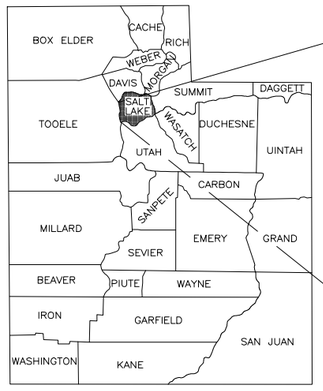
JORDAN VALLEY WATER
CONSERVANCY DISTRICT

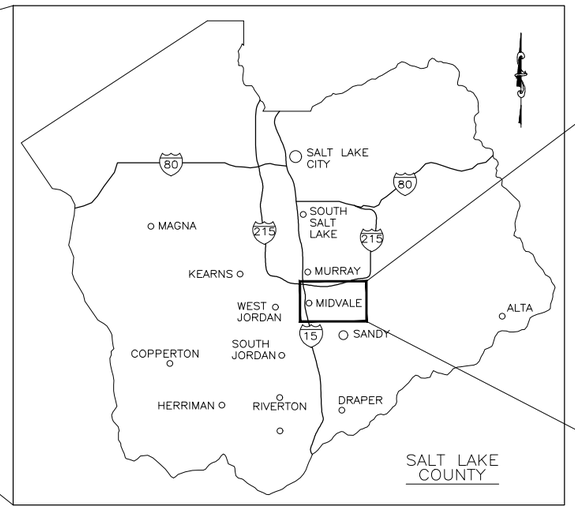
WELL PUMP STATION CONSTRUCTION

700 EAST (7618 SOUTH 700 EAST, SANDY CITY)
1000 EAST (7750 SOUTH 1000 EAST, MIDVALE CITY)

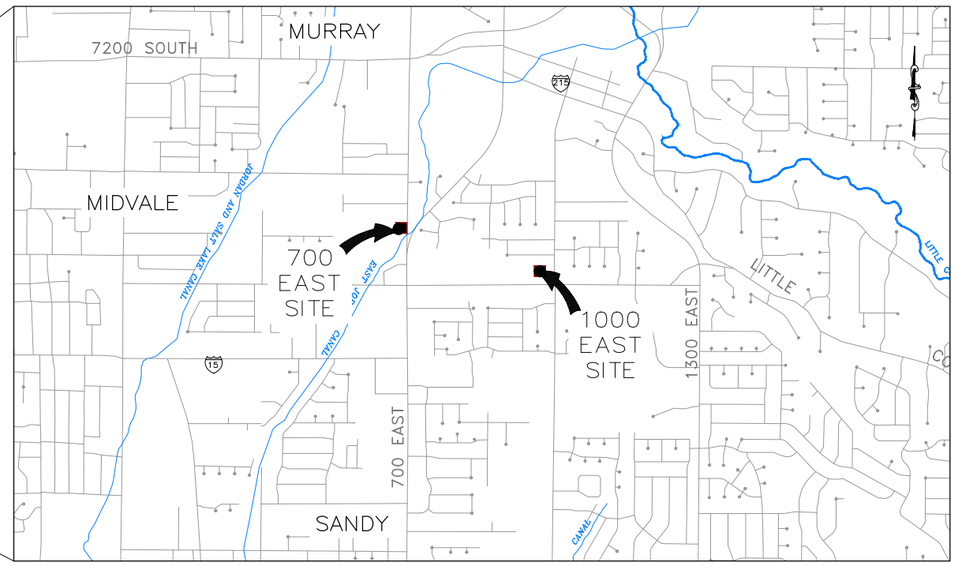
PROJECT NO. 4280



STATE OF UTAH



VICINITY MAP



LOCATION MAP

PROFESSIONAL ENGINEER
10/2024
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN, ALLEN & LUCE DESIGN TEAM

MARVIN E. ALLEN, P.E. – PROJECT MANAGER
VERN G. CONDER, P.E. – PROJECT ENGINEER

ROBERT C. CONDER, S.E., P.E. – STRUCTURAL
(CONDER ENGINEERING)

KEITH B. HEGERHORST, P.E. – ELECTRICAL
(HPE, INC. ELECTRICAL ENGINEERS)

TAYLOR GROBERG, P.E. – HVAC

ERIC LYMAN – LANDSCAPE ARCHITECT/IRRIGATION
(E.A. LYMAN LANDSCAPE ARCHITECT)

PROGRESS PRINT
6.27.2024
DATE
Not to be used for construction.
Hansen, Allen, & Luce, Inc.
Consultants/Engineers

HANSEN ALLEN & LUCE
CONSULTING ENGINEERS

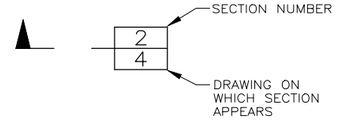
FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\G1–COVER.DWG
FILE DATE: 6.27.2024 12:22:37 (BKC)

3/99

SECTION & DETAIL IDENTIFICATION

SECTION IDENTIFICATION

SECTION CUT ON DRAWING NO. 2:



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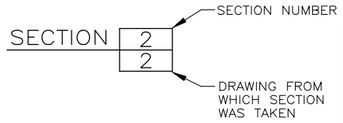
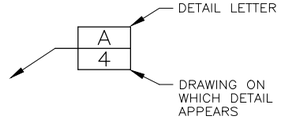


DETAIL IDENTIFICATION

DETAIL CALL-OUT ON DRAWING NO. 2:



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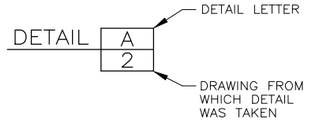

NOTES:

1. IF SECTION CUT AND SECTION OR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE.
2. DETAIL LETTERS "I" AND "O" NOT USED.

LEGEND

	NEW WATERLINE
F-ROW	FUTURE RIGHT-OF-WAY
ROW	EXISTING RIGHT-OF-WAY
G	EXISTING GAS LINE
HPG	EXISTING HIGH PRESSURE GAS LINE
SS	EXISTING SANITARY SEWER LINE
SD	EXISTING SANITARY STORM DRAIN
W	EXISTING WATER LINE
P	EXISTING POWER LINE
P-UG	EXISTING UNDER GROUND POWER LINE
FO	EXISTING FIBER OPTIC LINE
IRR	EXISTING IRRIGATION LINE
	EXISTING VALVE
WM	EXISTING WATER METER
	EXISTING MANHOLE

SURVEY CONTROL

THE BASE PROJECT COORDINATE, LATITUDE, LONGITUDE AND STATE PLANE COORDINATE (UT-CENTRAL, NAD 83 W/GEOID 2012B) WAS ESTABLISHED ON THE SLCO CONTROL POINT MONUMENT 2S1E3006 AS FOLLOWS:

BASE PROJECT COORDINATE: N = 7393630.236 E = 1537091.749
STATE PLANE COORDINATE: Y = 2253583.003 X = 468506.502 (NAD83-METRIC)
GEODETIC POSITION: (N) LAT = 40°37'00.499" (W) LONG = 111°07'40.162"
BASE PROJECT ELEVATION: 4446.179 (RTK NAVD 88 GEOID 12A)

GPS SCALE FACTORS ARE AS FOLLOWS:

AVERAGE PROJECTION SCALE FACTOR 0.99999191

PRIMARY HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED USING THE OBSERVED UTCO MONUMENT T8SR3E01SW (70-50) AS THE BASE POINT, A TWO POINT CALIBRATION WAS COMPLETED TO TIE THE SURVEY DATA TO THE STATED CONTROL POINTS.

2S1E3006	N: 7393630.236	E: 1537091.749	ELEV: 4446.179 (H,V) PT #102
22304001	N: 7392924.312	E: 1537088.025	ELEV: 4443.741 (H) PT #101

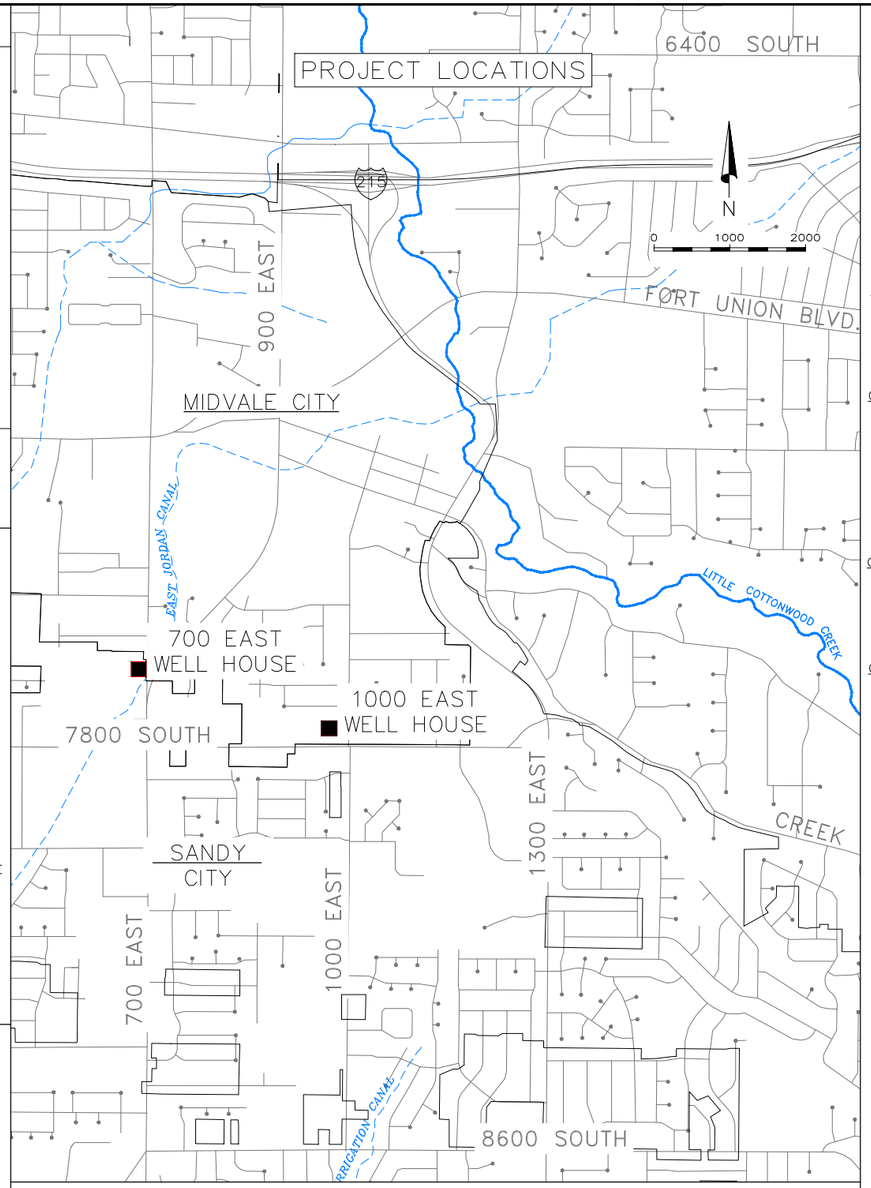

TABLE OF ABBREVIATIONS

@	= AT	FL	= FLOW LINE	PSI	= POUND PER SQUARE INCH
CC	= CENTER TO CENTER	FLG	= FLANGE	PVC	= POLYVINYL CHLORIDE
℄	= CENTER LINE	GE	= GROOVED END	STA.	= STATION
DIA.	= DIAMETER	MAX.	= MAXIMUM	SW	= SOLVENT WELD
DIP	= DUCTILE IRON PIPE	MIN.	= MINIMUM	THD.	= THREAD
DWG	= DRAWING	MJ	= MECHANICAL JOINT	TYP.	= TYPICAL
EF	= EACH FACE	N.T.S.	= NOT TO SCALE	UBC	= UNTREATED BASE COURSE
EL.	= ELEVATION	OC	= ON CENTER	VTR	= VENT THROUGH ROOF
EW	= EACH WAY	PE	= PLAIN END		

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FILE NAME:PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\G-2 SHEET_INDEX.DWG
FILE DATE: 10.15.2024 12:16:48 (BKC)

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
GENERAL
PROJECT LOCATION & DRAWING INDEX

SHEET G-2

127.24.400

7/04

GENERAL NOTES

GENERAL NOTES (ALL SITES)

1. THESE DRAWINGS REFERENCE THE APWA STANDARD 2017 SPECIFICATIONS AND PLANS AS PUBLISHED BY UTAH T2 CENTER (435) 797-2931. WHEN REFERENCE IS MADE TO STANDARD SPECIFICATIONS, THEY REFER TO THE "SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION" (DECEMBER, 2022), AND APWA MANUAL OF STANDARD SPECIFICATIONS 2017 EDITION. THE MOST STRINGENT STANDARDS IN THESE REFERENCES SHALL CONTROL WITH THE EXCEPTION OF THE MODIFICATIONS AND SUPPLEMENTS CONTAINED IN THE PROJECT MANUAL. CONTRACTOR SHALL BE REQUIRED TO PURCHASE SUFFICIENT COPIES OF THE STANDARD SPECIFICATIONS FROM THE SANDY CITY DEPARTMENT OF PUBLIC WORKS TO BE UTILIZED AS A REFERENCE TO THE ATTACHED CONSTRUCTION DRAWINGS AND APWA MANUAL. SAID STANDARD SPECIFICATIONS SHALL BE CONSIDERED PART OF THE OVERALL PROJECT DESIGN AND CONSTRUCTION DOCUMENTS BY MENTION HEREIN.

2. CONTRACTOR SHALL MEET ALL UTAH STATE DEPARTMENT OF ENVIRONMENTAL QUALITY AND U.S. EPA REQUIREMENTS WITH RESPECT TO THEIR MINIMUM RULES AND REGULATIONS. ALL MATERIALS THAT MAY CONTACT DRINKING WATER, INCLUDING, PIPES, GASKETS, LUBRICANTS, O-RINGS, SHALL BE ANSI/NSF 61, DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS AND BE APPROPRIATELY STAMPED WITH THE NSF LOGO.

3. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED AND SIGNS, BARRICADES, AND FLASHERS SHALL BE PLACED SO AS TO COMPLY WITH OSHA, UTAH STATE INDUSTRIAL COMMISSION, LOCAL SAFETY STANDARDS, AND MANUAL ON UNIFORM TRAFFIC CONTROL.

4. CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLAN WHERE CONSTRUCTION MAY IMPACT VEHICLE TRAFFIC. AN APPROVED TRAFFIC CONTROL SHALL BE HAD PRIOR TO START OF OPERATIONS.

5. UTILITES ARE SHOWN IN APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, INCLUDING WATER LINES, IRRIGATION DRAIN LINES, TELEPHONE CABLES, AND ANY OTHER OBSTRUCTION DURING THE COURSE OF CONSTRUCTION AND INSTALLATION OF THE PIPELINES. (CALL BLUE STAKES @ 1-800-662-4111)

6. CONTRACTOR SHALL POTHOLE UTILITIES A MINIMUM OF 300 FEET AHEAD OF PIPELINE CONSTRUCTION TO VERIFY THAT THE DESIGN ALIGNMENT AND GRADE IS FEASIBLE AND TO PLAN ANY UTILITY RELOCATION'S THAT MAY BE NECESSARY. FAILURE TO POTHOLE IN ADVANCE WILL NOT RELIEVE THE CONTRACTOR FROM LOCATING THE PIPELINE IN AN ACCEPTABLE MANNER TO THE OWNER. ANY RELAYING OF THE PIPELINE THAT MAY BECOME NECESSARY IN THIS REGARD SHALL BE DONE AT THE CONTRACTORS EXPENSE.

7. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN RIGHT OF INGRESS AND EGRESS SHOULD HE VENTURE ONTO PRIVATE PROPERTY WHICH IS NOT WITHIN DISTRICT EASEMENTS OR ACQUIRED RIGHTS-OF-WAY AND EASEMENTS.

8. UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.

9. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING IMPROVEMENTS DURING CONSTRUCTION AND SHALL REPLACE OR RESTORE ANY IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION ACTIVITY, AS DIRECTED BY THE ENGINEER.

10. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

11. DUST, MUD AND EROSION SHALL BE CONTROLLED BY WHATEVER MEANS NECESSARY, AND THE ROADWAY SHALL BE KEPT FREE OF MUD AND DEBRIS, AT ALL TIMES.

STORM DRAIN/IRRIGATION CONSTRUCTION NOTES (ALL SITES)

1. NON-SHRINKING GROUT SHALL BE USED WHEREVER GROUT IS REQUIRED FOR THE STORM DRAIN FACILITIES.

2. CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF BOXES OR MANHOLES AND GROUT CONNECTION OF PIPES TO BOXES AND MANHOLES TO LEAVE A SMOOTH FINISH. ADDITIONALLY, ALL JAGGED OR SHARP EDGES AT PIPE CONNECTIONS ARE TO BE REMOVED AND GROUTED SMOOTH.

3. GROUT BETWEEN GRADE RINGS.

4. FOR EACH INLET BOX THAT IS PROPOSED TO BE LOCATED NEXT TO A CURB, THE CURB AND GUTTER CONTRACTOR IS RESPONSIBLE TO REMOVE ALL PROTRUDING, JAGGED OR SHARP CONCRETE EDGES AND TO GROUT BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX.

5. GROUT TO A SMOOTH, BEVELED TRANSITION AT ALL EDGES IN CLEAN OUT AND INLET BOXES.

6. REMOVE SNAP TIES, NAILS, REBAR AND OTHER PROTRUSIONS FROM BOXES OR PIPE INSIDE SURFACES, AS WELL AS ALL FORM WORK, PLASTIC AND CARDBOARD.

7. SILT AND DEBRIS ARE TO BE CLEANED OUT OF ALL INLET, CLEAN OUT BOXES, AND PIPE. THE BOXES AND PIPES ARE TO BE MAINTAINED IN A CLEANED CONDITION UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.

8. CLEAN OFF ALL MANHOLE LIDS AND INLET GRATES OF ASPHALT, CONCRETE, TAR OR OTHER ADHESIVES TO ALLOW ACCESS.

SANDY CITY WATER NOTES (700 EAST)

1. NOTIFY SANDY CITY PUBLIC UTILITIES INSPECTOR AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING ANY CONSTRUCTION.

2. ALL CONSTRUCTION IN SANDY CITY SHALL CONFORM WITH THE CURRENT SANDY CITY SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION AND/OR OTHER REQUIREMENTS AS SET FORTH IN THE FINAL APPROVAL LETTER ESTABLISHED FOR THE DEVELOPMENT.

3. WATER LINE TRENCHES IN PRIVATE ROADWAYS OR TRAFFIC AREAS TO BE THOROUGHLY COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY PER ASTM D1557. DENSITY CHECKS MAY BE REQUIRED BY THE CITY AT ANY TIME.

4. A MINIMUM OF 48" OF COVER FROM THE TOP OF THE PIPE TO THE FINISH GRADE IS REQUIRED.

5. USE PRESSURE RATED 350 PSI OR BETTER DUCTILE IRON PIPE.

6. ALL DIP WATER LINES SHALL BE POLY-BAGGED IN ACCORDANCE WITH SANDY CITY SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION.

SANDY CITY CONSTRUCTION NOTES (700 EAST)

1. EXCAVATION, BEDDING AND BACKFILL FOR BURIED PIPELINES SHALL CONFORM TO SANDY CITY STANDARD DETAIL PB-01.

2. ASPHALT CUTTING AND PATCHING SHALL CONFORM TO SANDY CITY STANDARD DETAIL SR-01.

3. CONTRACTOR SHALL REPLACE ANY EXISTING PAVEMENT, SIDEWALK OR CURB & GUTTER ALONG THE FRONTAGE OF THIS PROJECT, THAT IS DAMAGED OR REMOVED BY THE CONTRACTOR, AS DIRECTED BY THE SANDY CITY INSPECTOR.

4. ALL PUBLIC IMPROVEMENTS WITHIN SANDY CITY'S JURISDICTION SHALL BE CONSTRUCTED ACCORDING TO THE SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION (LATEST EDITION). THE SPECIFICATIONS CAN BE FOUND IN .PDF FORMAT ON-LINE AT WWW.SANDY.UTAH.GOV (CLICK ON CITY GOVERNMENT, THEN PUBLIC WORKS, THEN STANDARD SPECIFICATIONS), OR A COPY ON CD MAY BE OBTAINED AT THE SANDY CITY PUBLIC WORKS, 8775 SOUTH 700 WEST.

5. ALL MATERIALS AND WORK DONE ON FLOOD CONTROL FACILITIES THAT ARE TO BE MAINTAINED BY SANDY CITY SHALL CONFORM TO SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION. SPECIFICATIONS AND DETAILS ARE TO BE OBTAINED FROM SANDY CITY PUBLIC WORKS DEPARTMENT (801) 568-7251.

6. STEPS ARE REQUIRED IN ALL CLEAN OUT BOXES AND COMBINATION BOXES THAT ARE TO BE INSTALLED ACCORDING TO SANDY CITY STANDARD DETAILS AND HAVE A DEPTH OF FOUR FEET OR MORE FROM TOP OF LID TO FLOOR OF BOX.

7. ALL PRECAST CLEAN OUT AND INLET BOXES THAT ARE TO BE MAINTAINED BY SANDY CITY SHALL BE SET ON 12" (MIN.) COMPACTED 1" MINUS GRAVEL.

8. SUBMITTALS ARE REQUIRED FOR ALL SAND BEDDING, SAND BACKFILL, PIPE, PRECAST CLEAN OUT BOXES AND PRECAST CATCH BASINS FOR FACILITIES THAT ARE TO BE MAINTAINED BY SANDY CITY. THEY SHALL BE SUBMITTED AT LEAST FIVE WORKING DAYS BEFORE CONSTRUCTION. SUBMITTALS SHOULD HAVE SUFFICIENT INFORMATION TO SHOW THAT THE PROPOSED ITEMS CONFORM TO SANDY CITY SPECIFICATIONS.

9. RELATIVE TO FLOOD CONTROL FACILITIES THAT ARE TO BE LOCATED IN EXISTING OR FUTURE SANDY CITY ROADS: "IF THE CONTRACTOR DESIRES TO USE NATIVE EXCAVATED MATERIAL AS BEDDING OR BACKFILL FOR THE STORM DRAIN PIPE INSTALLATIONS, SIEVE ANALYSIS AND PROCTOR TESTS SHALL BE PERFORMED ON EACH TYPE OF SOIL ENCOUNTERED AND THE TEST RESULTS SUBMITTED TO SANDY CITY PUBLIC UTILITIES FOR APPROVAL AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION. THE SIEVE ANALYSIS RESULTS MUST CONFORM TO SANDY CITY SPECIFICATION, SECTION 02230, PART 2: PRODUCTS, 2.02 SAND BEDDING, IN ORDER FOR THE MATERIAL TO BE APPROVED FOR PIPE BEDDING. THIS SPECIFICATION FOR BEDDING THE PIPE (TO 12" ABOVE THE TOP OF THE PIPE) SHALL BE FOLLOWED THROUGHOUT THE LENGTH OF THE PIPE INSTALLATION. THE PIPE BEDDING SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASTM D 1557."

10. CONTRACTOR SHALL SECURE AN EXCAVATION PERMIT FROM SANDY CITY PUBLIC WORKS DEPARTMENT (8775 SOUTH 700 WEST, 801-568-2964) PRIOR TO DOING ANY WORK IN THE SANDY CITY RIGHT-OF-WAY. TRAFFIC PLAN, BONDING & INSURANCE WILL BE REQUIRED.

11. ANY PROPOSED CHANGES TO THE APPROVED DESIGN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OR ARCHITECT OF RECORD AND THE CITY ENGINEER.

12. NOTIFY SANDY CITY PUBLIC WORKS INSPECTION DEPARTMENT, 801-568-2999, 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OF ANY ROADWAYS OR PUBLIC IMPROVEMENTS. ALL INSPECTIONS MUST BE DONE PRIOR TO OR CONCURRENT WITH CONSTRUCTION. FAILURE TO MAKE THIS NOTIFICATION MAY RESULT IN THE UNCOVERING AND/OR REMOVAL OF ALL CONSTRUCTION DONE WITHOUT NOTIFICATION AT THE DISCRETION OF THE CITY ENGINEER.

13. PROVIDE A PROCTOR TEST FOR ROADBASE MATERIAL, TO THE SANDY CITY PUBLIC WORKS INSPECTOR, WHEN DELIVERED OR PLACED ON SITE.

14. DUST, MUD AND EROSION SHALL BE ADEQUATELY CONTROLLED BY WHATEVER MEANS NECESSARY, AND THE ROADWAY SHALL BE KEPT FREE OF MUD AND DEBRIS, AT ALL TIMES.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\G-3-GENERAL NOTES.DWG
FILE DATE: 10.15.2024 12:15:11 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 10/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED VGC	3					
DRAFTED JDB	2					
CHECKED MEA	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

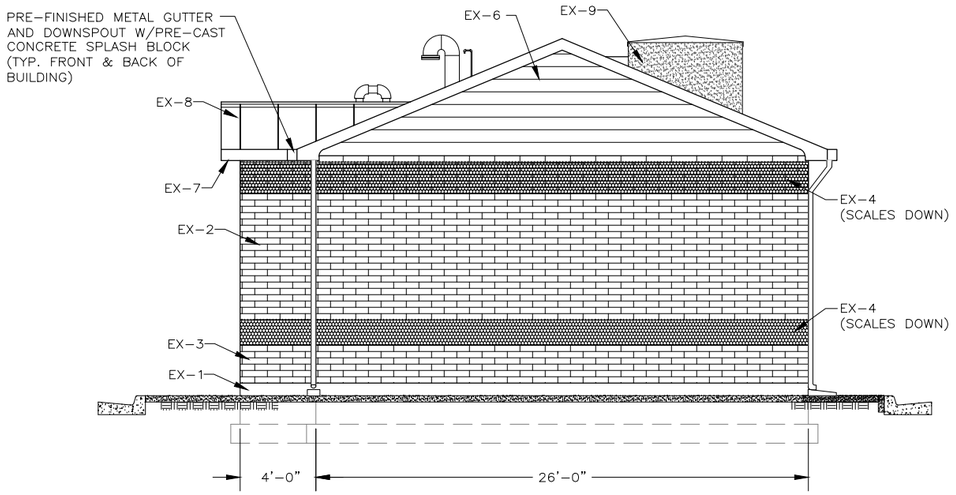
SCALE NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

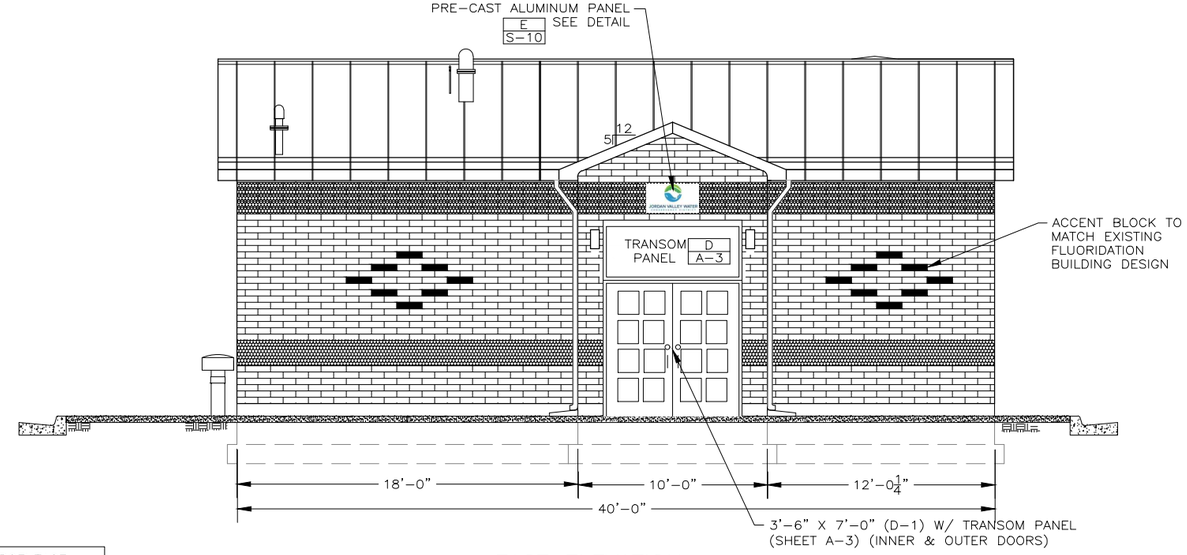
WELL PUMP STATION CONSTRUCTION
GENERAL
GENERAL NOTES

SHEET G-3

127.24.400

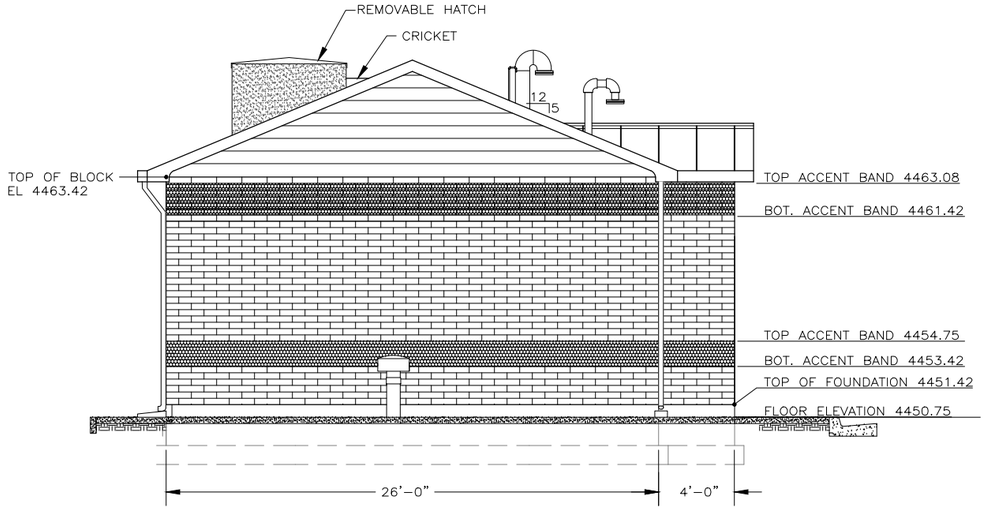


NORTH ELEVATION

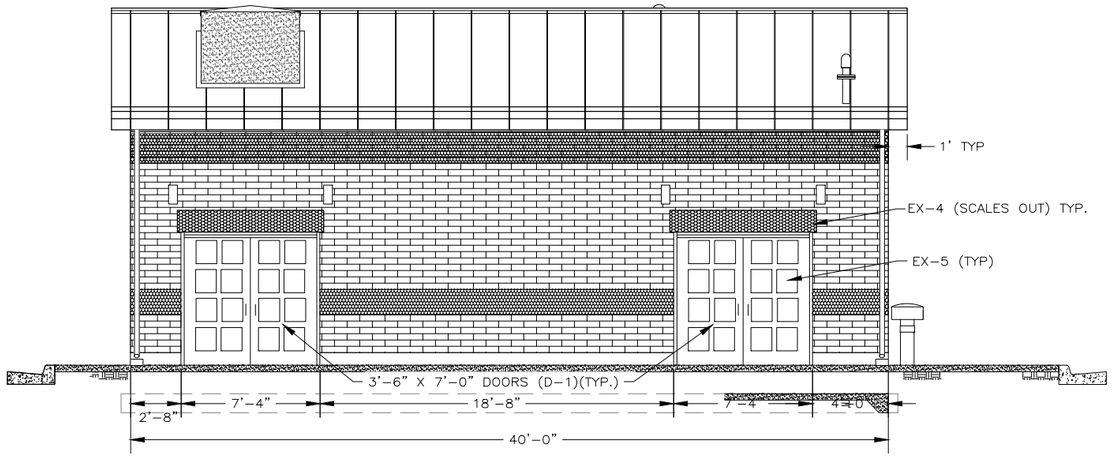


EAST ELEVATION

BUILDING MATERIALS PERCENTAGE				
MATERIAL	NORTH	SOUTH	EAST	WEST
MASONRY	75.6%	75.6%	85.7%	76.0%
SIDING	20.2%	20.2%	0%	0%
DOORS	0%	0%	9.9%	20.4%
CONCRETE	4.2%	4.2%	4.4%	3.6%



SOUTH ELEVATION



WEST ELEVATION

GENERAL SHEET NOTES:

1. CONSTRUCTION: GROUP U TYPE I
2. SOLDIER COARSE REQUIRED ABOVE ALL DOORS.

0 1 2 3 4
SCALE IN FEET

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\A-1 700 EAST ELEVATIONS.DWG
FILE DATE: 11.5.2024 08:53:43 (BKC)

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 11/5/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	DRB	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

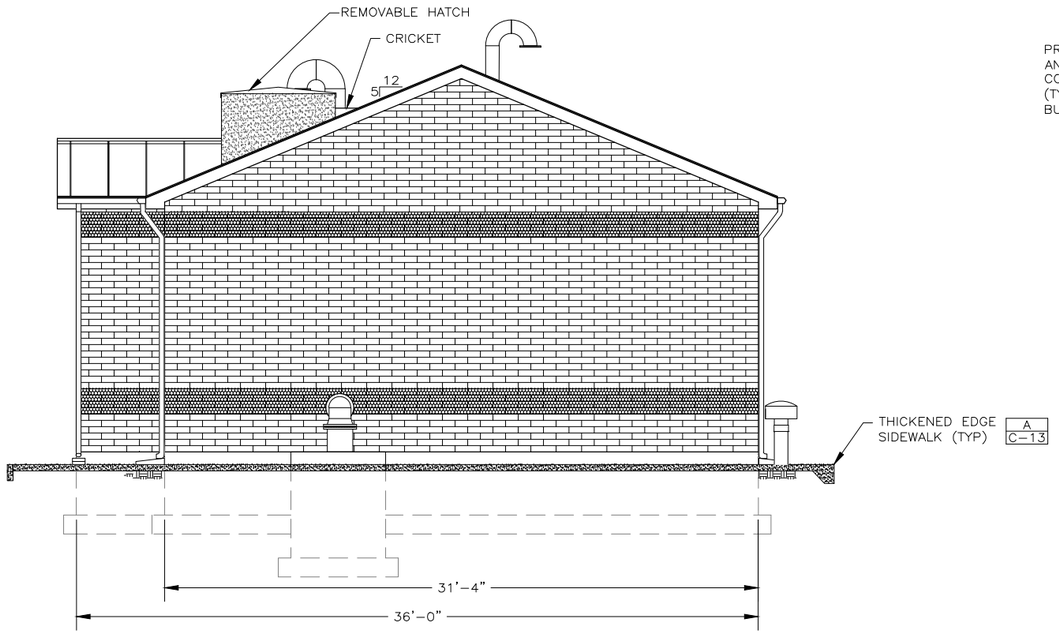
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION ARCHITECTURAL – 700 EAST ELEVATIONS

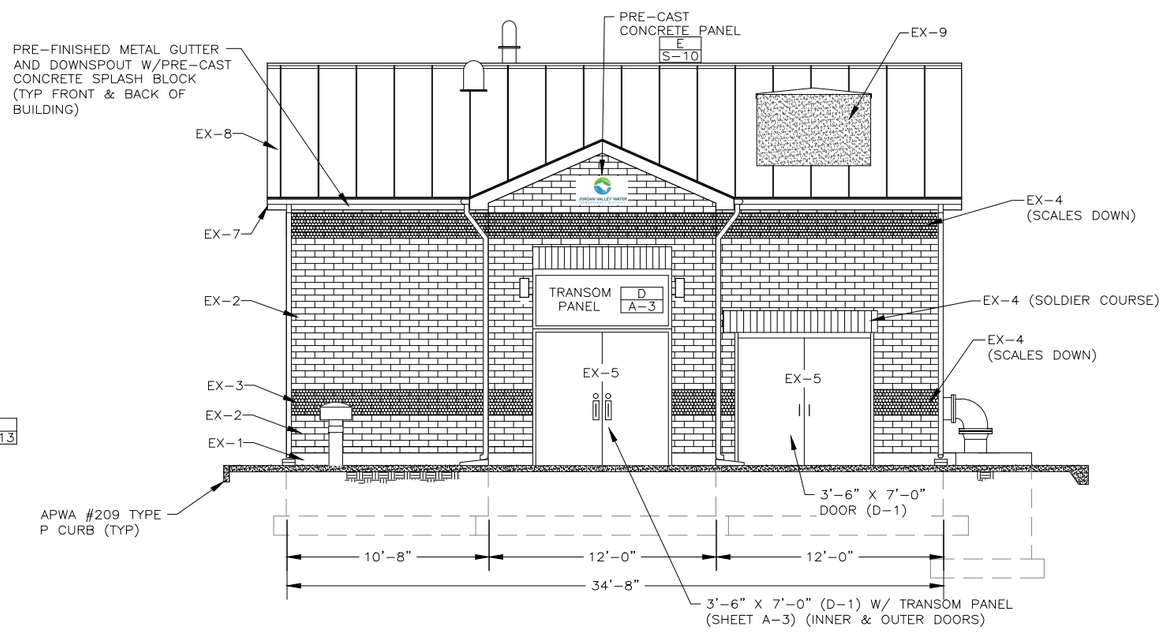
SHEET A-1

127.24.400

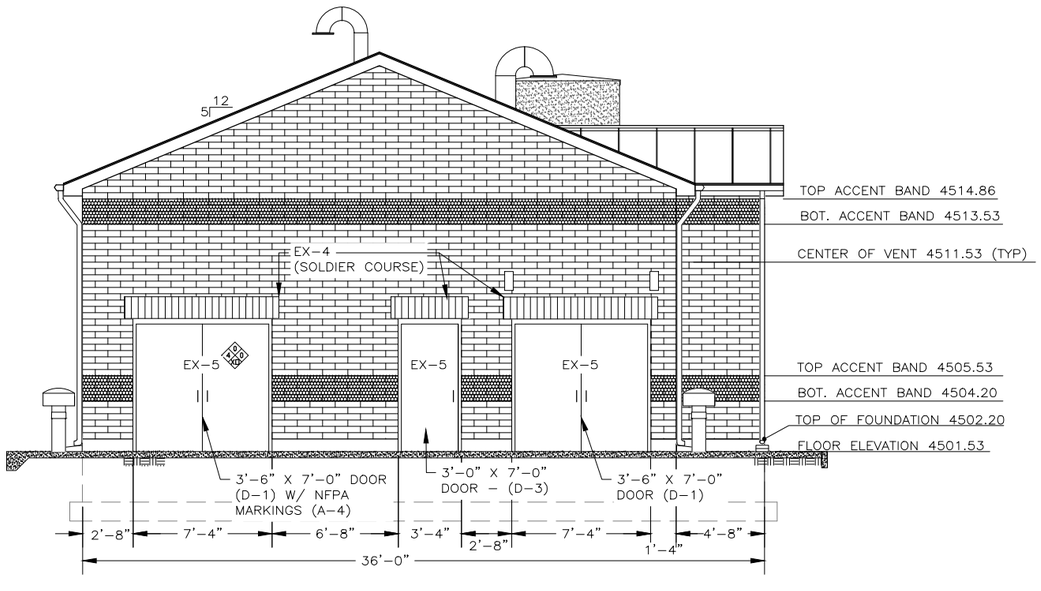
7/04



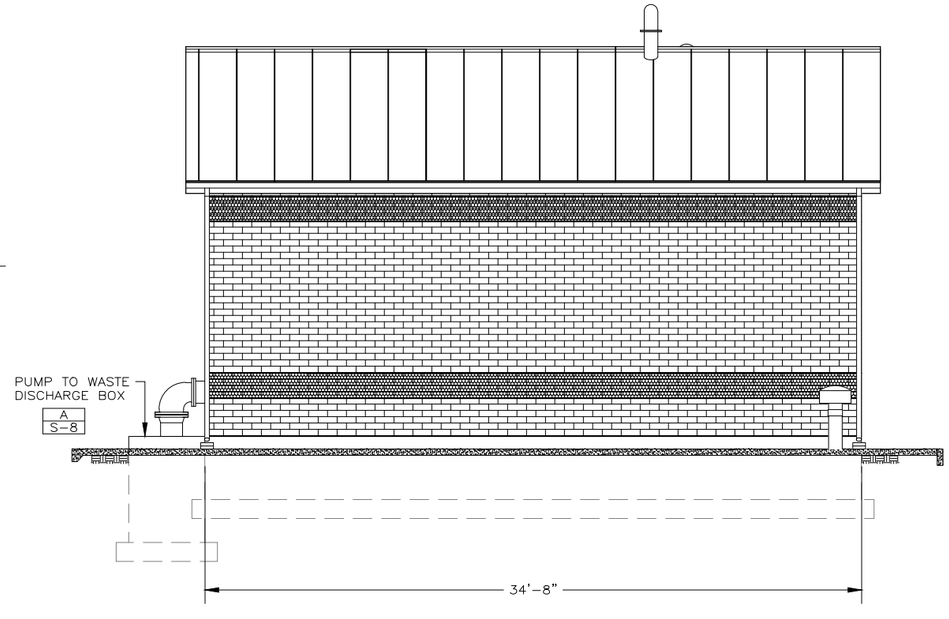
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

GENERAL SHEET NOTES:

1. CONSTRUCTION: GROUP U TYPE I
2. SOLDIER COARSE REQUIRED ABOVE ALL DOORS.

0 1 2 3 4
1/8" = 1'-0"

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 10/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED VGC	3					
DRAFTED CAH	2					
CHECKED MEA	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION ARCHITECTURAL – 1000 EAST ELEVATIONS

SHEET A-2

127.24.400

FILE NAME: PROJECTS\127.-_JVWCD\24.400_-_10TH_&_7TH_FINALIZATION\CAD\A-2_1000_EAST_ELEVATIONS.DWG
FILE DATE: 11.5.2024 09:57:06 (BKC)

7/04

EXTERIOR COLOR SCHEDULE

MARK	MATERIAL	MANUFACTURER	FINISH	COLOR	REMARKS
EX–1	CONCRETE	GEN. CONTR.	STONE RUB	NATURAL	
EX–2	ATLAS BLOCK	INTERSTATE	SMOOTH MATTE	OWNER	FIELD (8"W X 4"H X 16"L)
EX–3	ATLAS BLOCK	INTERSTATE	SCRATCH	OWNER	8"W X 4"H X 16"L
EX–4	ATLAS BLOCK	INTERSTATE	ANTIQUE	OWNER	* ACCENT BAND (8"W X 4"H X 16"L)
EX–5	EXT. PAINT	SHERWIN WILLIAMS	SEMI–GLOSS	OWNER	DOORS AND FRAMES
EX–6	ALUMINUM	ALCOA	PRE–FINISHED	OWNER	SIDING – MATCH EXISTING BUILDING
EX–7	METAL	SEE SPECIFICATIONS	FACTORY	OWNER	FASCIA/SOFFIT – MATCH METAL ROOFING
EX–8	METAL ROOFING	SEE SPECIFICATIONS	FACTORY	OWNER	FASCIA/SOFFIT (MATCH SPECIFICATIONS)
EX–9	STUCCO	DRYVIT	SANDBLAST	OWNER	

* INSTALL ACCENT BAND BLOCK WITH SCALES DOWN

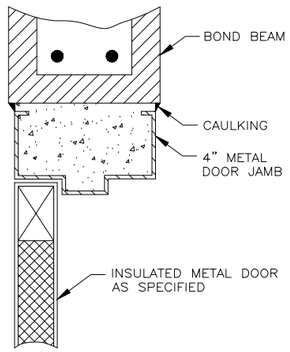
INTERIOR PAINTING SCHEDULE

LOCATION	MATERIAL	COLOR	REMARKS
FLOOR	CONCRETE	CLEAR	CLEAN AND PREPARE FLOOR, USE GRIT IN SEALER
WALLS	DRY WALL	OWNER *	RUBBER BASE TO COORDINATE WITH PAINT
CEILING	DRY WALL	OWNER *	
PIPING	METAL	OWNER *	EXPOSED PIPE, VALVES & FITTINGS TO BE PAINTED

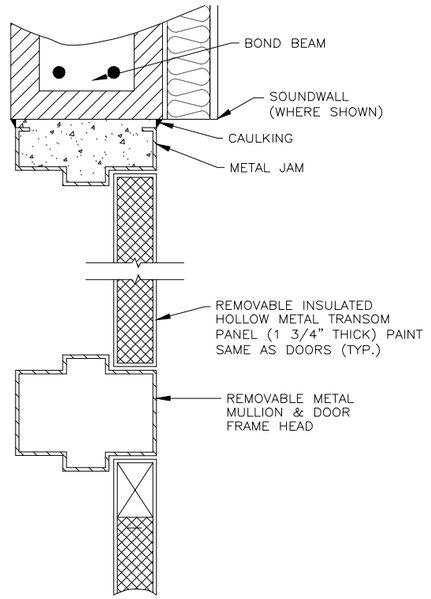
* SEE NOTE 2

DOOR SCHEDULE

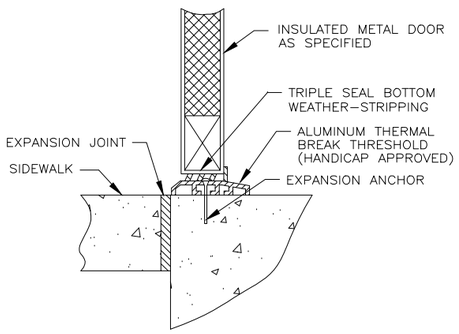
DOOR SIZE			DOOR ID	DOOR TYPE (NOTE 5)	DOOR MATERIAL	FRAME MATERIAL	FRAME FINISH	REMARKS
WIDTH	HEIGHT	THICK						
3'–6"	7'–0"	1–3/4"	D–1	B	HOLLOW METAL	HOLLOW METAL	EX–5	PROVIDE PANELED DOORS ON 700 EAST (PROVIDE TRANSOM PANEL AS NOTED ON DRAWING)
3'–6"	7'–0"	1–3/4"	D–2	B	HOLLOW METAL	HOLLOW METAL	EX–5	PROVIDE 2' X 2' X 3/8" POLYCARBONATE WINDOW GLAZING WHERE INDICATED
3'–0"	7'–0"	1–3/4"	D–3	A	HOLLOW METAL	HOLLOW METAL	EX–5	PROVIDE 2' X 2' X 3/8" POLYCARBONATE WINDOW GLAZING WHERE INDICATED



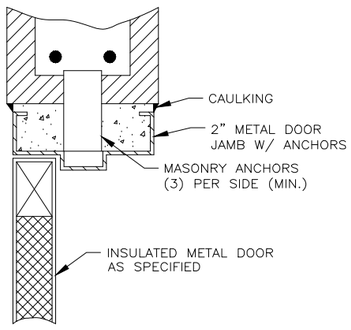
TYPICAL DOOR HEAD A / A–4



TRANSOM DETAIL D / A–4 | D / C–1 | D / C–2



TYPICAL DOOR SILL B / A–4



TYPICAL DOOR JAM C / A–4

GENERAL SHEET NOTES:

1. JAM HEIGHTS TO MATCH BLOCK LINE.
2. SEE TECHNICAL SPECIFICATION SECTION 08 03 00 FOR HARDWARE.
3. OWNER TO SELECT ARCHITECTURAL COLORS. 700 EAST COLORS AND BRICK TYPE TO MATCH EXISTING FLUORIDATION BUILDING.
4. TRANSOM PANELS REQUIRED FOR ALL VESTIBULE DOUBLE DOORS.
5. DOOR TYPES & NFPA MARKINGS ON SHEET A–4.

