTRIAL CUSTOMER INFORMATION SHEET
 Please complete this form and return to the Estimator assigned to your job

Business Information
 Business of Customer Name: Sandy city
 Request Number: _____
 Address: _____
 Person responsible for advance and contract billing (if different than monthly billing customer):
 Name: _____ Address: _____ Phone No.: _____
 E-mail Address: _____ Fax No: _____
 Building Square Footage: _____ Note: breakdown into use (i.e.: office, warehouse)
 Hours of Operation (include days & hours): _____

Service Description
 Desired Secondary Voltage: 3 Phase 120/208v X 3 Phase 277/480v
 Note: Not all voltages may be available 1 Phase 120/240v 1 Phase 120v Only Other
 Panel Size (in Amps): 800 Amps Total number of meters: 1
 Nearest Pole or Equipment number: _____ Type of Service Desired: Overhead X Underground
 Electrical Contractor: _____ Phone No.: _____

Load List (attach additional sheets if necessary)

Description	Phase and Voltage	New Load to be added	Load to be removed	Total connected load after changes	Unit
HVAC	480 V, 3 PHASE			9	kW
Exhaust Fans	120V, 1 PHASE			1	kW
Electric Heat	480 V, 3 PHASE			19	kW
Water Heating	208V, 1 PHASE			4	kW
Lighting	120V, 1 PHASE			1.2	kW
Outlets	120V, 1 PHASE			2	kW
Office Equipment					kW
Kitchen Equipment					kW
Refrigeration Equipment					Tons
Computers, Mag. Power Supplies	120V, 1 PHASE			5	kW
Machinery					kW
Thermoplastic Injection Equip.					kW
Elevators					kW
Boiler					kW
Snow Melting					kW
Signs					kW
X-Ray Equipment					kW
Washer/Dryer (hand dryers)					kW
Gas/Fuel/Sump Pump					HP
Small Motors					kW
Air Compressor					HP
Miscellaneous (sprinkler timer)					kW
Heat Exchanger					kW
Humidifier					kW
Swimming Pool					HP
Largest Motor (not incl. above) (500 HP)	480 V, 3 PHASE			491	kW
Future					kW
TOTAL (convert to kW)				532.2	kW

It is important to provide the most accurate information available, as it is used by the Estimator to design Pacificorp's facilities and determine the customer's costs.
 Please sign and date this form before giving it to your estimator.

Customer Signature _____ Date _____

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

GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM

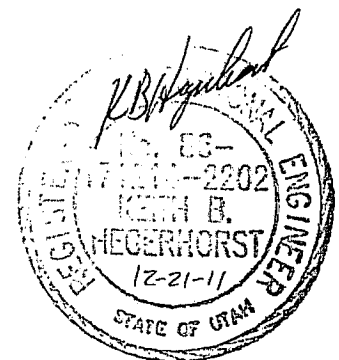
COPPER CONDUCTOR	WIRE SIZE
#2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0
>600 KCMIL THRU 1100 KCMIL	2/0
>1100 KCMIL	3/0

CONDUIT/CONDUCTOR SCHEDULE *

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



REV	DATE	BY	DESCRIPTION

SCALE
 HORIZONTAL AS SHOWN
 VERTICAL AS SHOWN

WARNING
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



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SANDY CITY - NEW SEVERSON WELLHOUSE
 ELECTRICAL SCHEDULES II

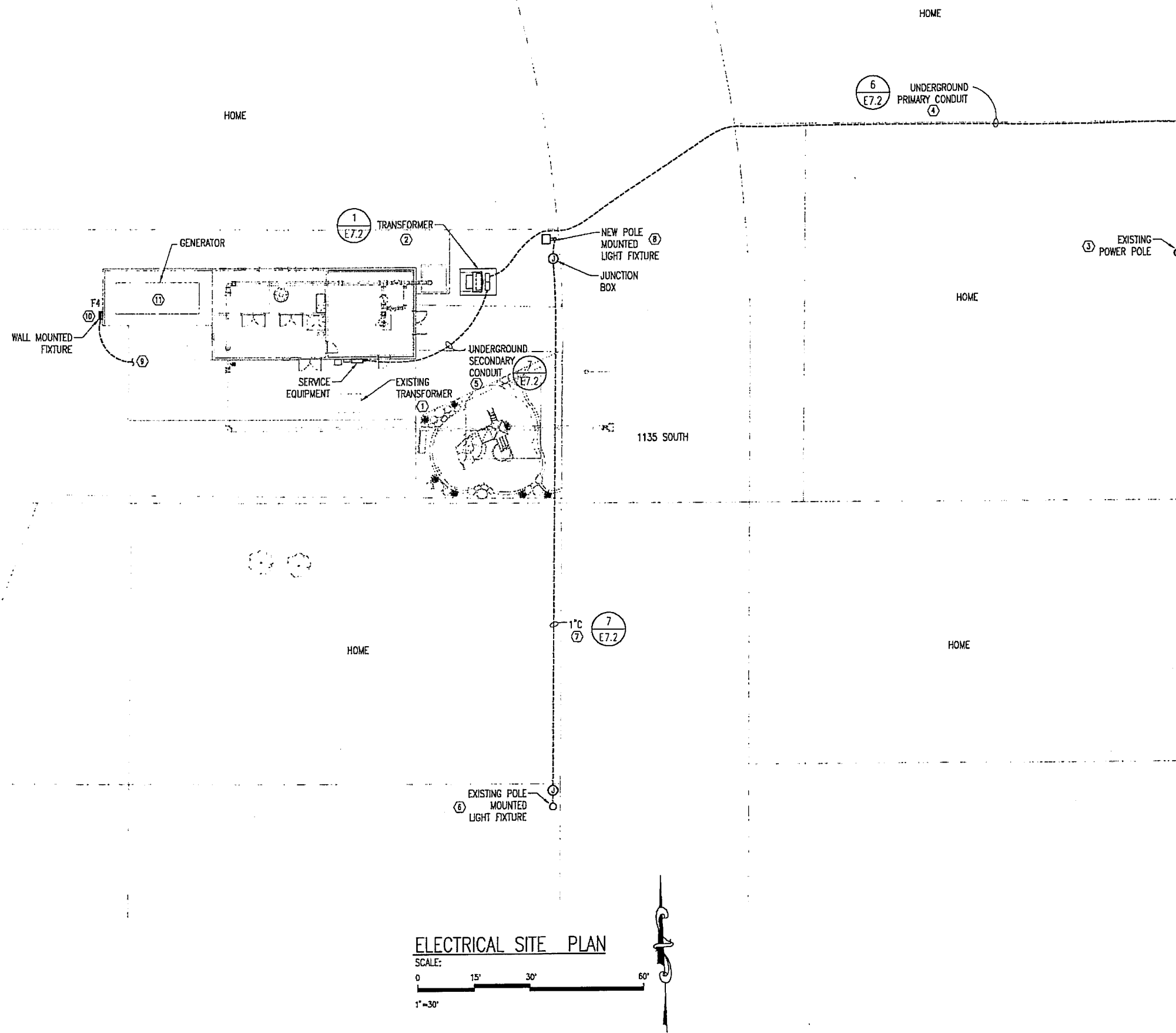
DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	28 of 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E2.3

GENERAL SHEET NOTES

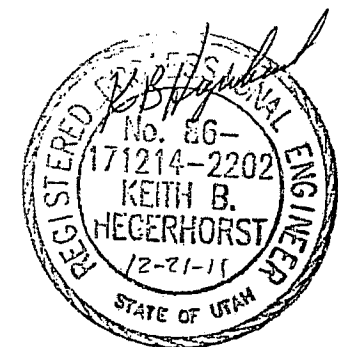
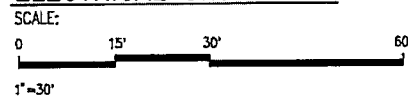
- REFER TO ONE-LINE FOR CONDUIT/CONDUCTOR REQUIREMENTS.

○ SHEET KEYNOTES

- EXISTING TRANSFORMER TO BE REMOVED AND REPLACED. COORDINATE WITH ROCKY MOUNTAIN POWER FOR REMOVAL OF TRANSFORMER.
- PAD/Vault MOUNTED TRANSFORMER. FOLLOW RMP REQUIREMENTS WHEN PROVIDING AND INSTALLING PAD/Vault.
- FOLLOW ROCKY MOUNTAIN POWER REQUIREMENTS WHEN INSTALLING NEW CONDUIT TO EXISTING POWER POLE.
- PROVIDE AND INSTALL 1-4" CONDUIT FOLLOWING RMP REQUIREMENTS. CONDUCTOR SHALL BE PROVIDED AND INSTALLED BY RMP. VERIFY CONDUIT REQUIREMENTS WITH RMP BEFORE INSTALLING.
- PROVIDE AND INSTALL 6-4" CONDUITS FOLLOWING RMP REQUIREMENTS. CONDUCTORS SHALL BE PROVIDED AND INSTALLED BY RMP. VERIFY CONDUIT REQUIREMENTS WITH RMP BEFORE INSTALLING.
- FOLLOW SANDY CITY REQUIREMENTS WHEN INSTALLING NEW CONDUIT TO EXISTING POLE MOUNTED LIGHT FIXTURE.
- PROVIDE AND INSTALL A 1" CONDUIT WITH 3/8 AWG COPPER CONDUCTORS. FOLLOW SANDY CITY REQUIREMENTS WHEN INSTALLING CONDUIT/CONDUCTOR.
- COORDINATE WITH OWNER AND RMP FOR REQUIREMENTS TO PROVIDE AND INSTALL A NON-METERED POLE MOUNTED LIGHTING FIXTURE. FOR MORE INFORMATION ON CITY STANDARDS AND FIXTURE TYPE CONTACT SANDY CITY PUBLIC WORKS DEPARTMENT ((801)-568-2999) OR GO TO SANDY CITY WEBSITE AND CONSULT CITY STANDARDS.
- TO NEXT WALL MOUNTED EXTERIOR LIGHTING FIXTURE. SEE SHEET E4.1 FOR MORE INFORMATION ON EXTERIOR LIGHTING.
- INSTALL LIGHTING FIXTURE 8 FEET ABOVE FINISHED FLOOR. FIXTURE SHALL BE SUPPLIED WITH A MOTION SENSOR AND PHOTOCELL FOR OPERATION DUSK TO DAWN UNDER MOTION CONDITIONS.
- SEE POWER ONE-LINE FOR CONDUIT/CONDUCTORS REQUIRED FOR GENERATOR. VERIFY FINAL LOCATION OF CONDUITS WITH GENERATOR SUPPLIER BEFORE ROUGHING IN CONDUITS.



ELECTRICAL SITE PLAN



REV	DATE	BY	DESCRIPTION
REVISIONS			

SCALE	WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
HORIZONTAL	
VERTICAL	
AS SHOWN	AS SHOWN

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SANDY CITY - NEW SEVERSON WELLHOUSE

ELECTRICAL SITE PLAN

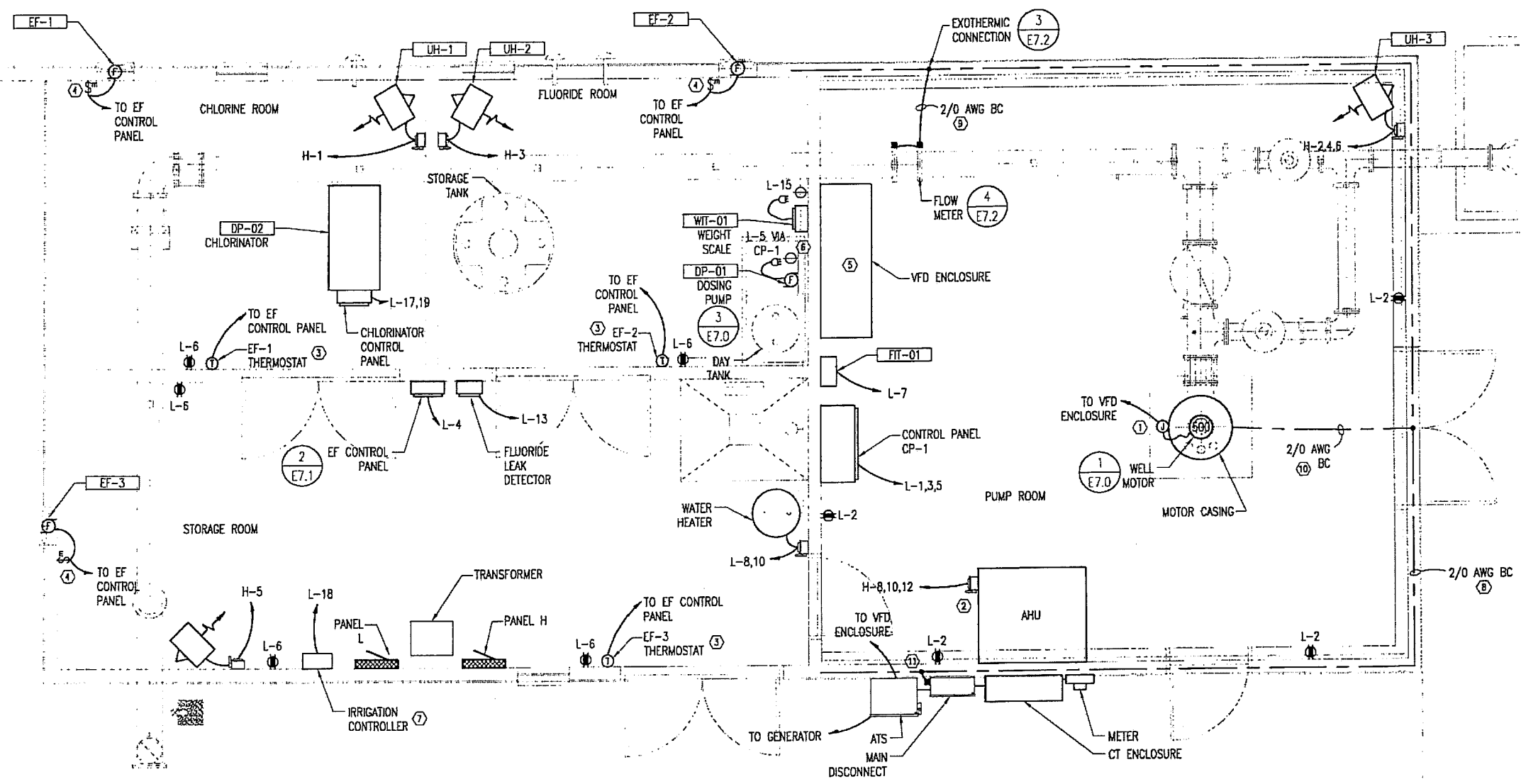
DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	29 of 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E3.0

GENERAL SHEET NOTES

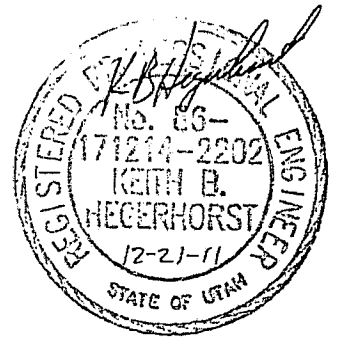
1. REFER TO ONE-LINE DIAGRAMS AND PANEL SCHEDULES FOR CONDUIT/CONDUCTOR REQUIREMENTS.
2. DRAWING IS CONCEPTUAL. CONTRACTOR SHALL VERIFY FINAL SIZES OF EQUIPMENT BEFORE ROUGHING IN ANY CONDUITS.
3. INSTALL RECEPTACLES 48" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
4. PROVIDE CLEARANCES REQUIRED BY ROCKY MOUNTAIN POWER WHEN INSTALLING UTILITY SERVICE EQUIPMENT.
5. SEE EQUIPMENT SCHEDULE FOR SIZE AND RATING OF LOCAL DISCONNECTS.
6. COORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATION OF HVAC EQUIPMENT.

○ SHEET KEYNOTES

1. MOTOR CONNECTION BOX. VERIFY FINAL LOCATION OF BOX WITH MOTOR SUPPLIER. SEE ONE-LINE DIAGRAM FOR CONDUITS REQUIRED TO CONNECT TO MOTOR, MOTOR RTD'S, AND CONDENSATE HEATER.
2. AIR HANDLER UNIT SHALL BE PROVIDED WITH A DISCONNECT. VERIFY LOCATION OF DISCONNECT WITH SUPPLIER.
3. LINE VOLTAGE THERMOSTAT COORDINATE WITH MECHANICAL CONTRACTOR DURING CONSTRUCTION. INSTALL THERMOSTATS 60" ABOVE FINISHED FLOOR.
4. PROVIDE MOTOR RATED SWITCH TO BE USED AS A DISCONNECT FOR EXHAUST FANS.
5. VERIFY CONDUIT STUB UP LOCATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH IN.
6. PROVIDE A NEMA LS-20 TWIST LOCK RECEPTACLE FOR DOSING PUMP. MODIFY PUMP CORD BY REMOVING PLUG AND INSTALLING A TWIST LOCK PLUG.
7. VERIFY FINAL LOCATION OF IRRIGATION CONTROLLER WITH OWNER.
8. CONCRETE ENCASED ELECTRODE AS PER NEC 250.52(A)(3).
9. FOLLOW FLOW METER MANUFACTURERS RECOMMENDATIONS WHEN GROUNDING FLOW METER.
10. FOLLOW MOTOR MANUFACTURERS RECOMMENDATIONS WHEN GROUNDING MOTOR CASING.
11. CONNECT MAIN DISCONNECT TO GROUNDING SYSTEM WITH A #2/0 AWG BC CONDUCTOR.



POWER PLAN
 SCALE:
 0 4' 8'
 3/16" = 1'-0"