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\A–3 ARCHITECTURAL SCHEDULES.DWG
FILE DATE: 10.15.2024 09:03:57 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED VGC | DRAFTED BKC | CHECKED MEA | DATE JUNE 2024

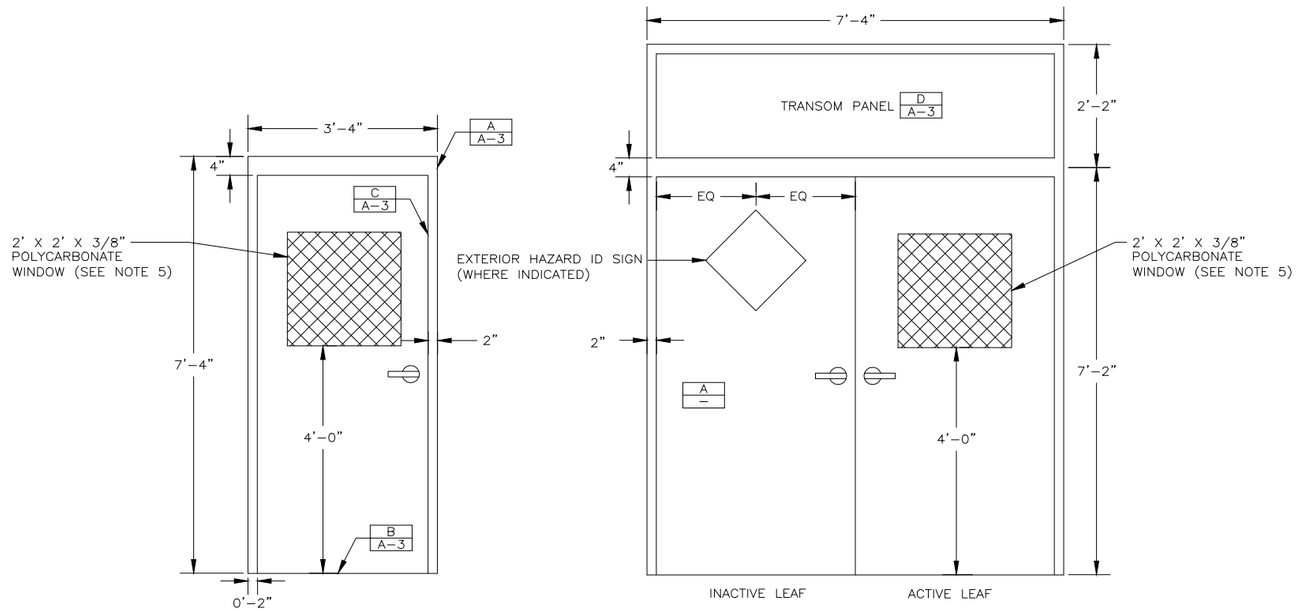
NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: NOT TO SCALE

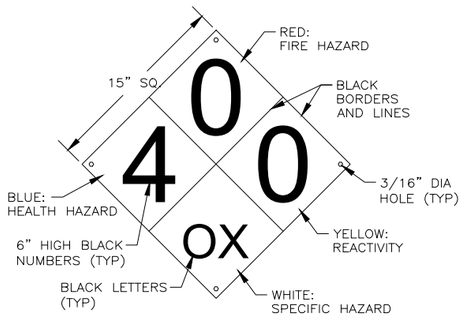
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ARCHITECTURAL
ARCHITECTURAL SCHEDULES & DETAILS

SHEET A–3
127.24.400



DOOR DETAIL



HAZARD TYPES AND LEVELS			
NO.	BLUE: HEALTH HAZARD	RED: HAZARD	YELLOW: REFACTIVITY
0	NORMAL MATERIAL	WILL NOT BURN	STABLE
1	SLIGHTLY HAZARDOUS	ABOVE 200° F	UNSTABLE IF HEATED
2	HAZARDOUS	ABOVE 100° F NOT EXCEEDING 200° F	VIOLENT CHEMICAL CHANGE
3	EXTREME DANGER	BELOW 100° F	SHOCK AND HEAT MAY DETONATE
4	DEADLY	BELOW 73° F	MAY DETONATE

DETAIL NOTES:

1. DIAMOND HAZARD MATERIALS SIGN SHALL CORRECTLY IDENTIFY THE HAZARDOUS MATERIALS CONTAINED WITHIN THE CHEMICAL STORAGE ROOMS IN ACCORDANCE WITH NFPA 704.
2. DIAMOND SIGN SHALL BE SURFACE MOUNTED ADJACENT TO OR ON ALL CHEMICAL ROOM ENTRY DOORS.
3. SIGN MATERIAL: 0.118" THICK OUTER ALUMINUM WITH A SOLID THERMOPLASTIC DURA-ALUMALITE AS MANUFACTURED BY NORTHERN SAFETY AND INDUSTRIAL, OR APPROVED EQUAL.

SPECIFIC HAZARD:	
ACID:	ACID
ALKALI:	ALK
CORROSIVE:	COR
OXIDIZER:	OX
RADIOACTIVE:	☢
USE NO WATER	~~W~~

NFPA MATERIAL HAZARD IDENTIFICATION SIGN	
	A
	—

GENERAL SHEET NOTES:

1. JAM HEIGHTS TO MATCH BLOCK LINE.
2. SEE TECHNICAL SPECIFICATION SECTION 08 03 00 FOR HARDWARE.
3. OWNER TO SELECT ARCHITECTURAL COLORS. 700 EAST COLORS AND BRICK TYPE TO MATCH EXISTING FLUORIDATION BUILDING.
4. DOORS WITH TRANSOM PANEL. (AS REQUIRED)
5. DOORS WITH POLYCARBONATE WINDOWS NOTED ON PLAN. WINDOWS SHALL BE REMOVABLE WITH FLUSH INTEGRAL STOPS ON ONE SIDE AND SCREW-ON STOPS ON THE OPPOSITE SIDE.
6. ALL EXTERIOR DOORS TO HAVE DEAD BOLTS WITH BEST ACCESS SYSTEMS. INTERIOR DOORS DO NOT NEED TO BE KEYED/LOCKABLE.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\A-4 ARCHITECTURAL SCHEDULES CONT.DWG
FILE DATE: 10.15.2024 08:56:02 (BKC)

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

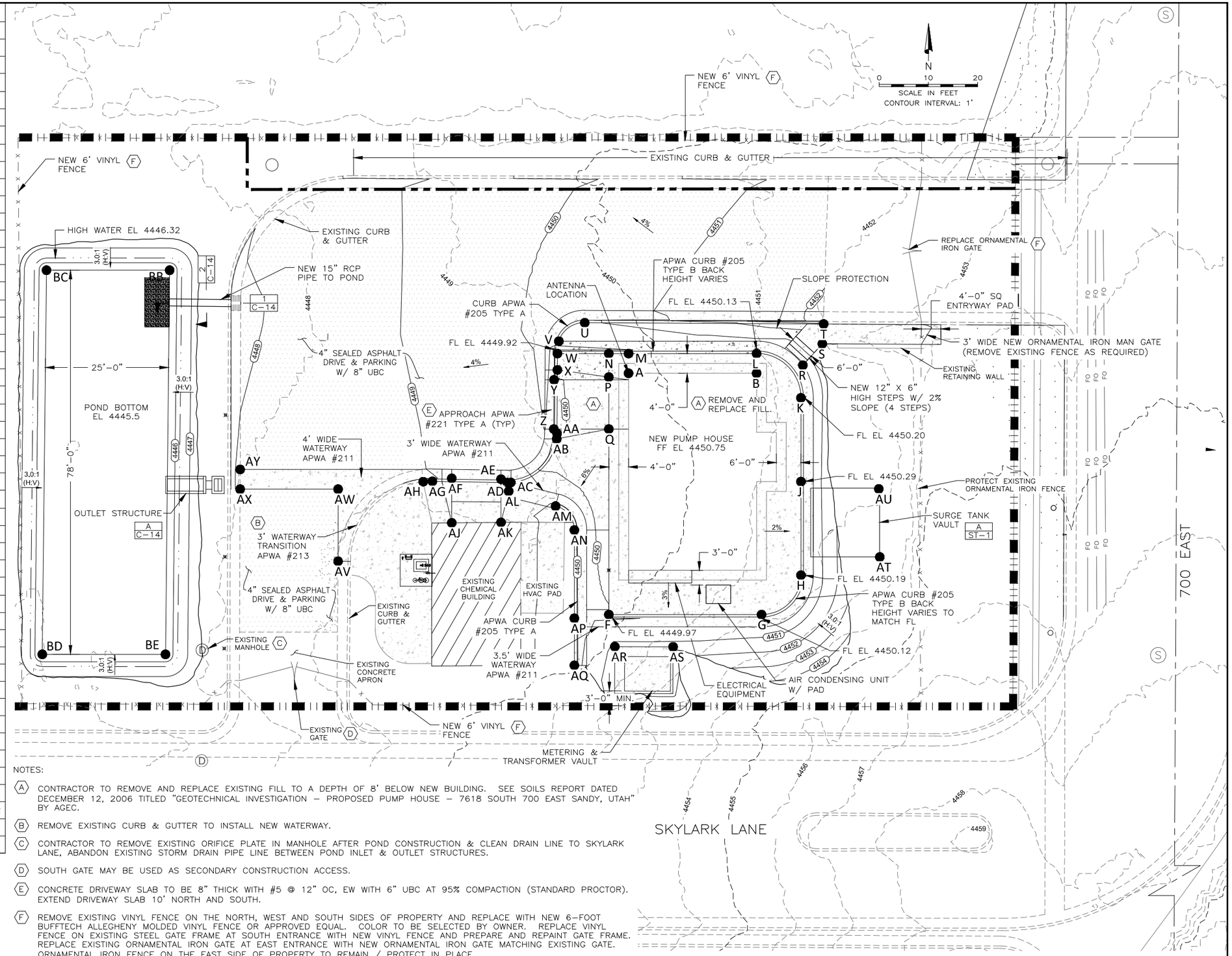
WELL PUMP STATION CONSTRUCTION
ARCHITECTURAL
ARCHITECTURAL SCHEDULES & DETAILS II

SHEET A-4

127.24.400

7/04

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,392,036.90	1,536,971.79	4450.75	BLD NW CNR
B	7,392,036.90	1,536,997.79	4450.75	BLD NE CNR
F	7,391,987.91	1,536,967.79	4450.49	TBC
G	7,391,987.91	1,536,998.79	4450.49	TBC PC, R=8'
H	7,391,995.91	1,537,006.79	4450.49	TBC PT
J	7,392,014.90	1,537,006.79	4450.65	TBC
K	7,392,031.90	1,537,006.79	4450.65	TBC PC, R=8'
L	7,392,040.90	1,536,997.79	4450.67	TBC PT
M	7,392,040.90	1,536,971.79	4450.67	TBC GB
N	7,392,040.90	1,536,967.79	4450.59	TBC
P	7,392,036.13	1,536,967.79	4450.67	TOC
Q	7,392,025.57	1,536,967.79	4450.51	TOC
R	7,392,038.54	1,537,007.19	4450.34	EDGE STAIRS
S	7,392,042.89	1,537,011.13	4451.86	TOC
T	7,392,046.90	1,537,011.40	4452.63	EX TBC
U	7,392,047.16	1,536,962.90	4450.87	TBC PC, R=5.5'
V	7,392,043.40	1,536,957.65	4450.59	TBC PT END
W	7,392,040.90	1,536,957.37	4450.42	TBC
X	7,392,037.57	1,536,957.36	4450.40	TBC GB
Y	7,392,035.57	1,536,956.68	4449.89	RAMP END
Z	7,392,025.57	1,536,956.63	4449.84	RAMP END
AA	7,392,024.66	1,536,957.28	4450.05	TBC PC, R=10'
AB	7,392,023.57	1,536,957.22	4450.26	TBC GB
AC	7,392,014.74	1,536,947.90	4449.77	TBC GB
AD	7,392,014.72	1,536,947.20	4449.64	TBC PT
AE	7,392,015.40	1,536,945.91	4449.26	RAMP END
AF	7,392,015.56	1,536,935.91	4449.21	RAMP END
AG	7,392,014.96	1,536,931.99	4449.42	TBC PC, R=16.42'
AH	7,392,014.88	1,536,930.11	4449.29	EX TBC
AJ	7,392,006.53	1,536,935.91	4449.86	RAMP START
AK	7,392,006.63	1,536,945.91	4449.86	RAMP START
AL	7,392,012.95	1,536,947.46	4449.70	TOC GB
AM	7,392,009.93	1,536,956.99	4450.25	TBC PC, R=5'
AN	7,392,005.07	1,536,960.79	4450.29	TBC PT
AP	7,391,987.16	1,536,960.79	4450.38	TBC
AQ	7,391,977.60	1,536,960.79	4450.42	TBC END
AR	7,391,981.40	1,536,969.01	4451.30	PAD NW CNR
AS	7,391,981.36	1,536,980.84	4451.30	PAD NE CNR
AT	7,391,999.60	1,537,022.80	0.00	VALVE VAULT SE CNR
AU	7,392,013.42	1,537,022.60	0.00	VALVE VAULT NE CNR
AV	7,391,998.72	1,536,912.83	4448.97	WATERWAY CNR
AW	7,392,013.37	1,536,912.83	4448.78	WATERWAY CNR
AX	7,392,013.37	1,536,892.95	4448.09	WATERWAY CNR
AY	7,392,017.37	1,536,892.95	4448.09	WATERWAY CNR
BB	7,392,057.83	1,536,878.64	4445.50	POND BOTTOM NE CNR
BC	7,392,057.83	1,536,853.64	4445.50	POND BOTTOM NW CNR
BD	7,391,979.83	1,536,852.79	4445.50	POND BOTTOM SW CNR
BE	7,391,979.83	1,536,877.79	4445.50	POND BOTTOM SE CNR



NOTES:

(A) CONTRACTOR TO REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 8' BELOW NEW BUILDING. SEE SOILS REPORT DATED DECEMBER 12, 2006 TITLED "GEOTECHNICAL INVESTIGATION – PROPOSED PUMP HOUSE – 7618 SOUTH 700 EAST SANDY, UTAH" BY AGEC.

(B) REMOVE EXISTING CURB & GUTTER TO INSTALL NEW WATERWAY.

(C) CONTRACTOR TO REMOVE EXISTING ORIFICE PLATE IN MANHOLE AFTER POND CONSTRUCTION & CLEAN DRAIN LINE TO SKYLARK LANE, ABANDON EXISTING STORM DRAIN PIPE LINE BETWEEN POND INLET & OUTLET STRUCTURES.

(D) SOUTH GATE MAY BE USED AS SECONDARY CONSTRUCTION ACCESS.

(E) CONCRETE DRIVEWAY SLAB TO BE 8" THICK WITH #5 @ 12" OC, EW WITH 6" UBC AT 95% COMPACTION (STANDARD PROCTOR). EXTEND DRIVEWAY SLAB 10' NORTH AND SOUTH.

(F) REMOVE EXISTING VINYL FENCE ON THE NORTH, WEST AND SOUTH SIDES OF PROPERTY AND REPLACE WITH NEW 6-FOOT BUFFTECH ALLEGHENY MOLDED VINYL FENCE OR APPROVED EQUAL. COLOR TO BE SELECTED BY OWNER. REPLACE VINYL FENCE ON EXISTING STEEL GATE FRAME AT SOUTH ENTRANCE WITH NEW VINYL FENCE AND PREPARE AND REPAINT GATE FRAME. REPLACE EXISTING ORNAMENTAL IRON GATE AT EAST ENTRANCE WITH NEW ORNAMENTAL IRON GATE MATCHING EXISTING GATE. ORNAMENTAL IRON FENCE ON THE EAST SIDE OF PROPERTY TO REMAIN / PROTECT IN PLACE.

FILE NAME: PROJECTS\127.-.JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-1 700 EAST SITE PLAN.DWG
FILE DATE: 11.5.2024 10:50:06 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH — 11/5/2024

PROJECT ENGINEER

DESIGNED	VGC
DRAFTED	JRB
CHECKED	MEA
DATE	JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL – 700 EAST
SITE GRADING & DRAINAGE PLAN

SHEET C-1

127.24.400

SANDY CITY STORM DRAIN NOTES:

1. NOTIFY SANDY CITY PUBLIC UTILITIES INSPECTOR (801-568-7280), AT LEAST ONE BUSINESSDAY (24 HOURS) PRIOR TO BEGINNING CONSTRUCTION.
2. A PRE-CONSTRUCTION MEETING IS REQUIRED ONCE FINAL APPROVAL HAS BEEN GRANTED. THE PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED THROUGH SANDY CITY PUBLIC WORKS DEPARTMENT.
3. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REVISION OF THE SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION AND/OR OTHER REQUIREMENTS AS SET FORTH IN THE PUBLIC UTILITIES FINAL REVIEW AND APPROVAL LETTER ESTABLISHED FOR THE DEVELOPMENT. SPECIFICATIONS AND DETAILS CAN BE OBTAINED ON THE SANDY CITY WEBSITE.
4. SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE ENGINEER FOR ALL BEDDING, BACKFILL, PIPE, AND STRUCTURES (INLET BOXES, COMBO BOXES, AND JUNCTION BOXES). SUBMITTALSMUST HAVE SUFFICIENT INFORMATION TO SHOW THAT THE PROPOSED ITEMS CONFORM TO SANDYCITY STANDARDS AND SPECIFICATIONS.
5. CONSTRUCTION WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM (UPDES) REGULATIONS.
6. ALL MATERIALS AND WORK DONE IN UDOT RIGHT-OF-WAY SHALL CONFORM TO UDOT STANDARDS AND SPECIFICATIONS (DELETE IF NOT APPLICABLE).
7. NON-SHRINK GROUT SHALL BE USED WHEREVER GROUT IS REQUIRED FOR THE STORM DRAIN FACILITIES.
8. CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX OR MANHOLE AND GROUT AT CONNECTION OF PIPE TO BOX TO A SMOOTH FINISH. ADDITIONALLY, ALL JAGGED OR SHARP EDGES AT PIPE CONNECTIONS ARE TO BE REMOVED AND GROUTED SMOOTH.
9. GROUT BETWEEN GRADE RINGS. FOR EACH INLET BOX THAT IS LOCATED NEXT TO A CURB, THE CURB AND GUTTER CONTRACTOR IS RESPONSIBLE TO REMOVE ALL PROTRUDING, JAGGED OR SHARP CONCRETE EDGES AND TO GROUT BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX. GROUT TO CREATE A SMOOTH, BEVELED TRANSITION AT ALL EDGES IN CLEAN OUT AND INLET BOXES. GROUT AROUND ALL EDGES OF THE RESTRICTIVE ORIFICE PLATE.
10. REMOVE SNAP TIES, NAILS, REBAR AND OTHER PROTRUSIONS FROM THE BOX OR PIPE INSIDE SURFACE, AS WELL AS ALL FORM WORK, PLASTIC AND CARDBOARD.
11. SILT AND DEBRIS ARE TO BE CLEANED OUT OF ALL INLET BOXES, COMBO BOXES, JUNCTION BOXES, AND PIPE. THE BOXES AND PIPES ARE TO BE MAINTAINED IN A CLEAN CONDITION UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.
12. CLEAN OFF ALL MANHOLE LIDS AND INLET GRATES OF ASPHALT, CONCRETE, TAR OR OTHER ADHESIVES TO ALLOW ACCESS.
13. WHERE A SUMP IS REQUIRED, THE SANDY CITY PUBLIC UTILITIES INSPECTOR SHALL BE CONTACTED PRIOR TO CONSTRUCTION TO PROVIDE AN OPPORTUNITY TO CHECK THE VOLUME OF GRAVEL AND GRAVEL GRADATION.
14. SIGNS MUST BE POSTED NEAR EACH INLET BOX LOCATED IN A DRINKING WATER RECHARGE ZONE, WITH THE FOLLOWING WORDS "WARNING THIS IS A DRINKING WATERAQUIFER RECHARGE AREA. DISPOSAL OF ANY WASTE MATERIALS IN THE STORM WATER IS STRICTLY PROHIBITED."
15. ALL INLET, COMBO AND JUNCTION BOXES SHALL BE PLACED ON 12-INCH (MIN.) COMPACTED STABILIZATION MATERIAL.
16. A VIDEO OF ALL PIPES MUST BE COMPLETED BEFORE THE 80% OR 90% BOND RELEASE AND AGAIN BEFORE FINAL BOND RELEASE.
17. A REPRESENTATIVE OF THE MANUFACTURER OR SUPPLIER SHALL BE ON SITE DURING INSTALLATION OF OIL/WATER SEPARATOR, MECHANICAL TREATMENT DEVICES, MEDIA FILTERS, AND UNDERGROUND DETENTION/RETENTION SYSTEMS. THE MANUFACTURER OR SUPPLIER SHALL PROVIDE A LETTER STATING THAT THE SYSTEM WAS INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF IT IS UNKNOWN WHETHER A REPRESENTATIVE IS REQUIRED TO BE PRESENT DURING INSTALLATION, CONTACT THE SANDY CITY PUBLIC UTILITIES INSPECTOR.
18. A STAMPED "LETTER OF CONFORMANCE" FROM THE DESIGN ENGINEER IS REQUIRED TO BE SUBMITTED TO SANDY CITY PUBLIC UTILITIES DEPARTMENT, PRIOR TO 90% BOND RELEASE, STATING THAT STORM WATER FLOW CONTROL ELEMENTS AND STORM WATER TREATMENT FACILITIES (E.G. DETENTION, RETENTION, LID BEST MANAGEMENT PRACTICES, OIL-WATER SEPARATORS, SUMPS, ETC.) WERE CONSTRUCTED ACCORDING TO THE APPROVED PLANS.

KEY NOTES:

(A) LOCATE EXISTING WATERLINE & ADJUST GRADE OF NEW PIPING TO MAKE CONNECTION.

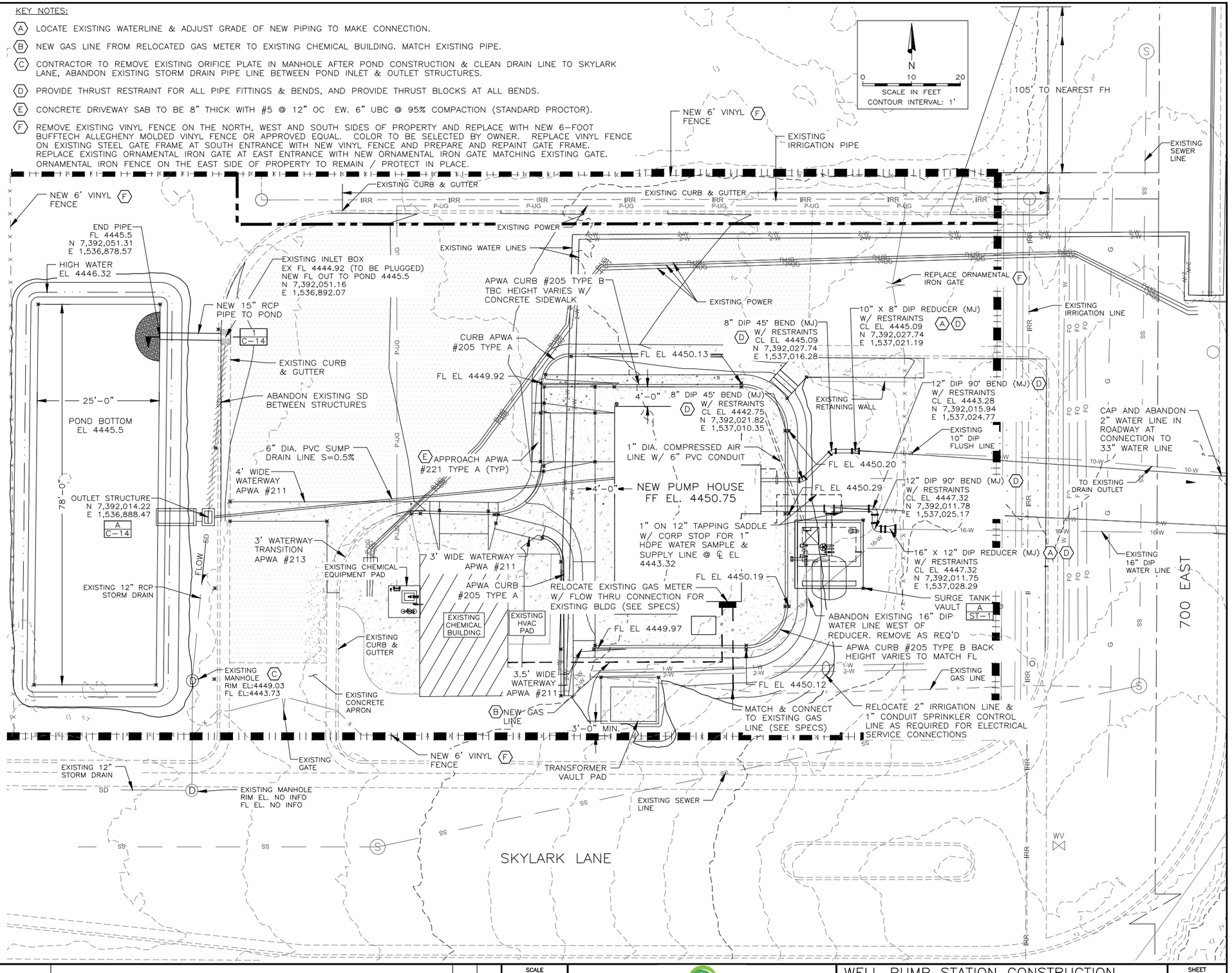
(B) NEW GAS LINE FROM RELOCATED GAS METER TO EXISTING CHEMICAL BUILDING. MATCH EXISTING PIPE.

(C) CONTRACTOR TO REMOVE EXISTING ORIFICE PLATE IN MANHOLE AFTER POND CONSTRUCTION & CLEAN DRAIN LINE TO SKYLARK LANE, ABANDON EXISTING STORM DRAIN PIPE LINE BETWEEN POND INLET & OUTLET STRUCTURES.

(D) PROVIDE THRUST RESTRAINT FOR ALL PIPE FITTINGS & BENDS, AND PROVIDE THRUST BLOCKS AT ALL BENDS.

(E) CONCRETE DRIVEWAY SAB TO BE 8" THICK WITH #5 @ 12" OC EW. 6" UBC @ 95% COMPACTION (STANDARD PROCTOR).

(F) REMOVE EXISTING VINYL FENCE ON THE NORTH, WEST AND SOUTH SIDES OF PROPERTY AND REPLACE WITH NEW 6-FOOT BUFFTECH ALLEGHENY MOLDED VINYL FENCE OR APPROVED EQUAL. COLOR TO BE SELECTED BY OWNER. REPLACE VINYL FENCE ON EXISTING STEEL GATE FRAME AT SOUTH ENTRANCE WITH NEW VINYL FENCE AND PREPARE AND REPAINT GATE FRAME. REPLACE EXISTING ORNAMENTAL IRON GATE AT EAST ENTRANCE WITH NEW ORNAMENTAL IRON GATE MATCHING EXISTING GATE. ORNAMENTAL IRON FENCE ON THE EAST SIDE OF PROPERTY TO REMAIN / PROTECT IN PLACE.



FILE NAME: PROJECTS\127 - JWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-1A 700 EAST UTILITIES PLAN.DWG
FILE DATE: 11.5.2024 10:14:46 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 11/6/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3					
DRAFTED	JRB	2					
CHECKED	MEA	1					
DATE	JUNE 2024	NO.	DATE	REVISIONS		BY	APVD.

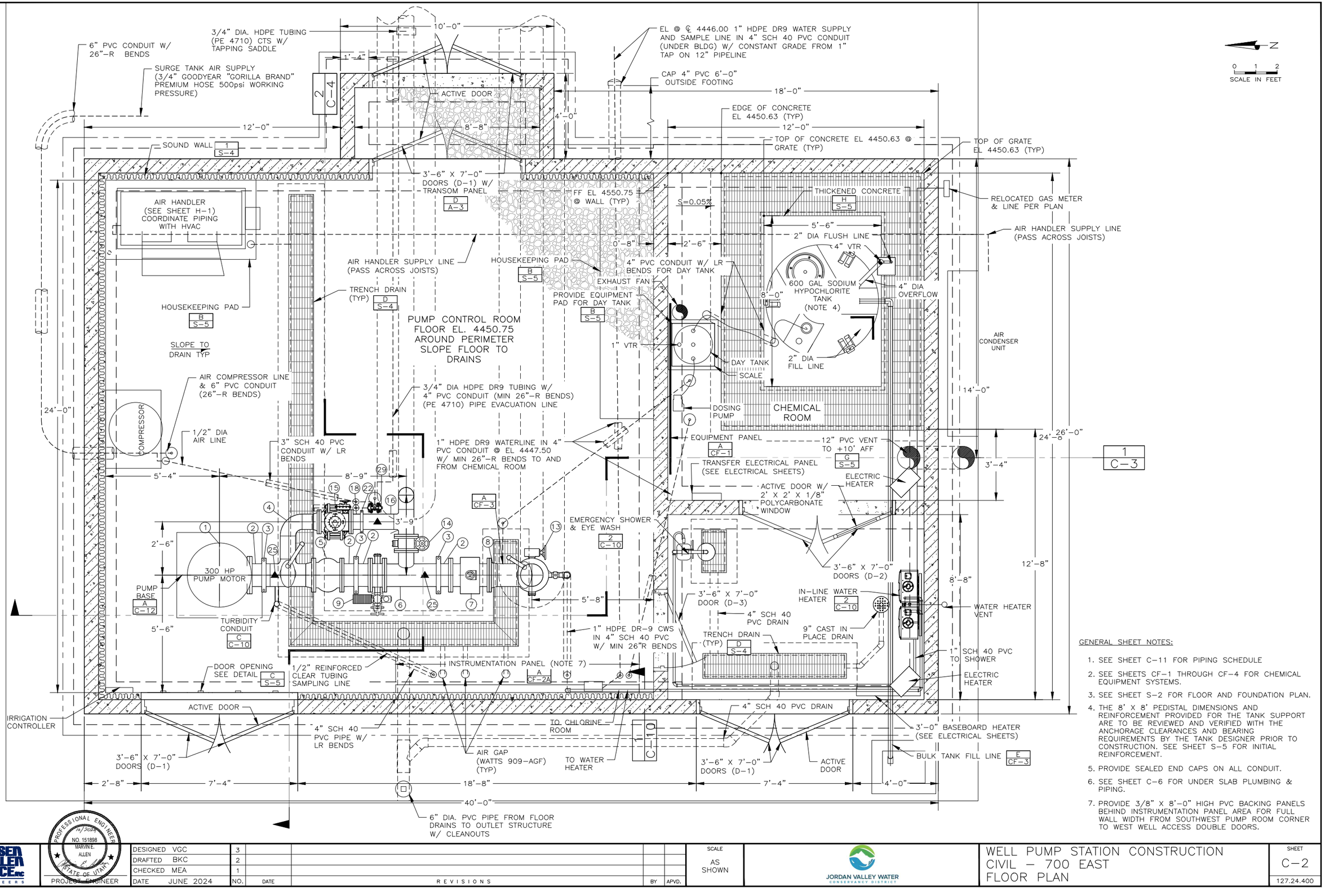
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL - 700 EAST
UTILITY PLAN

SHEET C-1A

127.24.400



GENERAL SHEET NOTES:

1. SEE SHEET C-11 FOR PIPING SCHEDULE
2. SEE SHEETS CF-1 THROUGH CF-4 FOR CHEMICAL EQUIPMENT SYSTEMS.
3. SEE SHEET S-2 FOR FLOOR AND FOUNDATION PLAN.
4. THE 8' X 8' PEDISTAL DIMENSIONS AND REINFORCEMENT PROVIDED FOR THE TANK SUPPORT ARE TO BE REVIEWED AND VERIFIED WITH THE ANCHORAGE CLEARANCES AND BEARING REQUIREMENTS BY THE TANK DESIGNER PRIOR TO CONSTRUCTION. SEE SHEET S-5 FOR INITIAL REINFORCEMENT.
5. PROVIDE SEALED END CAPS ON ALL CONDUIT.
6. SEE SHEET C-6 FOR UNDER SLAB PLUMBING & PIPING.
7. PROVIDE 3/8" X 8'-0" HIGH PVC BACKING PANELS BEHIND INSTRUMENTATION PANEL AREA FOR FULL WALL WIDTH FROM SOUTHWEST PUMP ROOM CORNER TO WEST WELL ACCESS DOUBLE DOORS.

FILE NAME:
FILE DATE:

PROFESSIONAL ENGINEER 7/9/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

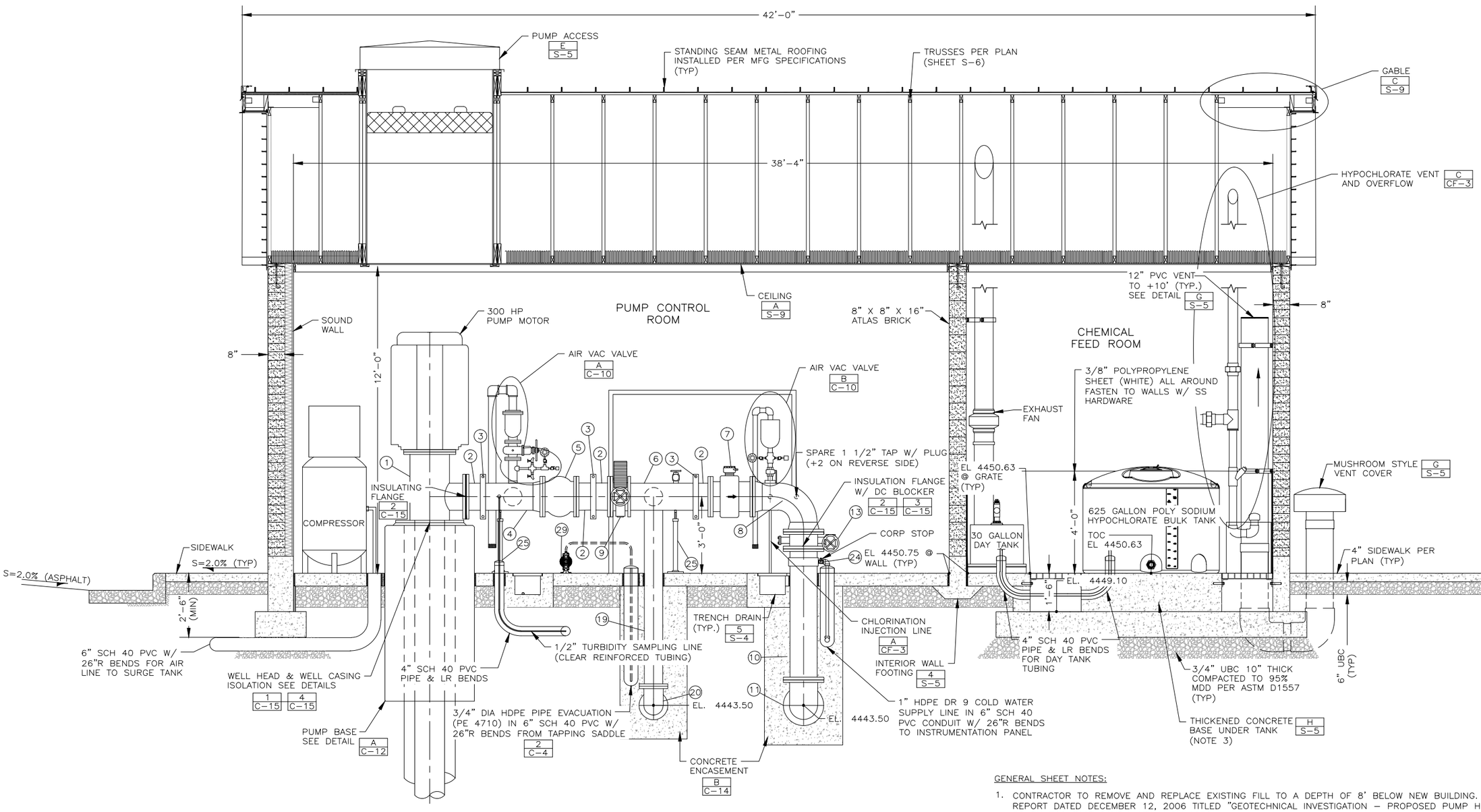
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL – 700 EAST
FLOOR PLAN

SHEET C-2

127.24.400

7/04



SECTION 1 / C-2

1/4" = 1'-0"

GENERAL SHEET NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 8' BELOW NEW BUILDING. SEE SOILS REPORT DATED DECEMBER 12, 2006 TITLED "GEOTECHNICAL INVESTIGATION – PROPOSED PUMP HOUSE – 7618 SOUTH 700 EAST SANDY, UTAH" BY AGEC.
2. SEE SHEET C-11 FOR PIPING SCHEDULE
3. THE 8' X 8' PEDISTAL DIMENSIONS AND REINFORCEMENT PROVIDED FOR THE TANK SUPPORT ARE TO BE REVIEWED AND VERIFIED WITH THE ANCHORAGE CLEARANCES AND BEARING REQUIREMENTS BY THE TANK DESIGNER PRIOR TO CONSTRUCTION. SEE SHEET S-5 FOR PRELIMINARY REINFORCEMENT.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-3 700 EAST SECTION.DWG
FILE DATE: 10.15.2024 09:12:00 (BKC)

HANSEN ALLEN & LUCE Inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH — 10/9/2024

PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

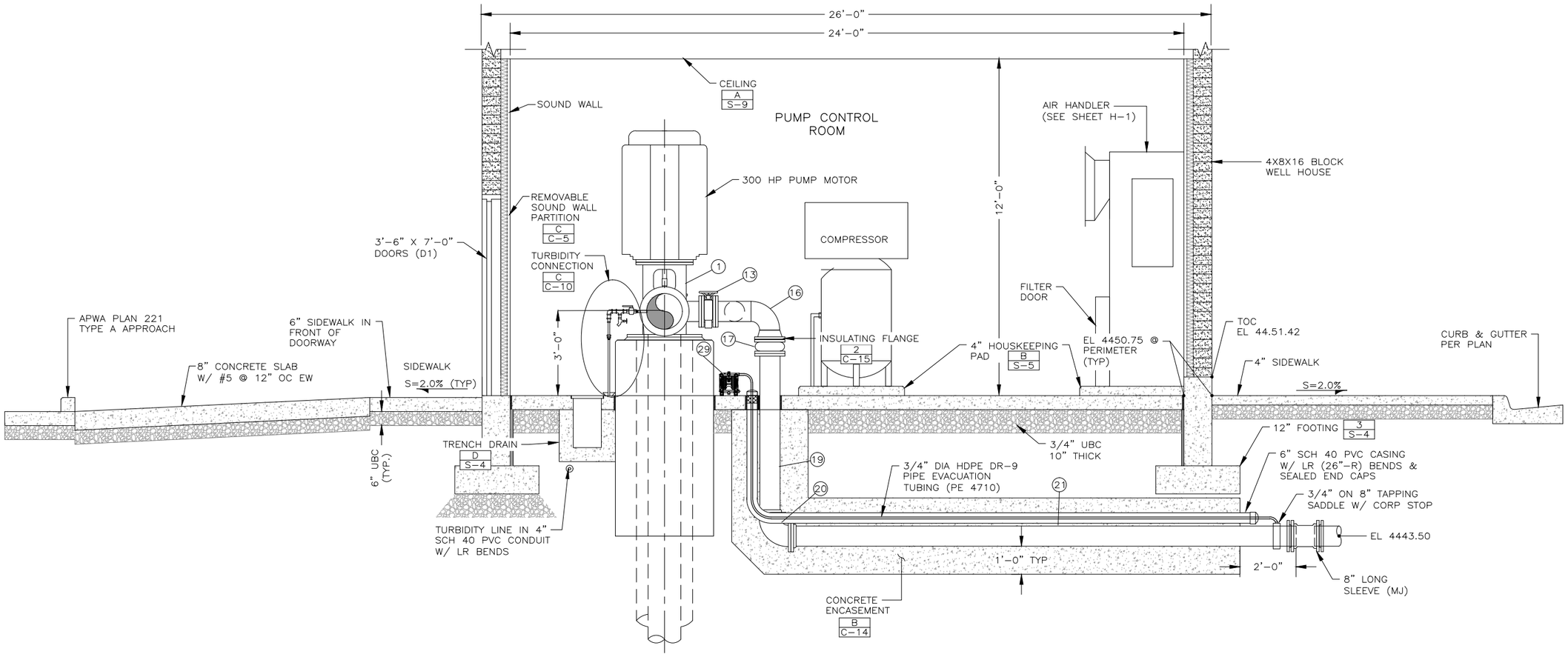
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL – 700 EAST
SECTION

SHEET C-3

127.24.400

7/04



SECTION 2 C-2 / 2 C-3

0 1 2

1/4" = 1'-0"

DETAIL NOTE:

SEE SHEET C-11 FOR PIPING SCHEDULE,

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-4 700 EAST SECTION.DWG
FILE DATE: 10.15.2024 09:15:46 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED VGC	3					
DRAFTED DRB	2					
CHECKED MEA	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

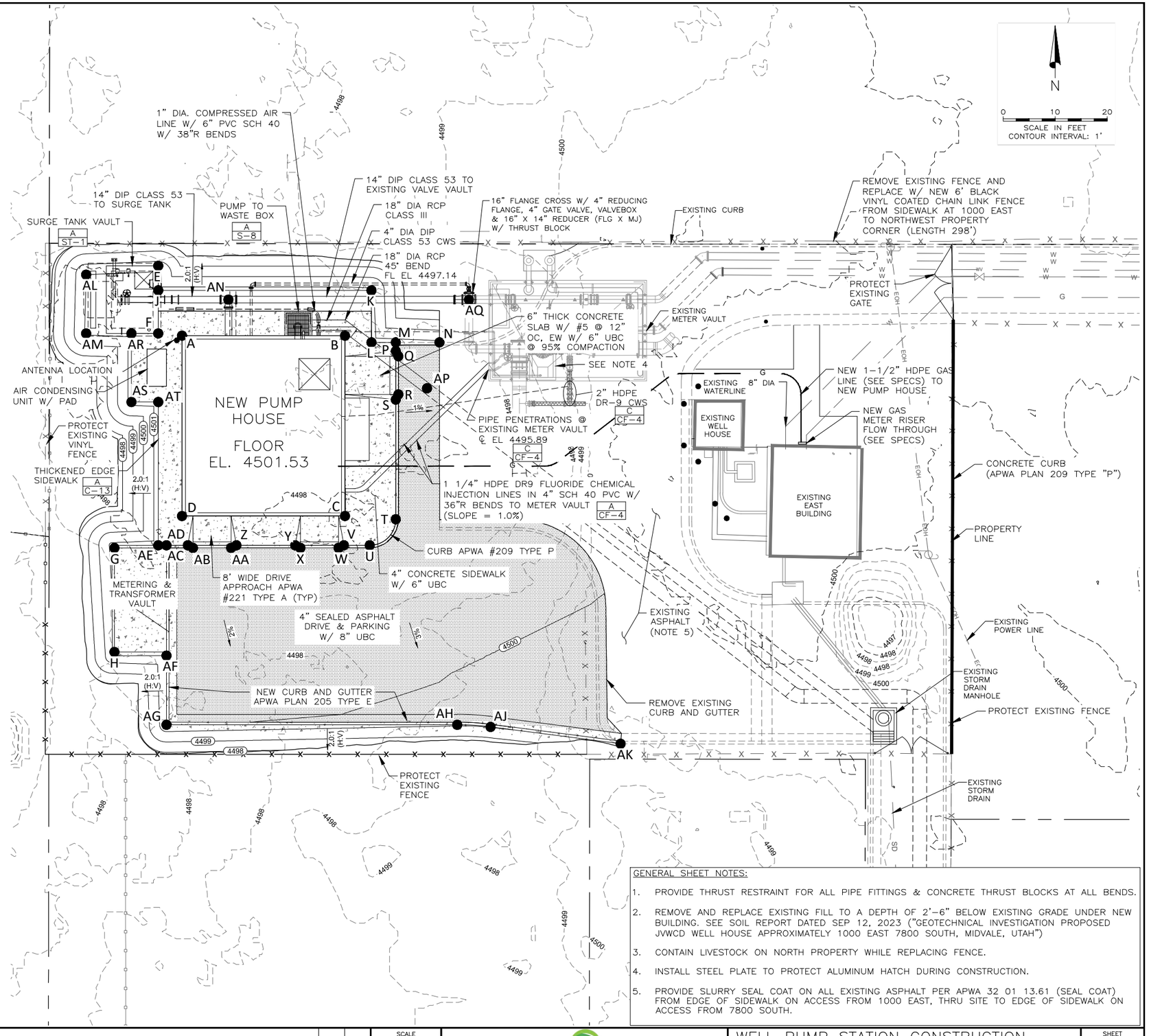
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL - 700 EAST
SECTION

SHEET C-4

127.24.400

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,391,278.66	1,539,428.52	4501.53	BLD NW CNR
B	7,391,278.66	1,539,459.85	4501.53	BLD NE CNR
C	7,391,243.99	1,539,459.85	4501.53	BLD SE CNR
D	7,391,243.99	1,539,428.52	4501.53	BLD SW CNR
E	7,391,292.08	1,539,423.95	4501.43	SURGE TANK VAULT NE CNR
F	7,391,279.08	1,539,423.95	4501.43	SURGE TANK VAULT SE CNR
G	7,391,237.87	1,539,415.53	4501.25	PAD NW CNR
H	7,391,217.87	1,539,415.53	4500.70	PAD SW CNR
J	7,391,287.37	1,539,423.95	4501.33	TOC
K	7,391,287.36	1,539,464.93	4501.23	TOC
L	7,391,277.37	1,539,464.95	4501.43	TOC
M	7,391,277.37	1,539,469.62	4501.34	TBC
N	7,391,277.37	1,539,478.02	4501.17	TBC MATCH EXISTING
P	7,391,275.70	1,539,469.62	4501.43	TBC GB
Q	7,391,274.70	1,539,470.12	4500.93	RAMP END
R	7,391,267.37	1,539,470.12	4500.93	RAMP END
S	7,391,266.37	1,539,469.62	4501.43	TBC GB
T	7,391,243.37	1,539,469.62	4501.43	TBC PC, R=5'
U	7,391,238.37	1,539,464.62	4501.43	TBC PT
V	7,391,238.37	1,539,459.64	4501.43	TBC GB
W	7,391,237.87	1,539,458.62	4500.93	RAMP END
X	7,391,237.87	1,539,451.28	4500.93	RAMP END
Y	7,391,238.37	1,539,450.28	4501.43	TBC GB
Z	7,391,238.37	1,539,438.98	4501.43	TBC GB
AA	7,391,237.87	1,539,437.95	4500.93	RAMP END
AB	7,391,237.87	1,539,430.62	4500.93	RAMP END
AC	7,391,238.37	1,539,429.64	4501.43	TBC GB
AD	7,391,238.37	1,539,425.53	4501.43	TBC
AE	7,391,238.37	1,539,423.95	4501.43	TOC
AF	7,391,217.17	1,539,425.53	4500.88	TBC GB
AG	7,391,203.87	1,539,425.53	4500.65	TBC
AH	7,391,203.87	1,539,481.43	4500.11	TBC PC, R=50'
AJ	7,391,203.46	1,539,487.84	4500.04	TBC PT
AK	7,391,200.23	1,539,512.84	4499.79	TBC END MATCH EXISITING
AL	7,391,290.38	1,539,410.09	4501.00	GB
AM	7,391,279.08	1,539,410.09	4501.15	GB
AN	7,391,285.58	1,539,437.45	4493.88	14" TEE (MJ) W/ THRUST BLOCK (CL)
AP	7,391,268.55±	1,539,475.63±	4497.00±	PIPE CONNECTION (FL)
AQ	7,391,285.58±	1,539,483.69±	4493.08±	16" DIP CROSS (FLG) (CL)
AR	7,391,279.08	1,539,418.80	4501.33	TOC
AS	7,391,265.91	1,539,418.80	4501.33	TOC
AT	7,391,265.91	1,539,423.95	4501.43	TOC



GENERAL SHEET NOTES:

1. PROVIDE THRUST RESTRAINT FOR ALL PIPE FITTINGS & CONCRETE THRUST BLOCKS AT ALL BENDS.
2. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 2'-6" BELOW EXISTING GRADE UNDER NEW BUILDING. SEE SOIL REPORT DATED SEP 12, 2023 ("GEOTECHNICAL INVESTIGATION PROPOSED JVWCD WELL HOUSE APPROXIMATELY 1000 EAST 7800 SOUTH, MIDVALE, UTAH")
3. CONTAIN LIVESTOCK ON NORTH PROPERTY WHILE REPLACING FENCE.
4. INSTALL STEEL PLATE TO PROTECT ALUMINUM HATCH DURING CONSTRUCTION.
5. PROVIDE SLURRY SEAL COAT ON ALL EXISTING ASPHALT PER APWA 32 01 13.61 (SEAL COAT) FROM EDGE OF SIDEWALK ON ACCESS FROM 1000 EAST, THRU SITE TO EDGE OF SIDEWALK ON ACCESS FROM 7800 SOUTH.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-5 1000 EAST SITE PLAN.DWG
FILE DATE: 10.15.2024 10:30:48 (BKC)

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED	VGC
DRAFTED	BKC
CHECKED	MEA
DATE	JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