REV	DATE	BY	DESCRIPTION
REVISIONS			

SCALE
 HORIZONTAL AS SHOWN
 VERTICAL AS SHOWN

WARNING
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SANDY CITY - NEW SEVERSON WELLHOUSE
 BUILDING POWER PLAN

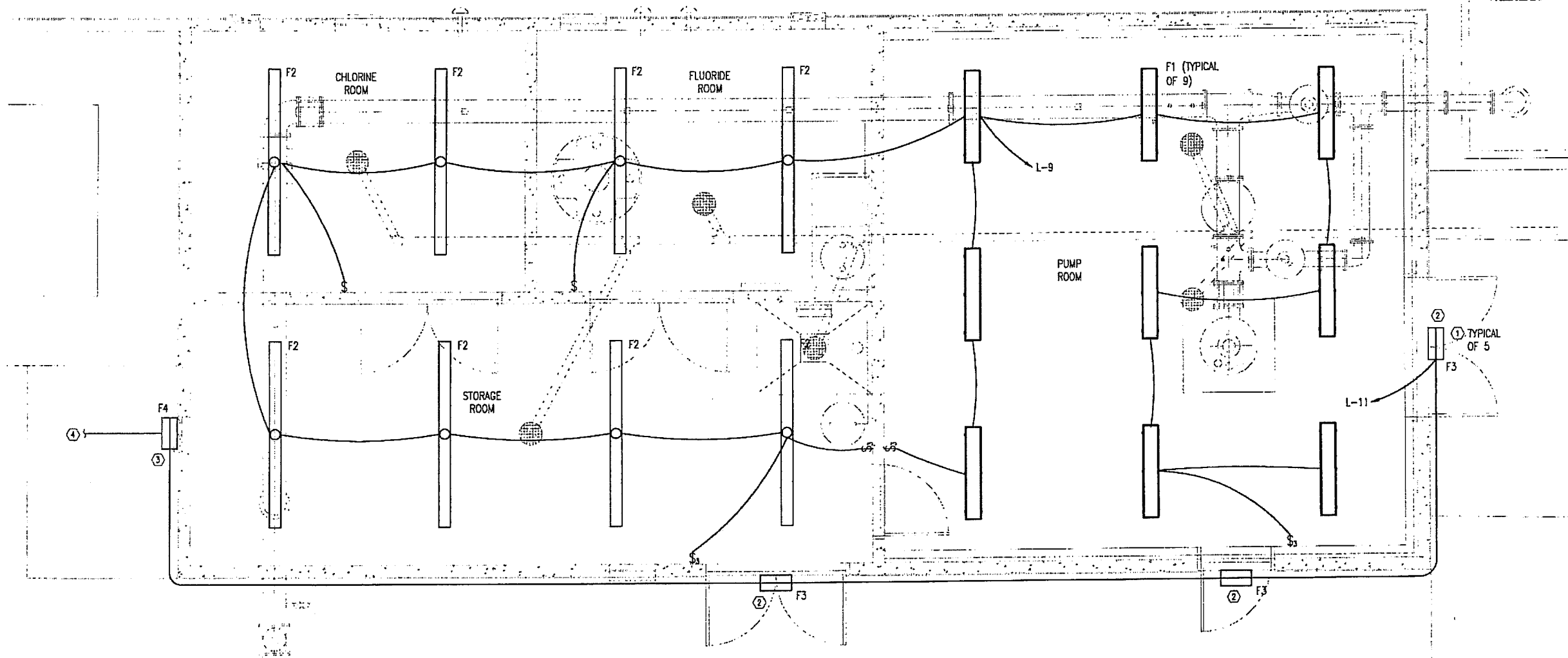
DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	30 of 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E4.0

GENERAL SHEET NOTES

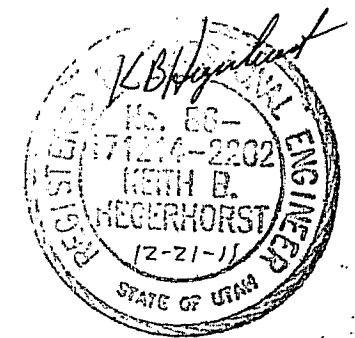
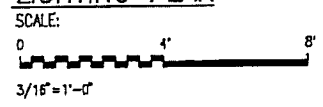
1. ALL CIRCUITS SHALL BE 3/4" WITH #12 CONDUCTORS MINIMUM. CONTRACTOR SHALL DETERMINE QUANTITY OF CONDUCTORS AS REQUIRED.
2. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE.
3. INSTALL SWITCHES 48 INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

○ SHEET KEYNOTES

1. FIXTURE SHALL BE SUPPLIED WITH A PHOTOCELL AND SHALL OPERATE DUSK TO DAWN.
2. INSTALL FIXTURE 6 INCHES ABOVE DOOR.
3. INSTALL FIXTURE 8 FEET ABOVE FINISHED FLOOR. FIXTURE SHALL BE SUPPLIED WITH A MOTION SENSOR AND PHOTO CELL FOR OPERATION DUSK TO DAWN UNDER MOTION CONDITIONS.
4. SEE SITE PLAN FOR LOCATION OF LIGHTING FIXTURE INSTALLED ON EXTERIOR OF GENERATORS WEST WALL.



LIGHTING PLAN



REV	DATE	BY	DESCRIPTION

SCALE	WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
HORIZONTAL AS SHOWN	
VERTICAL AS SHOWN	



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SANDY CITY - NEW SEVERSON WELLHOUSE
 BUILDING LIGHTING PLAN

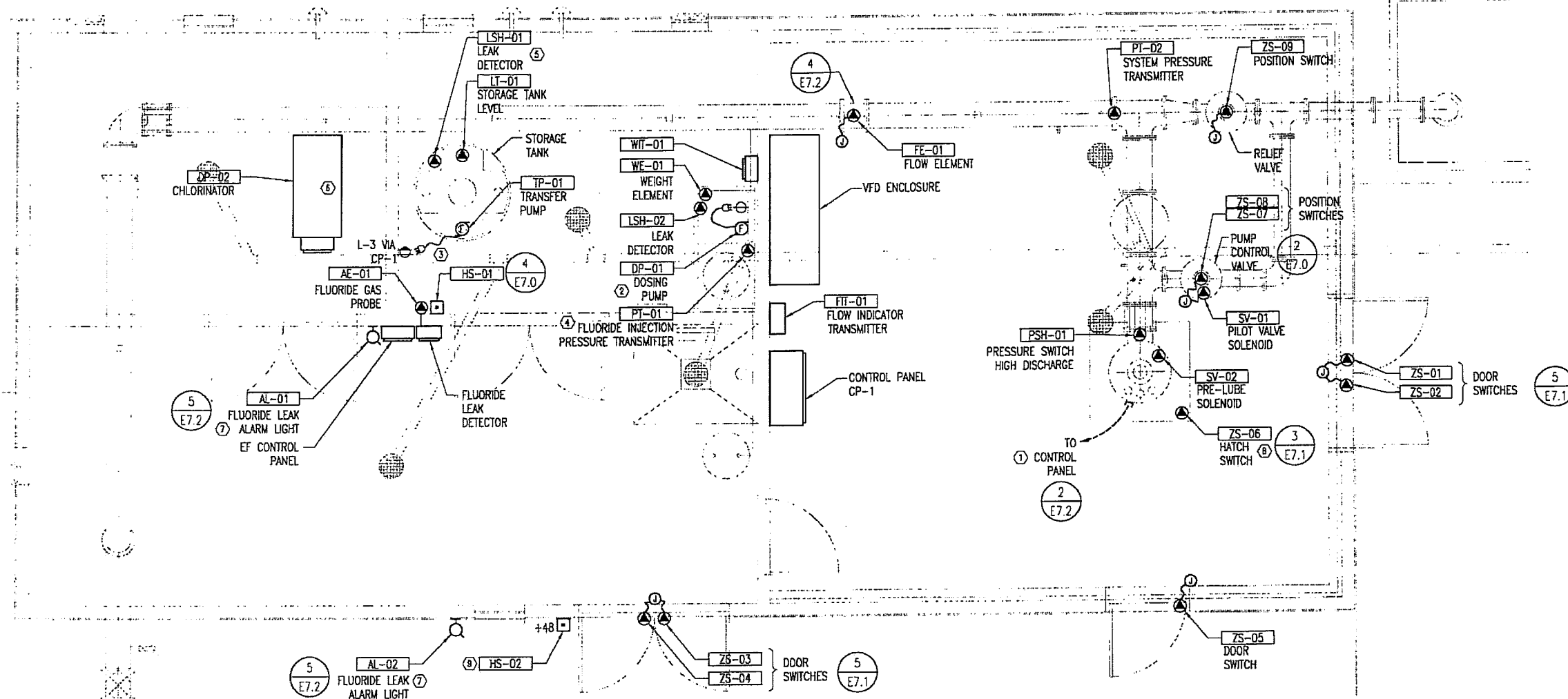
DESIGNED	DATE	PROJECT NO
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO
DC	10/2011	31 of 45
CHECKED	DATE	DRAWING NO
KBH	12/2011	E4.1

GENERAL SHEET NOTES

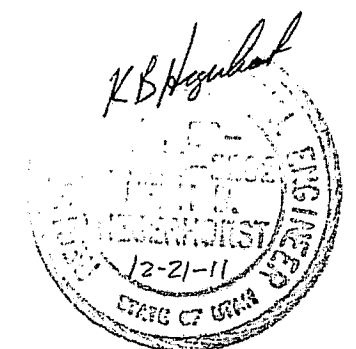
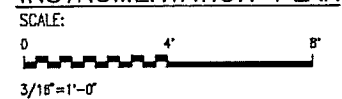
- SEE INSTRUMENT ONE-LINE DIAGRAM FOR CONDUIT/CONDUCTORS REQUIREMENTS.
- AIR HANDLER CONTROLS SHALL BE BY MECHANICAL CONTRACTORS.

○ SHEET KEYNOTES

- CONDUIT FOR FUTURE WELL LEVEL TRANSMITTER. CAP CONDUIT WITH APPROVED MATERIALS. DUCT TAPE NOT ALLOWED.
- INSTALL RECEPTACLE FOR DOSING PUMP ABOVE EQUIPMENT.
- INSTALL RECEPTACLE FOR TRANSFER PUMP ABOVE STORAGE TANK.
- PRESSURE TRANSMITTER IS LOCATED ON THE WALL MOUNTED DOSING EQUIPMENT. SEE SHEET TYP-1 DETAIL D OF CML DRAWINGS FOR MORE INFORMATION.
- INSTALL LEVEL SWITCH INSIDE OUTER TANK AND LOWER TO BOTTOM. ATTACH WIRING TO SIDE OF TANK WITH SELF ADHESIVE WIRE TIE ANCHORS.
- VERIFY FINAL LOCATION OF PELLET CHLORINATOR. CONDUITS SHALL BE ROUTED TO CHLORINATOR CONTROL PANEL.
- INSTALL ALARM LIGHT 78" ABOVE FINISHED FLOOR.
- SWITCH IS LOCATED ON MOTOR ACCESS HATCH INSTALLED ON ROOF. COORDINATE WITH HATCH PROVIDER FOR LOCATION OF SWITCH ON HATCH.
- CONTRACTOR SHALL SUPPLY A RECESSED BOX WITH A COVER PLATE THAT WILL HOUSE THE KEY SWITCH. CITY WILL PROVIDE THE TUMBLER SET THAT WILL OPERATE THE STANDARD KEY SWITCH BUT THE COST WILL BE COVERED BY CONTRACTOR. COORDINATE WITH CITY FOR THE BOX AND COVER PLATE REQUIRED TO HOUSE TUMBLER SET. KEY SWITCH WILL BE USED TO DISABLE ALARMS UPON ENTRANCE TO BUILDING.