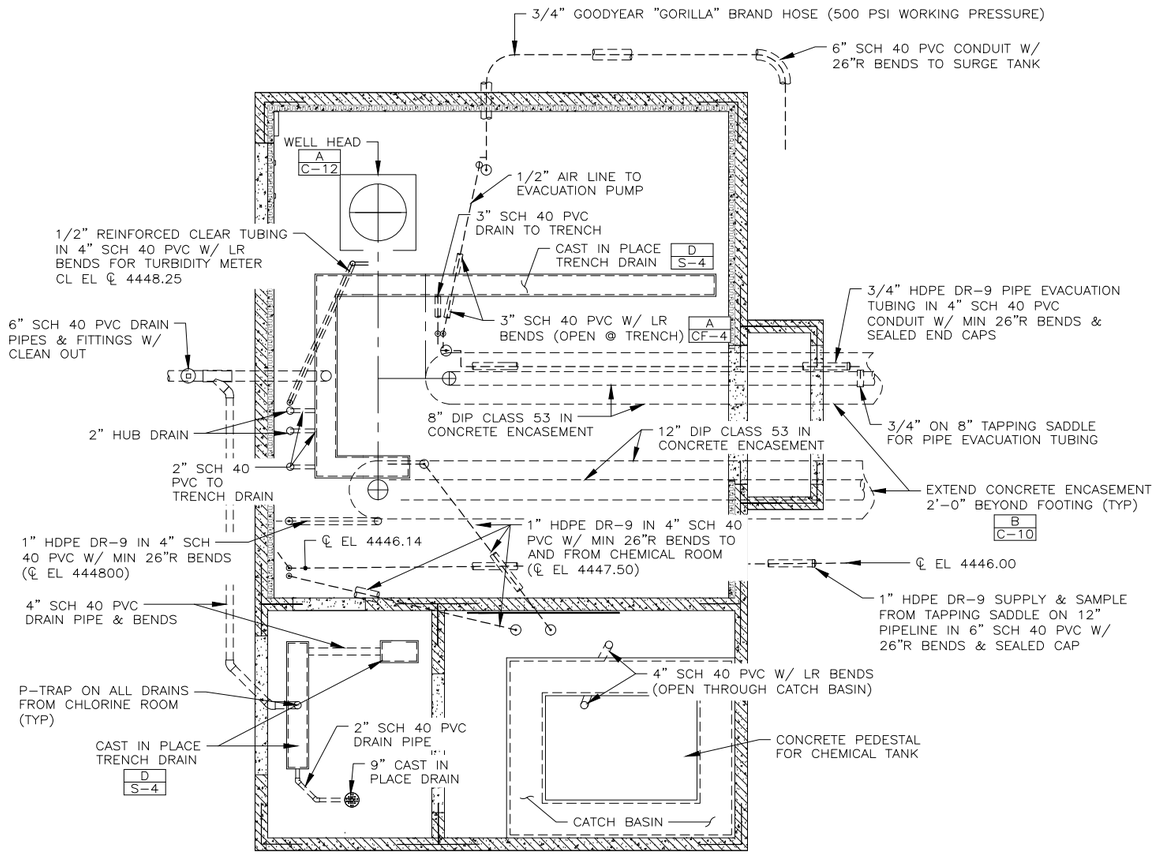
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL – 1000 EAST
SITE GRADING & DRAINAGE PLAN

SHEET C-5
127.24.400

7/04

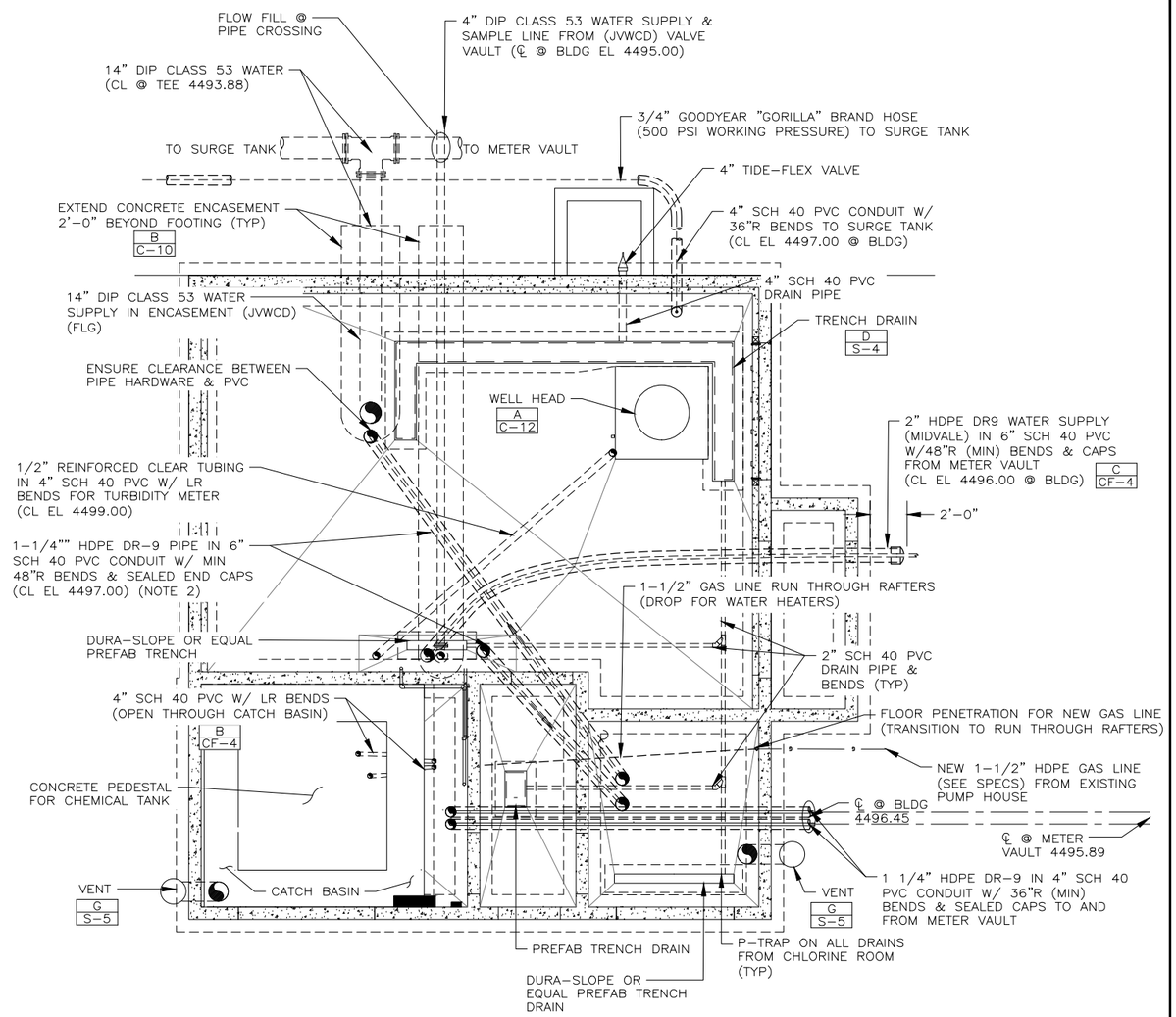


DETAIL NOTE:

1. SEE SHEET S-2 FOR LAYOUT DIMENSIONS OF DRAIN, CONDUIT & PIPE IN FLOOR.

700 EAST PIPE & PLUMBING PLAN — C / C-2

NTS



DETAIL NOTES:

1. SEE SHEET S-3 FOR LAYOUT DIMENSIONS OF DRAIN, CONDUIT & PIPE IN FLOOR.
2. COORDINATE LOCATION OF PIPELINES WITH OWNERS' SUPPLIER OF TABLET CHLORINATOR UNIT PRIOR TO CONSTRUCTION OF PIPELINES. (PROVIDE SUBMITTAL)

1000 EAST PIPE & PLUMBING PLAN — C / C-2

NTS

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-6 BUILING PLUMBING PLANS.DWG
FILE DATE: 10.15.2024 11:50:39 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — 10/2024 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

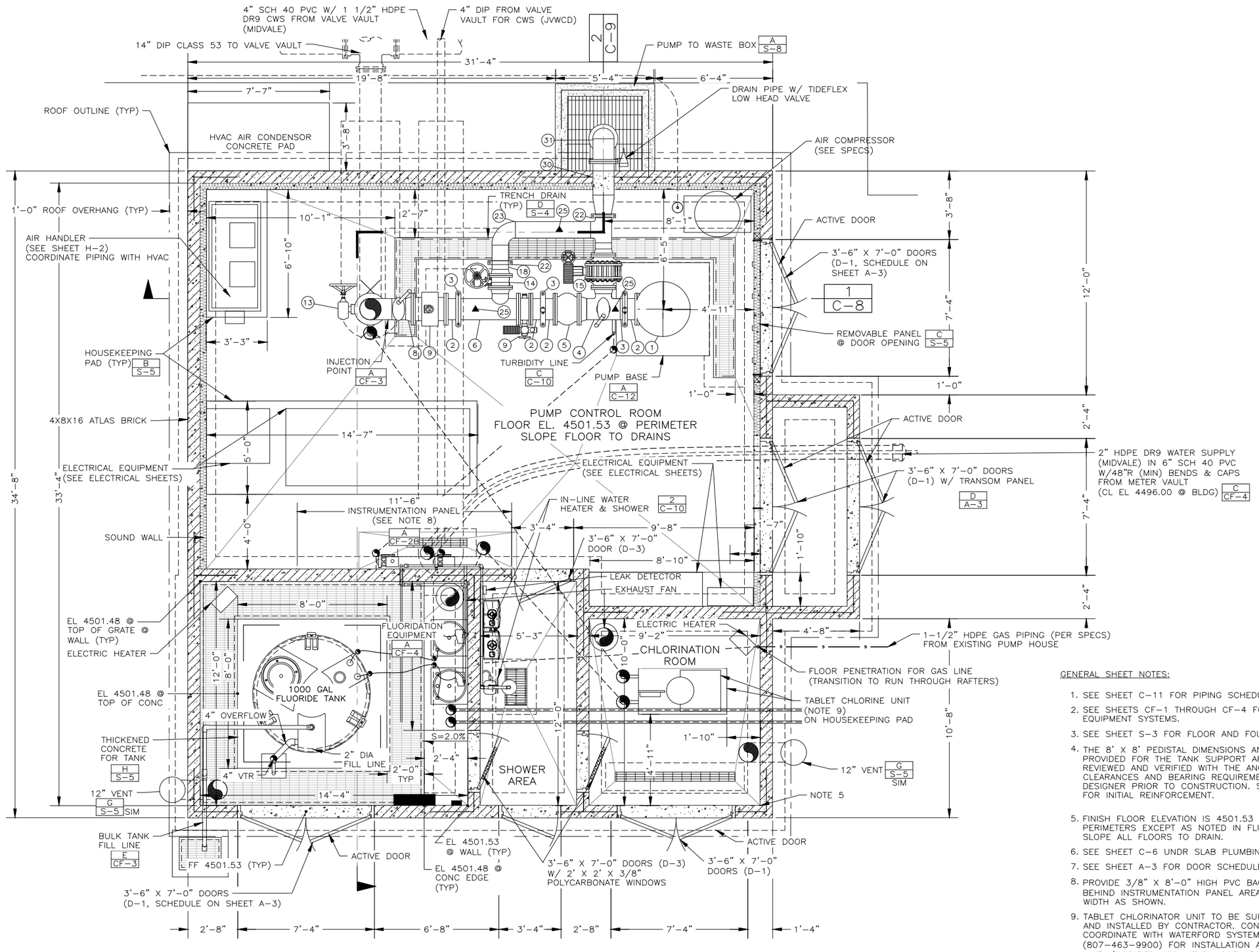
SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL
BUILDING PLUMBING PLANS

SHEET C-6

127.24.400



GENERAL SHEET NOTES:

1. SEE SHEET C-11 FOR PIPING SCHEDULE
2. SEE SHEETS CF-1 THROUGH CF-4 FOR CHEMICAL EQUIPMENT SYSTEMS.
3. SEE SHEET S-3 FOR FLOOR AND FOUNDATION PLAN.
4. THE 8' X 8' PEDISTAL DIMENSIONS AND REINFORCEMENT PROVIDED FOR THE TANK SUPPORT ARE TO BE REVIEWED AND VERIFIED WITH THE ANCHORAGE CLEARANCES AND BEARING REQUIREMENTS BY THE TANK DESIGNER PRIOR TO CONSTRUCTION. SEE SHEET S-5 FOR INITIAL REINFORCEMENT.
5. FINISH FLOOR ELEVATION IS 4501.53 AT ALL ROOM PERIMETERS EXCEPT AS NOTED IN FLUORIDE ROOM. SLOPE ALL FLOORS TO DRAIN.
6. SEE SHEET C-6 UNDR SLAB PLUMBING AND PIPING
7. SEE SHEET A-3 FOR DOOR SCHEDULES.
8. PROVIDE 3/8" X 8'-0" HIGH PVC BACKING PANELS BEHIND INSTRUMENTATION PANEL AREA FOR 11'-6" WALL WIDTH AS SHOWN.
9. TABLET CHLORINATOR UNIT TO BE SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH WATERFORD SYSTEMS (807-463-9900) FOR INSTALLATION AND START UP OF UNIT. (MODIFIED ACCU-TAB MODEL 3075)

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-7 1000 EAST FLOOR PLAN.DWG
FILE DATE: 10.15.2024 11:53:02 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 10/7/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	CAH	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY APVD.

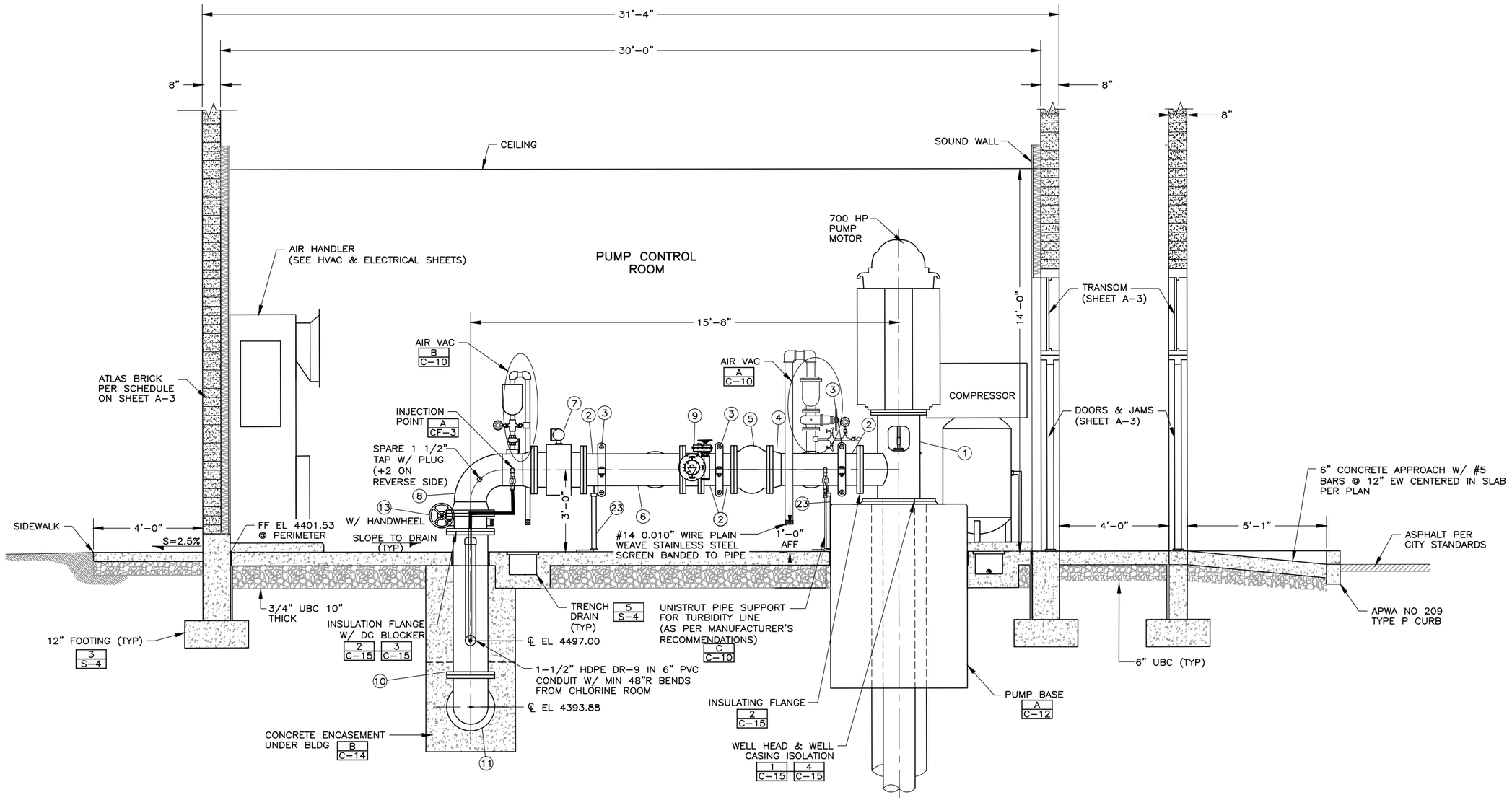
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL - 1000 EAST
FLOOR PLAN

SHEET C-7

127.24.400



SECTION 1 / C-7

0 1 2

1/4" = 1'-0"

GENERAL SHEET NOTE:

SEE SHEET C-11 FOR PIPING SCHEDULE.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-8 1000 EAST SECTION.DWG
FILE DATE: 10.15.2024 11:54:42 (BKC)

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER — STATE OF UTAH — NO. 151898 — MARVIN E. ALLEN — 10/25/2024

PROJECT ENGINEER

DESIGNED	VGC
DRAFTED	BKC
CHECKED	MEA
DATE	JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

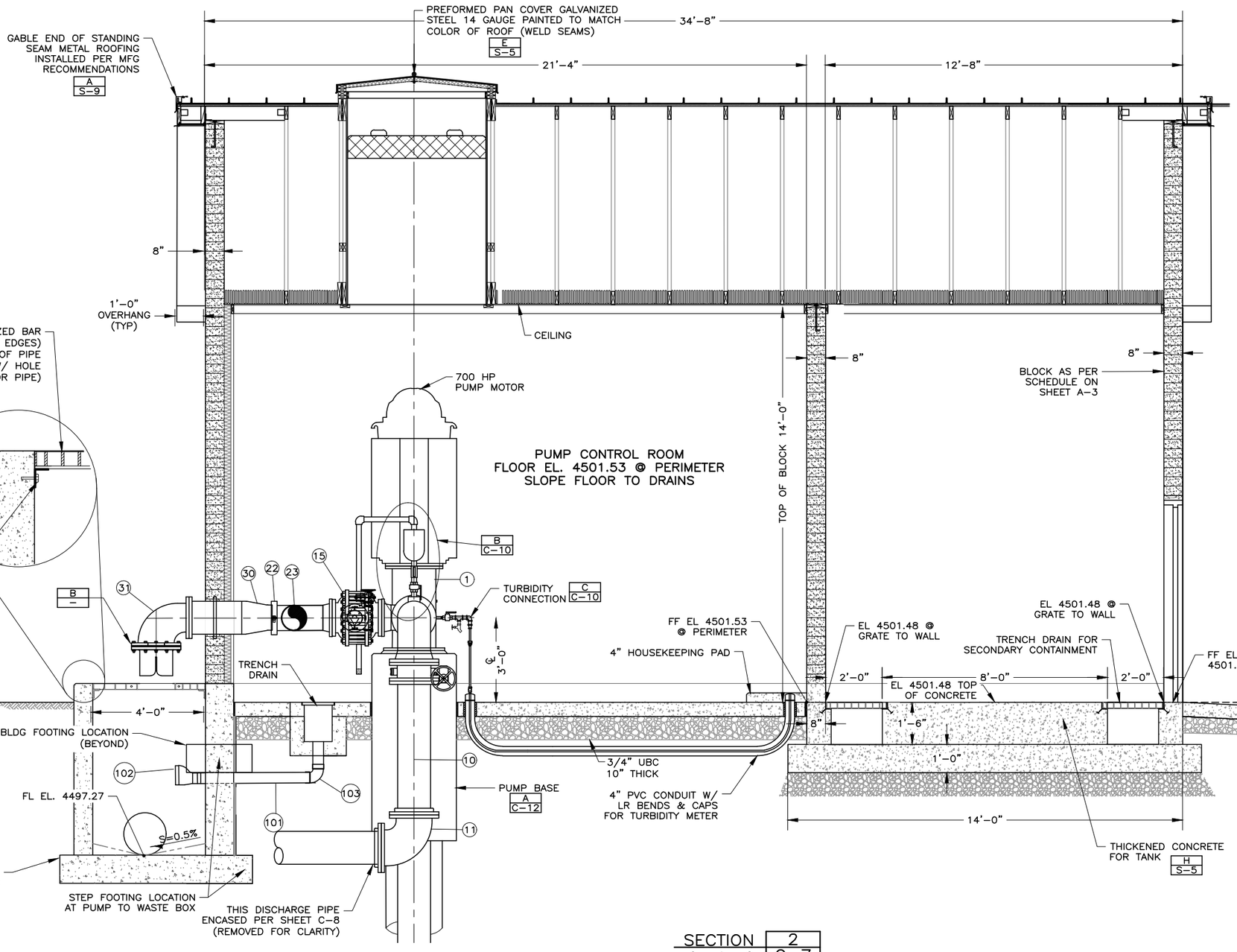
SCALE: AS SHOWN

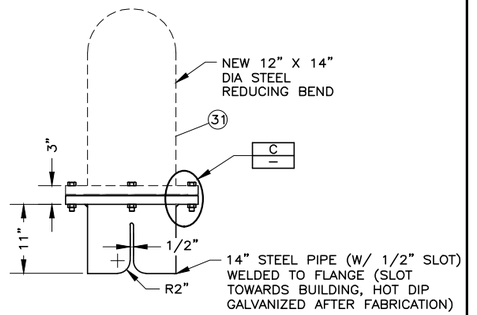
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL – 1000 EAST
SECTION

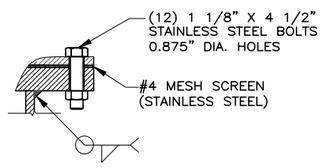
SHEET C-8

127.24.400





OUTLET DISCHARGE B —



DETAIL C — NTS

GENERAL SHEET NOTE:

SEE SHEET C-11 FOR PIPING SCHEDULE.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-9 1000 EAST SECTION-1.DWG
FILE DATE: 10.15.2024 11:57:00 (BKC)

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER 10/1/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED VGC	3					
DRAFTED BKC	2					
CHECKED MEA	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

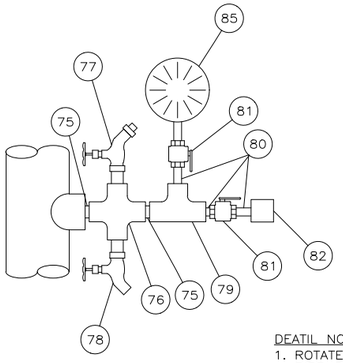
SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL — 1000 EAST
SECTION

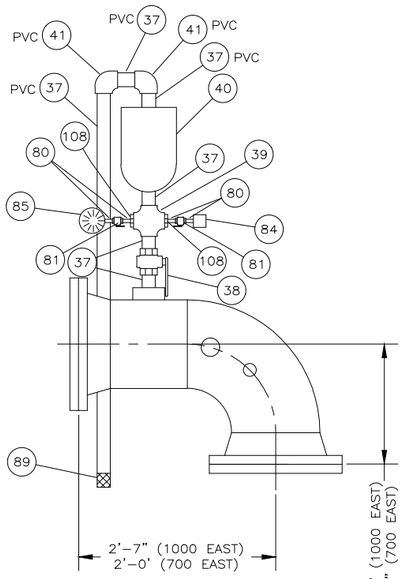
SHEET C-9

127.24.400

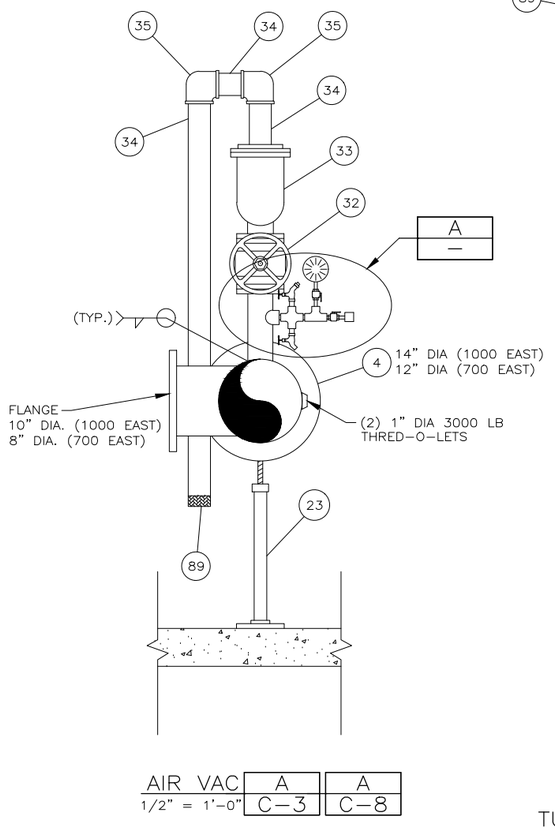


DEATIL NOTES:
1. ROTATE TAP & BIBB DOWN
2. USE CLOSE NIPPLES

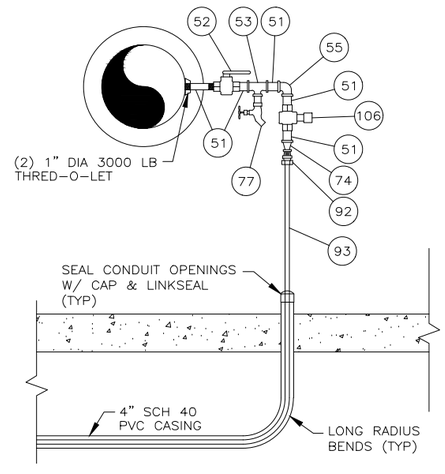
PRESSURE TREE NTS | A —



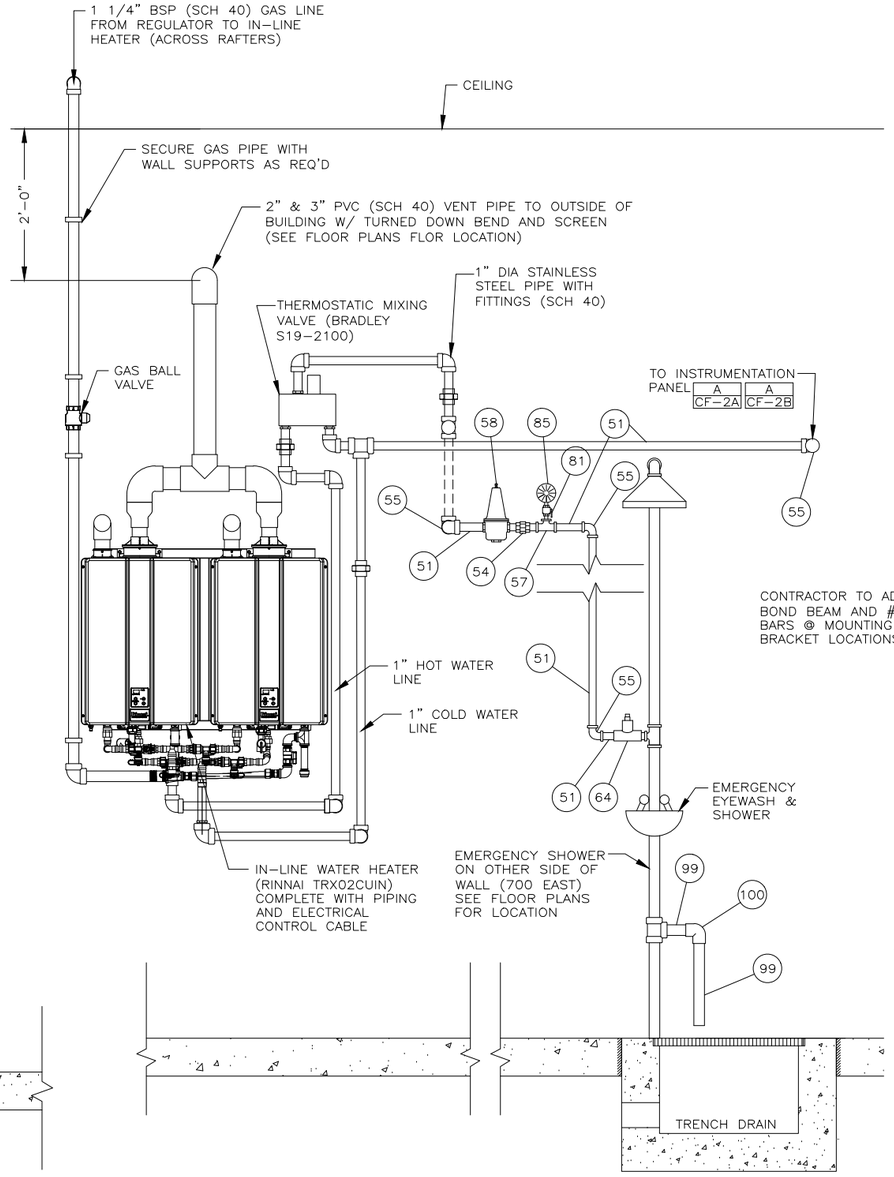
AIR VAC 1/2" = 1'-0" | B C-3 | B C-8 | B C-9



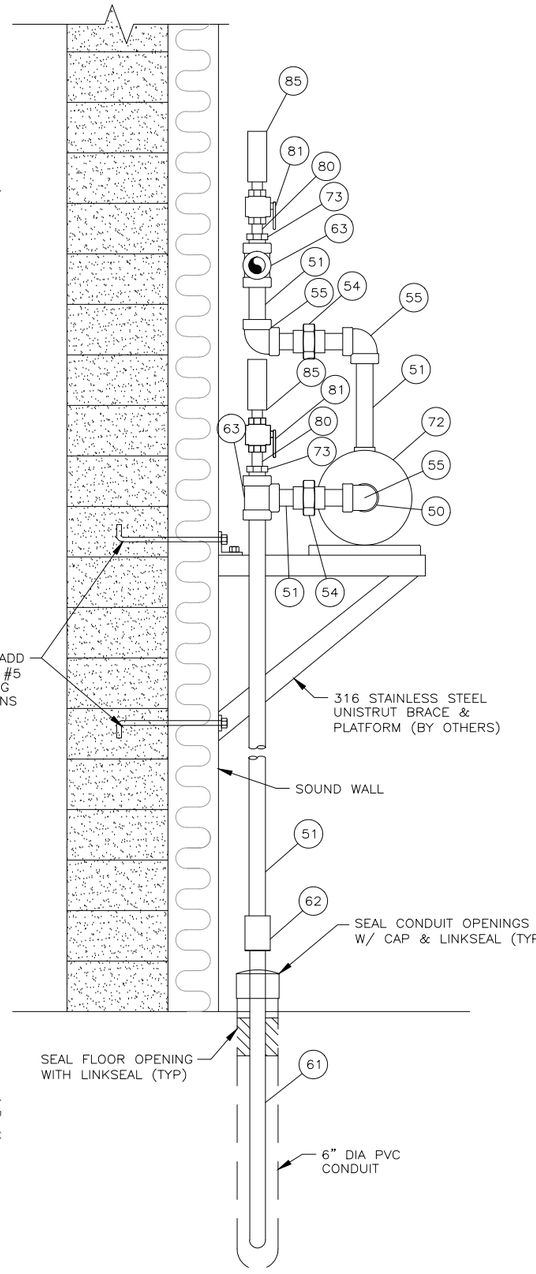
AIR VAC 1/2" = 1'-0" | A C-3 | A C-8



TURBIDITY CONNECTION 1/2" = 1'-0" | C C-2 | C C-4 | C C-7 | C C-8 | C C-9



EMERGENCY EYE WASH AND SHOWER SECTION NTS | 2 C-2 | 2 C-7 | 2 CF-2A | 2 CF-2B



INSTRUMENT PANEL NTS | 1 C-2 | 1 CF-2A | 1 CF-2B

GENERAL SHEET NOTE:
1. SEE SHEET C-11 FOR PIPING SCHEDULE.
2. FOR ALL TAPS 2" AND LESS ON STEEL PIPE, USE 3000 LB THRED-O-LETS. HALF COUPLINGS ARE NOT ALLOWED.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-10 PIPING DETAIL.DWG
FILE DATE: 10.15.2024 11:59:31 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH — PROJECT ENGINEER

DESIGNED VGC	3				
DRAFTED BKC	2				
CHECKED MEA	1				
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION CIVIL – TYPICAL PIPING DETAILS

SHEET C-10

127.24.400

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE		JOINT	MATERIALS & NOTES
		1000 EAST	700 EAST		
1.	PUMP DISCHARGE HEAD	14"	12"	FLG	FABRICATED STEEL
2.	FLANGED ADAPTER NIPPLE	14"	12"	FLG X GE	STEEL
3.	COUPLING	14"	12"	GE	VICTAULIC STYLE 77
4.	WELDMENT – TEE (W/ 3" WELDED OUTLET)	14" X 10" X 3"	12" X 8" X 3"	GE X FLG X FLG	STEEL W/ THREAD–O–LET
5.	SILENT CHECK VALVE	14"	12"	FLG	APCO
6.	WELDMENT – TEE (W/ 1" THREAD–O–LET)	14" X 10"	12" X 8"	FLG X GE X FLG	STEEL W/ THREAD–O–LET
7.	MAGNETIC FLOW METER	14"	12"	FLG	SEE SPECS
8.	WELDMENT – 90° BEND (W/ 1 1/2" & 2" THREAD–O–LETS)	14"	12"	FLG	STEEL W/ THREAD–O–LET
9.	BUTTERFLY VALVE W/ELECTRIC OPERATOR	14"	12"	FLG	SEE SPECS
10.	SPOOL (W/SADDLE – LENGTH AS REQUIRED)	14"	12"	FLG	DIP CLASS 53
11.	90° BEND	14"	12"	FLG	DIP
12.	DUCTILE IRON PIPE	14"	12"	FLG X PE	DIP CLASS 53
13.	BUTTERFLY VALVE W/HANDWHEEL	14"	12"	FLG	SEE SPECS
14.	BUTTERFLY VALVE W/HANDWHEEL	10"	8"	FLG	SEE SPECS
* 15.	SEGMENTED BALL VALVE W/ELECTRIC OPERATOR	10"	8"	FLG	SEE SPECS
16.	WELDMENT – TEE W/ 90 DEGREE BEND	10"	8"	GE X FLG X FLG	STEEL
17.	EXPANSION JOINT	10"	8"	FLG	SEE SPECS
18.	FLANGED ADAPTER NIPPLE	10"	8"	FLG X GE	STEEL
19.	SPOOL – DIP (LENGTH AS REQ'D)	–	8"	FLG	DIP CLASS 53
20.	90° BEND	–	8"	FLG	DIP
21.	DUCTILE IRON PIPE	–	8"	FLG X PE	DIP CLASS 53
22.	COUPLING	10"	8"	GE	VICTAULIC STYLE 77
23.	WELDMENT – TEE W/ 90° BEND	10"	8"	FLG X GE X GE	VICTAULIC STYLE 841
24.	TAPPING SADDLE	14" X 2"	12" X 2"	–	W/ CORP STOP
25.	PIPE SUPPORT (DETAIL B/C–13)	–	–	–	MATCH PIPE SIZE
26.	ADAPTER	2"	1 1/2"	THD X SOLDER	
27.	NOT USED	–	–	–	–
28.	DUCTILE IRON PIPE (PC 250)	14"	12"	–	DIP
29.	PNEUMATIC VACUUM PUMP W/ AIR GAP	–	3/4"	THD	SEE SPECS

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT
30.	WELDMENT W/ INCREASER	10" X 12"	FLG X GE
31.	BEND, REDUCING, 90°, STEEL	12" X 14"	FLG
32.	GATE VALVE (MUELLER RESILIENT SEAT)	3"	FLG
33.	AIR/VACUUM VALVE	3"	FLG X THD
34.	PIPE (SCH 80 PVC)	3"	THD
35.	90° BEND (SCH 80 PVC)	3"	THD
36.	NOT USED	–	–
37.	PIPE (BRASS – PVC SCH 80 FOR VENT PIPE ONLY)	2"	THD
38.	BALL VALVE (BRASS)	2"	THD
39.	CROSS (BRASS)	2" X 2"	THD
40.	AIR/VACUUM VALVE	2"	THD
41.	90° BEND (BRASS – PVC SCH 80 FOR VENT PIPE ONLY)	2"	THD
42.	TEE (BRASS)	2"	THD
43.	NOT USED	–	–
44.	UNION (BRASS)	2"	THD
45.	STRAINER (BRASS) W/ FLUSH VALVE	2"	THD
46.	HEX REDUCER (BRASS)	2" X 1 1/4"	THD
47.	STRAINER W/ FLUSH VALVE (BRASS)	2"	THD
48.	CROSS (BRASS)	2" X 2" X 2" X 3/4"	THD
49.	HEX REDUCER (BRASS)	2" X 1/2"	THD
50.	REDUCER (BRASS)	1 1/4" X 1"	THD
51.	PIPE (BRASS)	1"	THD
52.	BALL VALVE (BRASS)	1"	THD
53.	REDUCING TEE (BRASS)	1" X 3/4"	THD
54.	UNION – BRASS (WATTS NO. 3003 SERIES)	1"	THD
55.	90° BEND (BRASS)	1"	THD
** 56.	POLYCAM FITTING (HDPE)	1–1/4"	FUS X THD
57.	REDUCING TEE (BRASS)	1" X 1/2"	THD
58.	PRESSURE REDUCING VALVE (CLA–VAL #990)	1"	THD
59.	REDUCING TEE (PVC – SCH 80)	1" X 1/2"	THD
60.	PIPE (PVC – SCH 80)	1"	THD
61.	HIGH DENSITY POLYETHYLENE PIPE DR–9 (GREEN STRIPE CHLORINE) (BLUE STRIPE 2ND OTHERWISE)	1"	FUS
62.	POLYCAM FITTING (HDPE)	1"	FUS X THD
63.	TEE (BRASS)	1"	THD
64.	FLOW SWITCH	1"	THD
*** 65.	STRAINER W/FLUSH VALVE (BRASS)	1"	THD
66.	PIPE (PVC) SCH 80	1"	THD
67.	INJECTION TEE W/CHECK VALVE (PVC)	1"	THD
68.	90° BEND (PVC)	1"	THD
69.	TRUE UNION PVC CHECK VALVE	1"	THD
70.	UNION (PVC)	1"	THD
71.	BALL VALVE (PVC)	1"	THD
72.	SOLUTION PUMP (SEE SHEET CF–4)	–	THD
73.	REDUCING BUSHING (BRASS)	1" X 1/2"	THD
74.	BELL REDUCER (BRASS)	1" X 3/8"	THD
75.	PIPE (BRASS)	3/4"	THD
76.	CROSS (BRASS)	3/4"	THD
77.	HOSE BIBB (BRASS) W/ ANTI–SIPHON	3/4"	THD
78.	SAMPLING TAP – SMOOTH NOSE SPIGOT	3/4"	THD
79.	REDUCING TEE (BRASS)	3/4" X 1/2" X 1/2"	THD
80.	PIPE (BRASS)	1/2"	THD

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT
81.	BALL VALVE (BRASS)	1/2"	THD
82.	PRESSURE SWITCH (PER ELECTRICAL SPECS)	1/2"	THD
83.	TEE (BRASS)	1/2"	THD
84.	PRESSURE TRANSDUCER	1/2"	THD
85.	4 1/2" LIQUID FILLED PRESSURE GAUGE 0–200 PSI	1/2"	THD
86.	PRESSURE REDUCING VALVE	1/2"	THD
87.	PIPE (PVC) SCH 80	1/2"	THD
88.	AIR/VACUUM VALVE	1/2"	THD
89.	PIPE SCREENED END #14 MESH	–	–
90.	BELL REDUCER	1/2" X 1/4"	THD
91.	ROTOMETER	–	TUBING
92.	TUBING ADAPTER (BRASS)	1/2"	THD
93.	TUBING (REINFORCED CLEAR PVC TUBING)	1/2"	–
94.	PIPE (BRASS)	1/2"	THD
95.	BALL VALVE (BRASS)	1/2"	THD
96.	TUBING ADAPTER	1/2"	THD
97.	TEE (BRASS)	1/2"	THD
98.	90° BEND (BRASS)	1/2"	THD
99.	ABS DRAIN PIPE	1 1/4"	SW
100.	ABS 1/4 BEND	1 1/4"	SW
101.	PIPE (PVC) SCH 80	4"	SW
102.	TIDEFLEX VALVE (LOW PRESSURE)	4"	–
103.	P–TRAP	4"	SW
104.	UNION (BRASS)	1/2"	–
105.	Y–STRAINER (BRASS)	1 1/4"	THD
106.	SOLENOID VALVE	1"	THD
107.	AIR/VACUUM VALVE	1"	THD
108.	BUSHING (BRASS)	2" X 1/2"	THD
109.	UNION (BRASS)	1 1/4"	THD
110.	DUCTILE IRON PIPE (CLASS 53)	4"	FLG
111.	90° DUCTILE IRON BEND	4"	FLG
112.	PIPE (BRASS)	1 1/4"	THD
113.	BALL VALVE (BRASS)	1 1/4"	THD
114.	TEE, REDUCING (BRASS)	1 1/4" X 3/4"	THD
115.	BEND, 90° (BRASS)	1 1/4"	THD
116.	TEE	1 1/4"	THD
117.	PIPE (BRASS)	1 1/4"	THD
118.	BEND, 90°, (BRASS)	1 1/4"	THD
119.	HEX REDUCER, (BRASS)	1 1/4" X 1/2"	THD
120.	POLYCAM REDUCER	2" X 1.25"	THD X FUS
121.	CHECK VALVE (BRASS)	1 1/4"	THD
122.	CHECK VALVE (BRASS)	1"	THD
123.	HEX REDUCER (BRASS)	2" X 1"	THD
124.	REDUCING TEE (BRASS)	1–1/4" X 1/2"	THD

* 700 EAST ONLY

** SHEET CF–2B

*** SHEET CF–2A; CF–2B

GENERAL SHEET NOTES:

1. BRASS NIPPLES AT CONNECTION POINT TO MAIN PIPELINE TO BE 2" MAX. LENGTH.
2. ALL PIPE JOINTS & FITTINGS TO HAVE RESTRAINED JOINTS.
3. STEEL PIPE TO BE AMERICAN STANDARD B36.10, STANDARD WALL THICKNESS, ASTM A53 GRADE B.
4. PAINT PIPING – SEE SPECIFICATIONS.

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\C–11 FITTING SCHEDULE.DWG
FILE DATE: 10.15.2024 12:01:25 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — STATE OF UTAH — NO. 151898 — MARVIN E. ALLEN — REGISTERED — 10/15/2024

PROJECT ENGINEER

DESIGNED VGC
DRAFTED DRB
CHECKED MEA
DATE JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

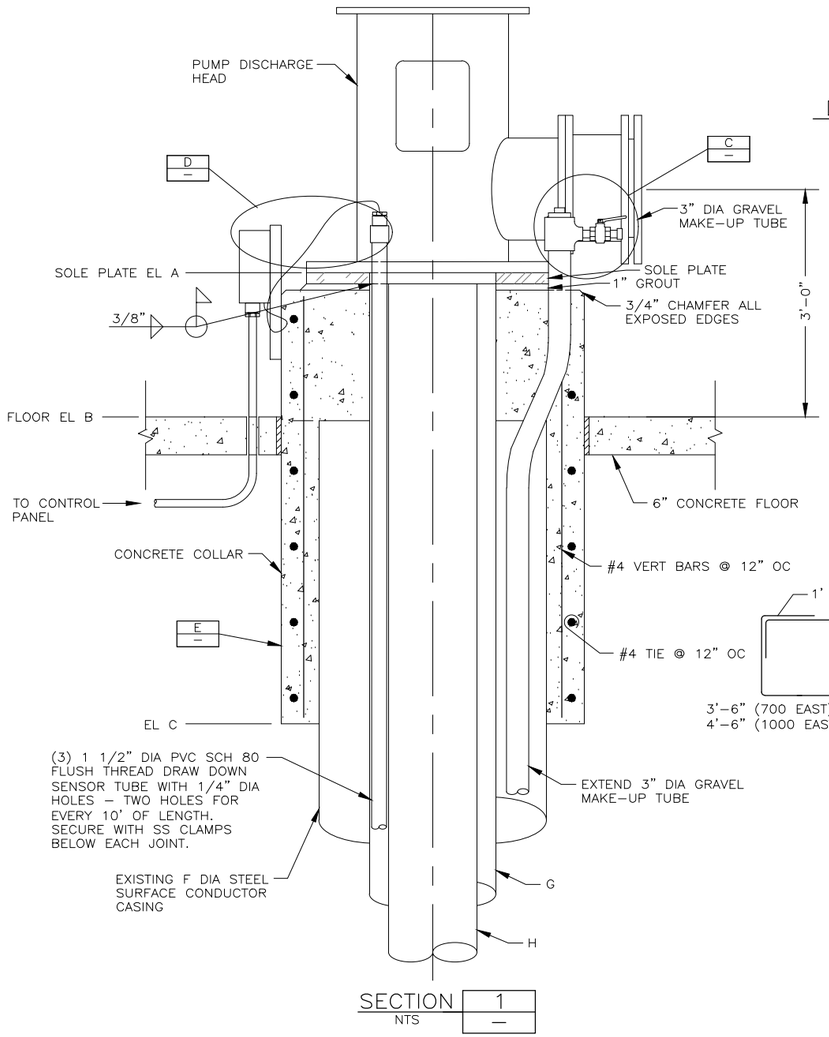
SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

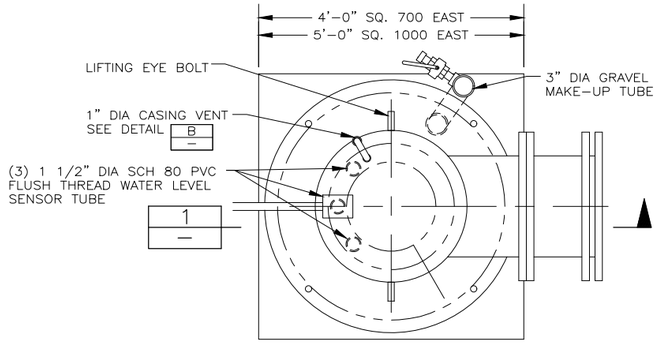
WELL PUMP STATION CONSTRUCTION
CIVIL – TYPICAL
FITTING SCHEDULE

SHEET C–11

127.24.400



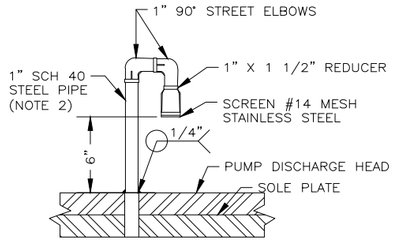
SECTION 1 — NTS



DETAIL 1 — NTS

A	A	A	A	A
C-2	C-3	C-6	C-7	S-4

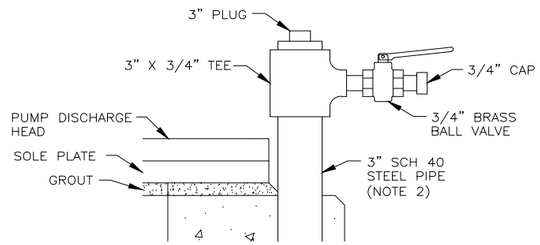
A	A	A	A
C-8	C-9	S-2	S-3



DETAIL NOTE:

PIPING TO BE STEEL SCH 40.

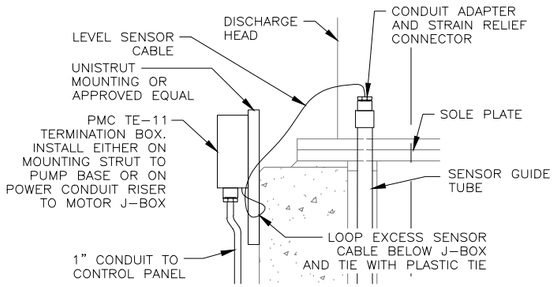
DETAIL B — NTS



DETAIL NOTE:

PIPING TO BE STEEL SCH 40.