INSTRUMENTATION PLAN



REV	DATE	BY	DESCRIPTION

SCALE	WARNING
HORIZONTAL	0 1/2 1
AS SHOWN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
VERTICAL	
AS SHOWN	

HORROCKS ENGINEERS

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SANDY CITY - NEW SEVERSON WELLHOUSE

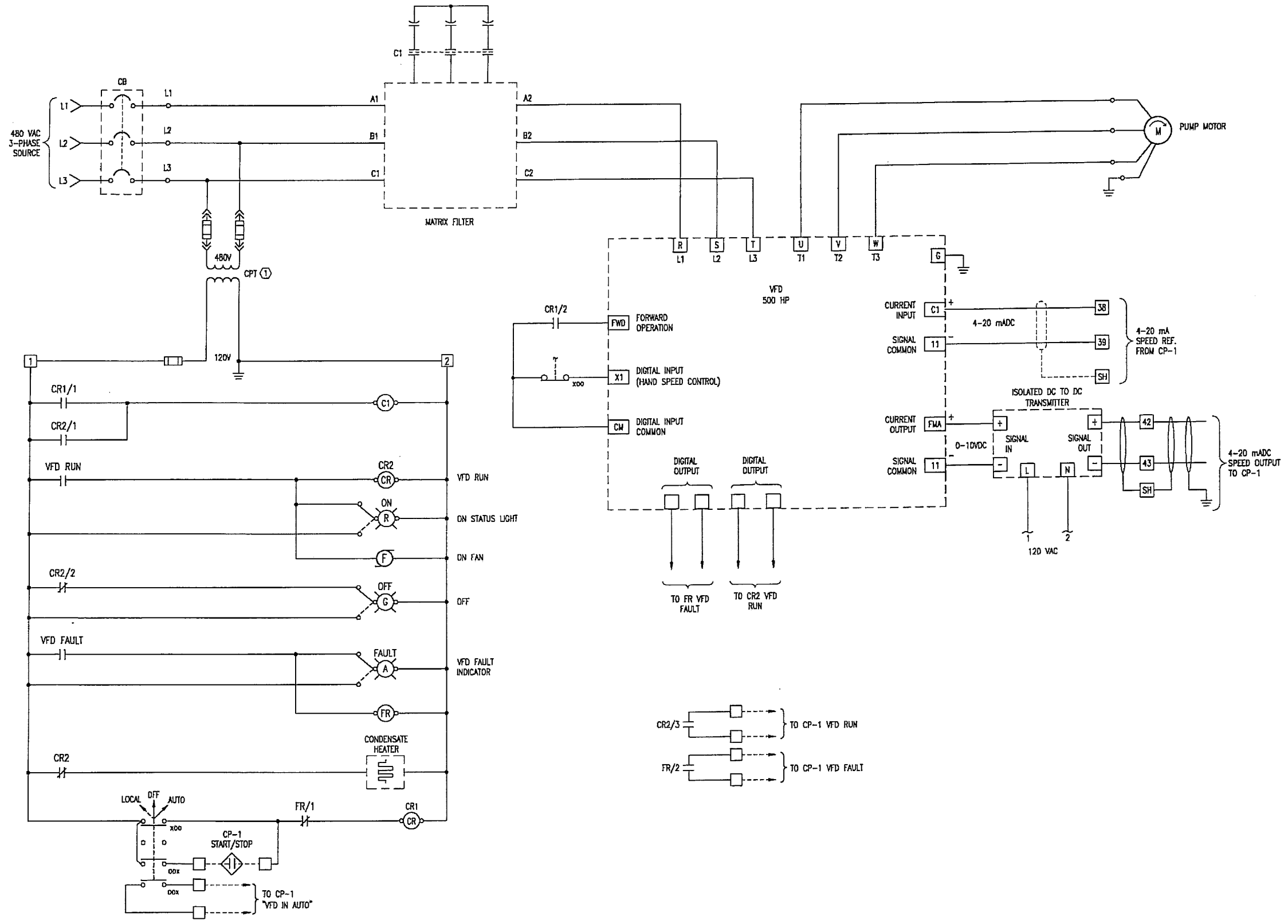
BUILDING INSTRUMENTATION PLAN

DESIGNED	DATE	PROJECT NO
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO
DC	10/2011	32 OF 45
CHECKED	DATE	DRAWING NO
KBH	12/2011	E4.2

GENERAL SHEET NOTES

○ SHEET KEYNOTES

1. TRANSFORMER SHALL BE SIZED BIG ENOUGH TO PROVIDE POWER TO RELAY LOGIC AND MOTOR CONDENSATE HEATER.



1 VFD CONTRL WIRING DIAGRAM
 SCALE: NTS



REV	DATE	BY	DESCRIPTION

SCALE: HORIZONTAL AS SHOWN, VERTICAL AS SHOWN

WARNING
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



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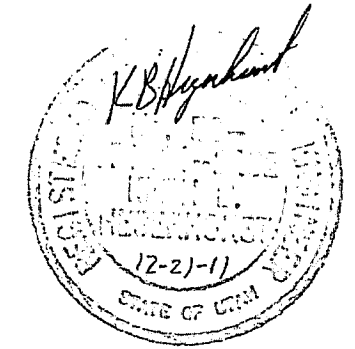
SANDY CITY - NEW SEVERSON WELLHOUSE
 VFD WIRING DIAGRAMS

DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
DC	10/2011	33 of 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E5.0

GENERAL SHEET NOTES

○ SHEET KEYNOTES

I/O TYPE	I/O DESCRIPTION	SIGNAL	FIELD DEVICE
ANALOG INPUT	FLUORIDE INJECTION PRESSURE	4-20 mADC	PT-01
ANALOG INPUT	FLUORIDE STORAGE TANK LEVEL	4-20 mADC	LT-01
ANALOG INPUT	SYSTEM FLOW	4-20 mADC	FTI-01
ANALOG INPUT	DAY TANK LEVEL (BY WEIGHT)	4-20 mADC	WT-01
ANALOG INPUT	VFD OPERATING SPEED	4-20 mADC	VFD
ANALOG INPUT	SYSTEM PRESSURE	4-20 mADC	PT-02
ANALOG INPUT	FUTURE WELL LEVEL	4-20 mADC	
ANALOG OUTPUT	FLUORIDE DOSING	4-20 mADC	DP-01
ANALOG OUTPUT	CHLORINE DOSING	4-20 mADC	DP-02
ANALOG OUTPUT	VFD CONTROL SPEED	4-20 mADC	VFD
DISCRETE INPUT	HAND SWITCH ALARM DISABLE	DRY CONTACT	HS-02
DISCRETE INPUT	FLUORIDE STORAGE TANK LEAK	DRY CONTACT	LSH-01
DISCRETE INPUT	FLUORIDE DAY TANK LEAK	DRY CONTACT	LSH-02
DISCRETE INPUT	FLUORIDE LEAK ALARM	DRY CONTACT	ASH-01
DISCRETE INPUT	DOOR SWITCH EAST DOUBLE DOOR	DRY CONTACT	ZS-01
DISCRETE INPUT	DOOR SWITCH EAST DOUBLE DOOR	DRY CONTACT	ZS-02
DISCRETE INPUT	DOOR SWITCH SOUTH DOUBLE DOOR	DRY CONTACT	ZS-03
DISCRETE INPUT	DOOR SWITCH SOUTH DOUBLE DOOR	DRY CONTACT	ZS-04
DISCRETE INPUT	DOOR SWITCH SOUTH SINGLE DOOR	DRY CONTACT	ZS-05
DISCRETE INPUT	HATCH SWITCH	DRY CONTACT	ZS-06
DISCRETE INPUT	PUMP CONTROL VALVE FULLY OPEN	DRY CONTACT	ZS-07
DISCRETE INPUT	PUMP CONTROL VALVE FULLY CLOSED	DRY CONTACT	ZS-08
DISCRETE INPUT	RELIEF VALVE POSITION	DRY CONTACT	ZS-09
DISCRETE INPUT	VFD H-O-A IN AUTO	DRY CONTACT	VFD
DISCRETE INPUT	VFD RUNNING	DRY CONTACT	VFD
DISCRETE INPUT	VFD FAULT	DRY CONTACT	VFD
DISCRETE INPUT	GENERATOR STATUS (RUNNING)	DRY CONTACT	GENERATOR
DISCRETE INPUT	GENERATOR TROUBLE	DRY CONTACT	GENERATOR
DISCRETE INPUT	SYSTEM FLOW TOTALIZER	PULSE	FTI-01
DISCRETE INPUT	HIGH DISCHARGE PRESSURE	DRY CONTACT	PSH-01
DISCRETE OUTPUT	VFD ENABLE (RUN)	DRY CONTACT	VFD
DISCRETE OUTPUT	FLUORIDE DOSING ENABLE	DRY CONTACT	DP-01
DISCRETE OUTPUT	CHLORINE DOSING ENABLE	DRY CONTACT	DP-02
DISCRETE OUTPUT	FLUORIDE LEAK ALARM LIGHT ENABLE	DRY CONTACT	AL-01,02
DISCRETE OUTPUT	FLUORIDE LEAK ALARM RESET	DRY CONTACT	ASH-01
DISCRETE OUTPUT	TRANSFER PUMP DISABLE	DRY CONTACT	TP-01
DISCRETE OUTPUT	SOLENOID VALVE PUMP CONTROL (120 VAC)	DRY CONTACT	SV-01
DISCRETE OUTPUT	SOLENOID VALVE WELL PRE-LUBE (120VAC)	DRY CONTACT	SV-02
DISCRETE OUTPUT	HOR EXHAUST FAN FLUORIDE ROOM ENABLE	DRY CONTACT	EF CONTROL PANEL
ETHERNET	POWER MONITOR	ETHERNET	VFD