DETAIL C — NTS

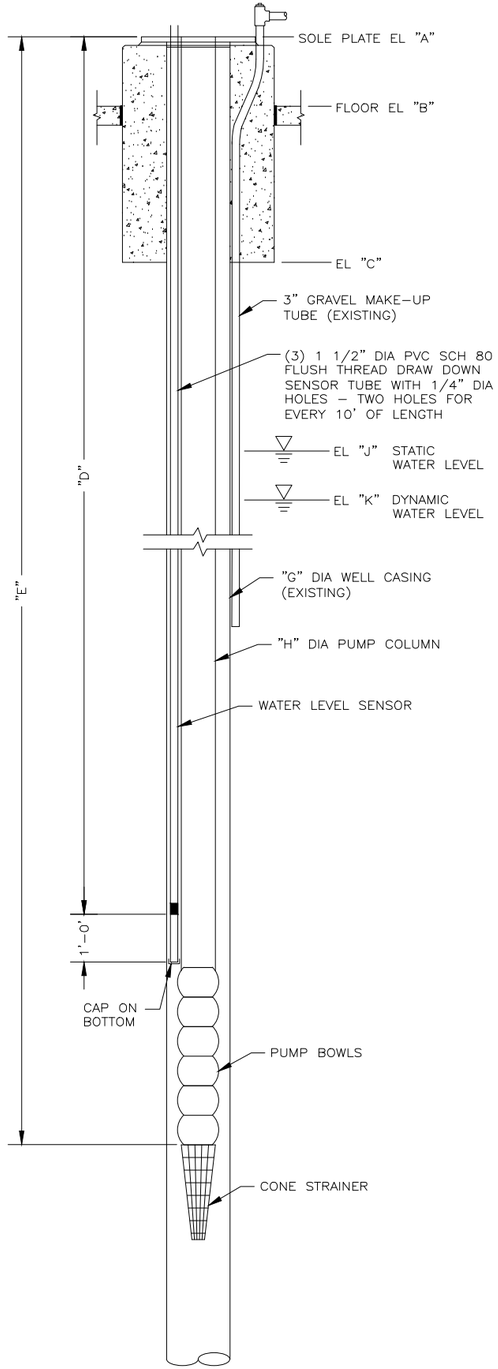


DETAIL D — NTS

LABEL	700 EAST	1000 EAST	DESCRIPTION
A	4452.58	4503.28	TOP OF SOLE PLATE ELEVATION (NOTE 6)
B	4450.75	4501.53	FLOOR ELEVATION
C	4541.41	4492.11	BOTTOM OF CONCRETE BASE
D	380.0'	379.0'	WATER LEVEL SENSOR SETTING
E	390.0'	390.0'	PUMP INTAKE SETTING
F	30" X 0.3125	30" X 0.3125	SURFACE CASING
G	20"	20"	WELL CASING
H	10"	12"	PUMP COLUMN
J	4295.31	4317.10	STATIC WATER LEVEL
K	4109.20	4127.33	DYNAMIC WATER LEVEL

GENERAL SHEET NOTES:

1. EXTEND EXISTING CASINGS AS REQUIRED TO COMPLETE PUMP BASE.
2. ALL EXPOSED STEEL & STEEL PIPE TO BE PAINTED PER SPECIFICATIONS.
3. SHIM PUMP FOR PROPER ALIGNMENT AS DIRECTED BY ENGINEER.
4. CONTRACTOR SHALL NOT INTRODUCE ANY FOREIGN MATERIAL OR CHEMICAL INTO WELL COLUMN WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. SEE SHEET C-15 FOR CATHODIC DEVICES AND APPLICATION.
6. ADJUST SOLE PLATE ELEVATION BASED ON SUPPLIED PUMP DISCHARGE HEAD.



WELL PUMP DETAIL E — NTS

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER — 10/15/2024 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	JDB	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

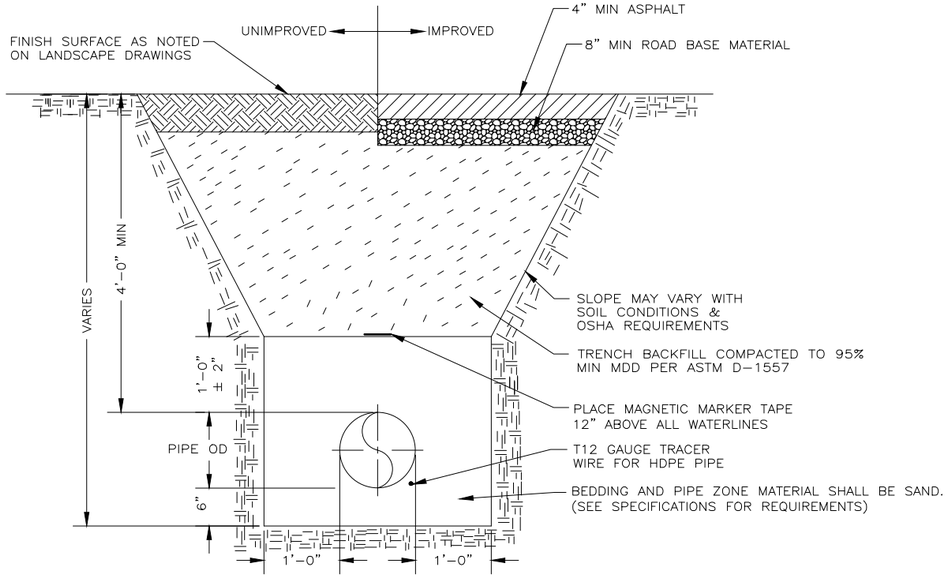
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL - TYPICAL
PUMP BASE & PUMP SETTING DETAILS

SHEET C-12

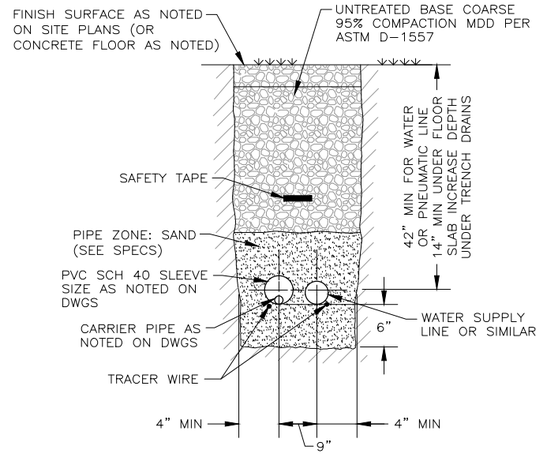
127.24.400

7/04



TYPICAL LARGE PIPELINE TRENCH DETAIL

NTS

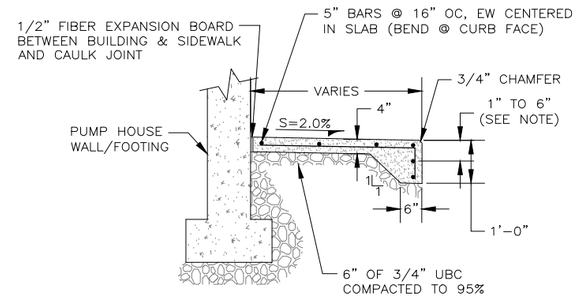


DETAIL NOTES:

1. DETAIL SIMILAR FOR PIPE INSTALLATION WITHOUT SLEEVES & DRAIN LINES FOR DEPTH OR SLOPE NOTED ON DRAWINGS.
2. USE LONG SWEEP BENDS W/ DESIGNATED RADIUS IN ALL SLEEVED PIPE APPLICATIONS.

TYPICAL SMALL DIAMETER PIPELINE TRENCH DETAIL

NTS



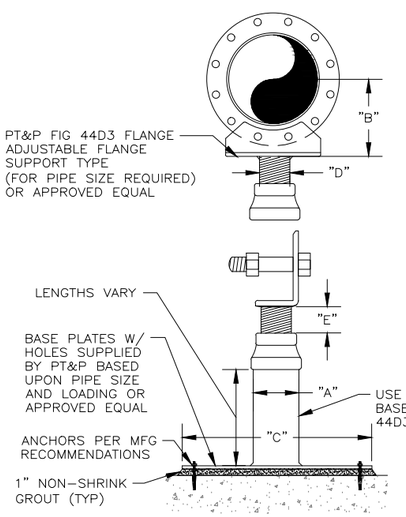
DETAIL NOTE:

REVEAL EDGE OF CONCRETE SLAB IN PAVED AREAS MAY VARY BASED ON PAVEMENT SLOPE REQUIREMENTS FOR DRAINAGE.

THICKENED EDGE SIDEWALK

NTS

A	A
A-2	C-5



(PT&P = PIPING TECHNOLOGY & PRODUCTS, INC.)

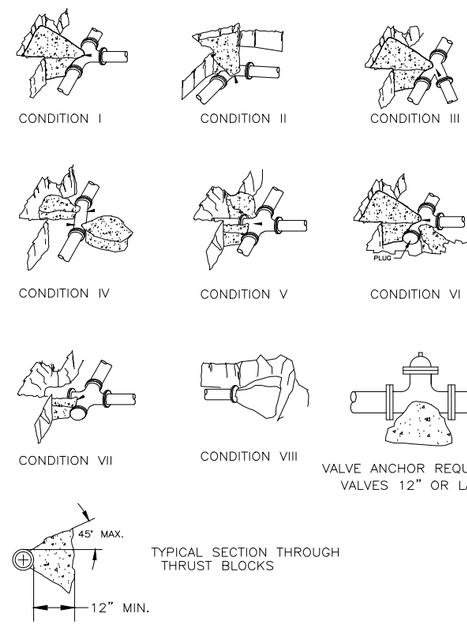
DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C (SQ)	D	E
4	3	4.25	9	2.50	3.75
6	3	5.50	9	2.50	4.75
8	3	6.87	9	2.50	4.75
10	3	8.50	9	2.50	4.75
12	3	9.93	9	2.50	4.75
14	4	10.93	11	3	4.50
16	4	12.37	11	3	4.50
18	6	13.87	13.50	3.50	4.50
24	6	17.31	13.50	4	4.50
36	6	24.50	13.50	4	4.50

"A" = SCHEDULE 40 PIPE DIAMETER. LENGTH CUT ON SITE.
"B" = BASE OF SADDLE TO CENTER OF PIPE
"C" = BASE PLATE (SQUARE) (DRILLED AND SLOTTED FROM PT&P)
"D" = THREADED PIPE ADJUSTER DIAMETER
"E" = TOTAL ALLOWABLE ADJUSTMENT

PIPE SUPPORTS

NTS

B
C-11



THRUST BLOCK BEARING AREA IN SQ. FEET									
NOMINAL PIPE SIZE (IN.)	DIP I.D. (IN).	CONDITION							
		I	II	III	IV	V	VI	VII	VIII
4	4.3	2.2	3.1	1.5	1.7	1.1	2.2	3.1	2.2
6	6.4	4.8	6.8	3.4	3.7	2.4	4.8	6.8	4.8
8	8.6	8.6	12.2	6.1	6.6	4.3	8.6	12.2	8.6
10	10.6	13.2	18.6	9.3	10.1	6.6	13.2	18.6	13.2
12	12.6	18.8	26.6	13.3	14.4	9.4	18.8	26.6	18.8
14	14.7	25.6	36.2	18.1	19.6	12.8	25.6	36.2	25.6
16	16.8	33.3	47.0	23.5	25.4	16.7	33.3	47.0	33.3
18	18.9	42.0	59.4	29.7	32.1	21.0	42.0	59.4	42.0
20	20.9	51.7	73.1	36.5	39.5	25.9	51.7	73.1	51.7
24	25.1	74.0	104.6	52.3	56.6	37.0	74.0	104.6	74.0
30	31.2	114.4	161.8	80.9	87.5	57.2	114.4	161.8	114.4
36	37.5	164.4	232.5	116.3	125.9	82.2	164.4	232.5	164.4

DETAIL NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. CONCRETE SHALL BE CLASS 6.0-B-3000.
3. ALL THRUST BLOCK SIDES SHALL BE FORMED.
4. CALCULATED ON 200 LB. TEST PRESSURE AND ALLOWABLE BEARING PRESSURE OF 2000 LBS. PER SQUARE FOOT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. THRUST RESTRAINT TO INCLUDE THRUST BLOCK AND JOINT RESTRAINT AT ALL BENDS.

TYPICAL THRUST BLOCK DETAILS

NTS

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-13 TYPICAL DETAILS.DWG
FILE DATE: 10.15.2024 12:04:27 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH — PROJECT ENGINEER

DESIGNED	VGC
DRAFTED	JRB
CHECKED	MEA
DATE	JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

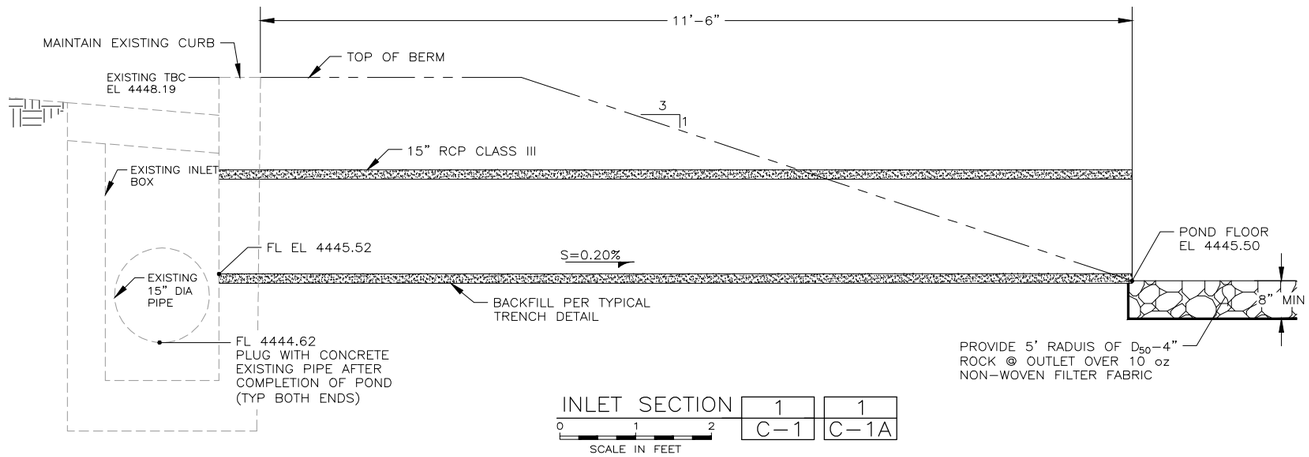
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL - TYPICAL MISCELLANEOUS DETAILS

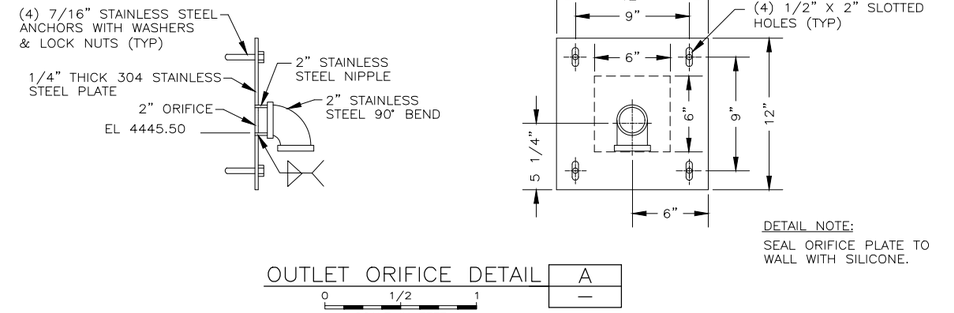
SHEET C-13

127.24.400



INLET SECTION | 1 / C-1 | 1 / C-1A

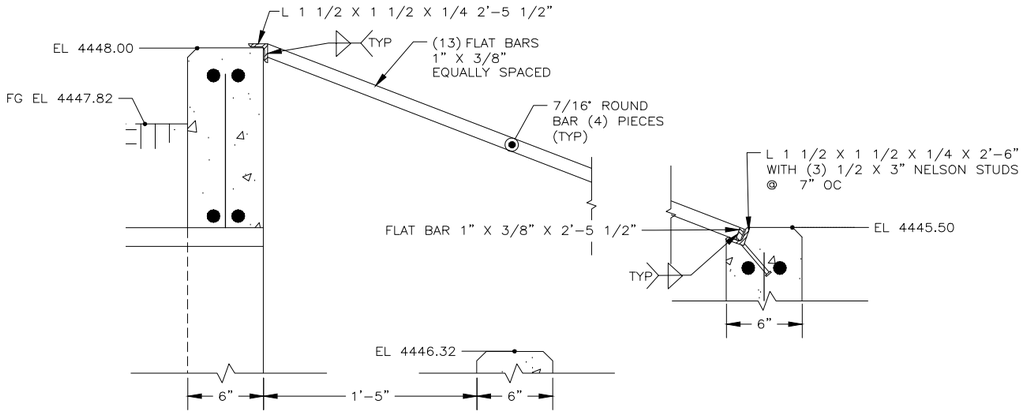
SCALE IN FEET



OUTLET ORIFICE DETAIL | A / —

0 1/2 1

SCALE IN FEET



GRATING CONNECTION DETAIL | C / —

0 1/2 1

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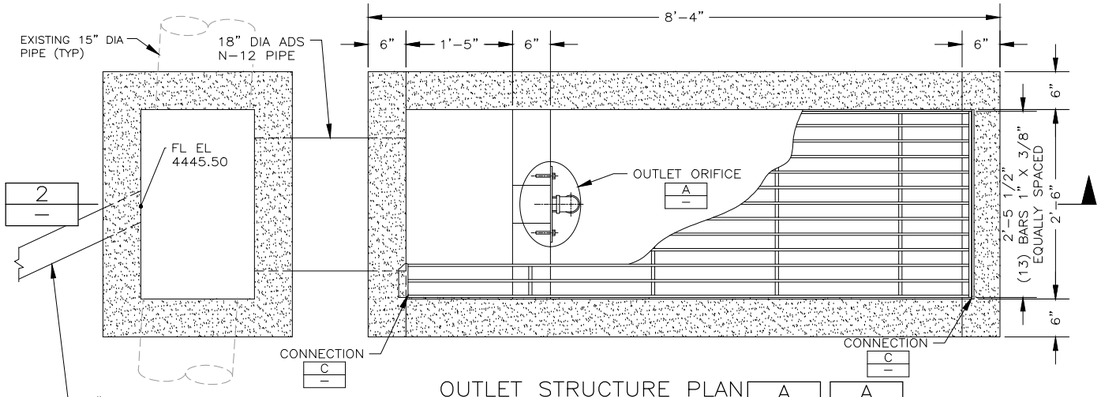
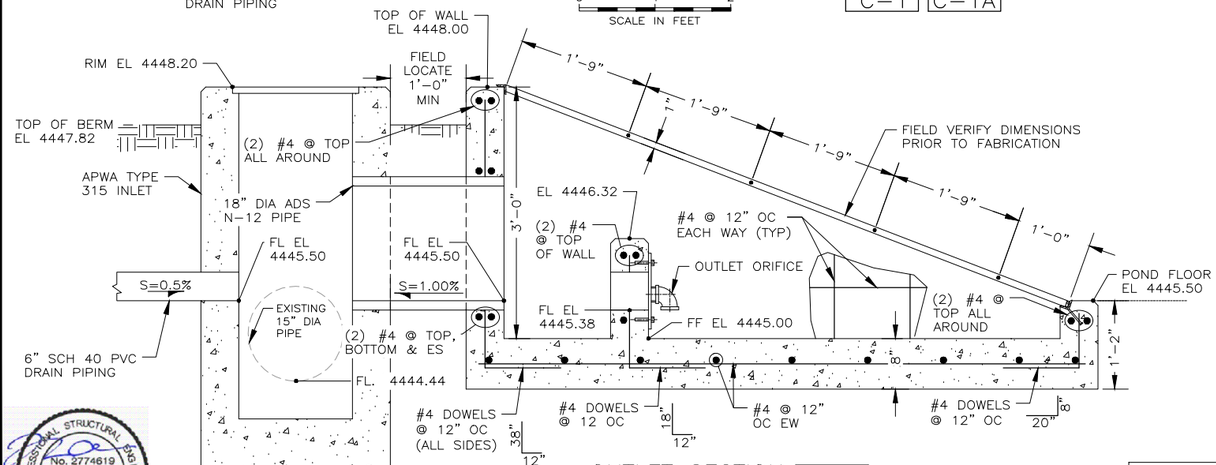


OUTLET STRUCTURE PLAN | A / C-1 | A / C-1A

0 1 2

SCALE IN FEET



OUTLET SECTION | 2 / —

0 1 2

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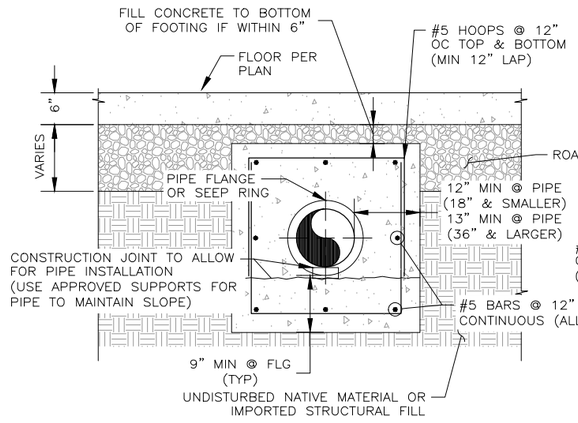
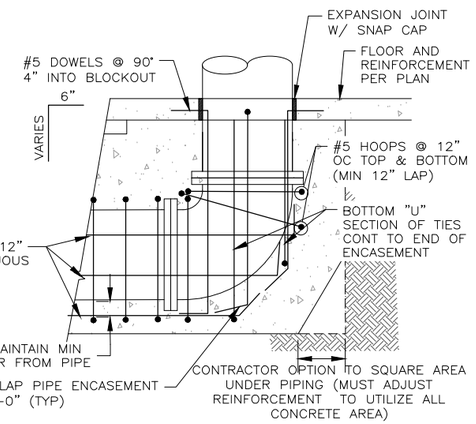




DETAIL NOTE:

MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND CONCRETE ENCASEMENT REINFORCEMENT.

GENERAL SHEET NOTE:

ALL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

TYPICAL PIPE ENCASEMENT | B / C-3 | B / C-4 | B / C-5 | B / CF-2B | B / S-2

NTS

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — 10/7/2024 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3		
DRAFTED	DRB		2		
CHECKED	MEA	RCC	1		
DATE	JUNE 2024		NO.	DATE	REVISIONS

BY | APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

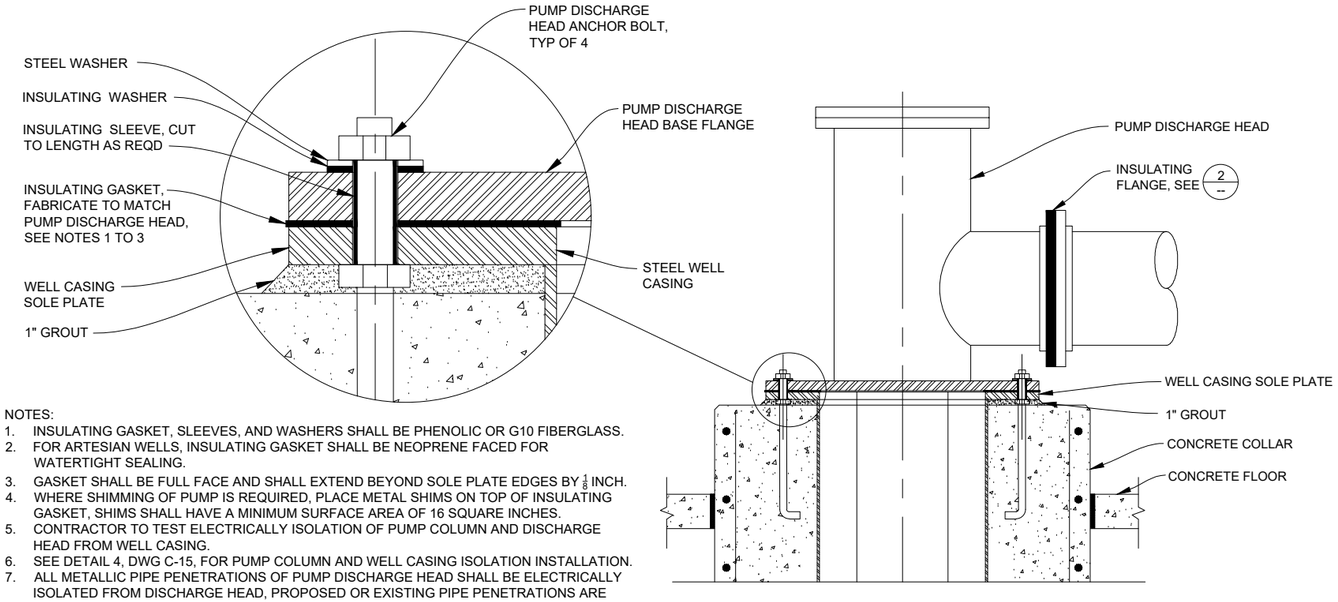
WELL PUMP STATION CONSTRUCTION
CIVIL – TYPICAL
INLET/OUTLETS DETAILS

SHEET C-14

127.24.400

FILE NAME: PROJECTS\127.400 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\C-14 INLET OUTLE DETAILS.DWG
FILE DATE: 10.15.2024 12:06:04 (BKC)

7/04

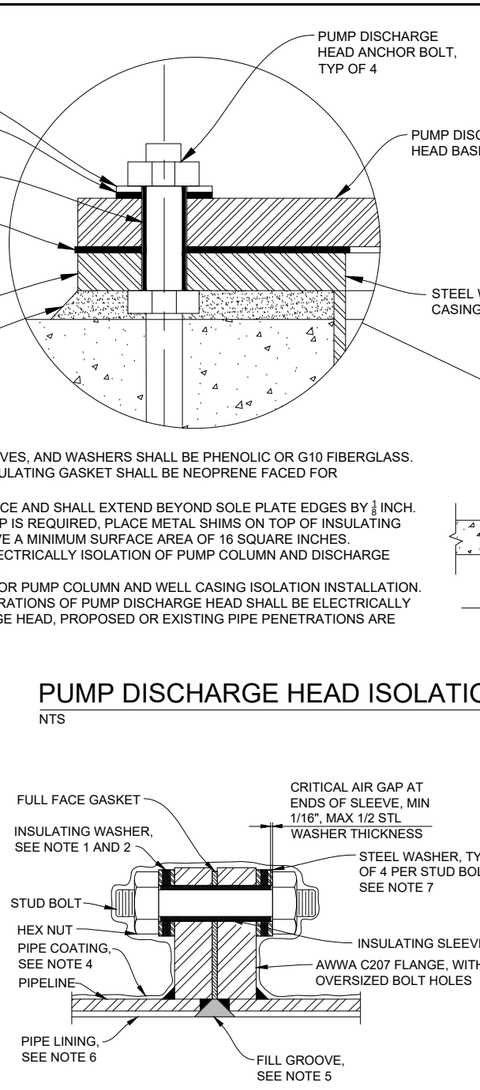


NOTES:
1. INSULATING GASKET, SLEEVES, AND WASHERS SHALL BE PHENOLIC OR G10 FIBERGLASS.
2. FOR ARTESIAN WELLS, INSULATING GASKET SHALL BE NEOPRENE FACED FOR WATERTIGHT SEALING.
3. GASKET SHALL BE FULL FACE AND SHALL EXTEND BEYOND SOLE PLATE EDGES BY $\frac{1}{8}$ INCH.
4. WHERE SHIMMING OF PUMP IS REQUIRED, PLACE METAL SHIMS ON TOP OF INSULATING GASKET, SHIMS SHALL HAVE A MINIMUM SURFACE AREA OF 16 SQUARE INCHES.
5. CONTRACTOR TO TEST ELECTRICALLY ISOLATION OF PUMP COLUMN AND DISCHARGE HEAD FROM WELL CASING.
6. SEE DETAIL 4, DWG C-15, FOR PUMP COLUMN AND WELL CASING ISOLATION INSTALLATION.
7. ALL METALLIC PIPE PENETRATIONS OF PUMP DISCHARGE HEAD SHALL BE ELECTRICALLY ISOLATED FROM DISCHARGE HEAD, PROPOSED OR EXISTING PIPE PENETRATIONS ARE NOT SHOWN.

PUMP DISCHARGE HEAD ISOLATION

NTS

1	1
C-3	C-8



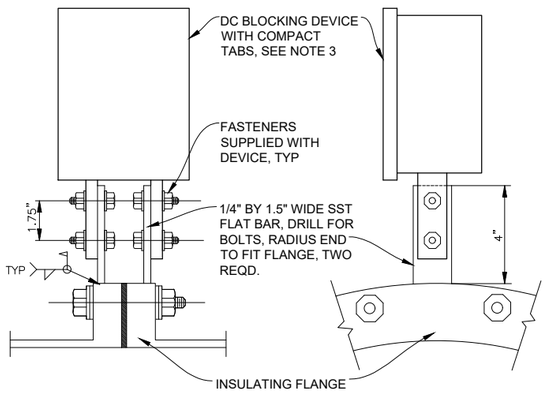
NOTES:

1. DOUBLE INSULATING WASHER SET FOR VAULT OR EXPOSED FLANGES.
2. SINGLE INSULATING WASHER SET FOR BURIED OR SUBMERGED FLANGES, PLACE INSULATORS ON UNPROTECTED SIDE OF FLANGE.
3. TEST COMPLETED JOINT FOR ELECTRICAL ISOLATION AS SPECIFIED AND REPAIR AS REQUIRED.
4. COAT BURIED OR IMMERSED INSULATING FLANGES FOR 12-INCHES MINIMUM ON EACH SIDE OF FLANGE WITH PIPELINE DIELECTRIC JOINT COATING OR HEAT SHRINK SLEEVE, INCLUSIVE OF OVERCOATING CEMENT MORTAR.
5. FILL INTERIOR GAP BETWEEN FLANGES WITH DIELECTRIC FILLER OR SEALANT COMPATIBLE WITH SPECIFIED PIPE LINING.
6. EXTEND SPECIFIED PIPE LINING TO FACE OF FLANGE AND COAT INTERIOR OF MORTAR LINED PIPE FOR TWO PIPE DIAMETERS WITH NSF APPROVED EPOXY AT 20 MILS DFT.
7. FOR PIPE LESS THAN 36-INCHES DIAMETER, DELETE INNER STEEL WASHERS.
8. PROVIDE DC BLOCKER WHERE INDICATED ON DRAWINGS, SEE DETAIL 6, SHEET C-14

INSULATING FLANGE

NTS

2	2	2	2
C-3	C-4	C-8	ST-1



FRONT VIEW SIDE VIEW

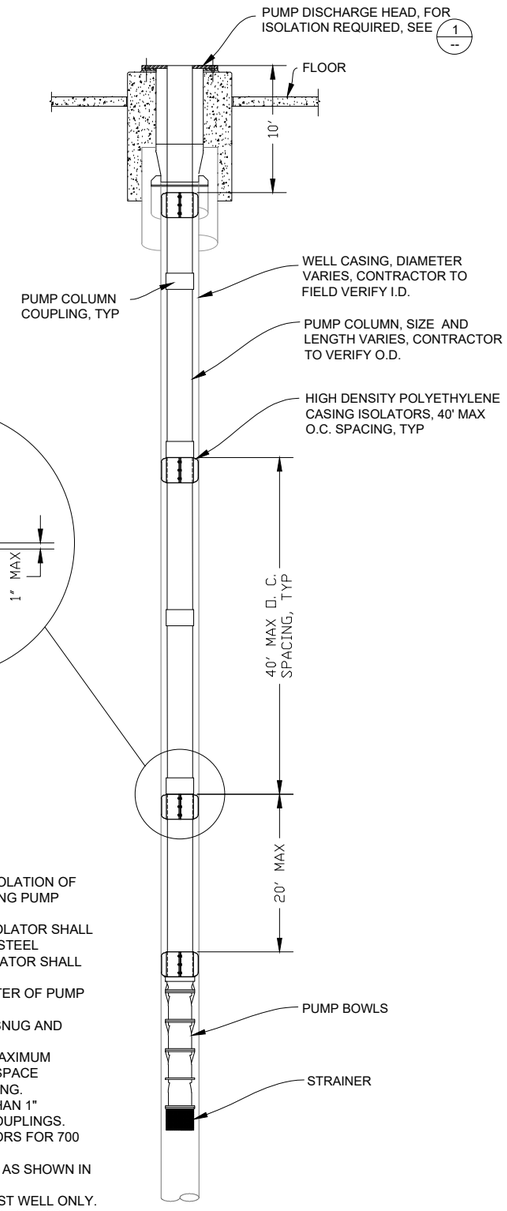
NOTES:

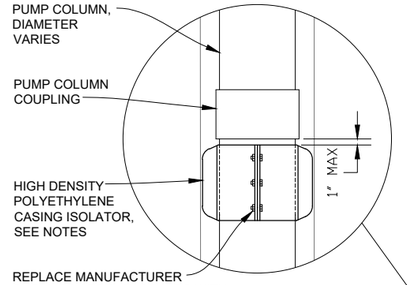
1. DO NOT COAT MOUNTING PLATES, FASTENERS, OR DEVICE TABS AFTER ASSEMBLY, CLEAN AND COAT WELD ONLY.
2. NEGATIVE TAB OF DC BLOCKING DEVICE TO BE ON CATHODICALLY PROTECTED SIDE OF INSULATING FLANGE.
3. COMPACT TABS ON BLOCKING DEVICE SHOWN FOR TOP OR VERTICAL FLANGE, USE STANDARD TABS FOR MOUNTING AT PIPE SPRINGLINE OR HORIZONTAL FLANGE.
4. MOUNT ON TOP OF 48-INCH OR SMALLER PIPE.
5. MOUNT AT SPRINGLINE OF 54-INCH OR LARGER PIPE.

DC BLOCKING DEVICE FLANGE MOUNT

NTS

3	3
C-3	C-8





NOTES:

1. CONTRACTOR TO TEST ELECTRICALLY ISOLATION OF PUMP COLUMN FROM WELL CASING DURING PUMP COLUMN INSTALLATION.
2. ALL METALLIC HARDWARE ON CASING ISOLATOR SHALL BE TYPE 304 STAINLESS STEEL, CARBON STEEL FASTENERS SUPPLIED WITH CASING ISOLATOR SHALL NOT BE ALLOWED.
3. CONTRACTOR TO VERIFY ACTUAL DIAMETER OF PUMP COLUMN FOR CASING SPACER SIZING.
4. INSTALLED CASING ISOLATOR SHALL BE SNUG AND SHALL NOT SLIDE ON PUMP COLUMN.
5. CASING ISOLATOR RUNNERS SHALL BE MAXIMUM LENGTH THAT CAN FIT WITHIN ANNULAR SPACE BETWEEN PUMP COLUMN AND WELL CASING.
6. CASING RUNNERS SHALL BE NOT LESS THAN 1" GREATER THAN THE MAXIMUM O.D. OF COUPLINGS. OUTSIDE DIAMETER FOR CASING ISOLATORS FOR 700 EAST SHALL NOT BE GREATER THAN 14" .
7. PUMP DISCHARGE HEAD TO BE ISOLATED AS SHOWN IN DETAIL 1, DWG C-15.
8. PROVIDE CASING ISOLATORS FOR 700 EAST WELL ONLY. CASING ISOLATORS NOT TO BE PROVIDED FOR 1000 EAST WELL.

PUMP COLUMN AND WELL CASING ISOLATION

NTS

4	4
C-3	C-8

HANSEN ALLEN & LUCE Inc ENGINEERS

PROFESSIONAL ENGINEER 10/ 2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED VGC	3					
DRAFTED	2					
CHECKED MEA	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

SCALE AS SHOWN

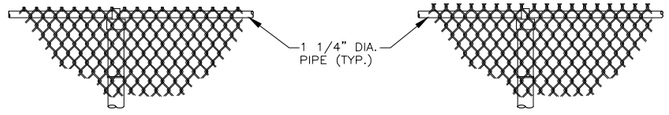
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL
ELECTRICAL ISOLATION DETAILS

SHEET C-15

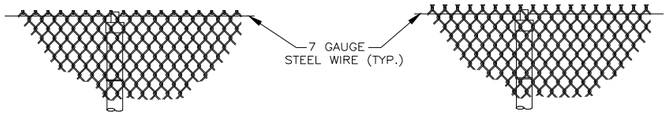
127.24.400

7/04



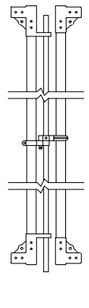
KNUCKLED SELVAGE
TYPE I

TWISTED & BARBED SELVAGE
TYPE II

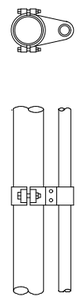


KNUCKLED SELVAGE WITH TENSION WIRE
TYPE III

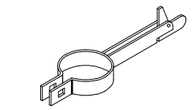
TWISTED & BARBED SELVAGE WITH TENSION WIRE
TYPE IV



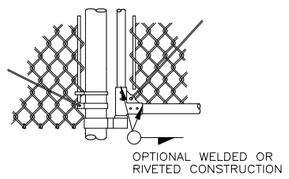
DROP ROD ASSEMBLY



TOP GATE HINGE



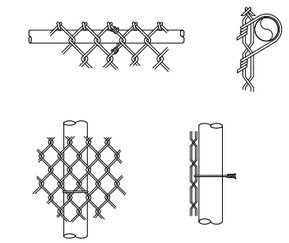
GATE KEEPER



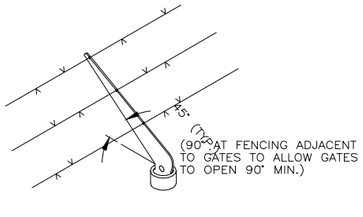
BOTTOM GATE HINGE AND GATE DETAIL

NOTES:

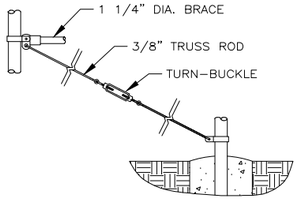
1. MATERIALS, CONSTRUCTION, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PROJECT STANDARD SPECIFICATIONS.
2. USE TYPE II TOP SUPPORT.
3. BARB SIRE SHALL BE USED ONLY WHEN DESIGNATED ON THE PLANS OR IN THE SPECIFICATIONS.
4. TWISTED AND BARBED SELVAGE TOP AND BOTTOM SHALL BE USED ON FENCES 5–FEET HIGH OR GREATER.
5. KNUCKLED SELVAGE ON TOP AND TWISTED AND BARBED ON BOTTOM SHALL BE USED ON FENCES LESS THAN 5–FEET.
6. ALL STEEL PIPE MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION F 1083 SCHEDULE 40 HOT DIPPED ZINC COATED HIGH TENSILE STEEL PIPE OR TRIPLE COATED PIPE MADE FROM STEEL CONFORMING TO ASTM F 1043.
7. POSTS SHALL BE STEEL SCHEDULE 40 PIPE OR TRIPLE COATED HIGH TENSILE STEEL PIPE OF THE SIZE SHOWN IN THE CHART. WEIGHT IN POUNDS PER FOOT WITH A TOLERANCE OF 5%.
8. LINE POSTS SHALL BE LOCATED AT EQUAL SPACING FOR EACH SEGMENT WITH A MAXIMUM SPACING AS FOLLOWS:
   A. TANGENT SECTIONS TO 500–FOOT RADIUS NOT MORE THAN 10–FEET.
   B. UNDER 500–FOOT RADIUS TO 200–FOOT RADIUS NOT MORE THAN 8–FEET.
   C. UNDER 200–FOOT RADIUS TO 100–FOOT RADIUS NOT MORE THAN 6–FEET.
   D. UNDER 100–FOOT RADIUS NOT MORE THAN 5–FEET.
9. TRUSS RODS AND BRACES SHALL NOT BE REQUIRED FOR FABRIC HEIGHT LESS THAN 5–FEET.
10. TENSION WIRE SHALL BE 7 GAUGE ZINC– OR ALUMINUM–COATED COIL SPRING STEEL TENSION WIRE.
11. ALL PIPES, WIRES AND FABRICS TO BE BLACK VINYL COATED PVC.



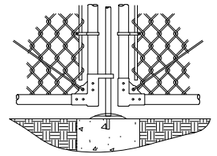
PIPE POST TIE



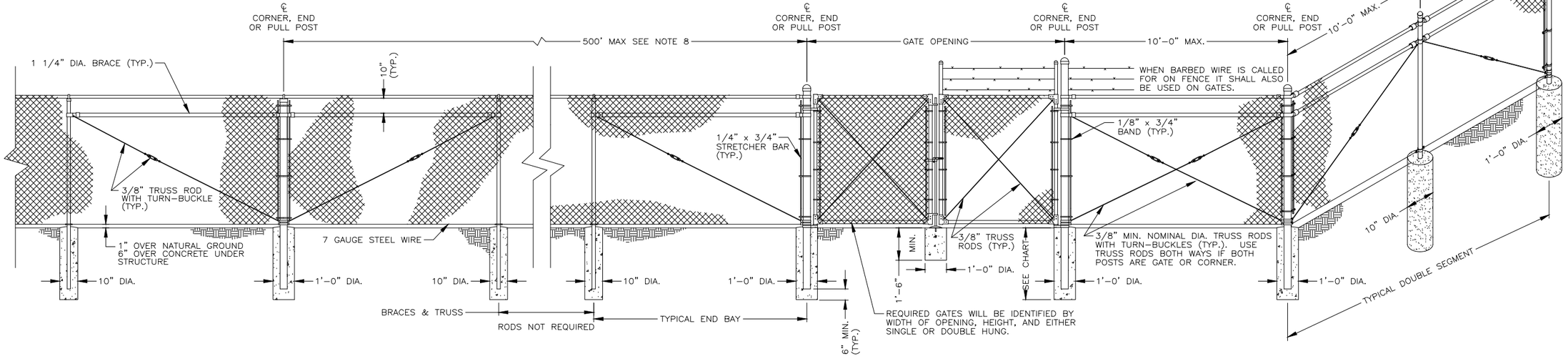
COMBINATION CAP AND BARBED WIRE SUPPORTING ARM



BRACE AND TRUSS CONNECTIONS



CENTER GATE STOP AND GATE DETAIL



HEIGHT	GATE OPENING	GATE POST	GATE FRAME
UNDER 6 FEET	SINGLE TO 6' OR DOUBLE TO 12'	2"	1"
	SINGLE OVER 6' TO 8' OR DOUBLE OVER 12' TO 16'	2 1/2"	1 1/2"
	SINGLE OVER 8' TO 12' OR DOUBLE 16' TO 24'	3 1/2"	
6 FEET AND OVER	SINGLE OVER 6' OR DOUBLE TO 12'	2 1/2"	1 1/2"
	SINGLE OVER 6' TO 12' OR DOUBLE OVER 12' TO 24'	3 1/2"	
	SINGLE OVER 12' TO 18' OR DOUBLE OVER 24' TO 36'	6"	
	SINGLE OVER 18' OR DOUBLE OVER 36'	8"	

CHAIN LINK FENCE | A | C–1

HEIGHT OF FABRIC	DEPTH OF POSTS	LENGTH OF END, CORNER OR PULL POST	LENGTH OF LINE POST HOLES	SIZE OF POSTS							
				END, CORNER, & PULL POSTS				LINE POST MIN. SIZE			
				NOM. SIZE	OUTSIDE DIA.	PIPE WEIGHT ASTM A–120	PIPE WEIGHT TRIPLE COATED	NOM. SIZE	OUTSIDE DIA.	PIPE WEIGHT ASTM A–120	PIPE WEIGHT TRIPLE COATED
7'	3'	10'	9'–8"	2 1/2"	2.875"	5.79	4.64	2"	2.375"	3.65	3.11
6'	3'	9'	8'–8"	2 1/2"	2.875"	5.79	4.64	2"	2.375"	3.65	3.11
5'	3'	8'	7'–8"	2"	2.375"	3.65	3.11	1 1/2"	1.900"	2.72	2.23
4'	3'	6'	5'–8"	2"	2.375"	3.65	3.11	1 1/2"	1.900"	2.72	2.23
3'	3'	5'	4'–8"	2"	2.375"	3.65	3.11	1 1/2"	1.900"	2.72	2.23

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN ALLEN & LUCE inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3			
DRAFTED	MAJ		2			
CHECKED	MEA	RCC	1			
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY APVD.

SCALE
NOT TO SCALE

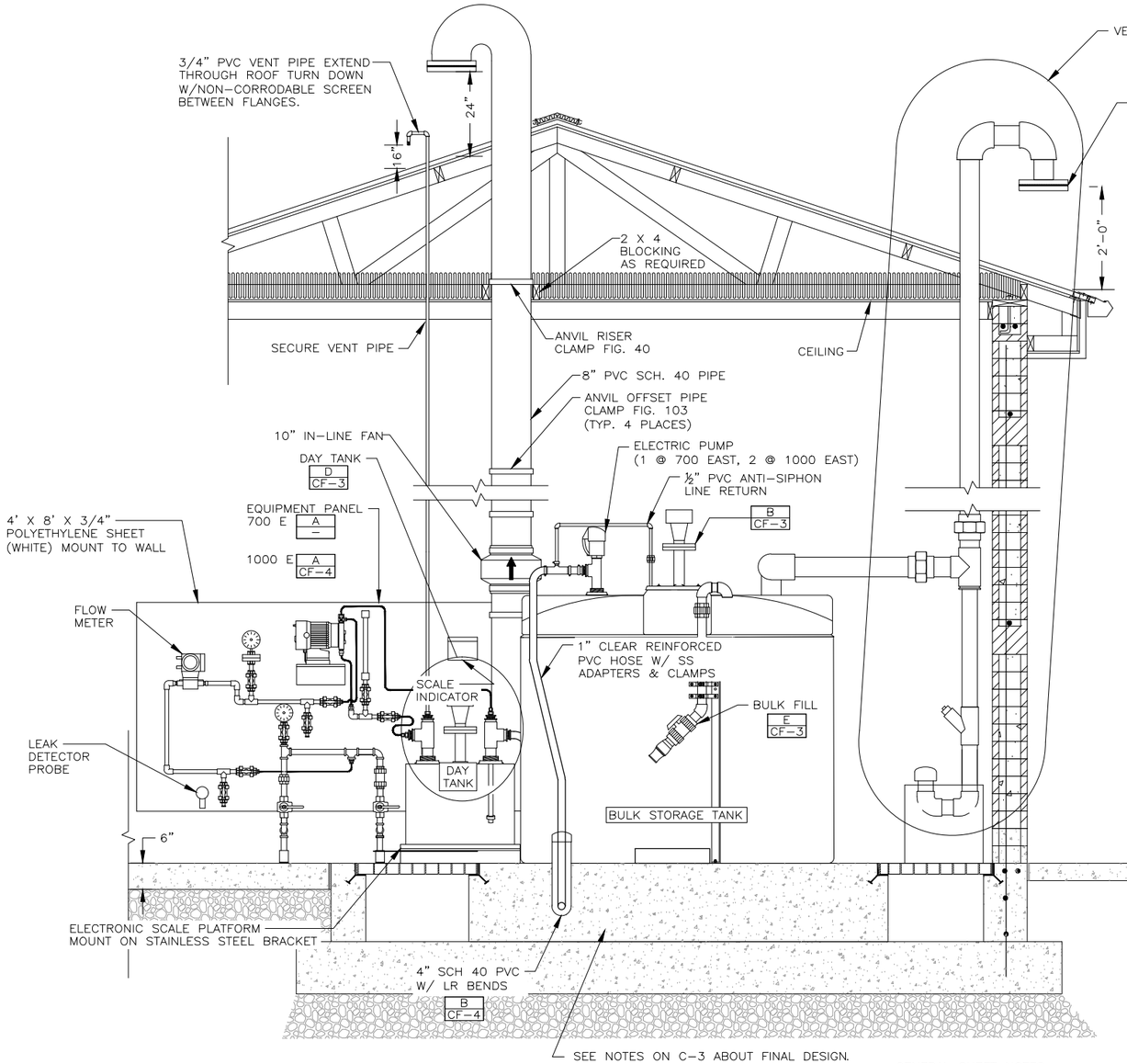
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CIVIL
CHAIN LINK FENCING & DETAILS

SHEET
C–16
127.24.400

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\C–16 CHAIN LINK FENCING & DETAILS.DWG
FILE DATE: 6.17.2024 14:14:03 (MAJ)

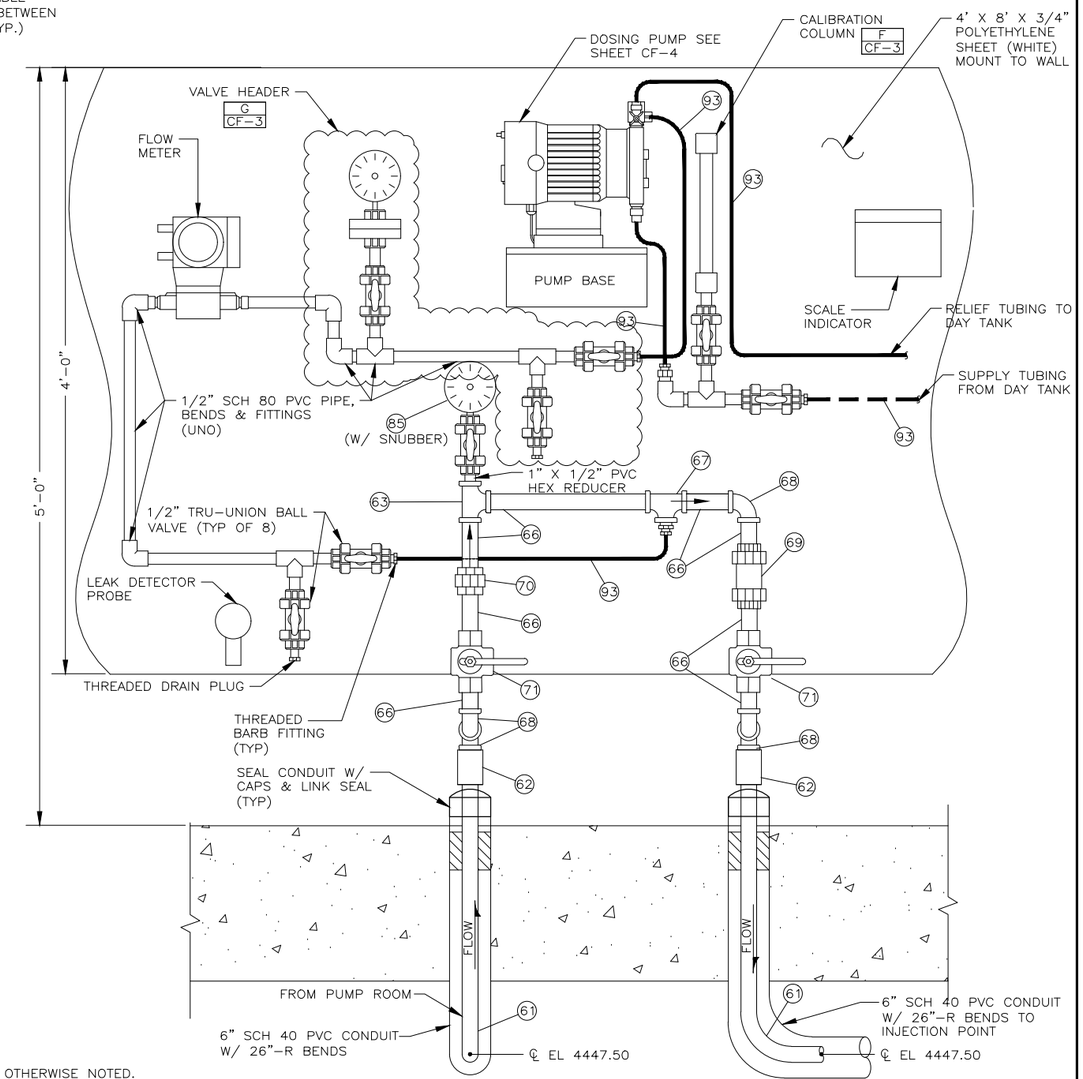
7/04



CHLORINATION EQUIPMENT SCHEMATIC — 1 / C-2

NTS

SEE FLOOR PLAN C-2 FOR 700 EAST LAYOUT



700 EAST EQUIPMENT PANEL W/ DOSING PUMP — A / — | A / C-2

NTS

GENERAL SHEET NOTES:

1. ALL PIPE TO BE PVC SCH 80, (UNO) UNLESS OTHERWISE NOTED.
2. MOUNT PIPING WITH FIBERGLASS UNISTRUT, ENDUROSTRUT OR 316 SS, OR APPROVED EQUAL.
3. ALL TUBING (UNLESS SPECIFIED OTHERWISE ON DRAWING) SHALL BE TEFLON PFA TUBING
4. HOSE SHALL BE CLEAR REINFORCED PVC WITH DOUBLE CLAMPS
5. ALL PENETRATIONS INTO DAY TANK AND BULK STORAGE TANK TO BE SEALED AIR TIGHT. ALL OTHER FITTINGS AND CONNECTIONS TO BE SEALED AIR TIGHT.
6. PAINT ALL EXTERIOR PVC PIPE.
7. SEE SHEET C-11 FOR PIPING SCHEDULE.
8. MOUNT PIPING WITH FIBERGLASS UNISTRUT OR APPROVED EQUAL.