REV	DATE	BY	DESCRIPTION

SCALE

HORIZONTAL AS SHOWN

VERTICAL AS SHOWN

WARNING

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

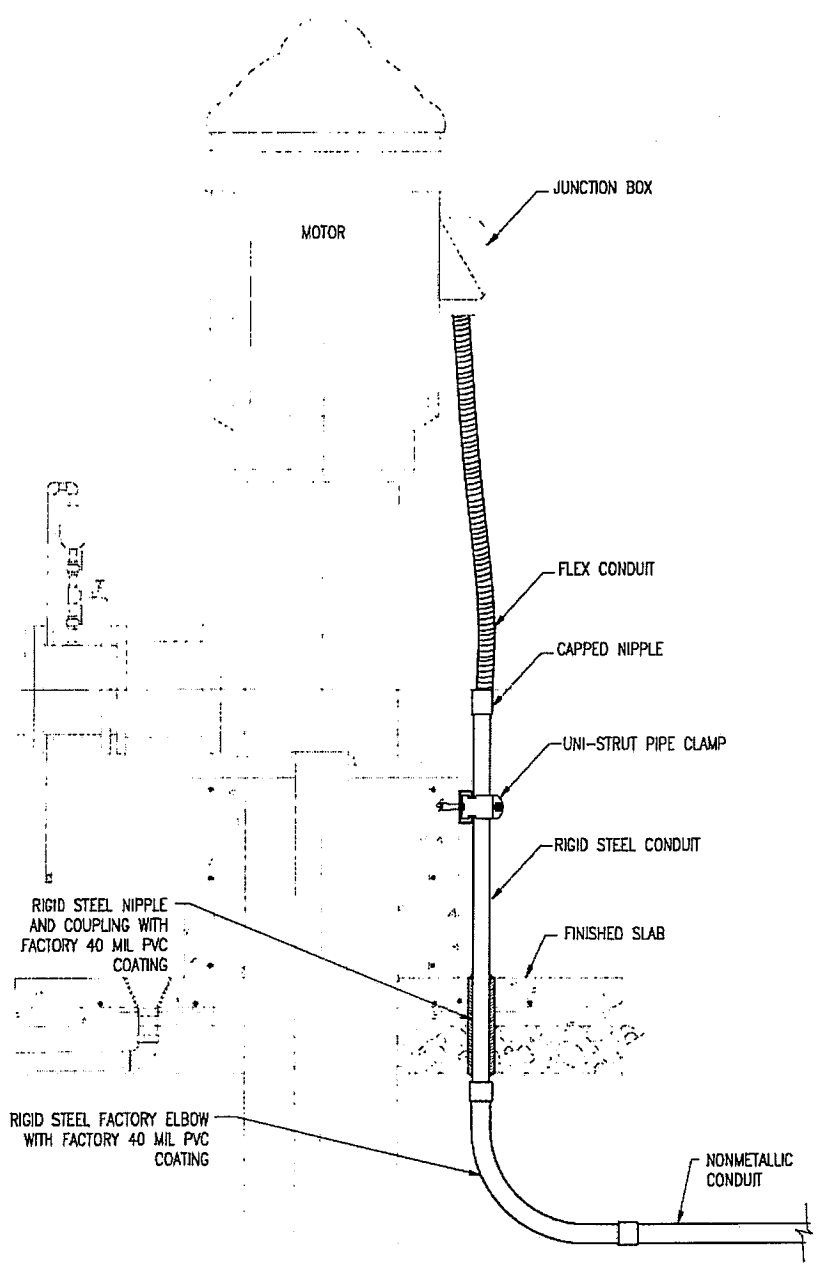


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SANDY CITY - NEW SEVERSON WELLHOUSE

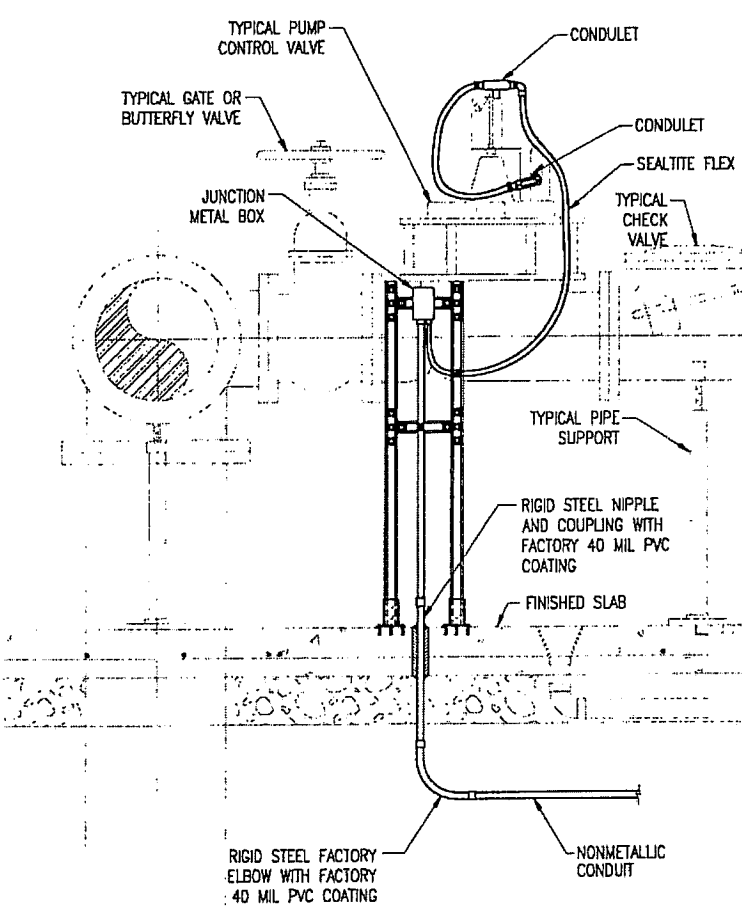
CONTROL PANEL IO LIST

DESIGNED	DATE	PROJECT NO
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO
DC	10/2011	34 of 45
CHECKED	DATE	DRAWING NO
KBH	12/2011	E6.0

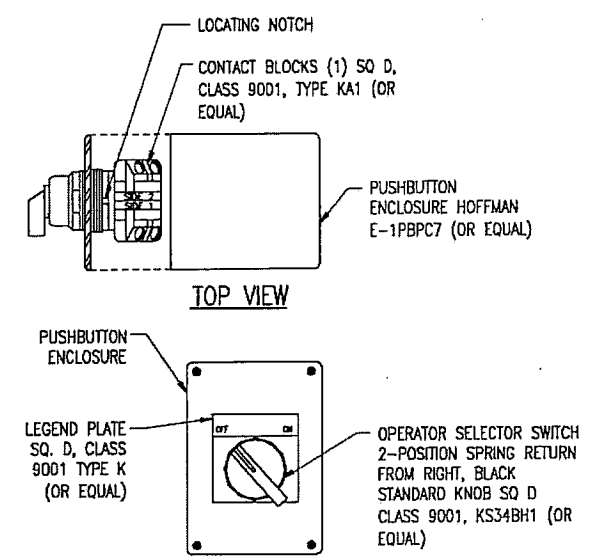


1 MOTOR CONNECTION DETAIL
 SCALE: NTS

VERTICAL PUMP



2 PUMP CONTROL VALVE CONNECTION DETAIL
 SCALE: NTS



4 HAND SWITCH DETAIL
 SCALE: NTS

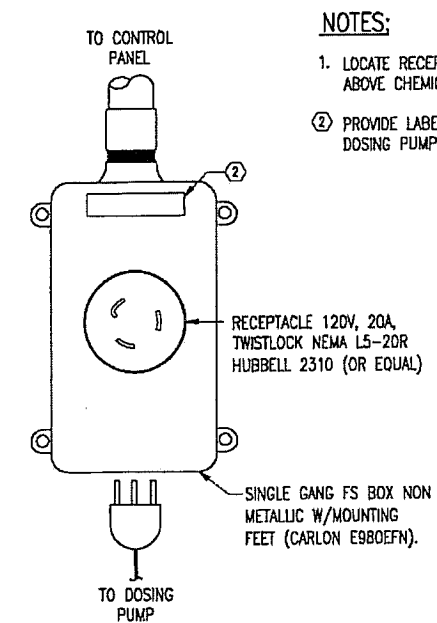
WARNING
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

HORROCKS ENGINEERS

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SANDY CITY - NEW SEVERSON WELLHOUSE