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	CAH	2			
CHECKED	MEA	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

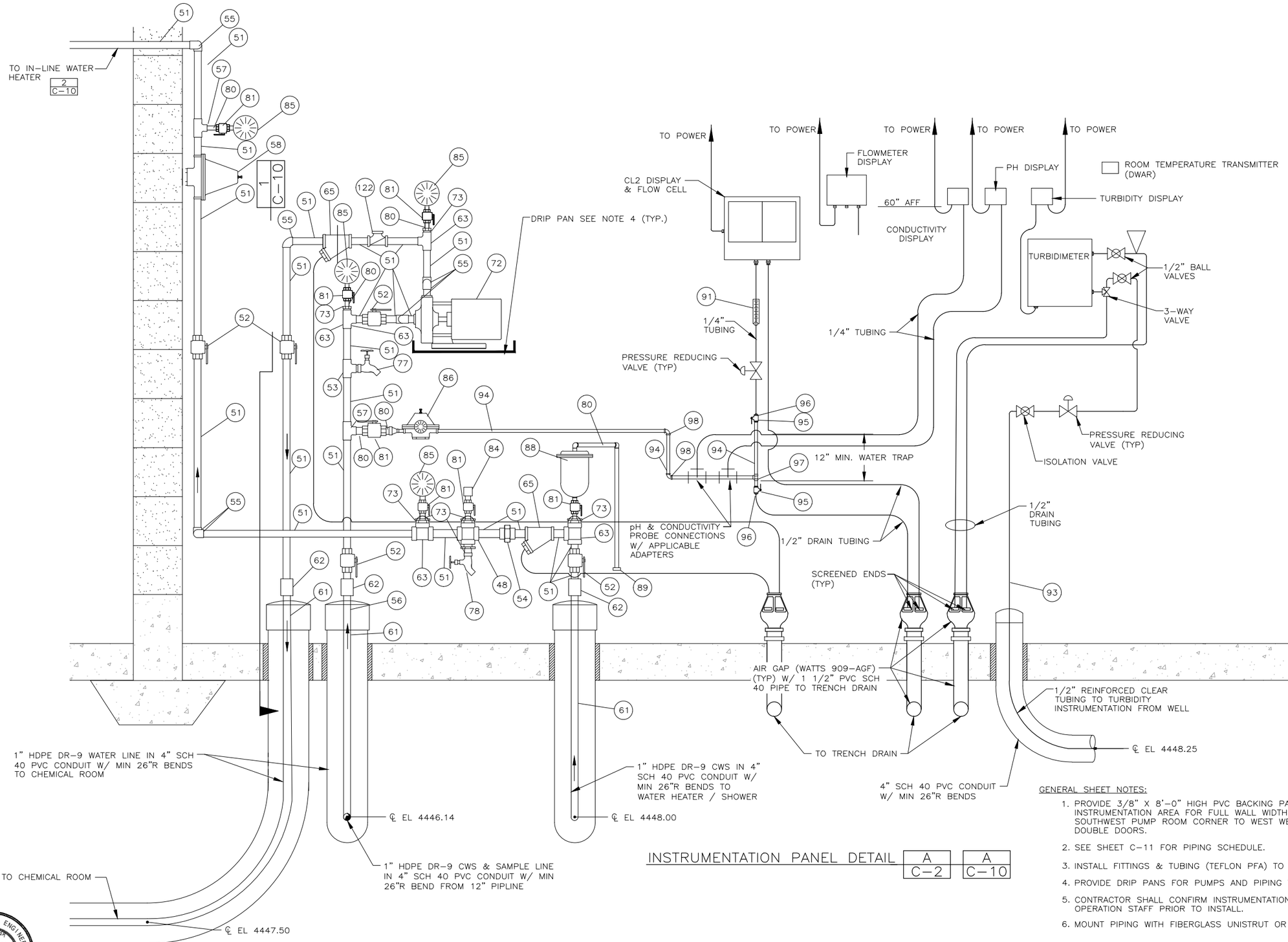
WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS — 700 EAST
CHEMICAL EQUIPMENT SYSTEMS

SHEET CF-1

127.24.400

FILE NAME: PROJECTS\127 — JVWCD\24.400 — 10TH & 7TH FINALIZATION\CAD\CF-1 CHEMICAL STRUCTURAL.DWG
FILE DATE: 10.15.2024 13:48:41 (BKO)

7/04



INSTRUMENTATION PANEL DETAIL | A C-2 | A C-10

GENERAL SHEET NOTES:

1. PROVIDE 3/8" X 8'-0" HIGH PVC BACKING PANELS BEHIND INSTRUMENTATION AREA FOR FULL WALL WIDTH FROM SOUTHWEST PUMP ROOM CORNER TO WEST WELL ACCESS DOUBLE DOORS.
2. SEE SHEET C-11 FOR PIPING SCHEDULE.
3. INSTALL FITTINGS & TUBING (TEFLON PFA) TO MATCH EQUIPMENT.
4. PROVIDE DRIP PANS FOR PUMPS AND PIPING TO DRAIN.
5. CONTRACTOR SHALL CONFIRM INSTRUMENTATION LAYOUT WITH JVWCD OPERATION STAFF PRIOR TO INSTALL.
6. MOUNT PIPING WITH FIBERGLASS UNISTRUT OR 316 SS UNISTRUT.

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH — 11/30/24

DESIGNED	VGC
DRAFTED	BKC
CHECKED	MEA
DATE	JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: AS SHOWN

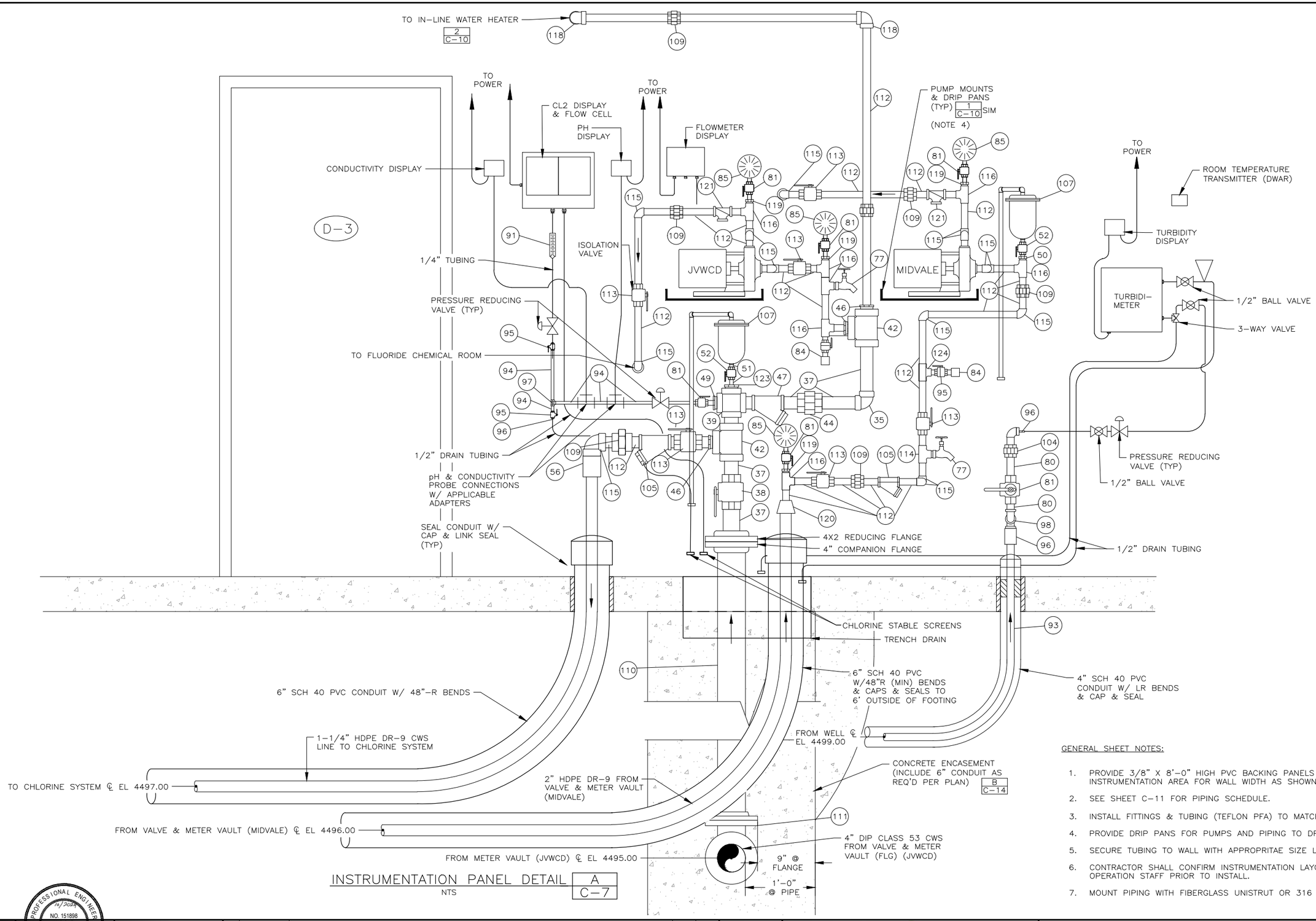
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
700 EAST – INSTRUMENTATION PANEL

SHEET CF-2A

127.24.400

7/04



INSTRUMENTATION PANEL DETAIL A C-7
NTS

GENERAL SHEET NOTES:

1. PROVIDE 3/8" X 8'-0" HIGH PVC BACKING PANELS BEHIND INSTRUMENTATION AREA FOR WALL WIDTH AS SHOWN ON SHEET C-7.
2. SEE SHEET C-11 FOR PIPING SCHEDULE.
3. INSTALL FITTINGS & TUBING (TEFLON PFA) TO MATCH EQUIPMENT.
4. PROVIDE DRIP PANS FOR PUMPS AND PIPING TO DRAIN.
5. SECURE TUBING TO WALL WITH APPROPRITAE SIZE LOOP CLAMPS.
6. CONTRACTOR SHALL CONFIRM INSTRUMENTATION LAYOUT WITH JVWCD OPERATION STAFF PRIOR TO INSTALL.
7. MOUNT PIPING WITH FIBERGLASS UNISTRUT OR 316 SS UNISTRUT.

FILE NAME:PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\CF-2B 10TH EAST PANEL DETAILS.DWG
FILE DATE: 10.15.2024 12:27:45 (BKC)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER NO. 151898 MARVIN E. ALLEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

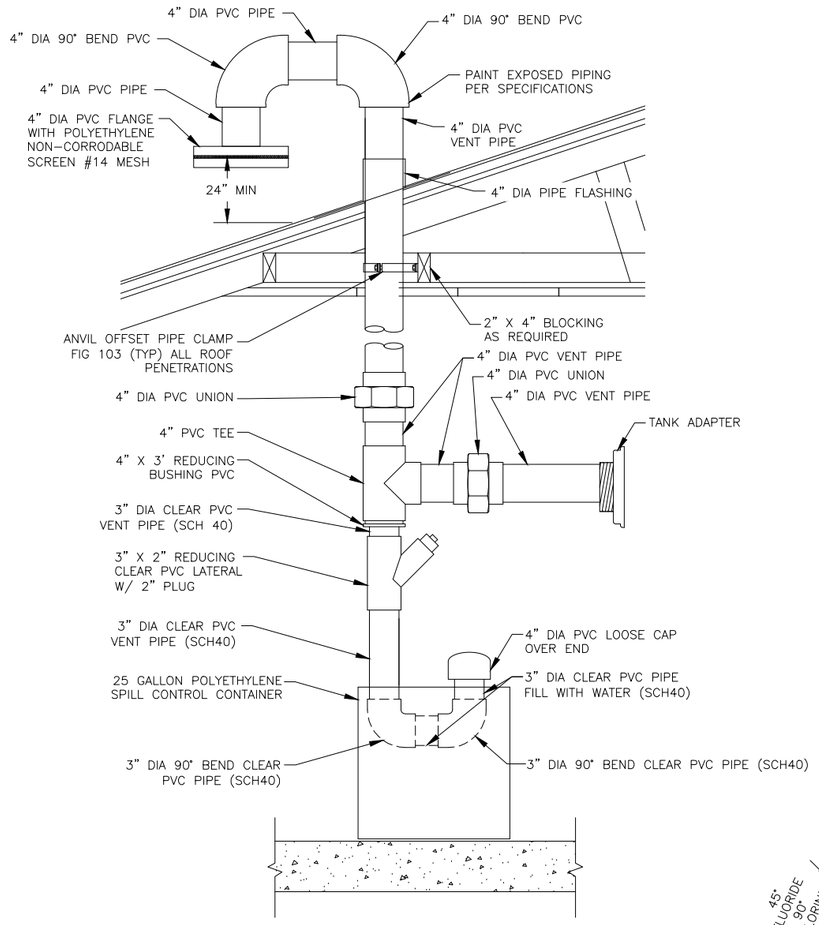
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

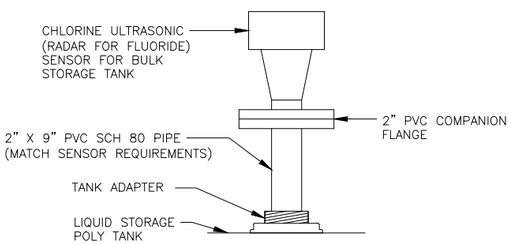
WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
1000 EAST – INSTRUMENTATION PANEL

SHEET CF-2B
127.24.400

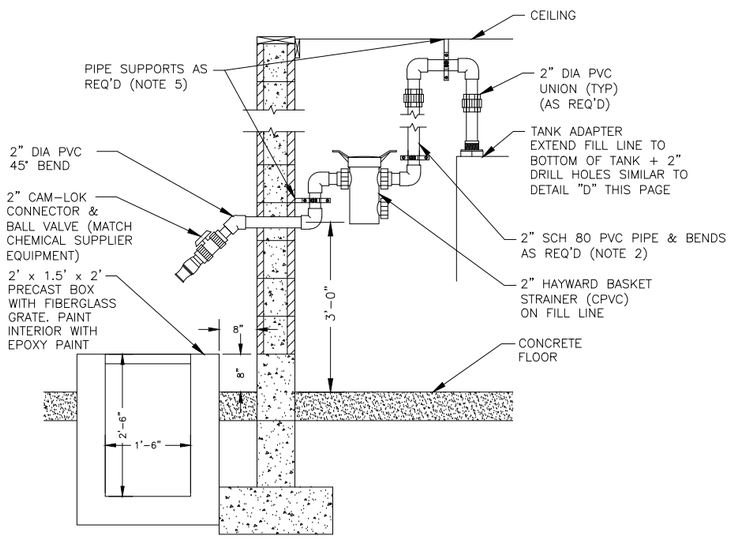
7/04



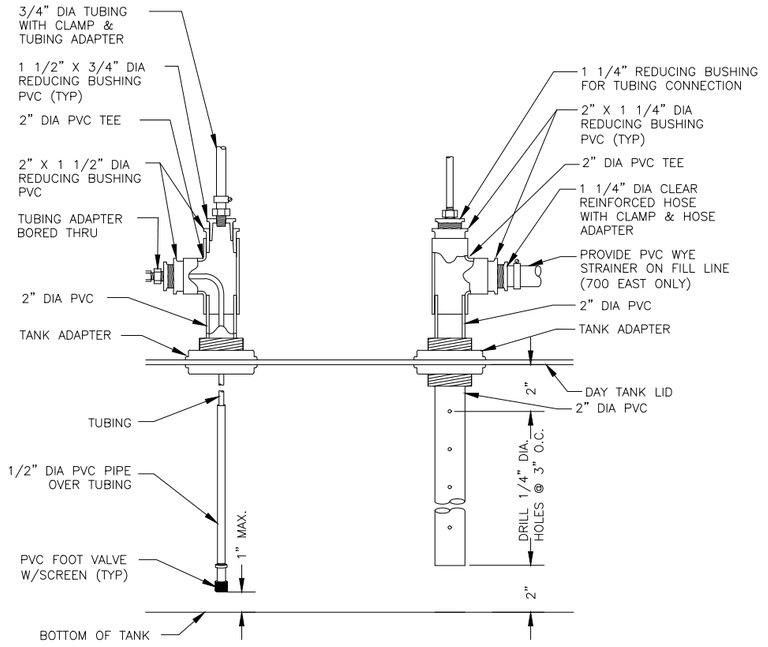
TYPICAL VENT & OVERFLOW DETAIL | C CF-1 | C C-3



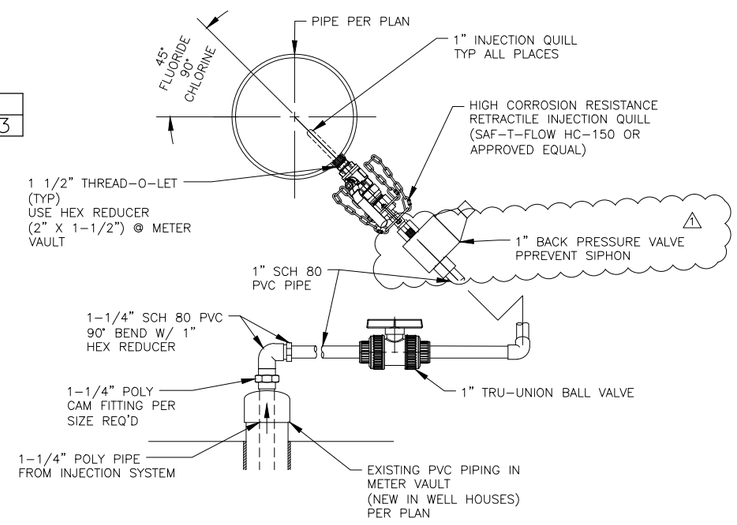
DETAIL | B CF-1



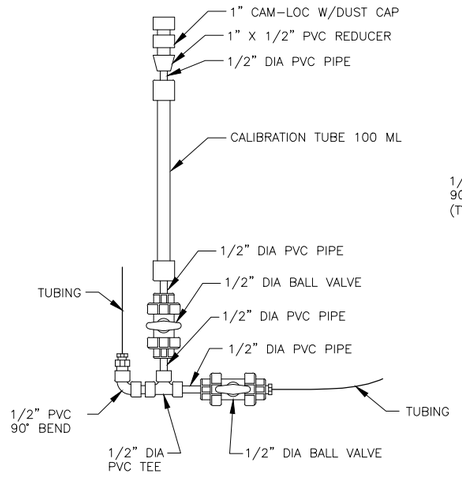
FILL DETAIL | E C-2 | E C-7 | E CF-1



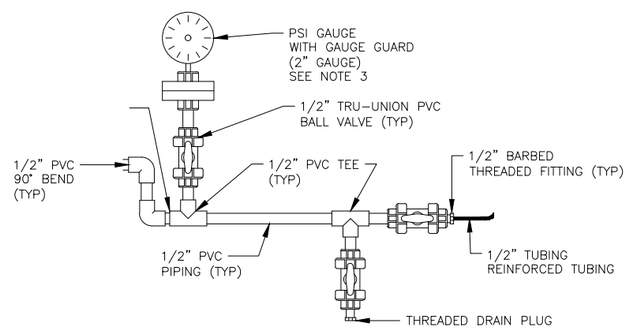
DAY TANK CONNECTIONS DETAIL | D CF-1 | D CF-4



TYPICAL INJECTION QUILL DETAIL | A C-2 | A C-7 | A C-8 | A CF-4



CALIBRATION COLUMN DETAIL | F CF-1 | F CF-4



TYPICAL VALVE HEADER DETAIL | G CF-1 | G CF-4

GENERAL SHEET NOTES:

1. TUBING SIZE TO MATCH DOSING PUMP.
2. ALL PVC PIPING TO BE SCH 80 UNLESS OTHERWISE NOTED
3. PRESSURE GAUGES TO BE RATED FOR 1.5 X WP OF SYSTEM & CHEMICALLY RATED.
4. PAINT ALL EXTERIOR PVC PIPE.
5. ALL PIPE SUPPORTS SHALL BE FIBERGLASS OR STAINLESS STEEL IN CHLORINE ROOM.

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\CF-3 FLOURIDATION SYSTEM & DETAILS.DWG
FILE DATE: 10.15.2024 12:26:16 (BKC)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER — 10/30/24 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3			
DRAFTED	BKC	2			
CHECKED	MEA	1	10.28.24	ADDED PIPING	BKC MEA
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
CHEMICAL EQUIPMENT PIPING DETAILS

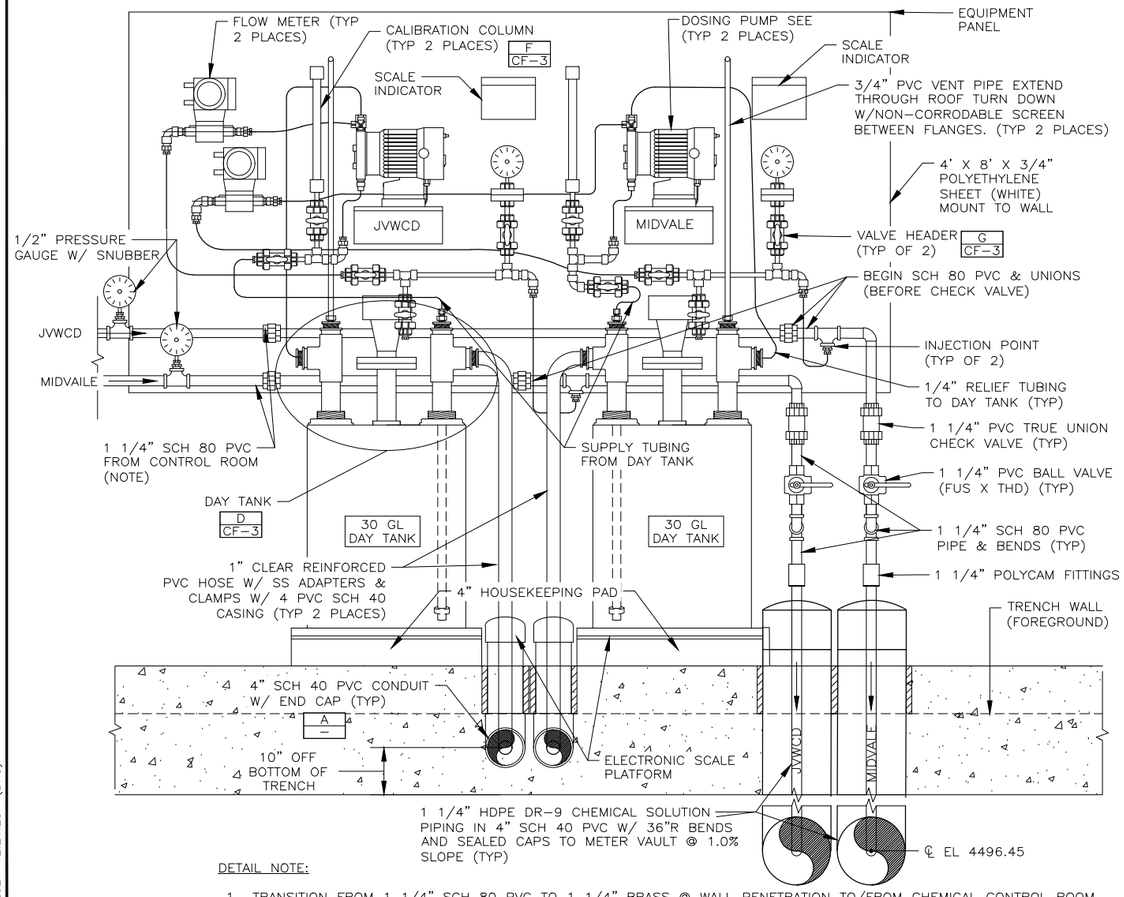
SHEET CF-3

127.24.400

SYSTEM FLOW & PRESSURE			PUMP DESIGN							
LOCATION	FLOW RATE (GPM)	PRESSURE (PSI)	MARK (TAG)	PUMP TYPE OR VALVE	DOSING PUMP FEED RATE (GPH)			CIRCULATING OR DIAPHRAGM PUMP FLOW RATE (GPM)	PUMP	VALVE & NOTES
					DESIGN	MIN.	MAX.			
700 EAST	0–1400	69–113	DC – 7	DOSING	0.35	0.002	1.98	–	GRUNDFOS DDA 7.5–16 FC–PV/V/C–F–31U7UBG	FOR CHLORINE, W/ MULTI–FUNCTION VALVE
			CS – 7	SOLUTION	–	–	–	24	(CENTRIFUGAL) AURORA 321 1 X 1–1/4 X 4	SOLUTION PUMP
			TC – 7	TRANSFER / BARREL	–	–	–	20	FLUX OR LUTZ	FOR CHLORINE
		AIR 40 PSI	AP – 7	VACUUM / DIAPHRAGM	–	–	–	18	MARATHON II AIR OPERATED MODEL M07 3/4"	POLYPRO BODY SANTOPRENE CHECK VALVE

1000 EAST CHLORINE SYSTEM	0–3400 0–20	51 –94		WELL DOSING	60	–	–	–	WELL PUMP CIRCULATION	SYSTEM PRESSURE AND FLOW VARIES ACCU–TAB POWER PRO
1000 EAST FLUORIDE SYSTEM	–	(MIDVALE) 96–106	CS1–10	SOLUTION	–	–	–	24	(CENTRIFUGAL) AURORA 321 1 X 1–1/4 X 4	SOLUTION PUMP (MIDVALE ZONE)
	–	(JVWCD) 51–94	CS2–10	SOLUTION	–	–	–	24	(CENTRIFUGAL) AURORA 321 1 X 1–1/4 X 4	SOLUTION PUMP (JVWCD ZONE)
	0–1950	96–106	DC1–10	DOSING	0.38	0.002	1.98	–	GRUNDFOS DDA 7.5–16 AR–PV/V/C–F–31U7U7BG	NEW MIDVALE ZONE FOR FLUORIDE W/ MULTI–FUNCTION VALVE
	600–2600	51–94	DC2–10	DOSING	0.43	0.002	1.98	–	GRUNDFOS DDA 7.5–16 AR–PV/V/C–F–31U7U7BG	EXISTING JORDAN VALLEY ZONE FOR FLUORIDE W/ MULTI–FUNCTION VALVE
			TC – 10	TRANSFER / BARREL	–	–	–	20	FLUX OR LUTZ	FOR FLUORIDE

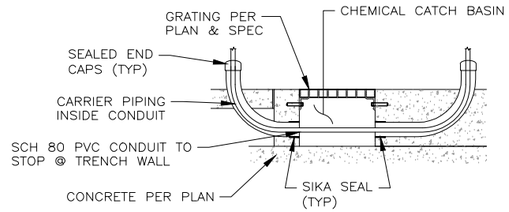
TABLE NOTE: CHLORINE DESIGN FEED @ 1.0 PPM



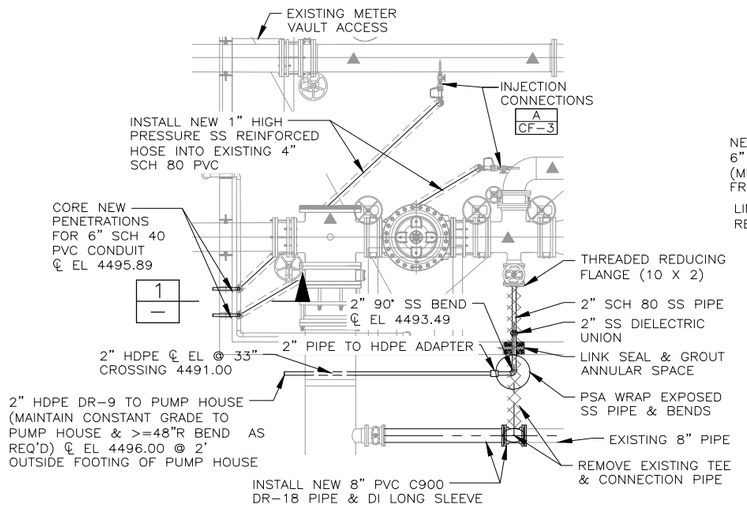
DETAIL NOTE:

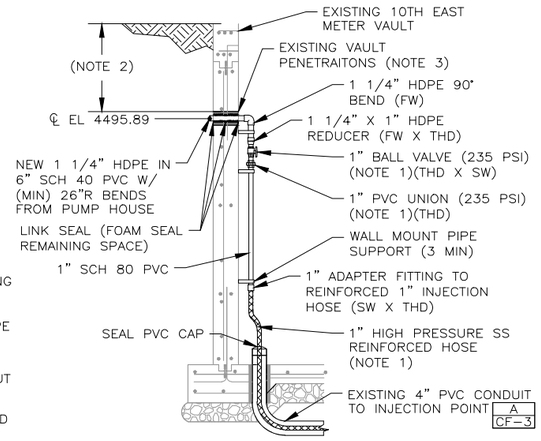
1. TRANSITION FROM 1 1/4" SCH 80 PVC TO 1 1/4" BRASS @ WALL PENETRATION TO/FROM CHEMICAL CONTROL ROOM.
2. MOUNT PIPING WITH FIBERGLASS UNISTRUT.

FLUORIDATION EQUIPMENT DETAIL – 1000 EAST | A C–5 | A C–7 | A CF–1



CONDUIT PENETRATION @ TRENCH | B — | B C–6 | B CF–1





DETAIL NOTES:

1. ALL COMPONENTS OF INJECTION SYSTEM MUST BE FLUORIDE COMPATIBLE.
2. DEPTH OF BURY FOR 1 1/4" HDPE IS 36" MIN.

10TH EAST METER VAULT CONNECTIONS | C C–5 | C C–6 | C C–7

SECTION | 1 —

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\CF–4 EQUIPMENT DETAILS.DWG
FILE DATE: 10.15.2024 12:24:23 (BKC)

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER 10/3/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	JVH	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
EQUIPMENT DETAILS & SCHEDULES

SHEET CF–4

127.24.400

STRUCTURAL NOTES

GENERAL NOTES:

1. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL PROVIDE SUFFICIENT SKILLED WORKMEN AND SUPERVISORS WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THE WORK. A PROJECT MANAGER, SHALL BE ASSIGNED BY THE GENERAL CONTRACTOR, AND SHALL BE RESPONSIBLE FOR THE DAILY COORDINATION OF THE PROJECT AND SHALL MAINTAIN ALL REQUIRED DRAWINGS, SPECIFICATIONS, REPORTS, AND OTHER ITEMS FOR REVIEW AT THE SITE.
2. ALL CONSTRUCTION SHALL BE ACCORDING TO THE 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC). AS AMENDED BY THE STATE OF UTAH.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND SAFETY IN AND AROUND THE JOB SITE AND/OR ADJACENT PROPERTIES.
4. THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS BOTH DURING AND AFTER CONSTRUCTION.

DESIGN CRITERIA

1.	RISK CATEGORY:	IV
2.	IMPORTANCE FACTOR, I_S :	1.20
3.	IMPORTANCE FACTOR, I_E :	1.50
4.	WIND SPEED (3 SECOND GUST):	115 MPH (BOTH PUMP HOUSES)
	EXPOSURE:	"B" (BOTH PUMP HOUSES)

5. SEISMIC DESIGN CATEGORY:	700 E	1000E
SITE CLASS:	"D"	"D"
S :	1.414g	1.412g
Fa:	1.2	1.2
Sds:	1.131g	1.14g
S_1:	.501g	.507g
Fv:	NULL	NULL
Sd_1:	NULL	NULL
R:	5	5
Ω_0:	2.5	2.5
Cd:	3.5	3.5
6. ROOF DEAD LOAD:	20 PSF	
7. GROUND SNOW LOAD (Pg):	51 PSF (WORST CASE USED FOR BOTH)	
8. ROOF LIVE/SNOW LOAD (Ps=Pf):	43 PSF (WORST CASE USED FOR BOTH)	
9. ROOF LIVE/SNOW LOAD (UNBALANCED)	62 PSF (WORST CASE USED FOR BOTH)	
10. SOILS REPORT PROVIDED BY: AGEC	RPT #1061310	RPT # 12230563
ALLOWABLE SOIL BEARING PRESSURE:	2000 PSF	2500 PSF
COEFFICIENT OF FRICTION (u):	0.45	0.45
AT-REST PRESSURE:	65 PCF	65 PCF
SEISMIC INCREASE:	+34 PCF	+27 PCF
ACTIVE PRESSURE:	50 PCF	55 PCF
SEISMIC INCREASE:	+34 PCF	+42 PCF
PASSIVE PRESSURE:	250 PCF	250 PCF
SEISMIC DECREASE:	-34 PCF	-42 PCF

11. WORST CASES FOR SOIL CONDITIONS WERE USED IN DESIGN OF BOTH STRUCTURES.

REINFORCED CONCRETE: STRUCTURAL NOTES:

1. ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. UNLESS CALLED OUT OTHERWISE ON THE PLANS, MINIMUM REINFORCEMENT OF CONCRETE WORK SHALL BE:
   WALLS:
   8" THICK OR LESS – USE #5 @ 16" E.W.
   9" OR THICKER – USE #5 @ 12" E.W., E.F.
   SLABS:
   8" THICK OR LESS – USE #4 @ 16" E.W.
3. ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED, OR TERMINATED IN A STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 6.
4. UNLESS SHOWN OTHERWISE ALL BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS TO BE SPLICED TO THE DOWELS.
5. ALL REINFORCING BARS SHALL BE GRADE 60 AND SHALL CONFORM TO ASTM A-615, CURRENT REVISION. REINFORCING STEEL SHALL BE NEW AND FREE FROM RUST, OIL OR OTHER BOND INHIBITOR.
6. ALL CONTINUOUS REINFORCING BARS SHALL LAP AT LEAST 40 BAR DIAMETERS. SPLICES SHALL BE MADE AWAY FROM POINTS OF MAXIMUM STRESS. MINIMUM LAP SHALL BE 18 IN.
7. CONCRETE COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS:
   7.1. SURFACE NOT EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
   CONCRETE SLABS IN BUILDINGS – – – – – 3/4"
   7.2. CONCRETE SLABS IN WATER BEARING SURFACES EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
   FOR #5 BARS OR SMALLER– – – – – 1-1/2"
   FOR #6 BARS OR LARGER– – – – 2"
   7.3. CONCRETE PLACED DIRECTLY AGAINST GROUND – – – – 3"
   7.4. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ±1/4" OF POSITION SPECIFIED.
8. CONCRETE CURING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SOME CONCRETE WORK REQUIRES WATER CURING, AS MEMBRANE CURING IS NOT ALLOWED. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. THE CONTRACTOR SHALL STUDY REQUIREMENTS AND SHALL FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED. TOP OF WALLS SHALL BE KEPT VISIBLY MOIST AT ALL TIMES AND SHALL BE FLOODED NOT LESS THAN THREE TIMES DAILY.
   A. FOR POURING CONCRETE DURING COLD WEATHER:
      1. FOLLOW RECOMMENDATIONS CONTAINED IN PUBLICATION ACI 306R "COLD-WEATHER CONCRETING," CURRENT REVISION.
      2. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH WHICH COULD BE CAUSED BY FROST, FREEZING ACTIONS OR LOW TEMPERATURES.
      3. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40°F OR 4°C, UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50°F OR 10°C, AND NOT MORE THAN 80°F OR 27°C AT TIME OF PLACEMENT. CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% +/- 1% BY VOLUME.

REINFORCED CONCRETE CONT.

   4. CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% +/- 1% BY VOLUME.
   5. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
   6. DO NOT USE CALCIUM CHLORIDE, SALT OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE APPROVED IN THE MIX DESIGN.
   7. COVER AND HEAT CONCRETE FOR A MINIMUM OF 7 DAYS AS RECOMMENDED BY ACI 306R, CURRENT REVISION.

   B. FOR POURING CONCRETE DURING HOT WEATHER:
   FOLLOW RECOMMENDATIONS CONTAINED IN PUBLICATION ACI 305R "HOT-WEATHER CONCRETING," CURRENT REVISION.
   PROTECT CONCRETE FROM FLASH CURING BY PROVIDING A WATER/MOISTURE CURE FOR 3 DAYS.
   A 4500 PSI (WITH A 6-1/2 BAG MIX) IS RECOMMENDED FOR THESE CONDITIONS.

9. NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED 85 PERCENT OF THE SPECIFIED STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED 85 PERCENT OF THE SPECIFIED STRENGTH.
10. CONCRETE TO HAVE A MIN. 28 DAY STRENGTH OF 4000 PSI FOR SLABS AND CONCRETE IN CONTACT WITH WATER AND 3500 PSI FOR FOOTINGS & FOUNDATION.

MASONRY WALL REINFORCING NOTES:

1. WALL REINFORCEMENT SHALL BE PLACED AND GROUTED AS DESCRIBED IN THE SPECIFICATIONS AND SHALL CONFORM TO IBC REQUIREMENTS.
2. ALL WALLS SHALL BE REINFORCED WITH A MINIMUM OF #5 VERTICAL REINFORCING GROUTED AT 32" O.C. AND (1) #5 @ 48" O.C. HORIZONTAL BOND BEAM. SEE WALL ELEVATION OR NOTE 5 FOR ADDITIONAL VERTICAL REINFORCEMENT ADJACENT TO WALL OPENINGS. WALLS TO BE PARTIALLY GROUTED.
3. ALL VERTICAL REINFORCING SHALL EXTEND TO ROOF LEVEL AND SHALL BE DOWELED TO THE FOOTING WITH MATCHING DOWELS.
4. ALL DOWELS SHALL LAP WALL REINFORCING 48 DIA. AND EXTEND INTO FOUNDATION A MINIMUM OF 40 DIA. OR EXTEND 12 DIA. PLUS HAVE A STANDARD HOOK.
5. A #5 VERTICAL BAR SHALL BE PLACED AND GROUTED AT ALL WALL CORNERS AND WALL INTERSECTIONS AND TWO #5 VERTICAL BARS SHALL BE PLACED AT JAMBS OF WALL OPENINGS AND SUCH BARS SHALL EXTEND THE FULL HEIGHT OF WALL AND BE ANCHORED IN THE ROOF BOND BEAM AND FOOTING AS SPECIFIED IN PARAGRAPH ABOVE.
6. LINTELS FOR ALL OPENINGS SHALL BE AS SHOWN ON SHEET S-5. "TYPICAL WALL DETAILS", UNLESS OTHERWISE NOTED.
7. ALL HORIZONTAL AND VERTICAL JOINTS ON MASONRY UNITS SHALL BE CONCAVE ON BOTH FACES UNLESS SHOWN OR SPECIFIED OTHERWISE.
8. MASONRY CONTROL JOINTS IN WALLS SHALL BE INSTALLED AT 24'-0"± SPACING UNLESS SHOWN OTHERWISE.
9. EXTERIOR WALL CELLS SHALL BE PARTIALLY GROUTED.
10. ALL REINFORCING BARS SHALL BE GRADE 60, AND SHALL CONFORM WITH: "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM A-615. REINFORCING BARS SHALL BE NEW, FREE FROM RUST, OIL OR OTHER BOND INHIBITOR. WELDABLE REBAR TO BE ASTM A-706.
11. COLD WEATHER PLACEMENT OF MASONRY: IF THE LOW TEMPERATURE FOR ANY 24-HOUR PERIOD FOR THE FIRST SEVEN DAYS AFTER THE MASONRY IS PLACED OR GROUTED DROPS BELOW 40°F BUT REMAINS ABOVE 28°F, COVER MASONRY WITH INSULATED BLANKETS. IF THE TEMPERATURE DROPS BELOW 28°F FOR ANY PERIOD AS DESCRIBED ABOVE, APPLY HEAT AND INSULATED BLANKETS AND MAINTAIN A TEMPERATURE AT OR ABOVE 34°F FOR SEVEN DAYS.
12. PROVIDE (2) #5 @ TOP OF WALLS (TYP.)
13. ALL MASONRY TO HAVE SPECIAL INSPECTION PER TABLE 1704.5.1 OF IBC.
14. ALL TERMINAL BARS TO HAVE HOOK @ END.

WELDING

1. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS), LATEST EDITION:
   D1.1, STRUCTURAL WELDING CODE – STEEL
   D1.2, STRUCTURAL WELDING CODE – ALUMINUM
   D1.3, STRUCTURAL WELDING CODE – SHEET STEEL
   D1.4, STRUCTURAL WELDING CODE – REINFORCING STEEL
   D1.6, STRUCTURAL WELDING CODE – STAINLESS STEEL
2. REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1, SEC 5.26.
3. USE INTERMITTENT WELDS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.

WOOD FRAMING NOTES

1. FRAMING LUMBER: DOUGLAS FIR LARCH (SURFACED DRY NOT TO EXCEED 19% MAXIMUM MOISTURE CONTENT), CONFORMING TO NATIONAL DESIGN SPECIFICATIONS (NDS) SUPPLEMENTS FOR WOOD DESIGN VALUES AND APPLICABLE STANDARDS IN THE FOLLOWING GRADES:
   A. SILLS: REDWOOD, OR PRESSURE TREATED, FOUNDATION GRADE.
   B. PLATES @ TOP OF MASONRY WALLS: DOUGLAS FIR-LARCH, NO. 1, FB=1000 PSI MIN.
   C. STUDS: DOUGLAS FIR-LARCH, OR HEMLOCK-FIR, STUD GRADE.
   D. BEAMS, JOISTS, LEDGERS, POSTS & HEADERS: DOUGLAS FIR-LARCH, NO. 2 MIN., 900 PSI MIN.
   E. ALL OTHER HORIZONTAL FRAMING MEMBERS: DOUGLAS FIR-LARCH, CONSTRUCTION GRADE.
   F. ALL OTHER VERTICAL FRAMING MEMBERS: DOUGLAS FIR-LARCH, STANDARD OR BETTER GRADE.
   G. SHEATHING: STANDARD EXTERIOR GRADE WITH EXTERIOR GLUE. APA RATED.
   H. GLUE-LAM BEAMS: OUGLAS FIR-LARCH, 2400 PSI WITH AITC STAMP FOR QUALITY
2. PROVIDE SOLID BLOCKING AT LEAST 1-1/2" THICK AT ENDS AND AT EACH SUPPORT OF JOIST. PROVIDE APPROVED BRIDGING AT A MAXIMUM 8'-0" O.C. BETWEEN SUPPORTS.
3. NAILING SHALL CONFORM TO STANDARD NAILING SCHEDULE 2304.10.2 OF INTERNATIONAL BUILDING CODE UNLESS NOTED OTHERWISE ON PLANS OR SCHEDULES. ALL NAILS SHALL BE COMMON NAILS.

WOOD FRAMING NOTES CONT.

4. USE SIMPSON STRONG TIE (SST) HANGERS FOR ALL FLUSH CONNECTIONS. USE STRONGEST HANGER COMPATIBLE WITH MEMBER SIZE AND NAIL PER MANUFACTURER'S SPECIFICATION TO OBTAIN MAXIMUM LOAD CARRYING CAPACITY.
5. ALL METAL HANGERS AND CONNECTORS SHALL BE "SIMPSON" OR EQUAL.
6. SECURE SILL PLATE TO CONCRETE WITH 5/8" DIA. X 12" A.B. @ 32" O.C. UNLESS NOTED OTHERWISE ON PLAN.
7. DOUBLE TOP AND BOTTOM PLATES TO BE LAPPED 4'-0" AT SPLICE AND CONNECT WITH 16D COMMON NAILS @ 3" O.C., STAGGERED.
8. NOTCHING OR DRILLING THROUGH ANY LUMBER MEMBER WILL NOT BE ALLOWED WITHOUT SPECIFIC APPROVAL OF STRUCTURAL ENGINEER.
9. ROOF SHEATHING:
   A. (5/8)" A.P.A. RATED STRUCTURAL II, EXTERIOR, PANEL INDEX #32/16, UNLESS NOTED OTHERWISE
   B. NAIL WITH: 10D @ 6" O.C. – PANEL EDGES, UNLESS NOTED OTHERWISE
      10D @ 12" O.C. – ALL ELSE, UNLESS NOTED OTHERWISE
   C. INSTALL ROOF SHEATHING WITH "H" CLIPS.
10. KEEP ALL MATERIAL CLEARLY IDENTIFIED WITH ALL GRADE MARKS LEGIBLE. KEEP ALL DAMAGED MATERIAL CLEARLY IDENTIFIED AS DAMAGED AND SEPARATELY STORED TO PREVENT ITS INADVERTENT USE. IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO THE APPROVAL OF THE ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.
11. PROVIDE 3"X3"X1/4" SLOTTED PLATE WASHERS AT ALL BOLTS IN PLATES, AND 2" DIAMETER PLATE WASHERS AT ALL BOLTS IN LEDGERS, BEAMS, AND COLUMNS. UNLESS OTHERWISE SPECIFIED, USE A307 BOLTS.
12. PROVIDE SOLID BLOCKING UNDER ALL LOCATIONS WHERE CONCENTRATED LOADS ARE LOCATED, SUCH AS COLUMNS, POSTS, BEAMS, ETC. FULL SUPPORT MUST BE PROVIDED TO THE FOUNDATION.