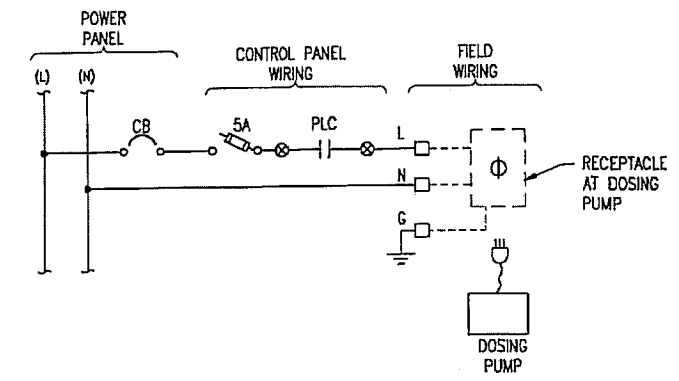
ELECTRICAL DETAILS



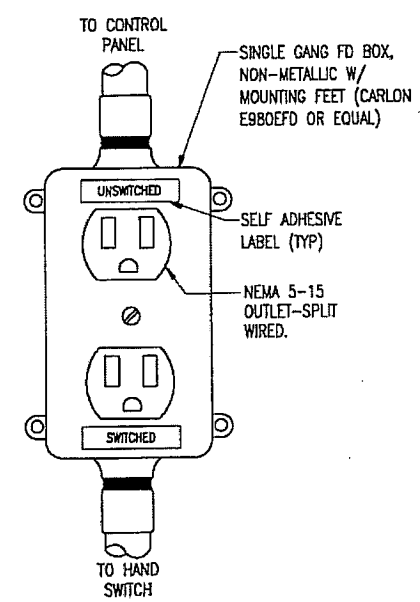
INSTALLATION DIAGRAM

3 DOSING PUMP CONNECTION DETAIL
 SCALE: NTS

- NOTES:**
1. LOCATE RECEPTACLE APPROX. 8" ABOVE CHEMICAL CONTROLLER.
 2. PROVIDE LABEL TO IDENTIFY DOSING PUMP

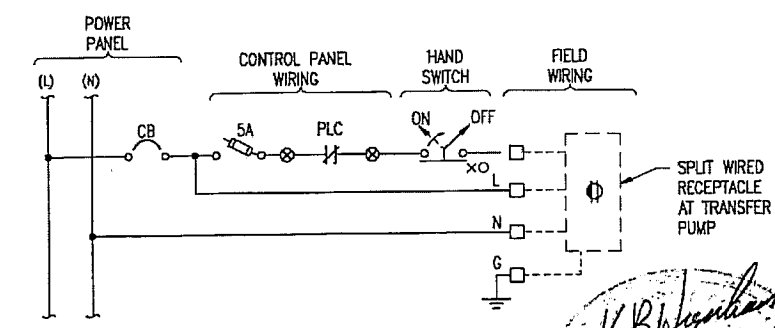


WIRING DIAGRAM

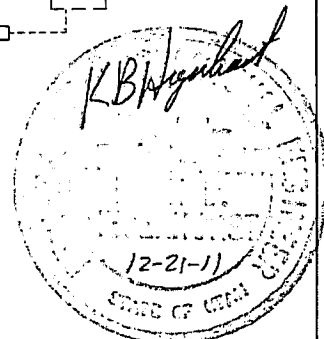


INSTALLATION DIAGRAM

5 TRANSFER PUMP CONNECTION DETAIL
 SCALE: NTS



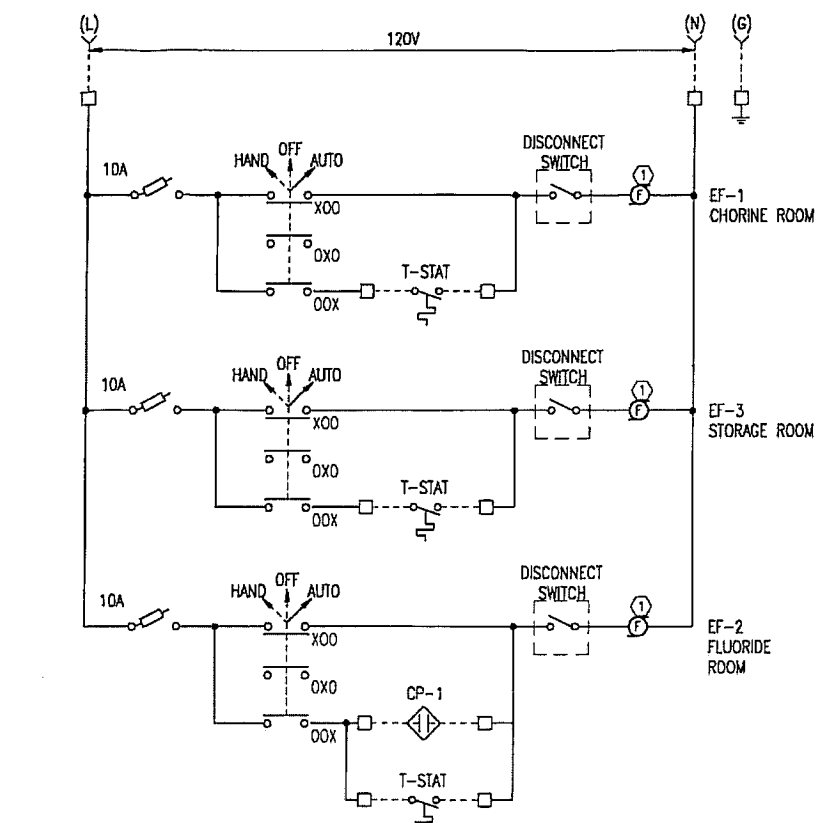
WIRING DIAGRAM



REV	DATE	BY	DESCRIPTION

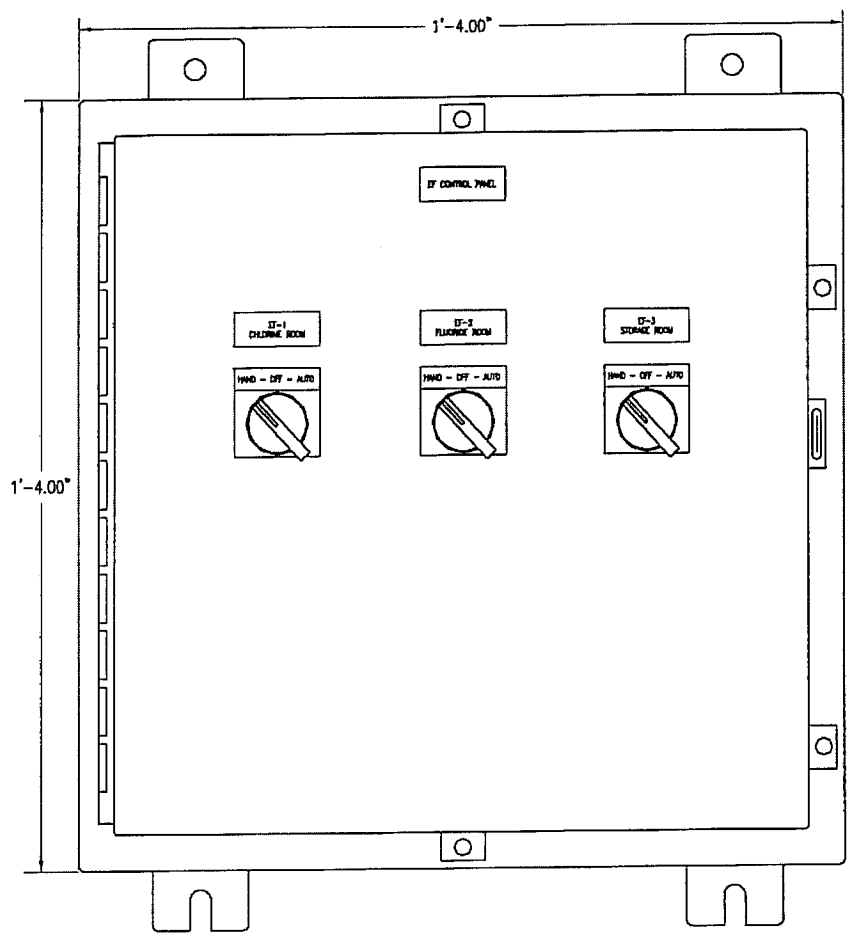
SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

DESIGNED	DATE	PROJECT NO.
AC	10/2011	PG-031-1107
DRAWN	DATE	SHEET NO.
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CHECKED	DATE	DRAWING NO.
KBH	12/2011	E7.0

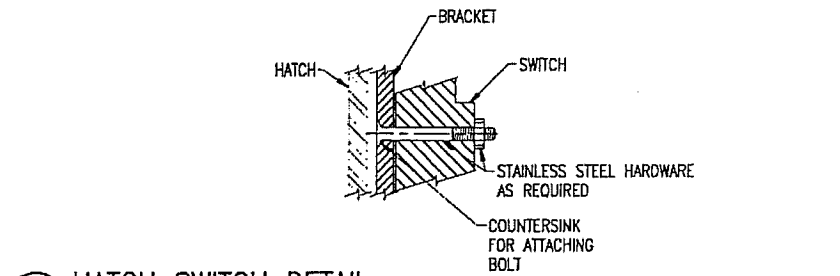
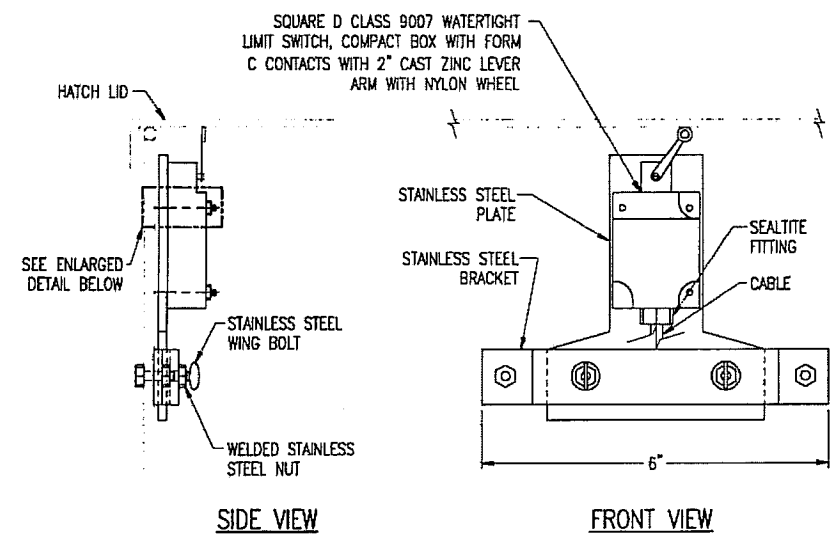
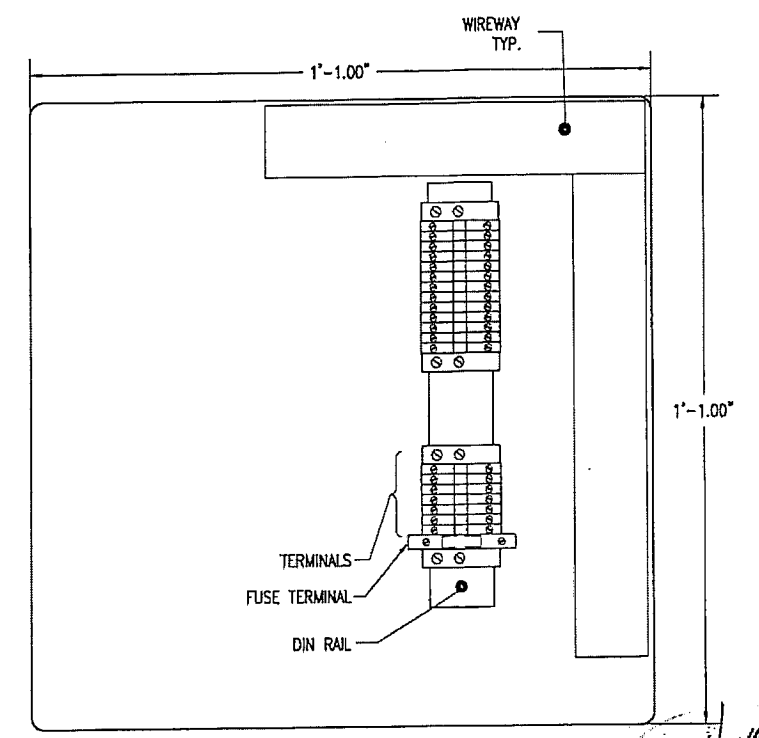