WOOD TRUSSES NOTES

1. DESIGN TRUSSES FOR FOLLOWING CRITERIA:
   SEE SHEETS S-6, S-7 FOR TRUSS LAYOUT & INFORMATION.
   SEE LOADING, THIS SHEET, FOR TRUSS DESIGN.

   NOTE: ALL TRUSSES TO BE DESIGNED FOR DRIFT LOADS PER ASCE-7. TRUSSES IN STORAGE AREA TO BE DESIGNED TO MEET ALL EQUIPMENT LOADS AND RISK CATEGORY IV.
2. PROVIDE BRIDGING AT TOP AND BOTTOM CHORDS AND STRUT BRACING, PER MANUFACTURER'S RECOMMENDATIONS.
3. NO STRESS INCREASE ALLOWED FOR TRUSS DESIGN.
4. DESIGN AND FABRICATION OF ALL TRUSSES SHALL COMPLY WITH REQUIREMENTS OF DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES' BY THE TRUSS PLATE INSTITUTE.
5. TRUSS MANUFACTURER SHALL DESIGN AND FABRICATE TRUSSES TO SUPPORT LOADS SHOWN ON DRAWINGS. COORDINATE DESIGN WITH ALL MECHANICAL EQUIPMENT AND SUSPENDED LOADS. SUBMIT DESIGN CALCULATIONS BEARING STAMP OF A REGISTERED PROFESSIONAL ENGINEER LICENSED BY THE STATE OF UTAH.
6. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION INDICATING, FRAMING PLAN, BRIDGING AND BRACING, DIAGRAM OF THE TRUSSES WITH DIMENSIONS, SIZE AND GRADE OF MEMBERS, SIZE AND LOCATION OF METAL PLATES, BEARING DETAILS AND INSTRUCTION FOR INSTALLATION.
7. MOMENT COEFFICIENTS SHALL BE 1/8 FOR ONE AND TWO CONTINUOUS SPAN CONDITIONS AND 1/10 FOR THREE OR MORE CONTINUOUS SPAN CONDITIONS. LENGTH FACTOR FOR WEB DESIGN SHALL BE ONE. METAL PLATES AT COMPRESSION JOINTS SHALL BE DESIGNED FOR THE FULL LOAD WITHOUT CONSIDERING WOOD TO WOOD BEARING.
8. ALL METAL PLATE DIMENSIONS SHALL BE INCREASED BY 10% ABOVE THAT REQUIRED BY THE ANALYSIS. ALLOWABLE STRESS FOR METAL PLATE SHALL NOT BE INCREASED FOR THE LOAD DURATION. METAL PLATES SHALL BE PRESSED OR ROLLED INTO MEMBERS TO OBTAIN FULL PENETRATION WITHOUT CRUSHING THE WOOD SURFACE.
9. ALL METAL PLATES SHALL BE GALVANIZED STEEL AND SHALL BE ON BOTH SIDES OF EACH CONNECTION. SUBMIT A COPY OF THE I.C.B.O APPROVAL, INCLUDING ALLOWABLE STRESSES ESTABLISHED BY THIS COMMITTEE, FOR METAL PLATES USED.
10. ALL LUMBER SHALL BE DOUGLAS FIR OR YELLOW PINE #1 GRADE. MOISTURE CONTENT SHALL NOT EXCEED 19% NOR SHALL BE LESS THAN 7%. HANDLING, STORAGE AND INSTALLATION OF ALL TRUSSES SHALL BE DONE SUCH THAT THE SPECIFIED MINIMUM AND MAXIMUM MOISTURE CONTENT LIMITS ARE NOT EXCEEDED. GRADE STAMPS SHALL APPEAR ON ALL MEMBERS.
11. PRIOR TO FABRICATION, CONTRACTOR SHALL SUBMIT IN WRITING PROOF OF COMPLIANCE OF IN PLANT INSPECTION BY AN I.C.B.O. APPROVED INDEPENDENT INSPECTION AGENCY. SUBMIT SHOP DRAWINGS FOR TRUSS LAYOUT & DESIGN.
12. A HURRICANE TIE IS TO BE INSTALLED AT EACH TRUSS TO DOUBLE TOP PLATE LOCATION OR AS REQUIRED ON PLANS.
13. TRUSS MANUFACTURER IS RESPONSIBLE FOR ALL TRUSS HANGERS.

SUBMITTALS:

1. THE FOLLOWING INFORMATION AND SUBMITTALS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER (CM) BEFORE FABRICATION AND/OR DELIVERY TO THE JOBSITE, NOT ALL MAY APPLY.
   A. CONCRETE MIX DESIGNS.
   B. CONCRETE REINFORCEMENT SHOP DRAWINGS.
   C. MASONRY SPECIFICATIONS.
   D. MASONRY MORTAR MIX DESIGNS.
   E. MASONRY REINFORCEMENT SHOP DRAWINGS.
   F. STRUCTURAL BACKFILL PIT LOCATION AND MATERIAL SPECIFICATION, IF USED ON SITE.
   G. STRUCTURAL STEEL SHOP DRAWINGS.
   H. OPEN WEB ROOF TRUSSES, SHOP DRAWINGS FROM MANUFACTURER.
   I. OTHER SHOP DRAWINGS & SUBMITTALS AS DEEMED NECESSARY BY THE CONSTRUCTION MANAGER.

SOIL NOTES

1. SOILS REPORTS WERE PREPARED FOR THE SITES BY AGEC (RPT # 1061310, 700 EAST) & (RPT# 1220563, 1000 EAST). ALL RECOMMENDATIONS CONTAINED IN THE REPORT SUPERSEDES ALL NOTES IN DRAWINGS, EXCEPT CONTRACTOR'S DEWATERING ENGINEER SHALL MAKE HIS OWN ESTIMATES FOR DEWATERING QUANTITIES AND SHALL NOT RELY ON ESTIMATES PROVIDED IN AGEC REPORT.
2. ALL ORGANIC MATERIALS, RUBBISH, UNSUITABLE FILL, TOPSOIL, ETC. SHALL BE REMOVED FROM BENEATH LOCATIONS OF PROPOSED FOOTINGS, CONCRETE SLABS AND ASPHALT PAVING.
3. ALL FOOTINGS SHALL BE PLACED ON UNDISTURBED NATURAL SOIL OR ON COMPACTED STRUCTURAL FILL EXTENDING DOWN TO THE UNDISTURBED NATURAL SOIL. IMPORTED STRUCTURAL FILL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY BASED ON ASTM D1557 OR AS PER GEOTECHNICAL REPORT.
4. SLABS SHALL BE PLACED ON FREE DRAINING SAND AND/OR GRAVEL PER GEOTECHNICAL REPORT.
5. UNLESS OTHERWISE NOTED, STRUCTURAL BACKFILL SHALL CONFORM TO:
   A. IMPORTED GRANULAR MATERIAL SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES.
   B. SHALL COMPLY WITH SPECIFICATIONS FOR GRADATIONS.
6. ALL FREE WATER SHALL BE REMOVED FROM THE FOUNDATION EXCAVATION PRIOR TO PLACING CONCRETE.
7. EXTERIOR FOOTINGS AND GRADE BEAMS SHALL BE LOCATED AT LEAST 30" BELOW FINISHED GRADE, AND MAINTAIN 6" BETWEEN FINISH GRADE AND WOOD FRAMING.
8. CONTRACTOR SHALL REMOVE ALL UNSUITABLE FILL FROM UNDER ALL CONCRETE FLATWORK, PAVEMENT, BUILDINGS AND STRUCTURES, ACCORDING TO THE AGEC REPORT AND REPLACE WITH STRUCTURAL FILL COMPACTED TO 95% MAX. DRY DENSITY PER ASTM D-1557 OR AS PER GEOTECHNICAL REPORT.

ANCHOR NOTES:

1. ALL ANCHORS TO BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS. FOR BOTH MECHANICAL AND EPOXY TYPE ANCHORS THESE REQUIREMENTS INCLUDE, BUT IS NOT LIMITED TO:
   A. PROPER HOLE DIAMETER, DEPTH, EDGE DISTANCES, AND SPACING.
   B. PROPER HOLE PREPARATION AND CLEANOUT
   C. WEATHER REQUIREMENTS TO BE FOLLOWED, ESPECIALLY FOR COLD WEATHER APPLICATIONS.
   D. ALL STRUCTURAL ANCHORS TO COMPLY WITH THE CRACKED CONCRETE REQUIREMENTS OF THE CURRENT EDITION OF THE ACI 318.
2. ANY EPOXY TYPE ANCHOR IS TO MEET THE CURRENT ANSI/NSF 61 REQUIREMENTS FOR DRINKING WATER SYSTEM COMPONENTS, WHERE APPLICABLE.

SEISMIC BRACKETS:

1. CONTRACTOR TO SUBMIT FOR REVIEW AND APPROVAL SEISMIC BRACKETS FOR HVAC, MECHANICAL AND ELECTRICAL EQUIPMENT TO MEET LOCAL CODES.

STRUCTURAL STEEL AND METAL FABRICATIONS:

1. ALL STRUCTURAL STEEL AND STRUCTURAL STEEL WORK SHALL COMPLY WITH "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS OF THE AISC" AND THE "AISC CODE OF STANDARD PRACTICE."
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

W-SHAPES	A992
MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC.	A36
SQUARE OR RECTANGULAR STEEL	A500, GRADE B
TUBING STEEL PIPE	CLASS 53, GRADE B

3. STRUCTURAL STEEL SHALL BE FABRICATED AND ERRECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.
4. ALL WELDS AND WELDING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF "THE AMERICAN WELDING SOCIETY, USING ELECTRODES AS SPECIFIED THEREIN." WELDS TO BE MADE WITH E – 70XX ELECTRODES U.N.O.
5. BOLTS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:

UNLESS SHOWN OTHERWISE	A325-N
SLIP CRITICAL	A325-SC
ANCHOR BOLTS (AB)	
STAINLESS STEEL	F593, AISI TYPE 316, CONDITION CW
STEEL	F1554, GR 36
GALVANIZED STEEL	F1554, GR 36/A153
MACHINE BOLTS (MB)	A307

6. USE A307 BOLTS WITH PLATE WASHERS, UNLESS OTHERWISE SPECIFIED, FOR TYPICAL CONNECTIONS AND CONNECTIONS TO CONCRETE.
7. USE A325 BOLTS WITH PLATE WASHERS, UNLESS OTHERWISE SPECIFIED, FOR STEEL TO STEEL CONNECTIONS.
8. ITEMS TO EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT.
9. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL IS PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.
10. METAL FLASHING SHALL BE HOT DIP GALVANIZED, OR HAVE OTHER APPROVED EQUAL CORROSION RESISTANCE.
11. MATERIAL SHALL COMPLY WITH THE FOLLOWING STANDARDS U.N.O.

TYPICAL BOLTS	ASTM A-307 GRADE A
HIGH STRENGTH BOLTS	ASTM A-325
ANCHOR BOLTS	ASTM A-307 GRADE A
NUTS FOR ANCHOR BOLTS	ASTM A-563 GRADE A
STEEL TUBES	ASTM A-500 GRADE B WITH YIELD STRENGTH EQUAL TO 46 KSI
STEEL PIPES	ASTM A-53 GRADE B TYPE E OR S DEFORMED BAR
ANCHORS	MANUFACTURED BY NELSON STUD CO. OR EQUAL
HEADED STUD ANCHORS	ASTM A-108 MANUFACTURED BY NELSON STUD CO. OR EQUAL
ALL OTHER STEEL SHAPES	ASTM A-36 WITH YIELD STRENGTH EQUAL TO 36 KSI.

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 10-7-2024 STATE OF UTAH

PROFESSIONAL ENGINEER 10/7/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

FILE NAME: PROJECTS\127.-- JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\S-1 STRUCTURAL NOTES.DWG
FILE DATE: 10.8.2024 11:37:12 (BKC)

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC RCC	3			
DRAFTED	BKC	2			
CHECKED	MEA RCC	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
STRUCTURAL
STRUCTURAL NOTES

SHEET S-1

127.24.400

7/04

SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

SPECIAL INSPECTION REQUIRED Y/N	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCE STANDARD	IBC REFERENCE
Y	1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	---	X	ACI 318 CH. 20, 25.2, 25.3, 26.5.1-26.5.3	---
	2. REINFORCING BAR WELDING:				
N	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706.	---	X	AWS D1.4 ACI 318: 26.5.4	---
N	b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".	---	X		
N	c. INSPECT ALL OTHER WELDS.	X	---		
Y	3. INSPECT ANCHORS CAST IN CONCRETE.	---	X	ACI 318: 17.8.2	---
	4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.				
Y	a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATION TO RESIST SUSTAINED TENSION LOADS.	X	---	ACI 318: 17.8.2.4	---
Y	b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	---	X	ACI 318: 17.8.2	---
Y	5. VERIFY USE OF REQUIRED DESIGN MIX.	---	X	ACI 318 CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2
Y	6. PRIOR TO CONCRETE PLACEMENT, FABRICATION SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	---	ASTM C31 ASTM C172 ACI 318: 26.5, 26.12	---
Y	7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	---	ACI 318: 26.5	---
Y	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	---	X	ACI 318: 26.5.3-26.5.5	---
	9. INSPECT PRESTRESSED CONCRETE FOR:				
N	a. APPLICATION OF PRESTRESSING FORCES.	X	---	ACI 318: 26.10	---
N	b. GROUTING OF BONDED PRESTRESSING TENDONS.	X	---		---
N	10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	---	X	ACI 318: 26.9	---
N	13. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	---	X	ACI 318: 26.11.2	---
Y	14. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	---	X	ACI 318: 26.11.1.2 (b)	---
	NOTE: ITEMS 11 AND 12 FROM IBC TABLE 1705.3 NOT REQUIRED.				

SPECIAL INSPECTIONS AND TESTS OF SOILS

SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCE OF CRITERIA
		CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	IBC SECTION
Y	1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	---	X	1705.6
Y	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	---	X	1705.6
Y	3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	---	X	1705.6
Y	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	---	1705.6
Y	5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.	---	X	1705.6

WOOD CONSTRUCTION

SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCE OF CRITERIA
		CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	IBC SECTION
?	1. VERIFY FABRICATION/QC PROCEDURES. IN-PLANT INSPECTION OF FRABRICATION/QUALITY CONTROL PROCEDURES** OR SUBMIT CERTIFICATE OF COMPLIANCE.	?	?	1704.2.5, 1705.5, 1705.5.2
?	2. METAL PLATE CONNECTED WOOD/METAL TRUSSES SPANNING 60' OR MORE. REVIEW APPROVED SUBMITTAL AND INSTALLATION OF RESTRAINT/BRACING.	?	?	1704.2.5, 1705.5, 1705.5.2
?	3. JOIST HANGERS - MATERIALS/INSTALLATION. REVIEW MANUFACTURER'S MATERIAL AND TEST STANDARDS	?	?	IBC 1711, ASTM D 1761
?	4. HIGH-LOAD DIAPHRAGMS - INSTALLATION. REVIEW SUBMITTAL AND AS-BUILT ASSEMBLIES; INSPECTION OF SHEATHING, FRAMING SIZE, NAIL AND STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES, AND FASTENER SPACING.	?	?	IBC 1705.5, 1705.5.1
?	5. WOOD SHEAR WALLS-INSTALLATION. REVIEW NAILING, BOLTING,ANCHORING, FASTENING, DIAPHRAGMS, STRUTS, BRACES AND HOLD DOWNS WHEN FASTENERS ARE <4" ON CENTER.	?	?	IBC 1705.10.1

SPECIAL INSPECTIONS AND TESTS FOR WIND RESISTANCE

SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCE OF CRITERIA
		CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	IBC SECTION
Y	1. INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.	X	---	1705.8
Y	2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	X	---	1705.8
Y	3. FOR CONCRETE ELEMENTS, PERFORM TEST AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH CONCRETE CONSTRUCTION SPECIAL INSPECTION TABLE ON THIS SHEET.	---	---	1705.3

SPECIAL INSPECTION NOTES:

1. THE SPECIAL INSPECTOR IS RESPONSIBLE FOR ENSURING THE PUBLICATIONS USED FOR INSPECTION CRITERIA ARE THE MOST CURRENT AND UP TO DATE.
2. FAILURE OF INSPECTABLE AREAS ARE TO BE NOTED AND SUBMITTED TO OWNER, ENGINEER OF RECORD, AND CONTRACTOR IF CORRECTIONS REQUIRE A FOLLOW UP INSPECTION AND CANNOT BE MADE COMPLETED "ON THE SPOT".
3. DOCUMENTATION FOR INSPECTIONS MUST BE COMPLETED AND SUBMITTED IN ACCORDANCE WITH CONTRACT REQUIREMENTS, INTERNATIONAL BUILDING CODE (LATEST EDITION), AND MANUAL FOR SPECIAL INSPECTIONS" (LATEST EDITION), OR AS AGREED UPON WITH OWNER, ENGINEER OF RECORD, AND CONTRACTOR.
4. SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED INSPECTIONS BY THE BUILDING OFFICIAL. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS WITH THE BUILDING DEPARTMENT AND COORDINATING SPECIAL INSPECTIONS WITH OWNER.
5. SPECIFIED CONCRETE AND MASONRY TESTING DURING CONSTRUCTION WILL BE CONTRACTOR FURNISHED. SPECIFIED LAB TEST, MIXES, AND SIMILAR TESTING TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO THE SPECIFICATIONS, REQUIRING SUBMITTAL FOR REVIEW AND ACCEPTANCE, SHALL BE THE RESPONSIBILITY OF CONTRACTOR.
6. STRUCTURAL OBSERVATIONS (PROVIDED BY ENGINEER) IS REQUIRED IN ACCORDANCE WITH IBC SECTION 110 AND CHAPTER 17 AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTION. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO ENGINEER PRIOR TO PLACING CONCRETE OR COVERING UP ANY WORK.
7. OWNER WILL PROVIDE SPECIAL INSPECTIONS. CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO OWNER WHEN REQUESTING SPECIAL INSPECTIONS.

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 10-7-2024 STATE OF UTAH

PROFESSIONAL ENGINEER 10/7/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

HANSEN ALLEN & LUCE, inc. ENGINEERS

DESIGNED VGC RCC
DRAFTED
CHECKED MEA RCC
DATE JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

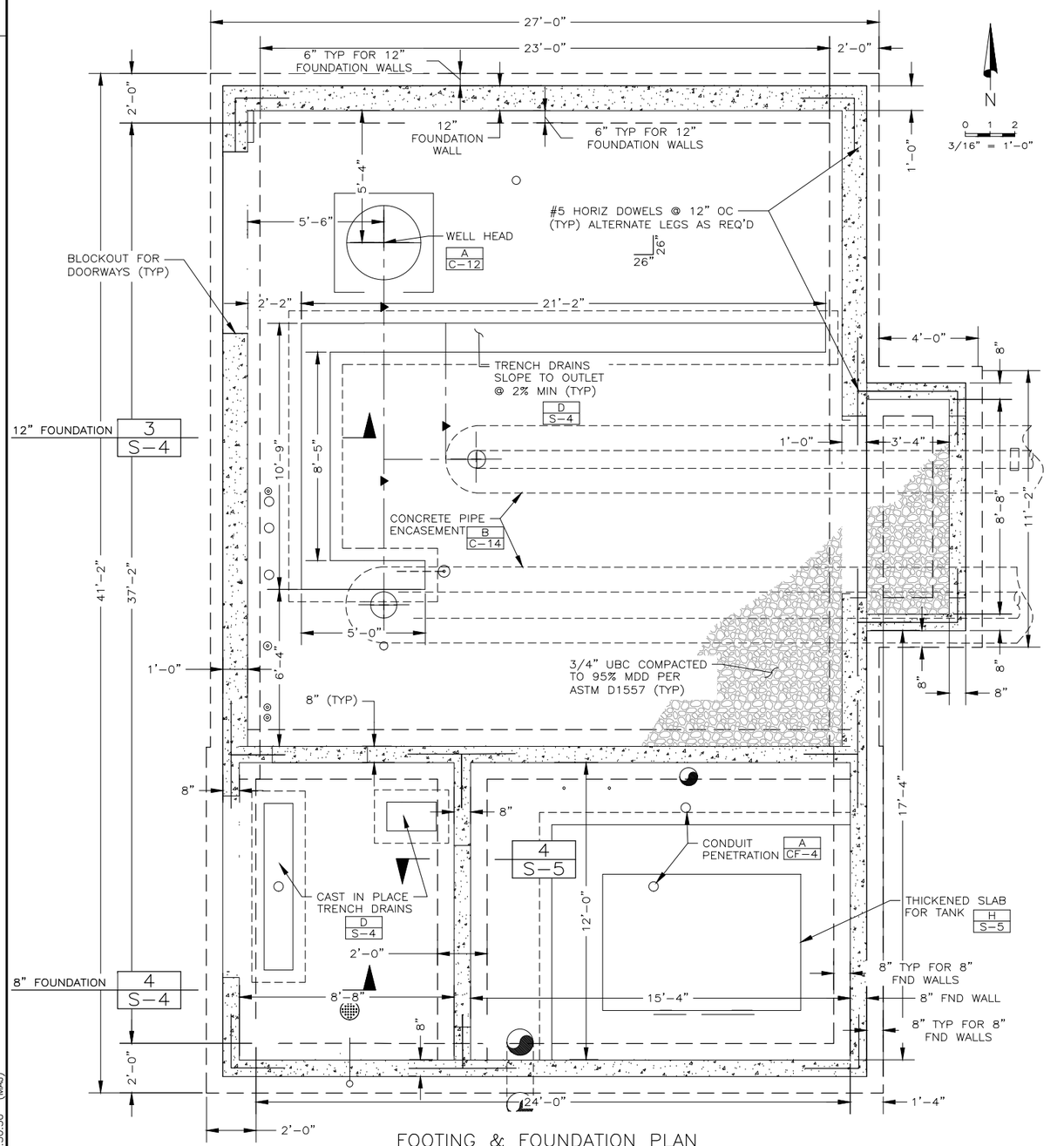
WELL PUMP STATION CONSTRUCTION
STRUCTURAL
SPECIAL INSPECTIONS

SHEET S-1A

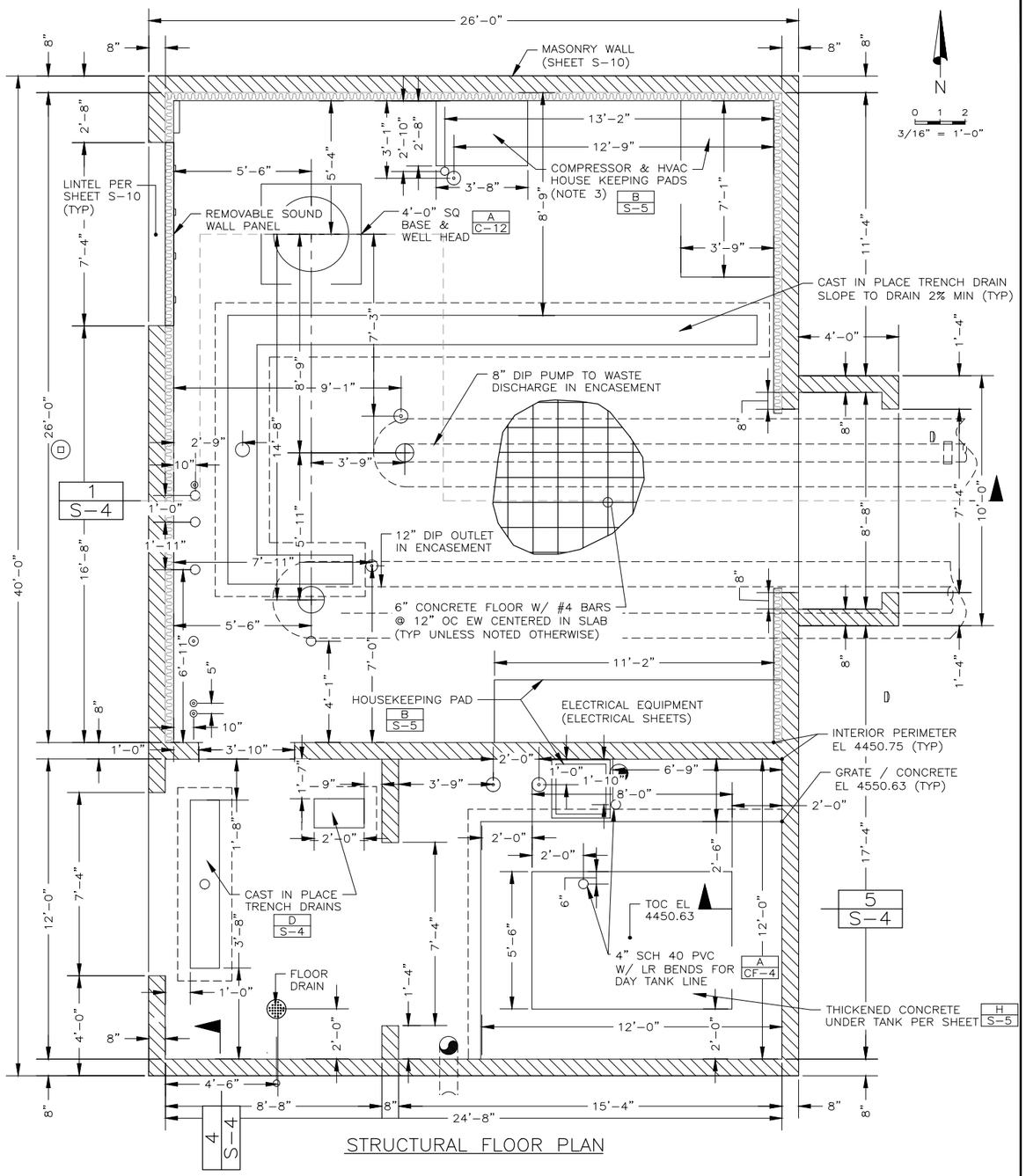
127.24.400

FILE NAME:PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-1A SPECIAL INSPECTIONS.DWG
FILE DATE: 10.8.2024, 11:42:39 (BKC)

7/04



FOOTING & FOUNDATION PLAN



STRUCTURAL FLOOR PLAN

GENERAL SHEET NOTES:
1. ALLOW ADEQUATE TIME TO MODIFY WELL HEAD PIPING & POUR PUMP BASE BEFORE STARTING FOUNDATION WORK.
2. FOAM INSULATION REQUIRED IN NON-GROUTED WALLS. COORDINATE W/ INSULATION CONTRACTOR.
3. FLOOR PENETRATION & HOUSEKEEPING PAD MEASUREMENTS ARE BASED ON EQUIPMENT USED. ENSURE MEASUREMENTS ARE CORRECT FOR EQUIPMENT ON HAND. AVOID CASING INTRUSION INTO FOOTINGS UNLESS NOTED.
4. PLUMBING PLAN FOR EACH WELL HOUSE ON SHEET C-6.

GENERAL SHEET NOTES CONT:
5. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 8' BELOW NEW BUILDING. SEE SOILS REPORT DATED DECEMBER 12, 2006 ("GEOTECHNICAL INVESTIGATION – PROPOSED PUMP HOUSE – 7618 SOUTH 700 EAST SANDY, UTAH") BY AGEC.
6. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 2'-6" BELOW EXISTING GRADE UNDER NEW BUILDING. SEE SOIL REPORT DATED SEP 12, 2023 ("GEOTECHNICAL INVESTIGATION PROPOSED JVWCD WELL HOUSE APPROXIMATELY 1000 EAST 7800 SOUTH, MIDVALE, UTAH") BY AGEC.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN ALLEN & LUCE inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3		
DRAFTED	CAH		2		
CHECKED	MEA	RCC	1		
DATE	JUNE 2024		NO.	DATE	REVISIONS

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

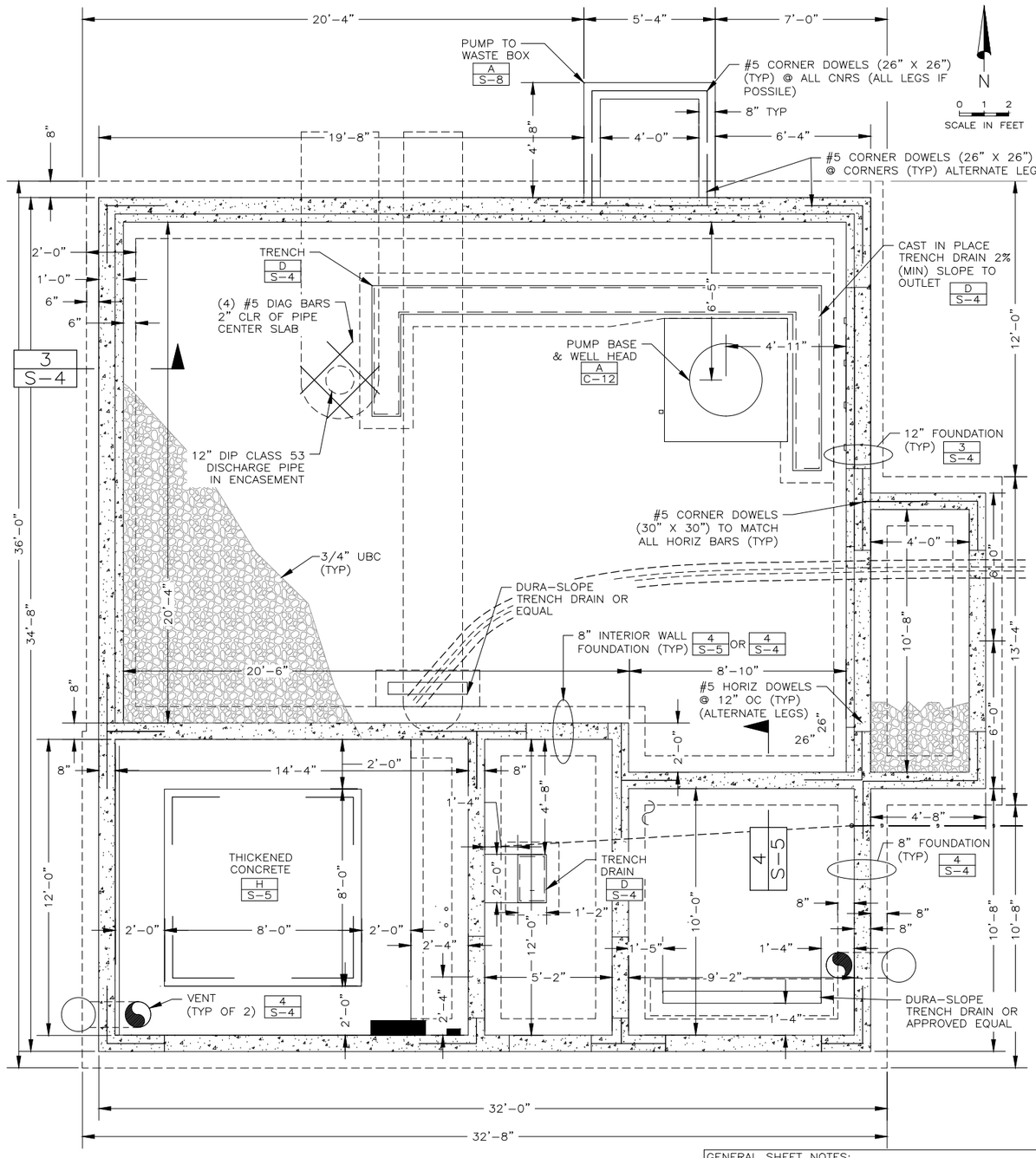
WELL PUMP STATION CONSTRUCTION
STRUCTURAL – 700 EAST
FOOTING & FOUNDATION PLAN

SHEET S-2

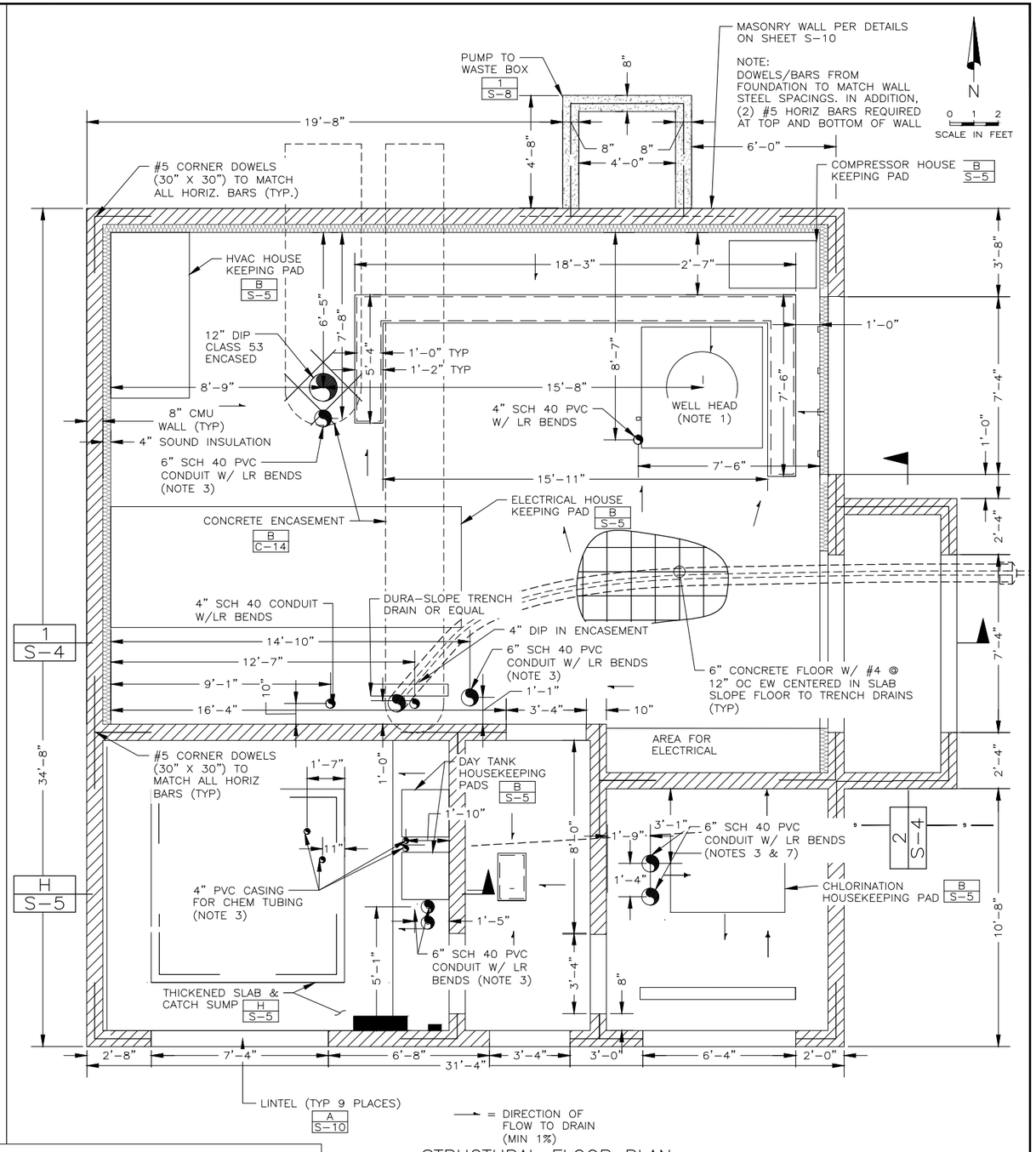
127.24.400

FILE NAME: PROJECTS\127-JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-2 700 EAST FOUNDATION PLAN.DWG
FILE DATE: 6/7/2024 12:30:50 (MA)

7/04



FOOTING & FOUNDATION PLAN



STRUCTURAL FLOOR PLAN

GENERAL SHEET NOTES:

1. ALLOW ADEQUATE TIME TO MODIFY WELL HEAD PIPING & POUR PUMP BASE BEFORE STARTING FOUNDATION WORK.
2. FOAM INSULATION REQUIRED IN NON-GROUTED WALLS. COORDINATE W/ INSULATION CONTRACTOR.
3. FLOOR PENETRATION MEASUREMENTS ARE BASED ON EQUIPMENT USED. ENSURE MEASUREMENTS ARE CORRECT FOR EQUIPMENT ON HAND. AVOID CASING INTRUSION INTO FOOTINGS UNLESS NOTED.
4. PLUMBING PLAN FOR EACH WELL HOUSE ON SHEET C-6.
5. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 8' BELOW NEW BUILDING. SEE SOILS REPORT DATED DECEMBER 12, 2006 ("GEOTECHNICAL INVESTIGATION – PROPOSED PUMP HOUSE – 7618 SOUTH 700 EAST SANDY, UTAH") BY AGEC.

GENERAL SHEET NOTES CONT:

6. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 2'-6" BELOW EXISTING GRADE UNDER NEW BUILDING. SEE SOIL REPORT DATED SEP 12, 2023 ("GEOTECHNICAL INVESTIGATION PROPOSED JVWCD WELL HOUSE APPROXIMATELY 1000 EAST 7800 SOUTH, MIDVALE, UTAH") BY AGEC.
7. COORDINATE LOCATION OF PIPELINES WITH OWNERS' SUPPLIER OF TABLET CHLORINATOR UNIT PRIOR TO CONSTRUCTION OF PIPELINES. (PROVIDE SUBMITTAL)

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
10/7/2024
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3			
DRAFTED	BKC		2			
CHECKED	MEA	RCC	1			
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

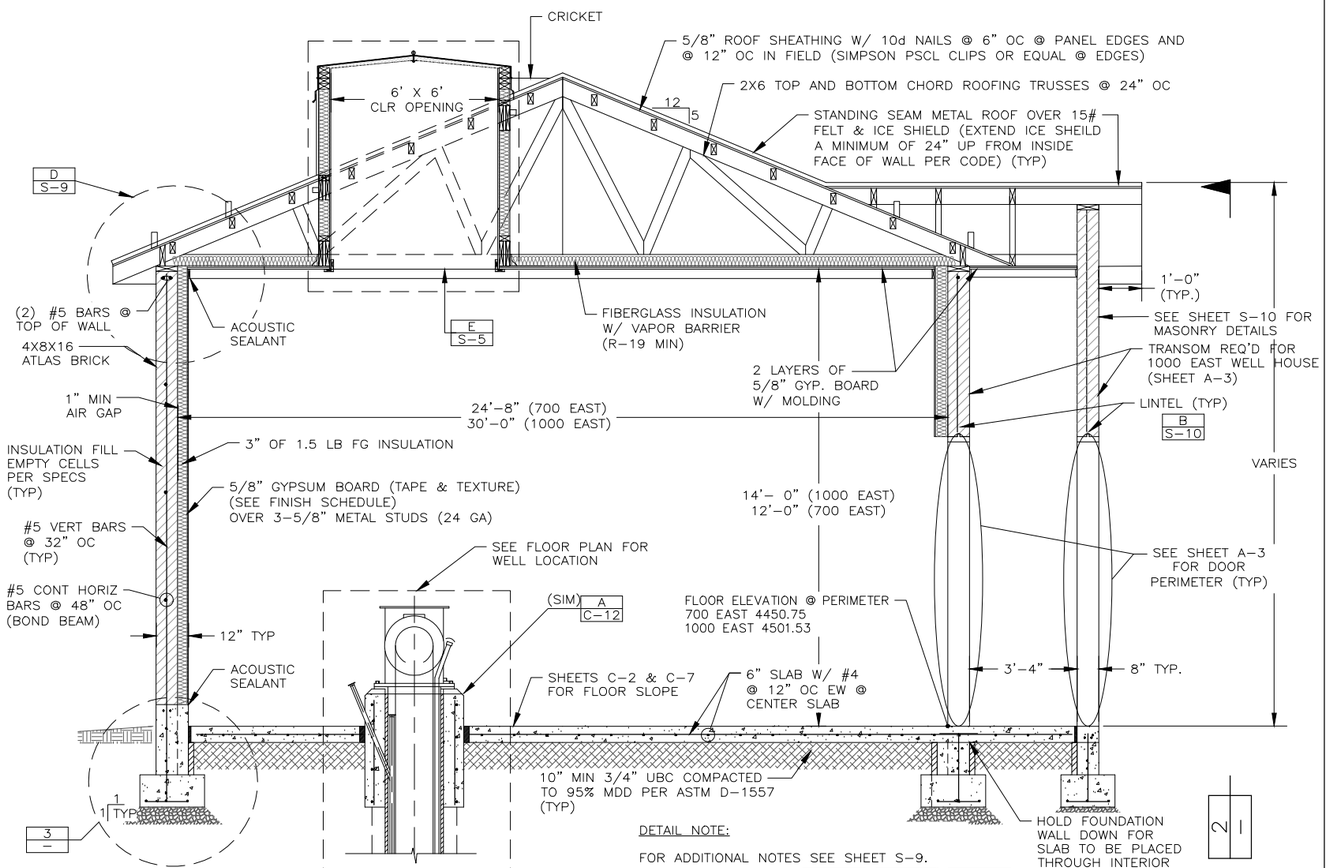
WELL PUMP STATION CONSTRUCTION
STRUCTURAL – 1000 EAST
FOOTING & FOUNDATION PLAN

SHEET S-3

127.24.400

FILE NAME: PROJECTS\127 — JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\S-3 1000 EAST FOUNDATION PLAN.DWG
FILE DATE: 10/7/2024 10:39:32 (BKC)

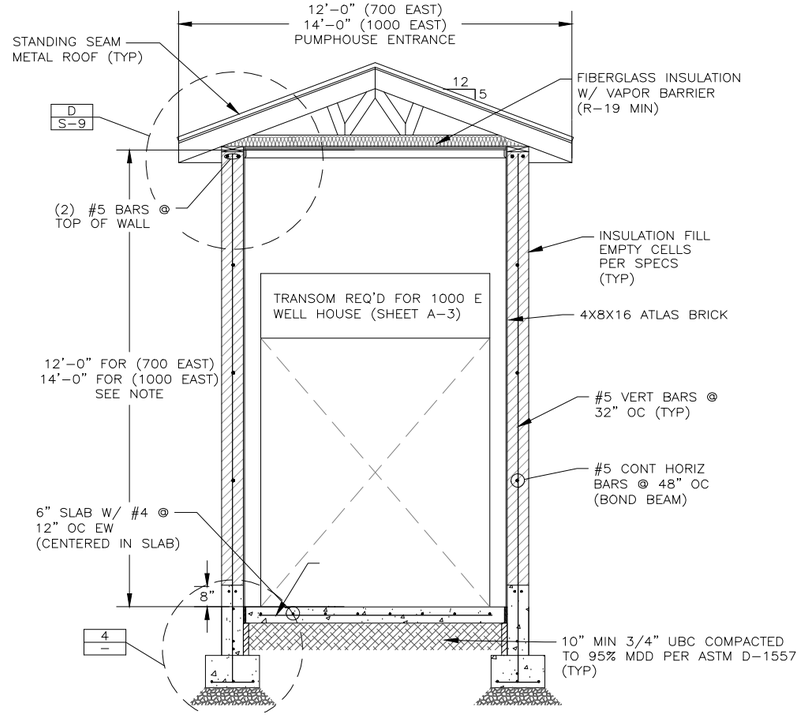
7/04



DETAIL NOTE:

FOR ADDITIONAL NOTES SEE SHEET S-9.

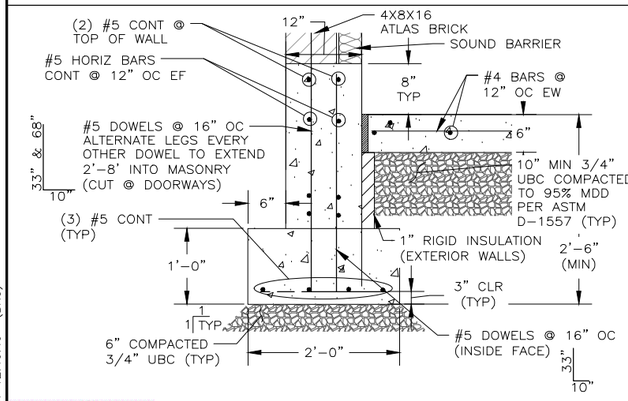
SECTION VIEW — NTS — 1 C-2 | 1 S-2 | 1 S-3



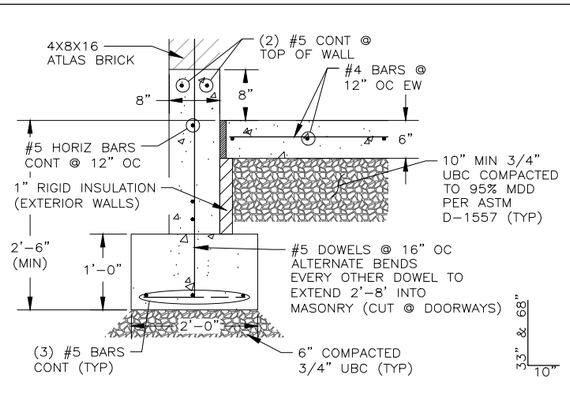
DETAIL NOTE:

VERIFY ELECTRICAL EQUIPMENT WILL FIT DOOR HEIGHT.

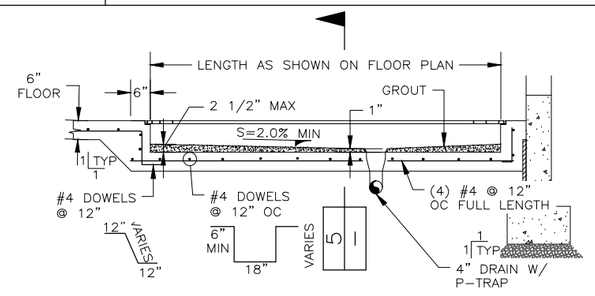
VESTIBULE DETAIL — NTS — 2 —



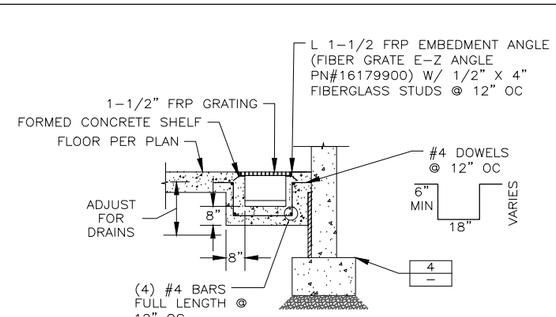
TYPICAL FOOTING DETAIL 12" WALL — NTS — 3 — | 3 C-4 | 3 C-8 | 3 S-2 | 3 S-3



TYPICAL FOOTING DETAIL 8" WALL — NTS — 4 — | 4 S-2 | 4 S-3



TYPICAL TRENCH DRAIN — NTS — D C-2 | D C-4 | D C-7 | D S-2 | D S-3



SECTION — NTS — 5 — | 5 C-3 | 5 C-8 | 5 S-2

GENERAL SHEET NOTES:

1. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 8' BELOW NEW BUILDING. SEE SOILS REPORT DATED DECEMBER 12, 2006 ("GEOTECHNICAL INVESTIGATION – PROPOSED PUMP HOUSE – 7618 SOUTH 700 EAST SANDY, UTAH") BY AGEC.
2. REMOVE AND REPLACE EXISTING FILL TO A DEPTH OF 2'-6" BELOW EXISTING GRADE UNDER NEW BUILDING. SEE SOIL REPORT DATED SEP 12, 2023 ("GEOTECHNICAL INVESTIGATION PROPOSED JVWCD WELL HOUSE APPROXIMATELY 1000 EAST 7800 SOUTH, MIDVALE, UTAH") BY AGEC.
3. SEE SHEET S-1 FOR CONCRETE NOTES.

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

HANSEN ALLEN & LUCE, INC ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3		
DRAFTED	JDB		2		
CHECKED	MEA	RCC	1		
DATE	JUNE 2024		NO.	DATE	REVISIONS

BY | APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

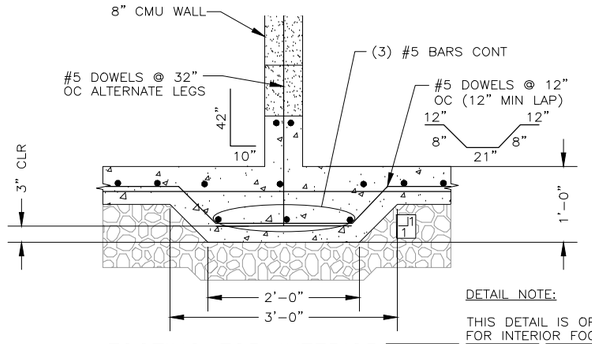
WELL PUMP STATION CONSTRUCTION
STRUCTURAL
TYPICAL BUILDING SECTIONS

SHEET S-4

127.24.400

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-4 TYPICAL BUILDING SECTIONS-1.DWG
FILE DATE: 10.15.2024 12:40:49 (BKC)

7/04



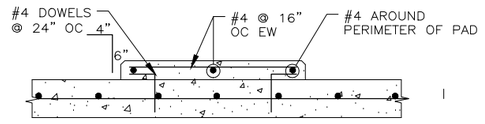
DETAIL NOTE:

THIS DETAIL IS OPTIONAL FOR INTERIOR FOOTING.

FOOTING FOR INTERIOR MASONRY WALL — NTS

4	4	4
–	S-2	S-3

4
S-10



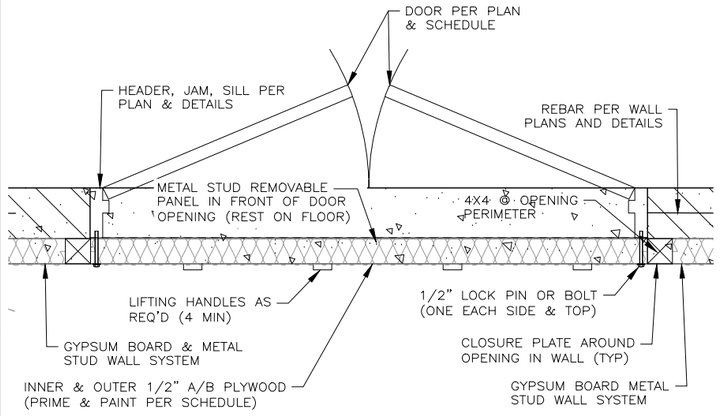
DETAIL NOTE:

SEE PLANS FOR OVERALL DIMENSIONS AND LOCATIONS OF PADS – MATCH EQUIPMENT.

HOUSEKEEPING PAD — NTS

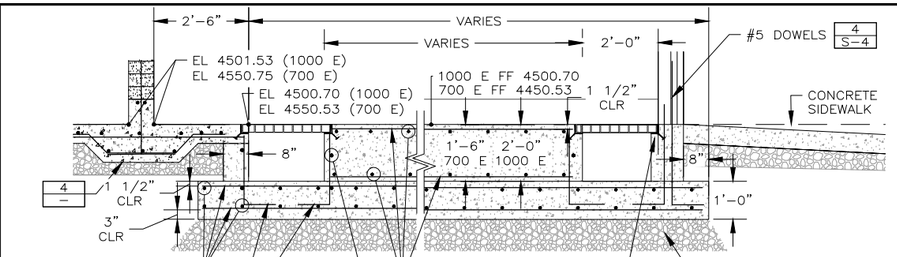
B	B	B
C-2	C-4	C-7

B	B
S-2	S-3



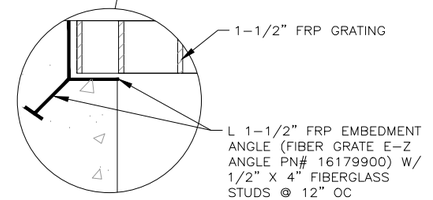
INSULATION @ DOOR OPENING — NTS

C	C	C
C-2	C-4	C-7



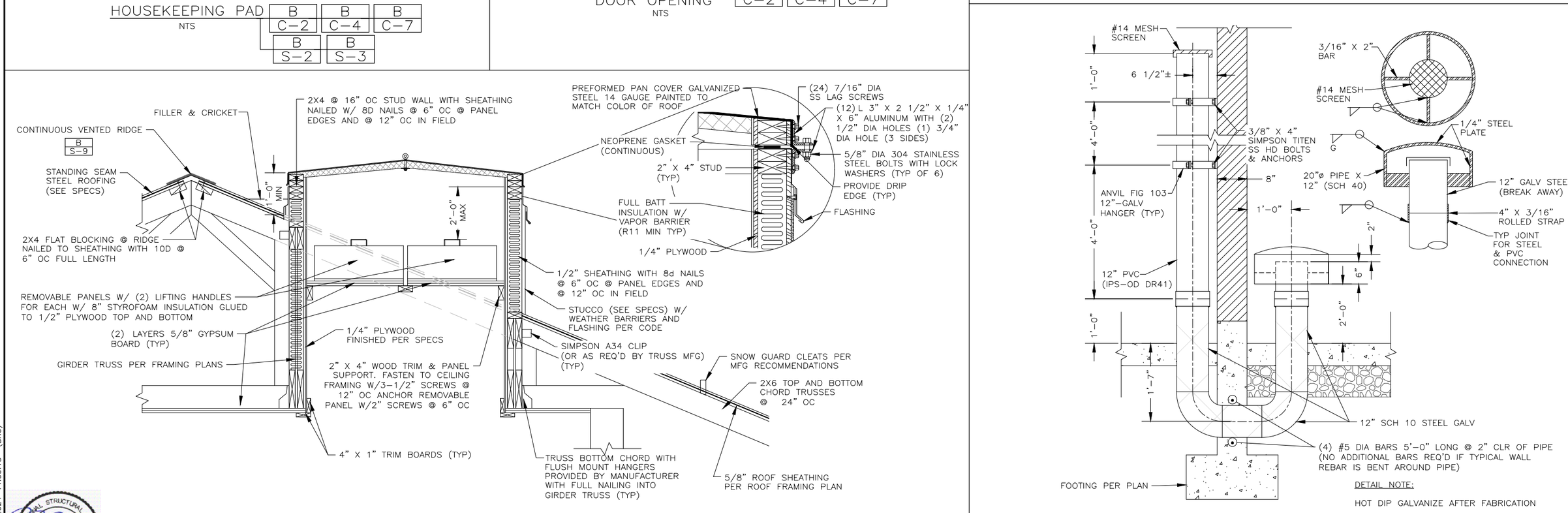
CRITICAL DETAIL NOTE:

THESE DIMENSIONS AND REINFORCEMENT PROVIDED FOR THE TANK SUPPORT ARE TO BE REVIEWED FOR THE ANCHORAGE CLEARANCES AND BEARING REQUIREMENTS BY THE TANK DESIGNER PRIOR TO CONSTRUCTION OF THE THICKENED FLOOR. THESE DIMENSIONS AND REINFORCEMENT ARE AN ESTIMATE AND NOT INTENDED FOR FINAL CONSTRUCTION



THICKENED TANK SUPPORT — NTS

H	H	H	H	H	H
C-2	C-3	C-7	C-9	S-2	S-3



ROOF SCUTTLE — NTS

E	E	E	E	E
C-3	C-9	S-4	S-6	S-7

DETAIL NOTE:

HOT DIP GALVANIZE AFTER FABRICATION

12" VENT — NTS

G	G	G	G
C-2	C-3	C-6	C-7

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — 10/7/2024 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	RCC	3			
DRAFTED	JDB		2			
CHECKED	MEA	RCC	1			
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

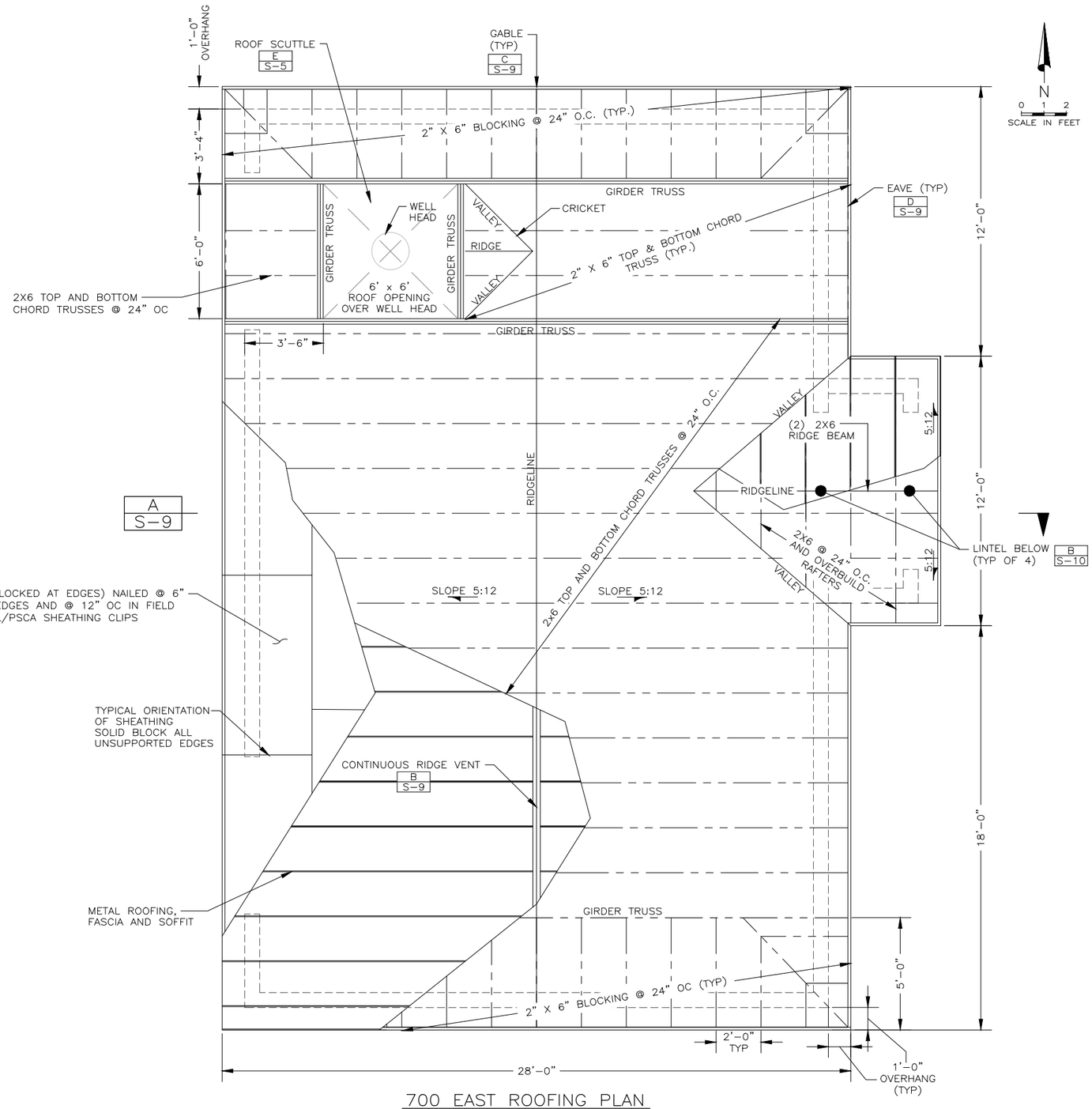
WELL PUMP STATION CONSTRUCTION
STRUCTURAL
MISCELLANEOUS BUILDING DETAILS

SHEET S-5

127.24.400

FILE NAME:PROJECTS\127.– JVWCD\24-400 – 10TH & 7TH FINALIZATION\CAD\S-5 MISC BUILDING DETAILS.DWG
FILE DATE: 9.24.2024 14:00:18 (BKC)

7/04



700 EAST ROOFING PLAN

GENERAL SHEET NOTES:

1. ALL NAILING PER IBC TABLE 2304.10.2, UNLESS NOTED OTHERWISE.
2. PROVIDE SIMPSON H3 @ EACH TRUSS TO TOP PLATE PER DETAIL.
3. TRUSS MANUFACTURER TO PROVIDE ALL TRUSS TO TRUSS CONNECTIONS.
4. ALL STEEL IN CONTACT WITH TREATED PLATES OR MASONRY/CONCRETE TO BE GALVANIZED OR STAINLESS STEEL.
5. CENTER ACCESS OPENING OVER EXISTING WELL.
6. SEE SHEET S-1 FOR TRUSS LOADING AND TRUSS REQUIREMENTS.

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 10-7-2024 STATE OF UTAH

PROFESSIONAL ENGINEER NO. 151898 MARVIN E. ALLEN STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3				
DRAFTED	CAH		2				
CHECKED	MEA	RCC	1				
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

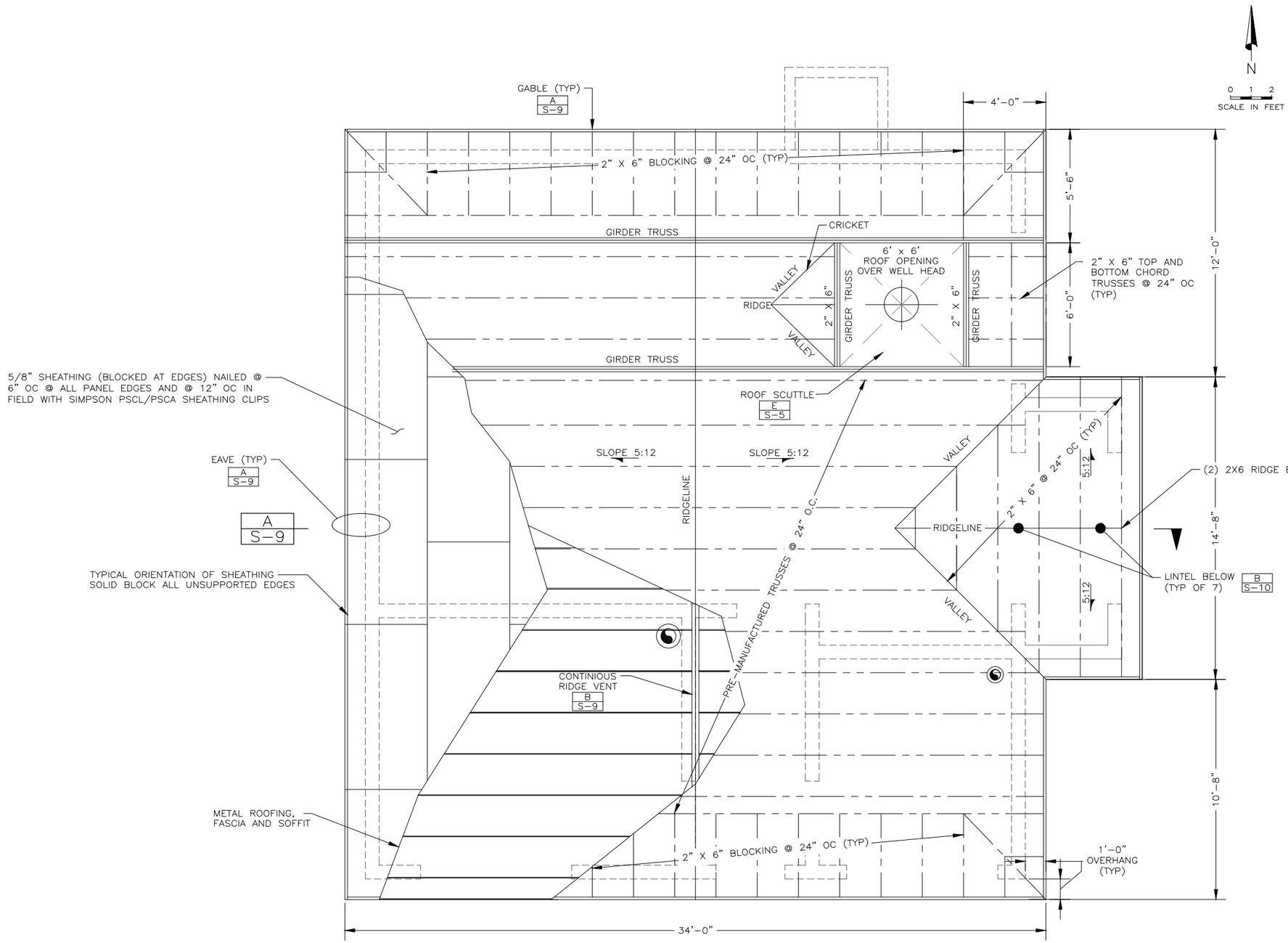
WELL PUMP STATION CONSTRUCTION
STRUCTURAL – 700 EAST
ROOF FRAMING DETAILS

SHEET S-6

127.24.400

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-6 ROOF FRAMING DETAILS 700 E.DWG
FILE DATE: 10.15.2024 13:27:43 (BKC)

7/04



1000 EAST ROOFING PLAN

GENFERAL SHEET NOTES:

1. ALL NAILING PER IBC TABLE 2304.10.2, UNLESS NOTED OTHERWISE.
2. PROVIDE SIMPSON H3 @ EACH TRUSS TO TOP PLATE PER DETAIL.
3. TRUSS MANUFACTURER TO PROVIDE ALL TRUSS TO TRUSS CONNECTIONS.
4. ALL STEEL IN CONTACT WITH TREATED PLATES OR MASONRY/CONCRETE TO BE GALVANIZED OR STAINLESS STEEL.
5. CENTER ACCESS OPENING OVER EXISTING WELL.
6. SEE SHEET S-1 FOR TRUSS LOADING AND TRUSS REQUIREMENTS.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN ALLEN & LUCE inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3				
DRAFTED	CAH		2				
CHECKED	MEA	RCC	1				
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

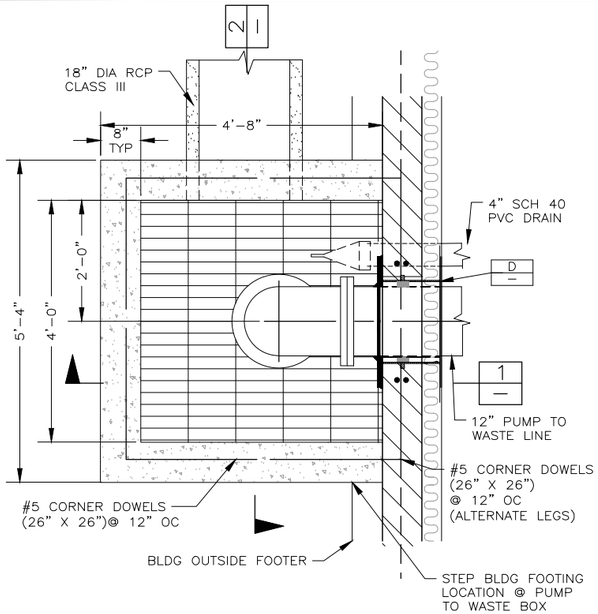
WELL PUMP STATION CONSTRUCTION
STRUCTURAL – 1000 EAST
ROOF FRAMING DETAILS

SHEET S-7

127.24.400

FILE NAME: PROJECTS\127-_JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-7 ROOF FRAMING DETAILS - 1000 EAST.DWG
FILE DATE: 8/14/2024 12:35:20 (MA)

7/04

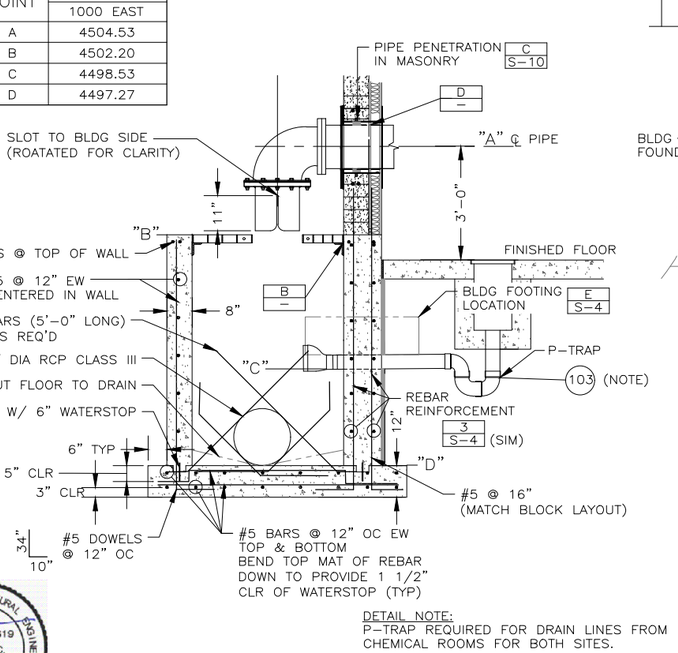


PUMP TO WASTE BOX PLAN
NTS

A	A	A
A–2	C–5	C–7

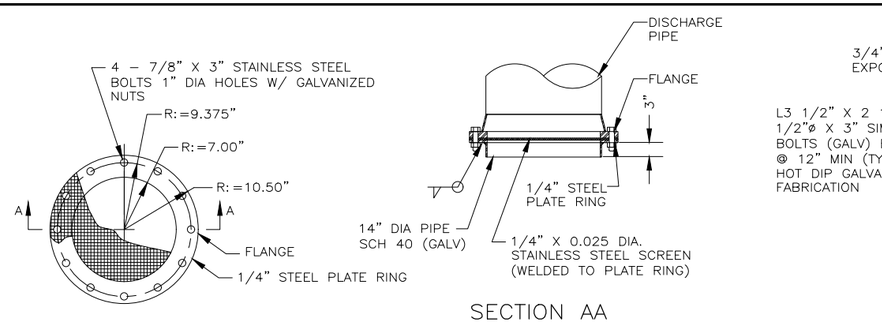
A	A
C–9	S–3

DESIGN TABLE	
POINT	ELEVATIONS 1000 EAST
A	4504.53
B	4502.20
C	4498.53
D	4497.27



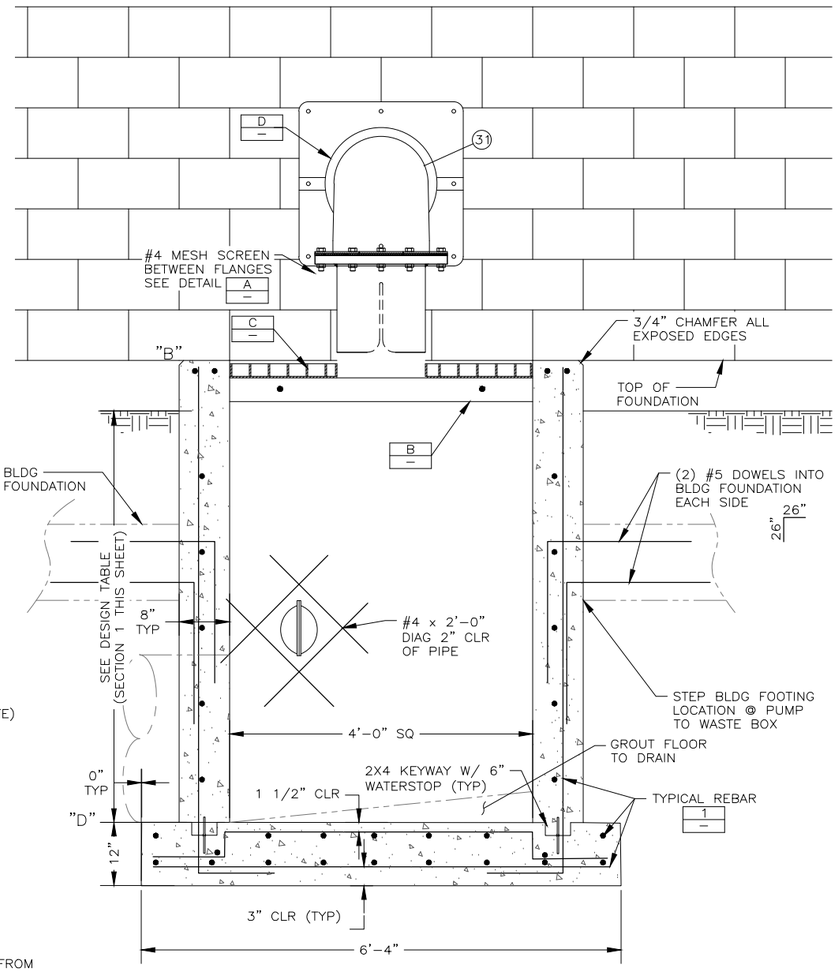
DETAIL NOTE:
P–TRAP REQUIRED FOR DRAIN LINES FROM CHEMICAL ROOMS FOR BOTH SITES.

SECTION 1
NTS

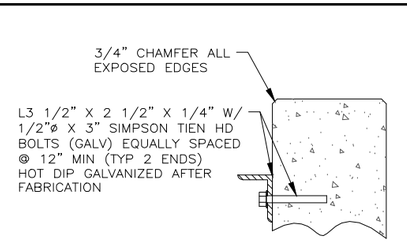


SECTION AA
NTS

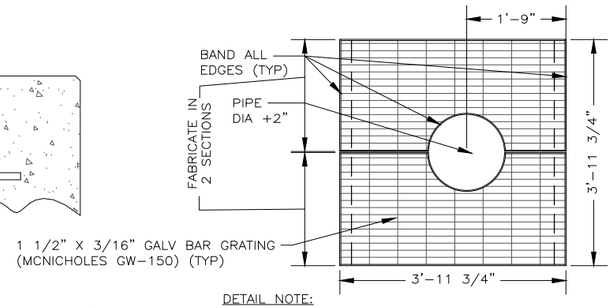
14" SCREENED OUTLET DETAIL A —
NTS



SECTION 2
NTS

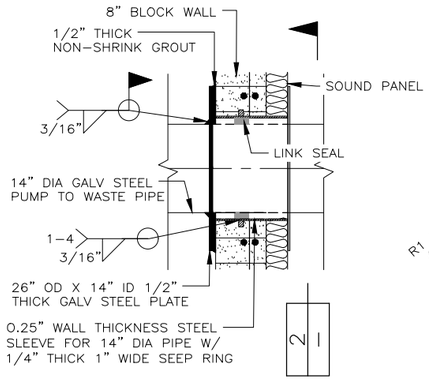


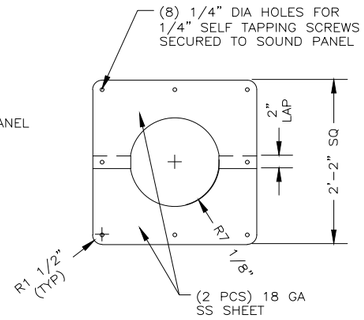
GRATING SUPPORT DETAIL B —
NTS



DETAIL NOTE:
HOT DIP GALVANIZE GRATE AND FRAME AFTER FABRICATION.

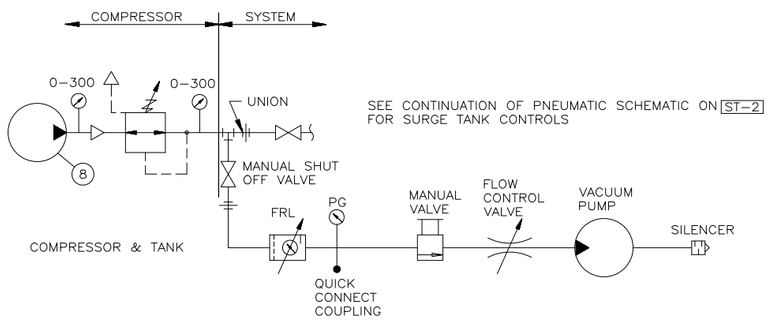
GRATING DETAIL C —
NTS





SECTION 2
NTS

PUMP TO WASTE PIPE PENETRATION D —
NTS



PNEUMATIC VACUUM PUMP CONTROL – 700 EAST

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
NO. 151898
MARVIN E. ALLEN
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3		
DRAFTED	BKC		2		
CHECKED	MEA	RCC	1		
DATE	JUNE 2024		NO.	DATE	REVISIONS

SCALE: AS SHOWN

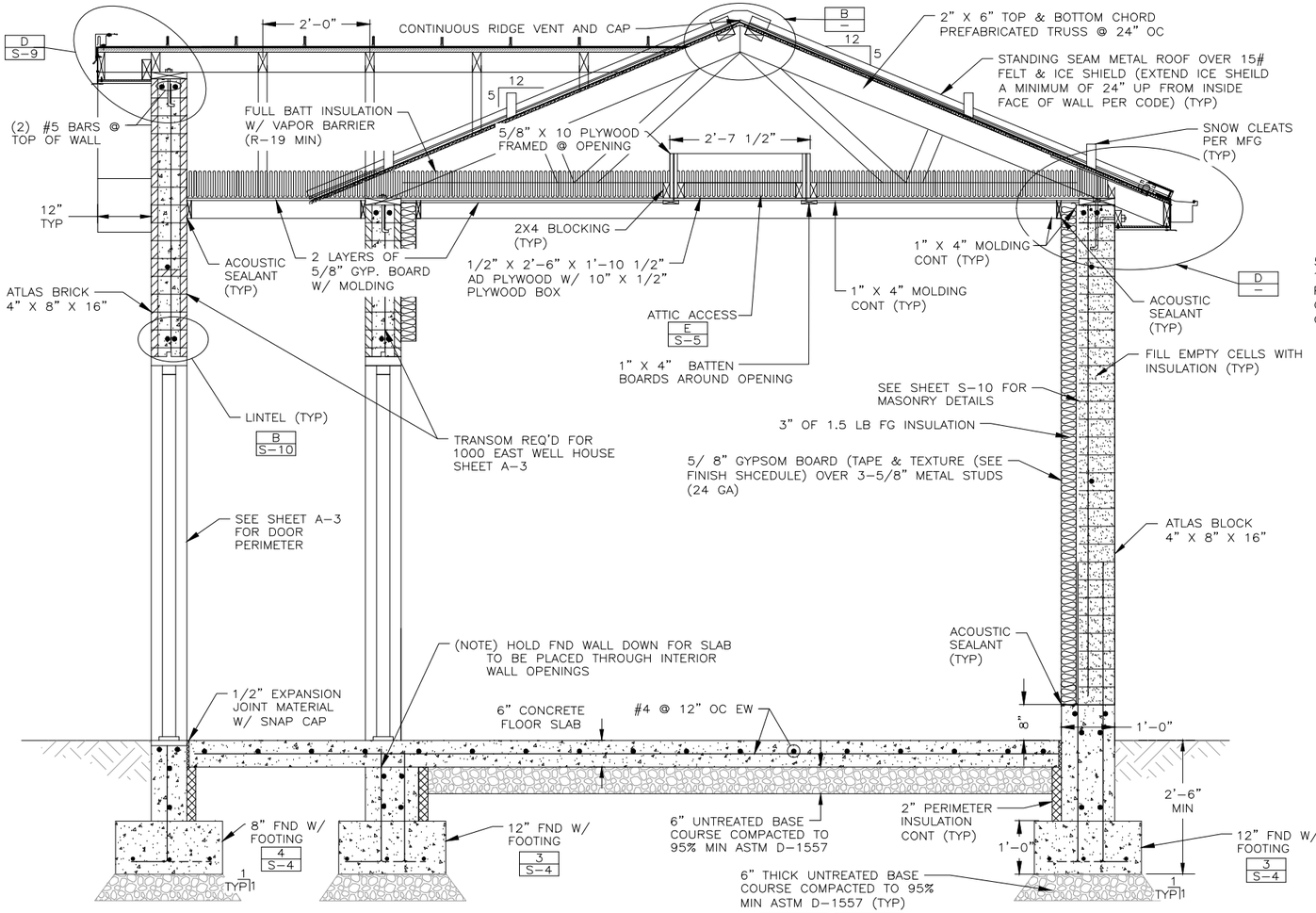
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
STRUCTURAL
PUMP TO WASTE DETAILS

SHEET S–8
127.24.400

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\S–8 PUMP TO WASTE–1.DWG
FILE DATE: 10.15.2024 13:30:02 (BKC)

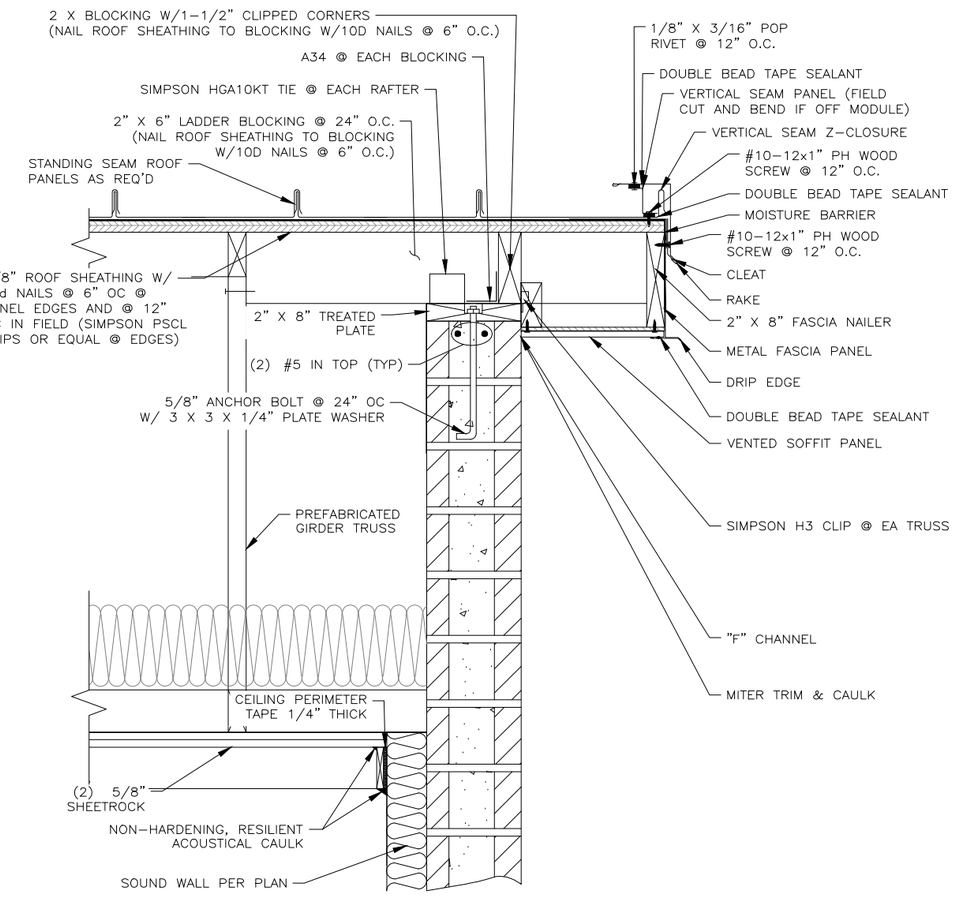
7/04



TYPICAL BUILDING SECTION

NTS

A	A
S-6	S-7



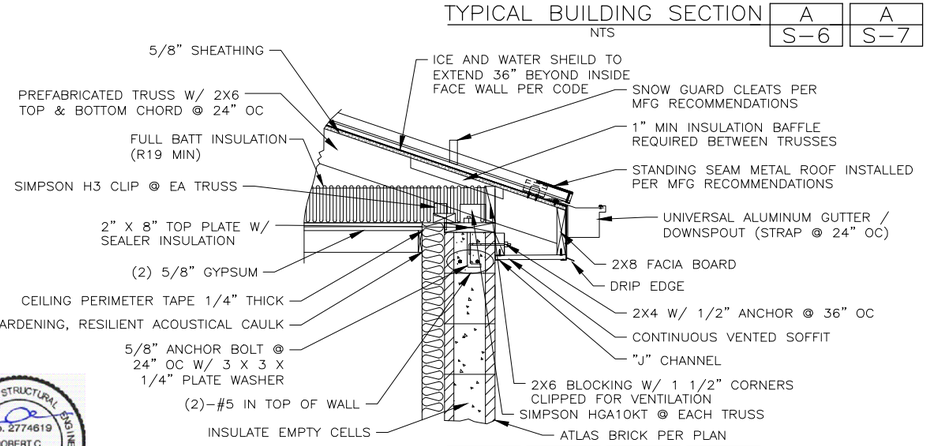
DETAIL NOTE:

SAW CUT TOP COURSE AFTER BRICK INSTALLATION.

TYPICAL GABLE SECTION 1000 EAST SITE

NTS

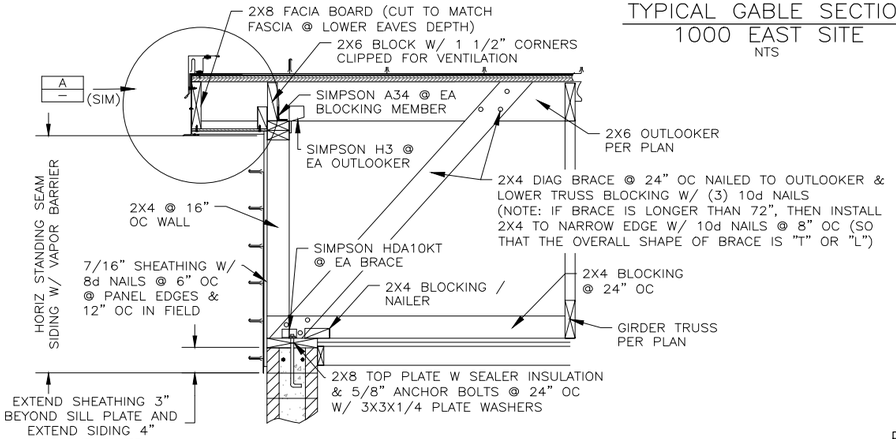
A	A	A
—	C-9	S-7



RAKE DETAIL

NTS

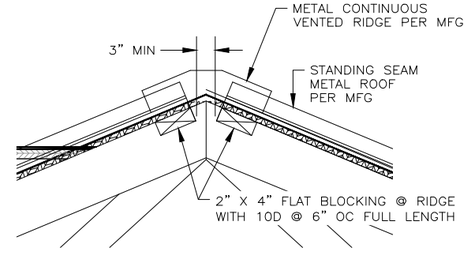
D	D	D	D
—	S-4	S-6	S-7



GABLE SECTION 700 EAST

NTS

C	C
S-3	S-7



RIDGE VENT

NTS

B	B	B	B
—	S-5	S-6	S-7

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-9 TYPICAL ROOFING DETAILS.DWG
FILE DATE: 10.15.2024 13:31:17 (BKC)

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — No. 151898 — MARVIN E. ALLEN — STATE OF UTAH — PROJECT ENGINEER

HANSEN ALLEN & LUCE inc ENGINEERS

DESIGNED	VGC	RCC	3			
DRAFTED	BKC		2			
CHECKED	MEA	RCC	1			
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY APVD.

SCALE: NOT TO SCALE

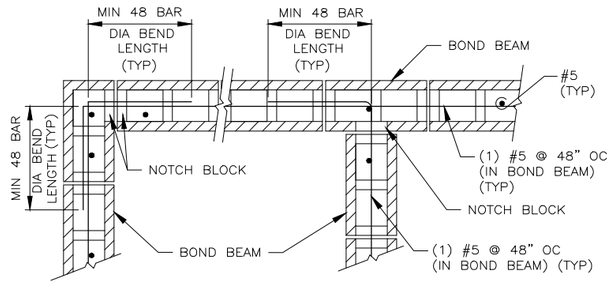
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
STRUCTURAL
TYPICAL ROOFING DETAILS

SHEET S-9

127.24.400

7/04

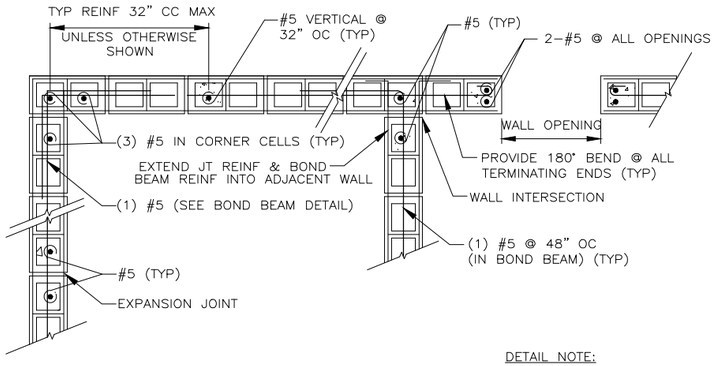


MASONRY BOND BEAM

NTS

DETAIL NOTE:

FILL EMPTY CELLS OF PARTIALLY GROUTED WALL WITH INSULATION PER SPECIFICATIONS.

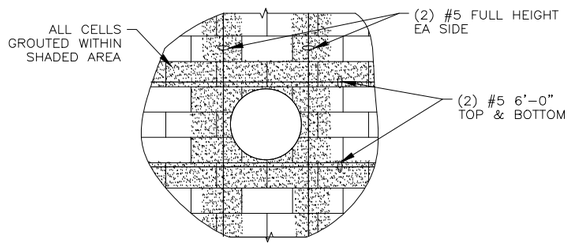


DETAIL NOTE:

FILL EMPTY CELLS OF PARTIALLY GROUTED WALL WITH INSULATION PER SPECIFICATIONS.

MASONRY WALL REINFORCING

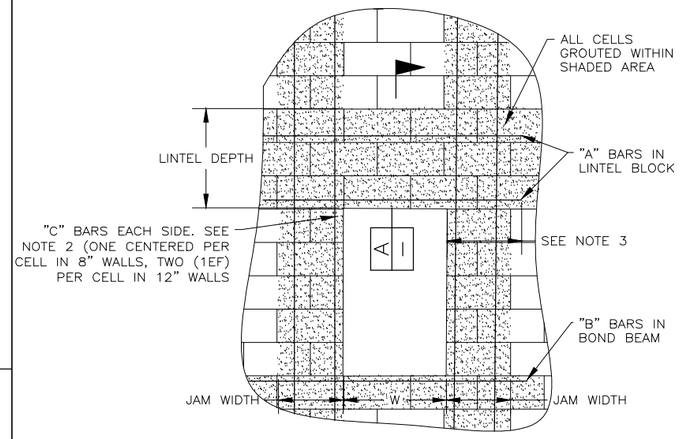
NTS



PIPE PENETRATION THROUGH MASONRY WALLS

NTS

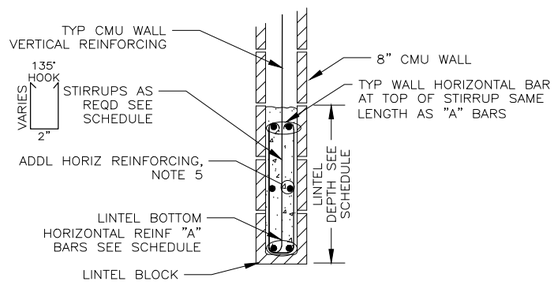
C	C
—	S-8



NOTES:

1. USE BAR QUANTITIES AND SIZES GIVEN IN LINTEL SCHEDULE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. EXTEND "C" BARS 48 BAR DIAMETERS, BUT NOT LESS THAN 2'-0" BEYOND TOP AND BOTTOM OF OPENING EXCEPT THAT WHEN "H" OR "W" EXCEEDS 2'-0". "C" BARS SHALL EXTEND FULL HEIGHT. WHERE THERE IS LESS THAN 8'-0" BETWEEN ADJACENT OPENINGS, EXTEND REINFORCING CONTINUOUS TO 2'-8" BEYOND FURTHEST OPENING.
3. "A" AND "B" BARS SHALL EXTEND 48 BAR DIAMETERS, BUT NOT LESS THAN 2'-0" EACH SIDE OF THE OPENINGS.
4. FOR BARS SIZES. MATCH TYPICAL WALL REINFORCING AS SHOWN ON THE BUILDING WALL SECTIONS.
5. FOR LINTEL DEPTH EQUAL TO OR GREATER THAN 48", PROVIDE ADDITIONAL LAYER OF HORIZONTAL REINFORCEMENT AT 12" FROM BOTTOM OF LINTEL. MATCH SIZE OF TYPICAL WALL HORIZONTAL REINFORCEMENT.

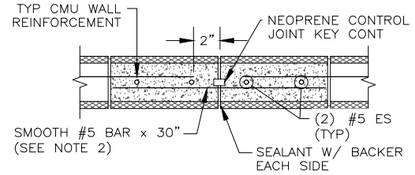
CMU OPENING REINF SCHEDULE 8" WALLS						
W	LINTEL DEPTH	STIRRUP SIZE / SPACING	A BARS	B BARS	C BARS	JAMB WIDTH
>2'-8"<4'-0"	24"	N/A	2	2	2	8"
>4'-0"<6'-0"	24"	#3@16"	2	2	2	16"
>6'-0"<8'-0"	24"	#3@16"	2	2	2	24"



MASONRY LINTEL DETAILS AT WALL OPENINGS

NTS

A
—

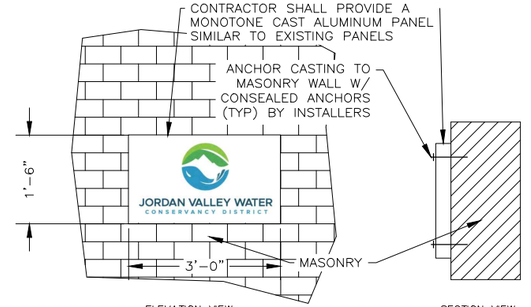


DETAIL NOTES:

1. EXACT LOCATIONS OF JOINTS TO BE DETERMINED BY THE CONTRACTOR & APPROVED BY THE ENGINEER. SPACING OF JOINTS TO NOT EXCEED 24' MAX.
2. SMOOTH BARS ACROSS JOINT SHALL MATCH HORIZONTAL BAR SPACING. PREVENT BOND BETWEEN BAR AND GROUT ON ONE SIDE OF JOINT WITH GREASE FILLED PVC SLEEVE. CAP AND SIZE SLEEVES TO ALLOW ONE INCH OF MOVEMENT BEYOND END OF PANELS.
3. ROOF LEVEL CHORD REINF SHALL BE CONTINUOUS THROUGH CONTROL JOINT.
4. CONTROL JOINTS SHALL NOT INTERSECT LINTELS.

CMU EXPANSION JOINT

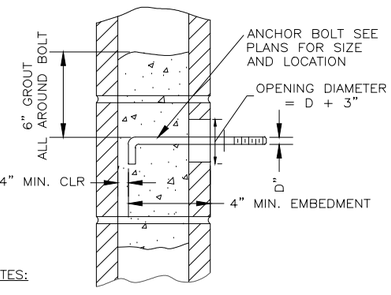
NTS



PRE-CAST ALUMINUM

NTS

E	E
A-1	A-1



DETAIL NOTES:

1. SET ANCHOR BOLTS WITH TEMPLATE.
2. CUT BLOCK WEB AS REQUIRED TO ALLOW PLACEMENT OF ANCHOR BOLT AND 1/2" MINIMUM OF GROUT BETWEEN ANCHOR BOLT AND BLOCK.
3. STAINLESS STEEL WEDGE ANCHORS MAY BE USED IN LIEU OF ANCHOR BOLTS.

ANCHOR BOLTS IN MASONRY

NTS

GENERAL SHEET NOTE:

USE REBAR POSITIONERS (HOHMANN & BARNARD RB-8, RB-12, MILL GALVANIZED) TO CENTER BAR IN WALLS. INSTALL @ 4' VERT (BELOW BOND BEAMS).