NOTES:
 ① MOTOR SHALL BE PROVIDED WITH AN OVERLOAD

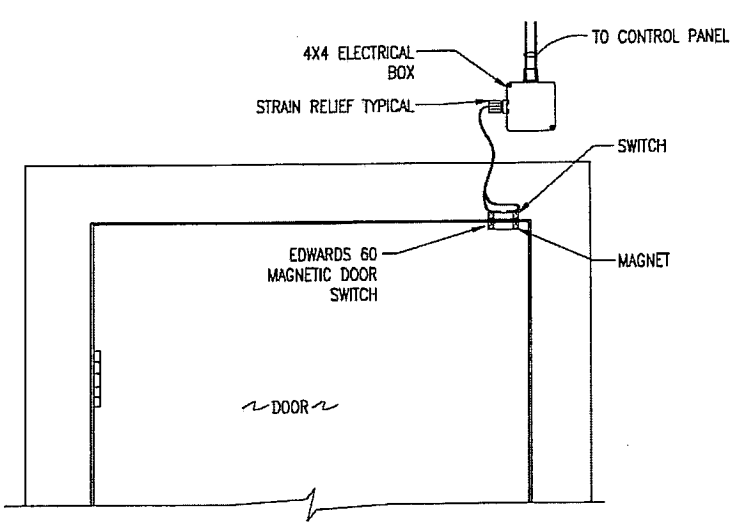
① EXHAUST FANS WIRING DIAGRAM
 SCALE: NTS



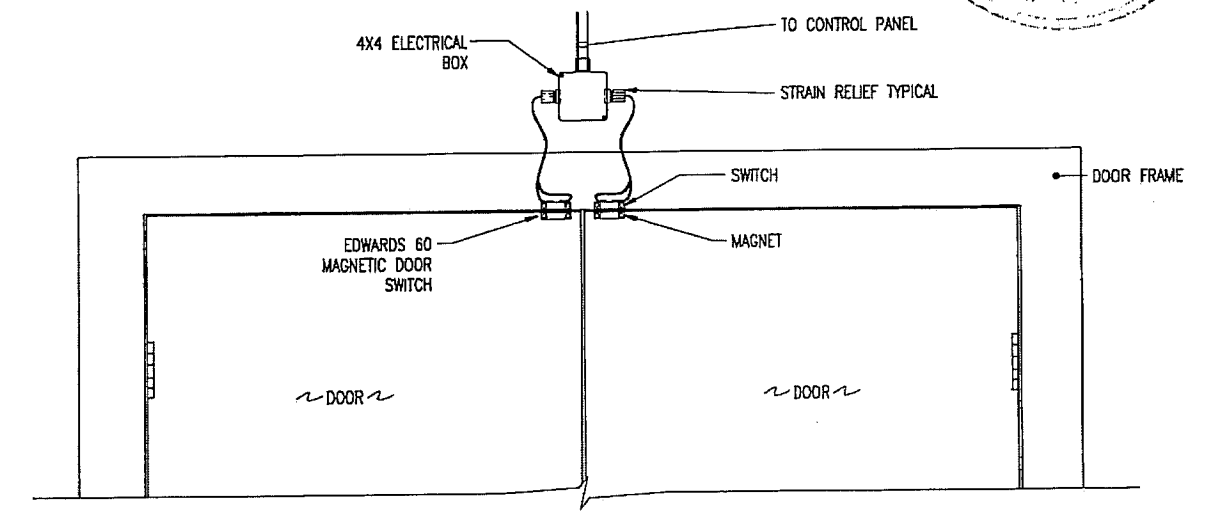
② EXHAUST FAN CONTROL PANEL
 SCALE: NTS



③ HATCH SWITCH DETAIL
 SCALE: NTS



④ SINGLE DOOR SWITCH DETAIL
 SCALE: NTS



⑤ DOUBLE DOOR SWITCH DETAIL
 SCALE: NTS

KBH
 12-21-11

REV	DATE	BY	DESCRIPTION

SCALE	WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
HORIZONTAL	
VERTICAL	

HORROCKS ENGINEERS

2162 West Grove Parkway
 Suite 400
 Pleasant Grove, UT 84062
 (801) 763-5100

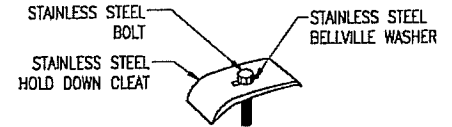
SANDY CITY - NEW SEVERSON WELLHOUSE
 ELECTRICAL DETAILS

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KBH	12/2011	E7.1

GENERAL SHEET NOTES

NOTES:

- ① CONTRACTOR SHALL COORDINATE WITH ROCKY MOUNTAIN POWER PLANNER WHICH VAULT WILL BE REQUIRED.
- 2.4 - 25 KV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS STOCK ITEM 7992600-STOCK ITEM 1790023.
- 2.4 - 25 KV, 3-PHASE TRANSFORMER PAD VAULT WITHOUT ACCESS, STOCK ITEM 7992601-STOCK ITEM 1790024.
- 2.4- 25 KV, 3-PHASE TRANSFORMER PAD, STOCK ITEM 1790021 35 KV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992603-STOCK ITEM 1008977.
- 35 KV, 3-PHASE TRANSFORMER PADVAULT WITHOUT ACCESS STOCK ITEM 7992602-STOCK ITEM 1008975.
- 35 KV, 3-PHASE TRANSFORMER PAD, STOCK ITEM 1008958.

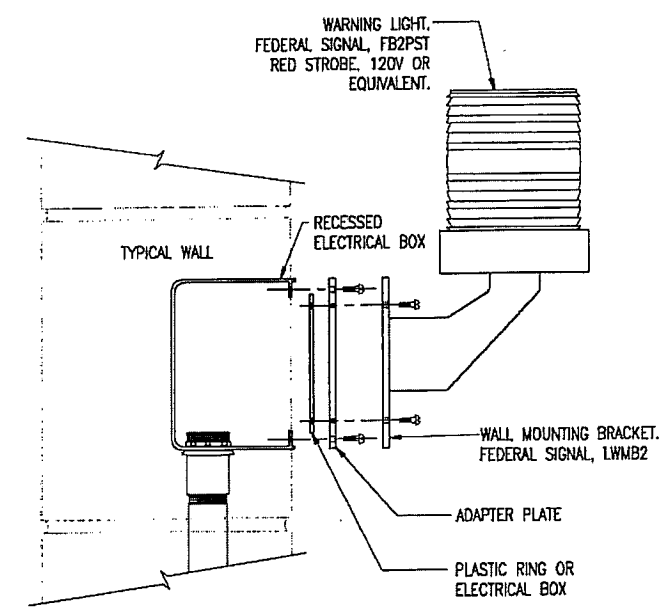


**HOLD DOWN CLEAT
DETAIL 1**

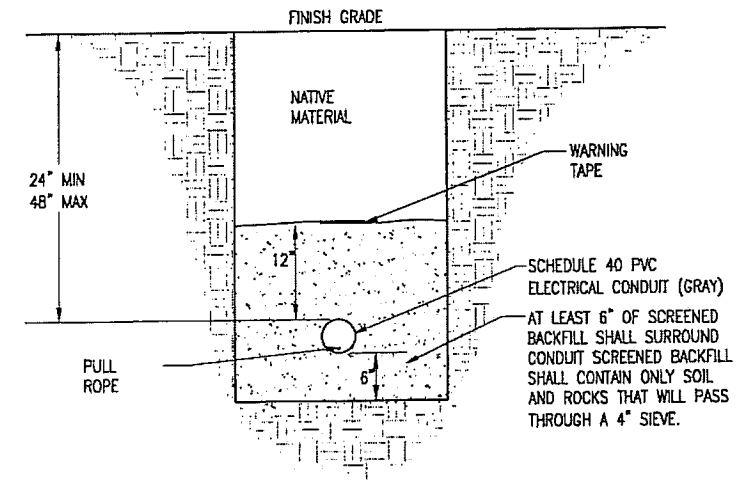
- 1-1/4" x 2-1/2" STAINLESS STEEL HOLD DOWN CLEAT - 2 REQ'D.
- 3/8" x 1-1/4" STAINLESS STEEL BOLT - 2 REQ'D.
- 3/8" STAINLESS STEEL BELLVILLE WASHER - 2 REQ'D.

TRANSFORMER DIMENSIONS OF BASE MEASURED IN FEET & INCHES		
KVA SIZE	DEPTH/LENGTH FT & INCHES	WIDTH FT & INCHES
75	3'6"	5'8"
150	3'7"	5'8"
225	3'9"	6'
300	3'11"	6'
500	4'	6'
750	4'8"	6'
1000	4'10"	6'
1500	5'3"	6'
2000	5'7"	6'8"
2500	6'9"	5'9"

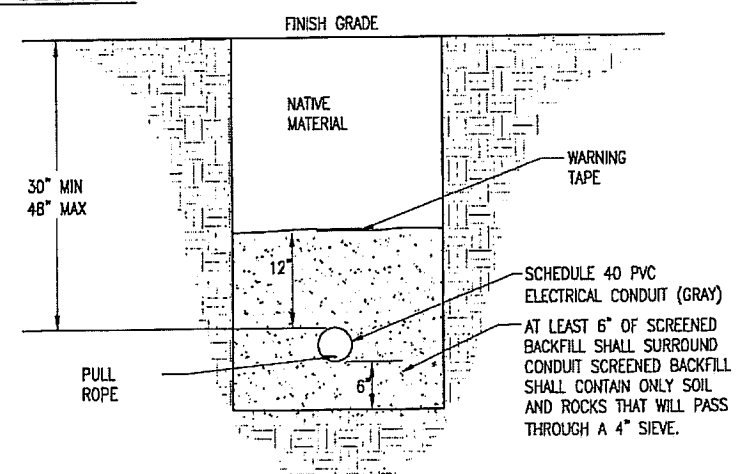
PADVAULTS SI#1790023 WITH DOORS MEASURED IN FEET & INCHES		
25KV	9'4"	7'



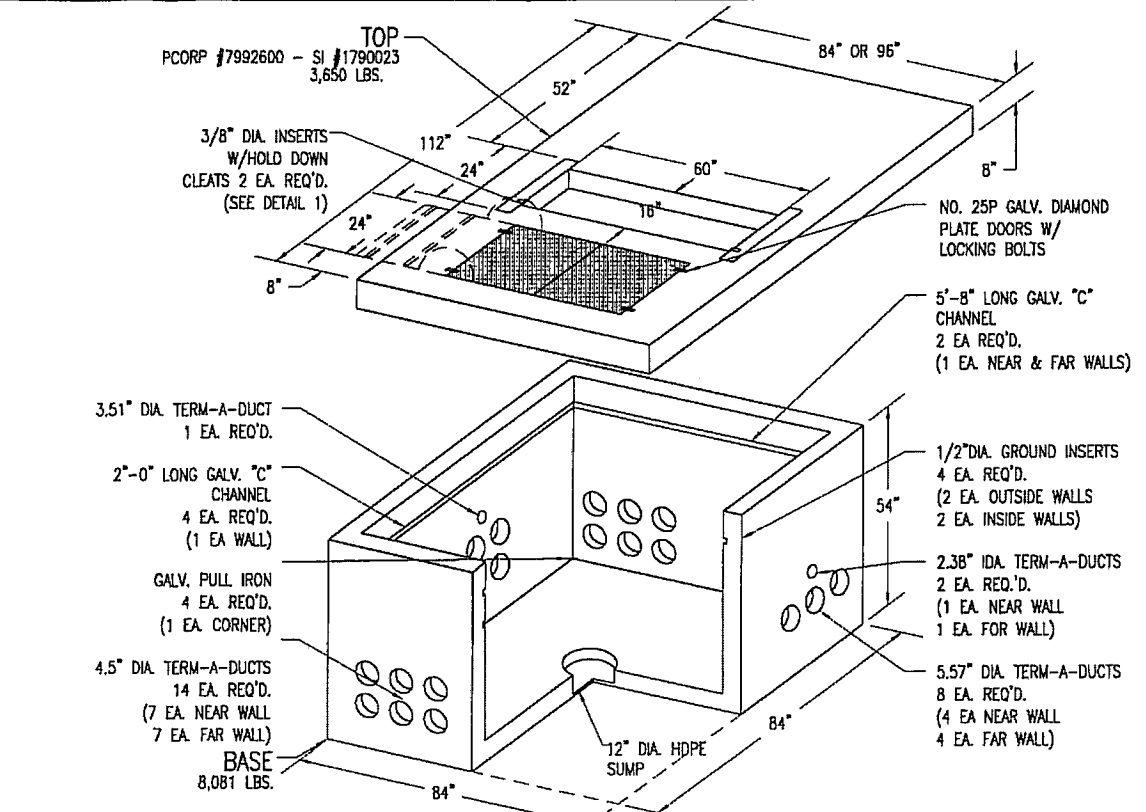
5 LEAK ALARM LIGHT INSTALLATION DETAIL
SCALE: NTS



6 PRIMARY TRENCH SECTION
SCALE: NTS

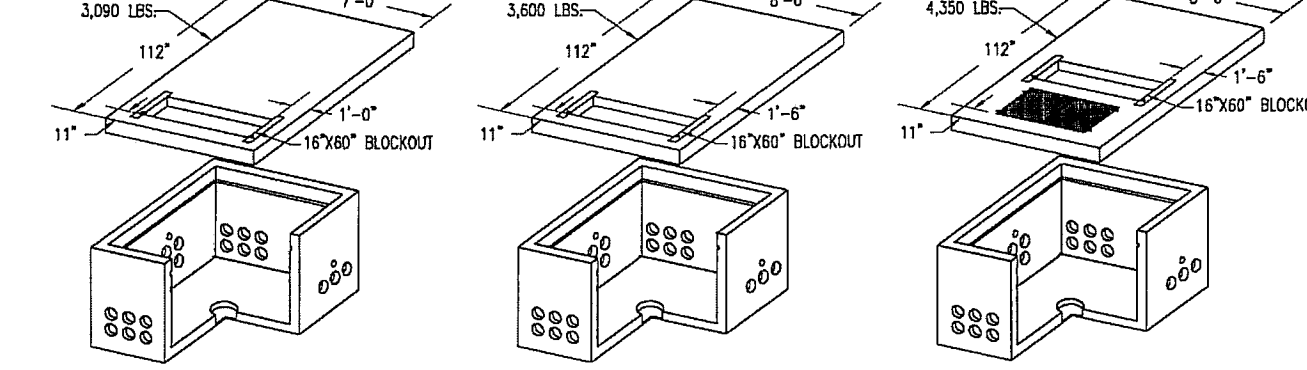


7 SECONDARY TRENCH SECTION
SCALE: NTS

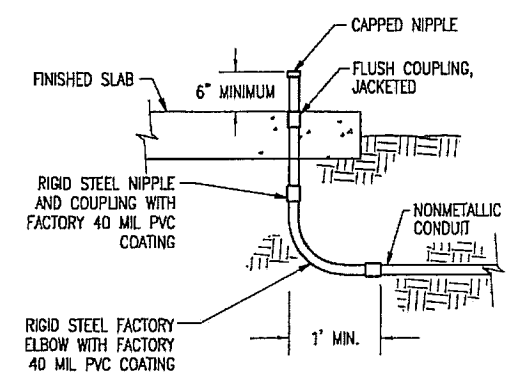


OPTIONAL TOPS

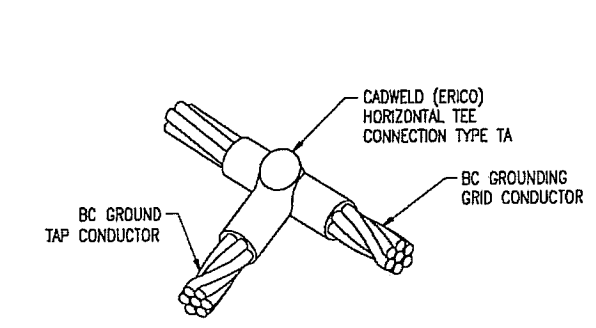
- 2.4 - 25KV, 3-PHASE TRANSFORMER PADVAULT WITHOUT ACCESS PCORP #7992601 - SI #1790024
- 2.4 - 25KV, 3-PHASE TRANSFORMER PAD ONLY (NO BASE) PCORP #1790021
- 35KV, 3-PHASE TRANSFORMER PADVAULT WITHOUT ACCESS PCORP #7992603-SI#1008975
- 35KV, 3-PHASE TRANSFORMER PAD ONLY (NO BASE) PCORP #1008958
- 35KV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS PCORP #7992602-SI#1008977



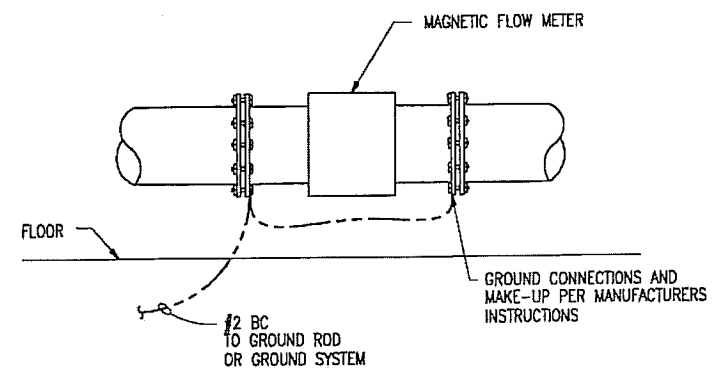
1 PAD-VAULT TRANSFORMER DETAIL
SCALE: 6" = 1'-0"



2 FLOOR CONDUIT RISER
SCALE: NTS



3 CADWELD CONNECTION
SCALE: NTS



4 FLOW METER GROUNDING
SCALE: NTS

REV	DATE	BY	DESCRIPTION

SCALE	WARNING
HORIZONTAL AS SHOWN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
VERTICAL AS SHOWN	



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SANDY CITY - NEW SEVERSON WELLHOUSE
 ELECTRICAL INSTALLATION DETAILS

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AC	10/2011	PG-031-1107
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DC	10/2011	37 of 45
CHECKED	DATE	DRAWING NO.
KBH	12/2011	E7.2

K.B. [Signature]
 12-21-11
 STATE OF UTAH