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
10-7-2024
STATE OF UTAH

PROFESSIONAL ENGINEER
NO. 151898
MARVIN E. ALLEN
10/7/2024
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3		
DRAFTED	BKC		2		
CHECKED	MEA	RCC	1		
DATE	JUNE 2024		NO.	DATE	REVISIONS

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

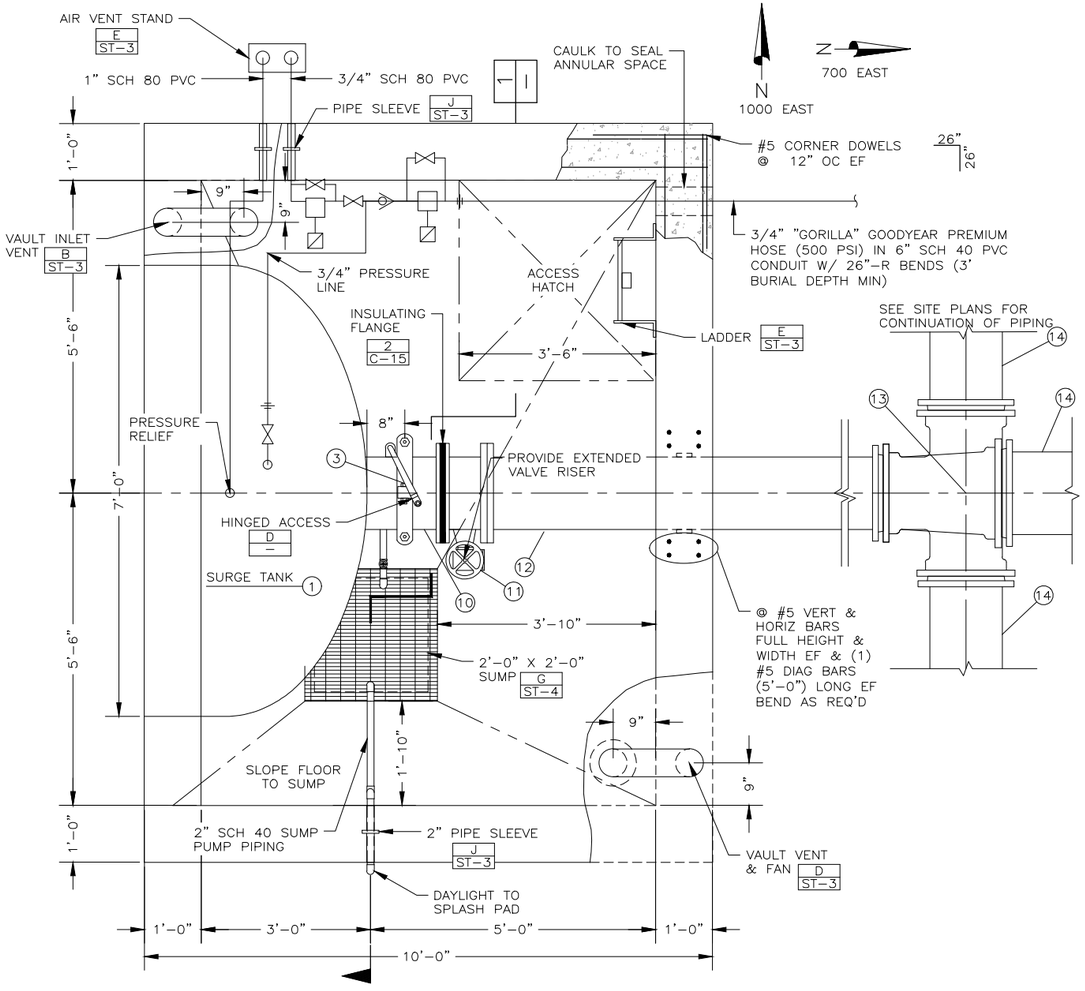
WELL PUMP STATION CONSTRUCTION
STRUCTURAL
TYPICAL CMU DETAILS

SHEET S-10

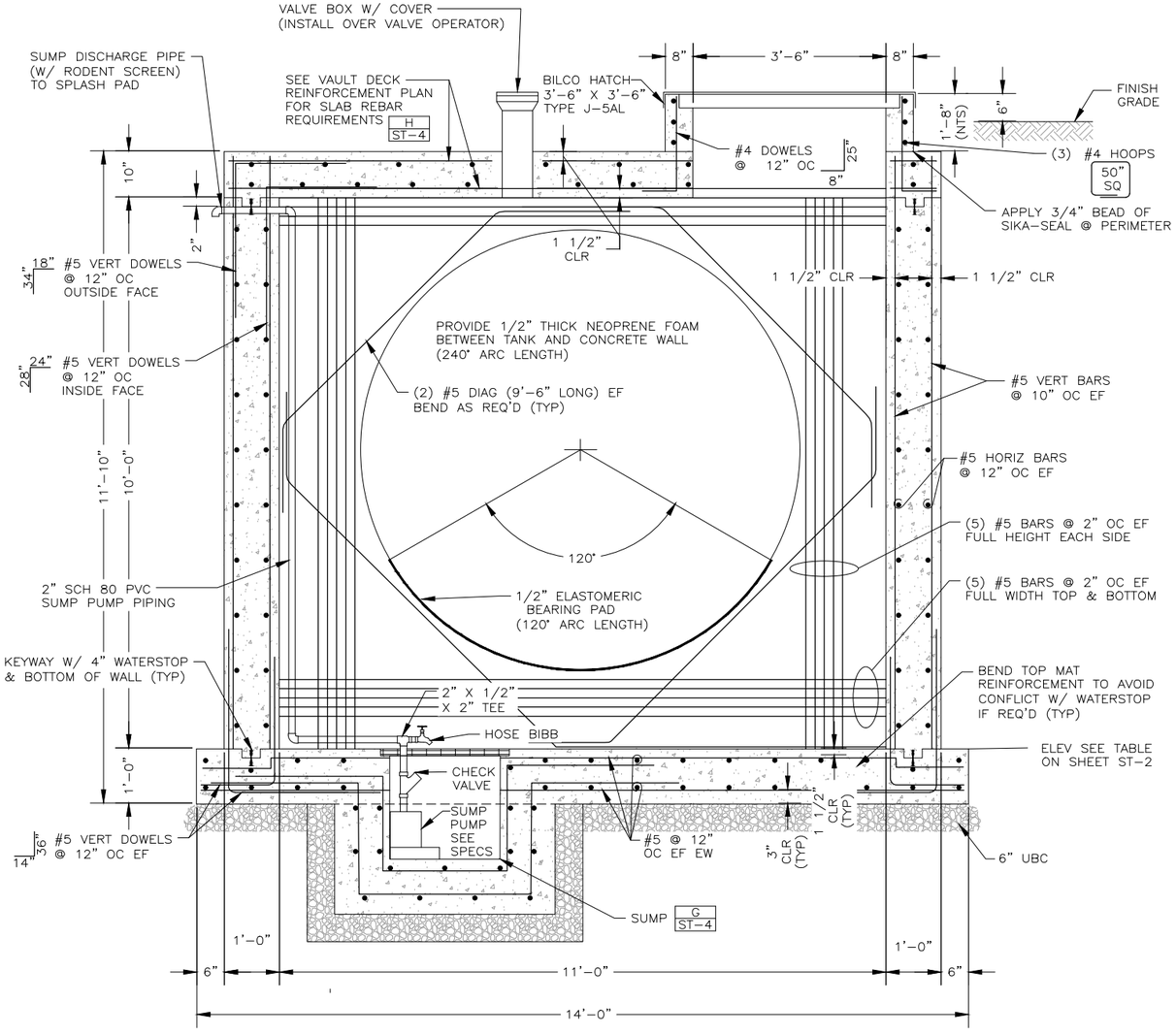
127.24.400

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\S-10 CMU DETAILS-1.DWG
FILE DATE: 11.5.2024 10:04:32 (BKC)

7/04



PLAN VIEW NTS — A C-1 | A C-1A | A C-5



SECTION 1 — NTS

GENERAL SHEET NOTES:

1. TAP INLET PIPE FOR IRRIGATION LINE & PROVIDE HOLE THROUGH WALL FOR 1" PIPING.
2. SEE SHEET ST-2 FOR EQUIPMENT, VALVE & PIPING SCHEDULE.

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — 10/7/2024 — NO. 151898 — MARVIN E. ALLEN — STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3				
DRAFTED	BKC		2				
CHECKED	MEA	RCC	1				
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY	APVD.

SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

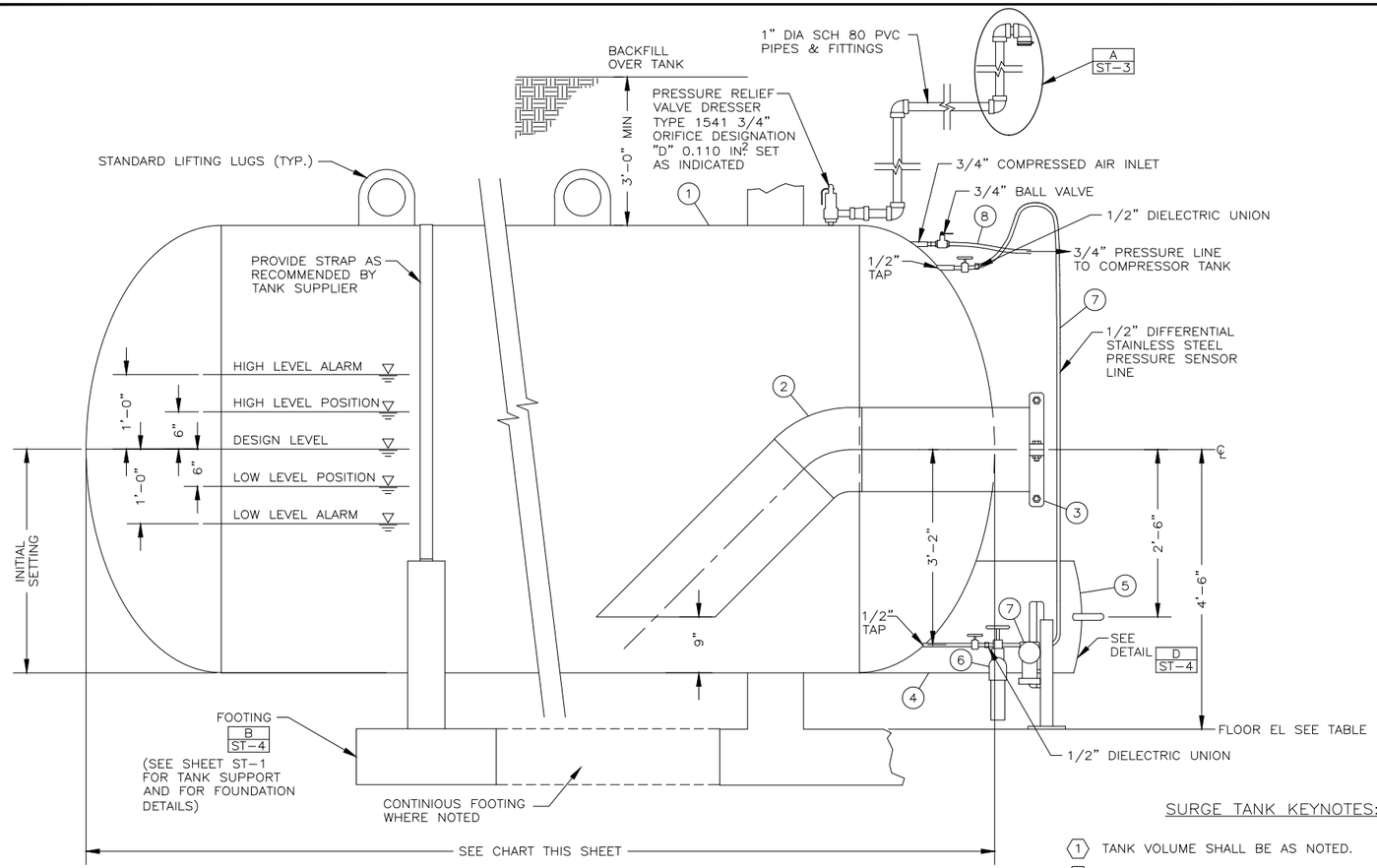
WELL PUMP STATION CONSTRUCTION
SURGE TANK SYSTEMS
SURGE TANK VAULT

SHEET ST-1

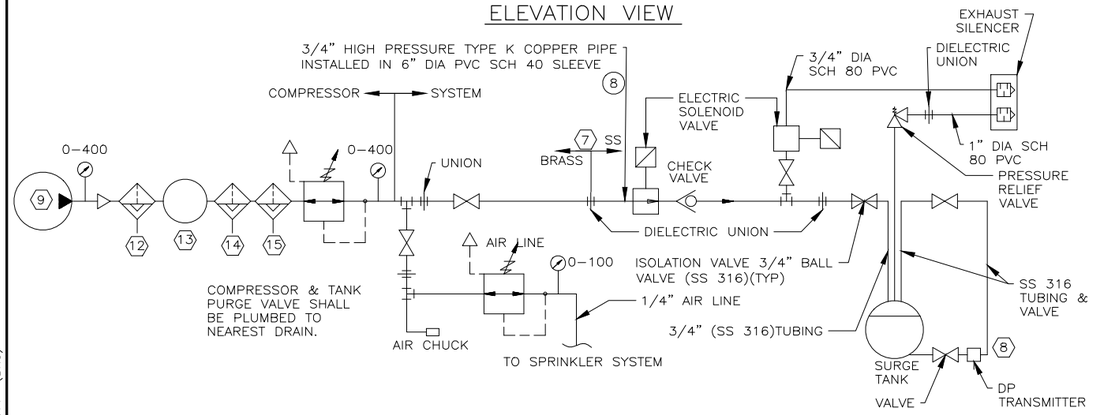
127.24.400

FILE NAME:PROJECTS\127.-JVWCD\24-400 - 10TH & 7TH FINALIZATION\CAD\ST-1 SURGE TANK VAULT.DWG
FILE DATE: 10.15.2024 13:33:13 (BKC)

7/04

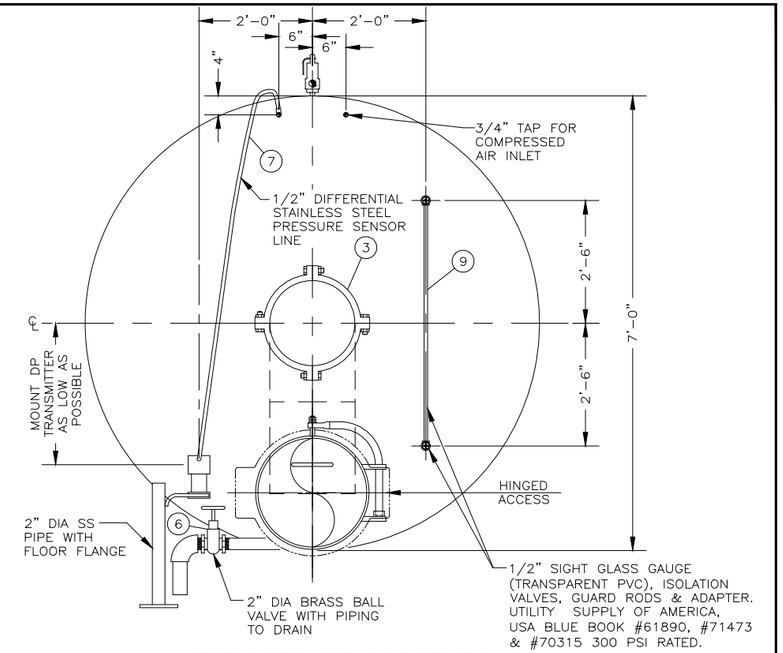


ELEVATION VIEW



⑥ PNEUMATIC SCHEMATIC

NTS



END VIEW OF SURGE TANK

SURGE TANK DATA

LOCATIONS	TANK	VOLUME	FLOOR ELEV.	INITIAL SETTING
700 EAST	7'-0"ø X 9'-0"	300 cf 2250 gal	4438.82	3'-6"
1000 EAST	7'-0"ø X 6'-6"	200 cf 1500 gal	4489.39	3'-6"

SURGE TANK KEYNOTES:

1. TANK VOLUME SHALL BE AS NOTED.
2. TANK SHALL BE ASME INSPECTED, STAMPED AND TESTED. WORKING PRESSURE 250 PSI – DESIGN TESTED @ 375 PSI.
3. PREPARE TANK SURFACE (INSIDE & OUTSIDE) SSPC–SP5 (WHITE METAL). COAT INSIDE WITH POLYAMIDE EPOXY COATING 3 COATS FOR 24 MIL TOTAL MINIMUM DRY FILM THICKNESS AND SHALL BE APPLIED IN ACCORDANCE WITH AWWA C210. COATING SHALL CONFORM TO NSF61. COAT OUTSIDE TANK WITH 24 MIL MIN THICKNESS POLYUREA (RINO LINER) (FUTURA – NO EQUAL).
4. SURGE TANK TO BE FABRICATED BY A MANUFACTURER WITH A MINIMUM OF 5 YEARS EXPERIENCE DESIGNING AND FABRICATING PRESSURE VESSELS.
5. FABRICATOR SHALL SUBMIT SHOP DRAWINGS AND STAMPED CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER FOR APPROVAL BEFORE FABRICATION.
6. ALL FITTINGS TO BE RATED AT 300 PSI.
7. USE BRASS FITTINGS AS SHOWN.
8. DIFFERENTIAL PRESSURE (DP) TRANSMITTER: SEE SPECIFICATION SECTION 26 06 05. MOUNT DP TRANSMITTER AS LOW AS POSSIBLE.
9. COMPRESSOR AND TANK: SEE SPECIFICATION SECTION 33 12 17.01
10. TANK SHALL BE CAPABLE OF WITHSTANDING A FULL VACUUM (–14 PSI) WITHOUT COLLAPSE.
11. ADD (2) 6" X 4" X 1/2" STEEL THERMITE WELD REINFORCEMENT PLATES TO TANK WALL AT LOCATION DESIGNATED BY ENGINEER FOR CORROSION CONTROL.
12. ONE MICRON PARTICULATE PRE–FILTER.
13. NON–CYCLING REFRIGERATED DRYER WITH ELECTRONIC DRAIN VALVE.
14. HIGH EFFICIENCY OIL REMOVAL FILTER.
15. OIL VAPOR REMOVAL FILTER.

EQUIPMENT, VALVE AND FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT	REMARKS
1.	SURGE TANK			SEE NOTES
2.	PIPE & 45° BEND	12"	PE X GE	STEEL
3.	COUPLING	12"	GE	VICTAULIC #77 OR EQUAL
4.	PIPE WITH TAP FOR DRAIN	24"	GE	ACCESS MANWAY
5.	END CAP W/HANDLE	24"	GE	
6.	DRAIN LINE & BALL VALVE (BRASS)	2"	THD	WITH FITTINGS TO DRAIN
7.	1/2" DIFFERENTIAL PRESSURE TAP, SENSOR AND 1/2" PRESSURE LINE	1/2"	THD	SEE NOTE 8.
8.	COMPRESSOR & AIR LINE	3/4"	THD	SEE PNEUMATIC SCHEMATIC
9.	SIGHT GAUGE	1/2"		TRANSPARENT PVC
10.	FLANGED ADAPTER NIPPLE (STEEL)	12"	FLG X GE	
11.	BUTTERFLY VALVE	12"	FLG	
12.	PIPE – LENGTH AS REQUIRED	12"	FLG X PE	DIP CLASS 53
13.	TEE W/ RESTRAINTS REDUCER W/ RESTRAINTS	12" 14" X 12"	MJ MJ	700 EAST 1000 EAST
14.	DIP (CLASS 53)	12" 14"	MJ MJ	700 EAST 1000 EAST

PE – PLAIN END
GE – GROOVED END
THD – THREADED
FLG – FLANGED

FILE NAME: PROJECTS\127 – JVWCD\24.400 – 10TH & 7TH FINALIZATION\CAD\ST–2 SURGE TANK DETAILS.DWG
FILE DATE: 9.24.2024 13:40:11 (BKC)

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER 9/9/2024 NO. 151898 MARVIN E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	VGC	3				
DRAFTED	JDB	2				
CHECKED	MEA	1				
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.

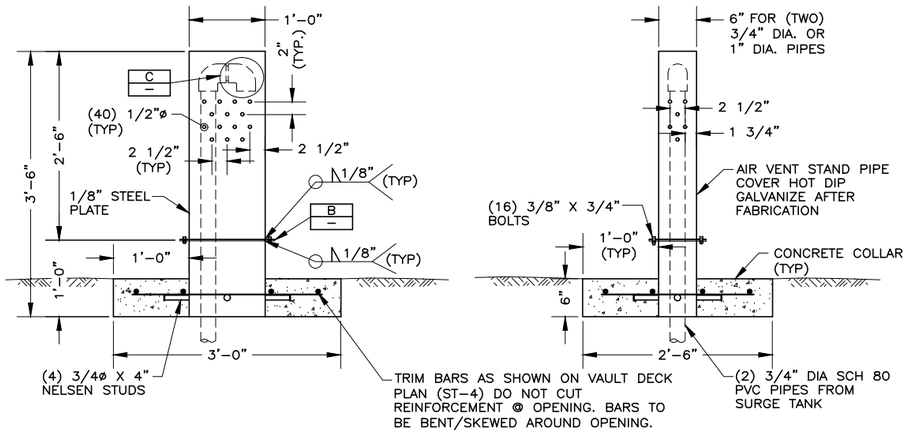
SCALE: NOT TO SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
SURGE TANK SYSTEMS
SURGE TANK DETAILS

SHEET ST–2

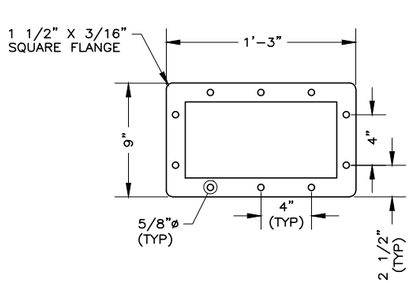
127.24.400



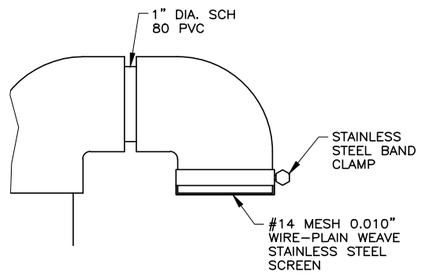
DETAIL NOTE:

COVER AVAILABLE FROM UTILITY COATINGS, SLC, UT OR APPROVED EQUAL

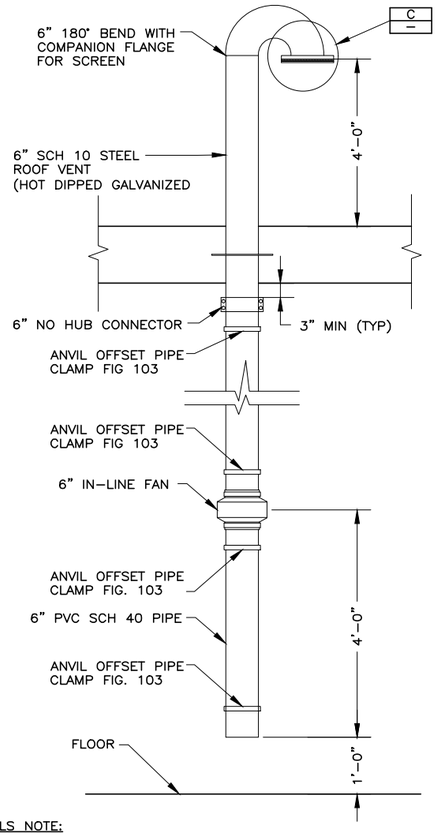
AIR VENT STAND PIPE — NTS — A ST-1 | A ST-2



DETAIL B — NTS — —



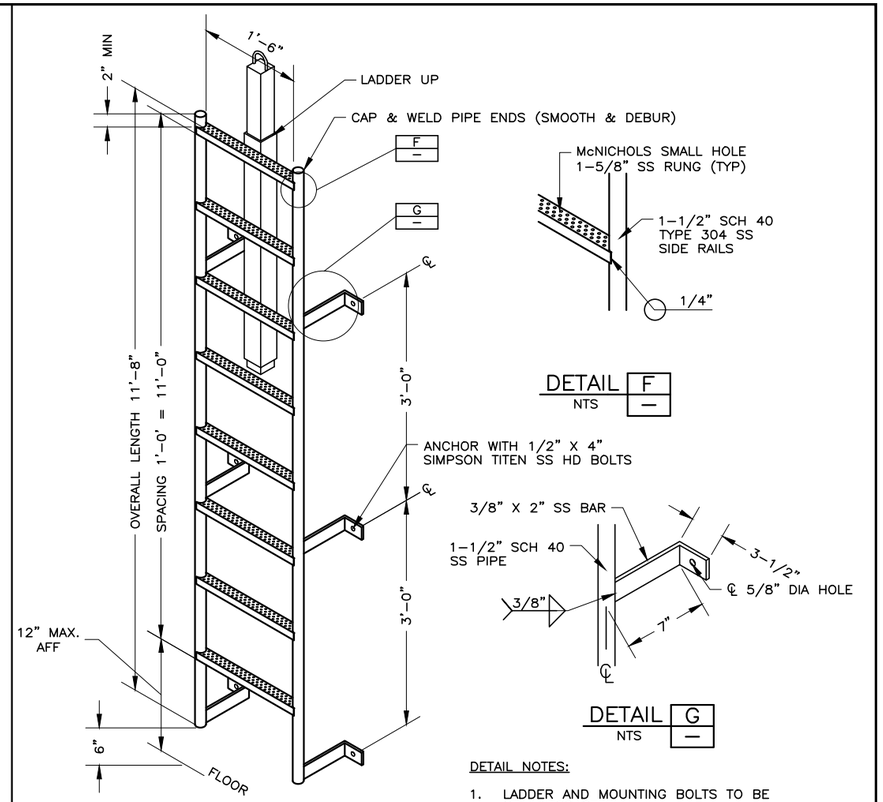
DETAIL C — NTS — —



DETAILS NOTE:

DO NOT CUT ROOF SLAB REBAR AT VENT LOCATIONS. BARS SHALL BE BENT/SKEWED TO PREVENT BEING CUT.

6" DIA. VAULT VENT & FAN DETAIL — NTS — D — | D C-7 | D ST-1 | D ST-4 — SIM



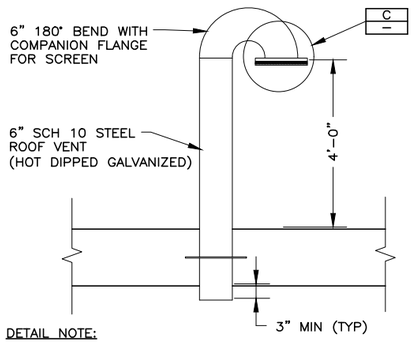
DETAIL F — NTS — —

DETAIL G — NTS — —

DETAIL NOTES:

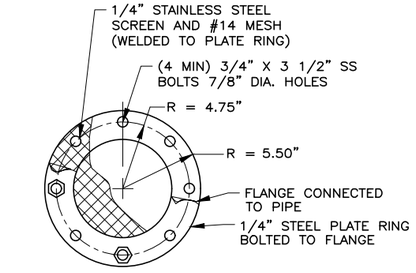
1. LADDER AND MOUNTING BOLTS TO BE STAINLESS STEEL.
2. ANCHORS & NUTS TO BE TYPE 316 STAINLESS STEEL.
4. FIELD VERIFY LADDER LENGTH PRIOR TO FABRICATION.

ACCESS LADDER DETAIL — NTS

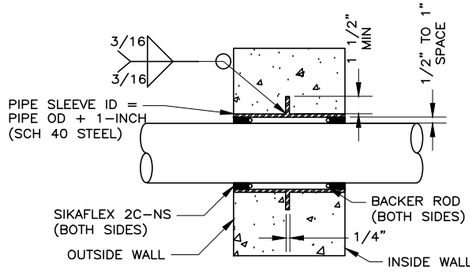


DETAIL NOTE:

DO NOT CUT ROOF SLAB REBAR AT VENT LOCATIONS. BARS SHALL BE BENT/SKEWED TO PREVENT BEING CUT.



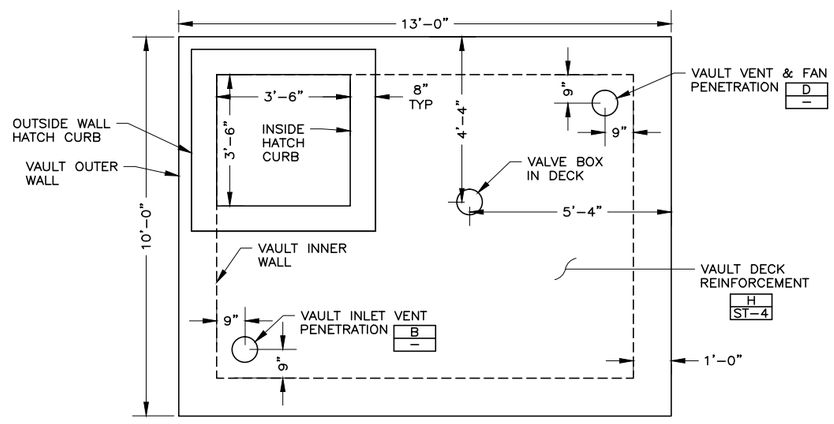
SCREENED OUTLET — NTS — C — SIM



DETAIL NOTE:

SLEEVE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

PIPE SLEEVE DETAIL — NTS — J — ST-1



VAULT DECK PLAN — NTS

6" DIA. VAULT INLET VENT DETAIL — NTS — B — | B ST-1 | B ST-4

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\ST-3 SURGE TANK DETAILS.DWG
FILE DATE: 11.5.2024 09:34:17 (BKC)

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 10-7-2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — No. 151898 — MARVIN E. ALLEN — STATE OF UTAH — PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED VGC RCC	3					
DRAFTED BKC	2					
CHECKED MEA RCC	1					
DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

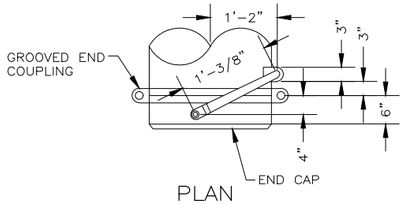
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
SURGE TANK DETAILS

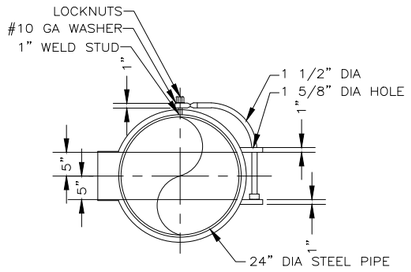
SHEET ST-3

127.24.400

7/04



PLAN

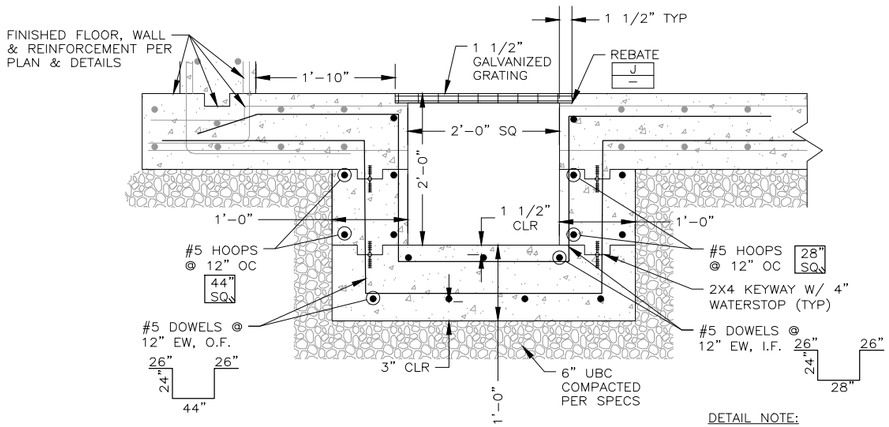


SECTION

24" HINGED ACCESS

NTS

D	D
—	ST-2



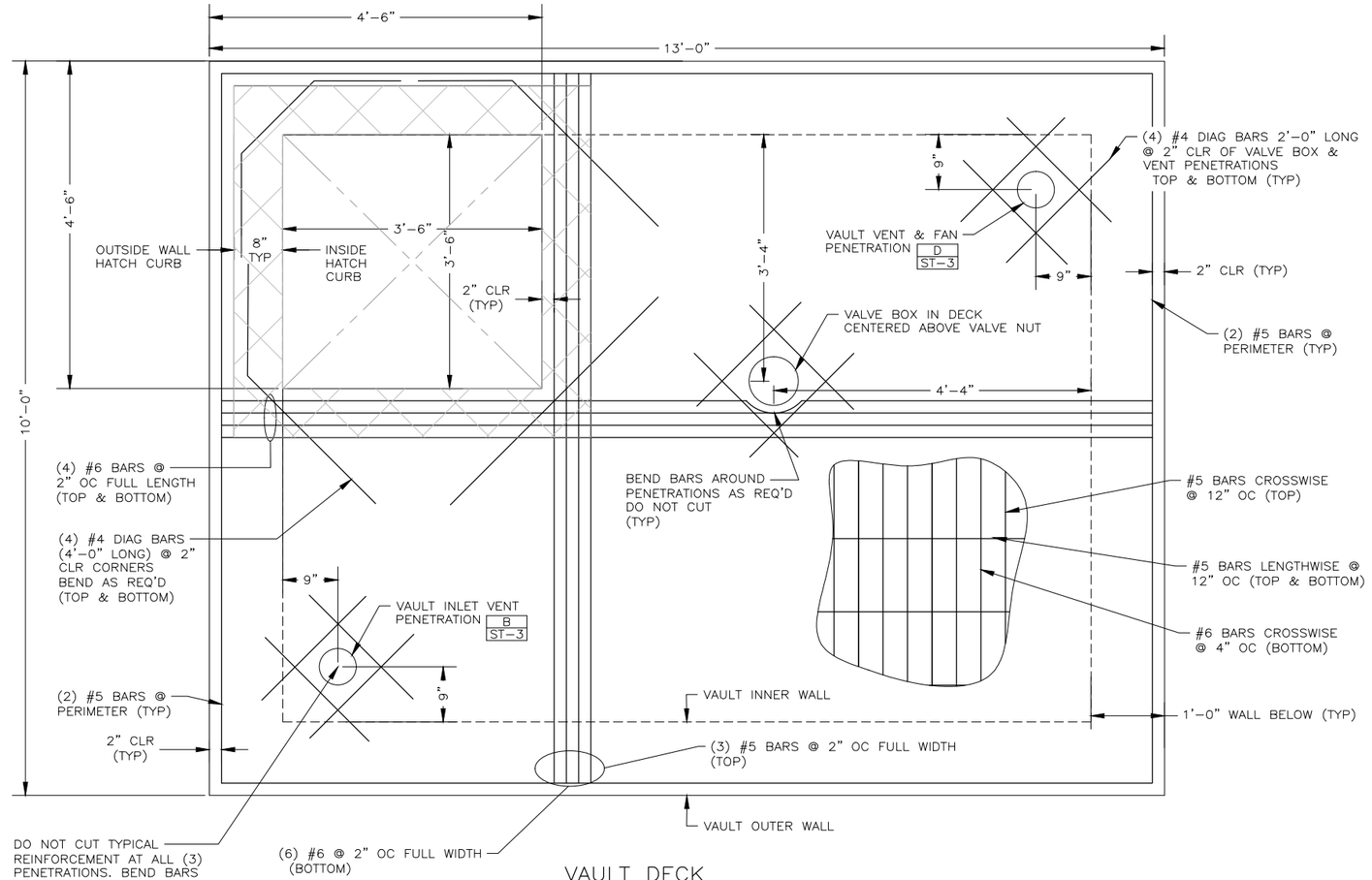
DETAIL NOTE:

2X4 KEYWAY W/ WATERSTOP MAY BE OMITTED IF SUMP IS CAST MONOLITHICALLY WITH FLOOR SLAB.

SURGE TANK SUMP

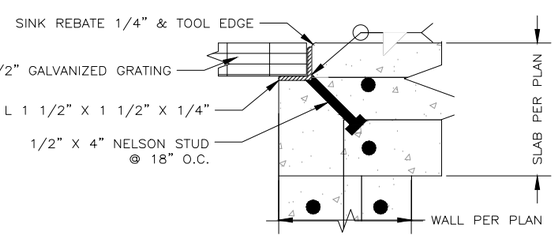
NTS

G
ST-1



VAULT DECK REINFORCEMENT PLAN

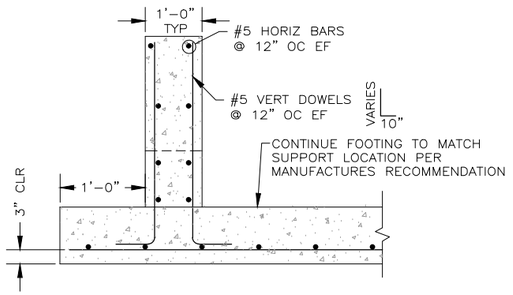
NTS



REBATE

NTS

J
—



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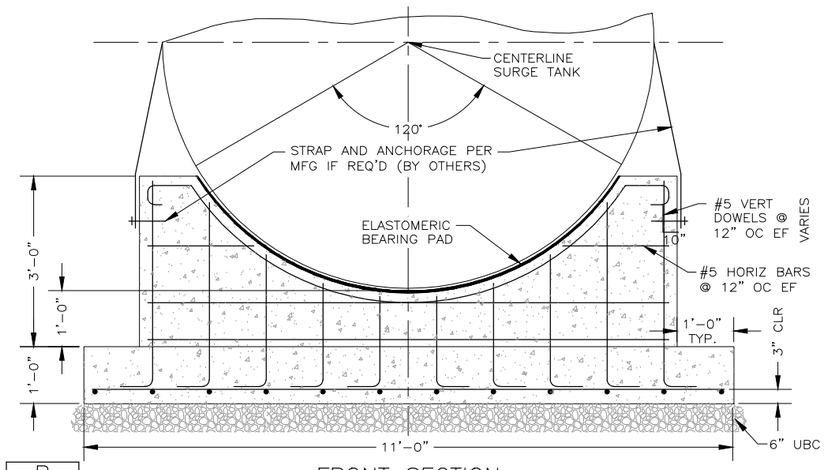


FRONT SECTION

FOOTING DETAIL

NTS

B
ST-2

FILE NAME: PROJECTS\127 - JVWCD\24.400 - 10TH & 7TH FINALIZATION\CAD\ST-4 SURGE TANK DETAILS.DWG
FILE DATE: 10.15.2024 13:43:43 (BKC)

7/04

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	VGC	RCC	3			
DRAFTED	BKC		2			
CHECKED	MEA	RCC	1			
DATE	JUNE 2024		NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
CHEMICAL FEED SYSTEMS
SURGE TANK DETAILS

SHEET ST-4

127.24.400

LEGEND OF HVAC/PLUMBING SYMBOLS AND ABBREVIATIONS

- SUPPLY AIR DUCT - RISE
- SUPPLY AIR DUCT - DROP
- RETURN AIR DUCT - RISE
- RETURN AIR DUCT - DROP
- ROUND DUCT - RISE
- ROUND DUCT - DROP
- UNDER FLOOR DUCT
- TURNING VANES
- FRESH AIR LOUVER
- RELIEF AIR OR EXHAUST AIR LOUVER
- CEILING SUPPLY DIFFUSER (12 12_ / 200)
- CEILING RETURN REGISTER (22 22_ / 200)
- CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF RETURN CFM IS NOT SHOWN) (12 12_ / 200)
- SIDEWALL SUPPLY REGISTER (14 6_ / 200)
- SIDEWALL EXHAUST OR RETURN REGISTER (14 6_ / 200)
- CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT (12_Ø / 400)
- CEILING RETURN AIR GRILE W/ SOUND BOOT (22 22_ / 400)

  TOP FIGURES INDICATE NECK SIZE, BOTTOM FIGURE INDICATES CFM.
- LINEAR DIFFUSER WITH PLENUM AND FLEXIBLE DUCT CONNECTION. NO. OF SLOTS ON TOP, ACTIVE LENGTH AND CFM ON BOTTOM (3_-_1"_SLOTS / 48" 400)
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES. (12 12)
- ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES. (12 Ø)
- INCLINED RISE (UP)
- INCLINED DROP (DN)

  WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS=DEPTH OF DUCT.
- R/W=1, ROUND DUCT SIMILAR TO RECTANGULAR (W, R)
- RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE. (12 12 — 8 8)
- RECTANGULAR TO ROUND DUCT TRANSFORMATION (12 12 — 8_Ø)
- TAP FITTING FOR RECTANGULAR & ROUND DUCT (12 12 — 8_Ø)
- MANUAL VOLUME DAMPER
- FIRE DAMPER IN DUCT, W/ ACCESS PANEL REQD. (F)
- COMBINATION FIRE/SMOKE DAMPER W/ ACCESS PANEL (FS)
- SMOKE DAMPER W/ ACCESS PANEL (S)
- ATC DAMPER/MOTORIZED DAMPER (M)
- BALANCE DAMPER (BD)

- 4-WAY BLOW PATTERN
- 3-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 1-WAY BLOW PATTERN
- THERMOSTAT (T)
- EMCS SENSOR (S E)
- SENSOR (S)
- REVISION (1)
- SECTION CUT (2 / M3.1)
- DETAIL TAG - TOP FIGURE IS DETAIL NO. (1 / M1.1)
- EQUIPMENT IDENTIFICATION
- KEYED NOTE IDENTIFICATION (1)
- ANCHOR
- NRS GATE VALVE WITH SUPERVISION
- FLOW SWITCH
- HOSE VALVE
- ROOF DRAIN (RD)
- ROOF DRAIN OVERFLOW (RDO)
- WALL CLEAN-OUT (WCO)
- FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE (FCO)
- VENT THRU ROOF (VTR)
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC RECIRCULATING HOT WATER
- SEWER (BELOW GRADE)
- SEWER (ABOVE GRADE)
- VENT (SEWER)
- PLUMBING FIXTURE CALLOUT (WC-1)
- LOW PRESSURE CONDENSATE (LPC)
- MEDIUM PRESSURE CONDENSATE (MPC)
- HIGH PRESSURE CONDENSATE (HPC)
- LOW PRESSURE STEAM (LPS)
- MEDIUM PRESSURE STEAM (MPS)
- HIGH PRESSURE STEAM (HPS)
- VACUUM (V)
- PUMPED CONDENSATE

- CHILLED WATER SUPPLY (CHWS)
- CHILLED WATER RETURN (CHWR)
- CONDENSER WATER SUPPLY (CS)
- CONDENSER WATER RETURN (CR)
- HEATING HOT WATER SUPPLY (HWS)
- HEATING HOT WATER RETURN (HWR)
- GLYCOL HEAT RECOVERY PIPING (GHR)
- GLYCOL PIPING SOLUTION (G(NAME))
- LIQUIFIED PETROLEUM GAS (LPG)
- EXISTING PIPING TO BE REMOVED ((NAME))
- REFRIGERANT LIQUID (RL)
- REFRIGERANT SUCTION¹ (RS)
- HOT GAS (HG)
- SOLENOID VALVE (S)
- EXPANSION JOINT
- ALIGNMENT GUIDE
- DEMOLITION
- PRESSURE GAUGE WITH SHUT-OFF COCK
- PRESSURE GAUGE WITH PIGTAIL
- FLANGE
- UNION
- FLOW METER ORIFICE (GPM, LB/HR.)
- AIR VENT-MANUAL
- AIR VENT-AUTO
- FLOW SWITCH (F)
- PRESSURE SWITCH (PS)
- REDUCED PRESSURE BACKFLOW PREVENTOR W/ DRAIN PAN (RPBP)
- PRESSURE REDUCING, SELF CONTAINED VALVE
- PRESSURE REDUCING, EXTERNAL PRESSURE VALVE
- BALL VALVE (PIPE SIZES 2" AND SMALLER) BUTTERFLY VALVE (PIPE SIZES 2-1/2" AND LARGER)
- CHECK VALVE
- MOTOR OPERATED BUTTERFLY VALVE
- GAS COCK
- RELIEF VALVE
- GATE VALVE
- ATC VALVE - 2 WAY
- ATC VALVE - 3 WAY (C)

- SHUT-OFF COCK FOR USE WITH PRESSURE GAUGE
- PUMP
- FLEXIBLE CONNECTION
- FLOW METER
- 90° ELBOW
- 45° ELBOW
- REDUCER
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE WHERE DISCHARGE IS NOT PIPED TO DRAIN
- THERMOMETER 0-100°F (0-100°F)
- STEAM TRAP, F&T=FLOAT & THERMOSTATIC B=BUCKET, T=THERMOSTATIC
- DUCT SMOKE DETECTOR (SD)
- ARROW INDICATES DIRECTION OF FLOW IN PIPE
- LEADER INDICATES DOWNWARD SLOPE (_DN_)

MECHANICAL GENERAL NOTES

1. DUCT DIMENSIONS SHOWN REPRESENT INSIDE DUCT DIMENSIONS.
2. ALL EXTERIOR DUCTWORK TO BE CONCENTRIC WITH A MINIMUM OF R-8 INSULATION BETWEEN THE INNER AND OUTER DUCT.
3. ALL INTERIOR RECTANGULAR DUCTWORK TO BE LINED WITH 1/2" LINER WHERE CODE REQUIRED. DUCT DIMENSIONS ARE TO ACCOUNT FOR INSULATION.
4. GAS PIPING IS BY THE PLUMBING CONTRACTOR.
5. THE SHEET METAL DUCT WORK SHALL BE GALVANIZED STEEL, PER SMACNA STANDARDS, AND BE FABRICATED & INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA DUCT STANDARD EDITION.
6. COORDINATE THE HVAC SYSTEM, DUCT WORK, AND DIFFUSERS/GRILLES WITH THE OTHER TRADES AND THE REFLECTED CEILING PLAN.
7. THE MECHANICAL CONTRACTOR SHALL PERFORM THE NECESSARY TESTING, ADJUSTING, AND BALANCING OF THE HVAC EQUIPMENT AND SYSTEM.
8. PRIOR TO FINAL INSPECTION OR ACCEPTANCE, FULLY INSTRUCT THE OWNERS DESIGNATED OPERATION & MAINTENANCE PERSONNEL IN OPERATION, ADJUSTING, AND MAINTAINING THE PRODUCTS. EQUIPMENT, OR SYSTEMS.
9. THE INSTALLATION OF THE HVAC SYSTEM SHALL COMPLY WITHTHE LATEST SMACNA. ACCA, UBC, IMC, AND IPS CODES BEING ENFORCED BY THE LOCAL STATE OR CITY WHERE IN THE STRUCTURE IS BEING BUILT.
10. INSTALL ALL EQUIPMENT WITH PROPER CLEARANCE.
11. SMOKE DAMPERS SHALL BE LISTED UL555S AND BE CONTROLLED BY AUTOMATIC SMOKE DETECTION.
12. PENETRATION OF A SMOKE BARRIER SHALL BE PROVIDED WITH AN APPROVED FIRE/SMOKE STOP SYSTEM OF A MINIMUM OF 1 HOUR FIRE RATED MATERIALS WHICH HAVE BEEN TESTED BY THE AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) E 814.
13. ENVIRONMENTAL AIR DUCTS THAT PENETRATE A FIRE RATED ASSEMBLY SHALL BE PROVIDED WITH FIRE DAMPERS WHICH ARE LABELED UL 555 AND LABELED A FIRE RATING WHICH IS 3/4 OF THE HOUR OF THE FIRE RATED ASSEMBLY PENETRATED.
14. THE CONTRACTOR SHALL SUBMIT PLANS AND CALCULATIONS FOR SEISMIC BRACING WHERE REQUIRED BY CODE.

SHEET INDEX

SHEET NUMBER	SHEET NAME
H-1	MECHANICAL LEGENDS, GENERAL NOTES, & INDEX
H-2	700 E PUMP STATION HVAC PLAN
H-3	1000 E PUMP STATION HVAC PLAN
H-4	700 E MECHANIC LOAD CALC
H-5	1000 E MECHANICAL LOAD CALC
H-6	700 E MECHANICAL COMCHECK
H-7	1000 E MECHANICAL COMCHECK
H-8	MECHANICAL & PLUMBING SPECIFICATIONS
H-9	MECHANICAL & PLUMBING SPECIFICATIONS
H-10	MECHANICAL & PLUMBING SPECIFICATIONS

LICENSED PROFESSIONAL ENGINEER — 260219 — E. TAYLOR — FLORIDA — 04/18/24 — STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

Bluefield Engineering

DESIGNED	BLUEFIELD	3			
DRAFTED	BLUEFIELD	2			
CHECKED	TG	1			
DATE	NOV 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
HVAC – 700 EAST & 1000 EAST
LEGENDS, NOTES & INDEX

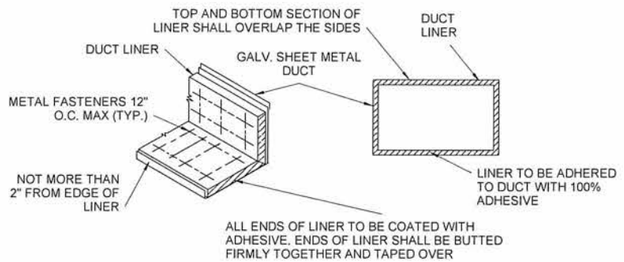
SHEET H–1

127.26.100

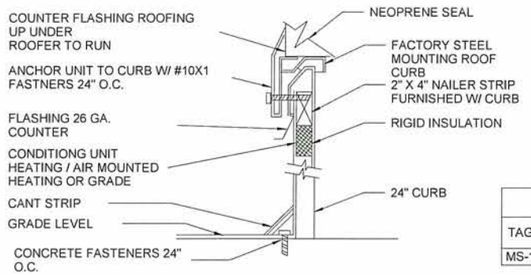
ELECTRIC UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	NOMINAL HEATING CAPACITY (BTUH)	WATTS	AIRFLOW (CFM)	VOLT / PHASE	MCA	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	NOTES
UH-1	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	6	18"	18"	18"	1,2
UH-2	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	6	18"	18"	18"	1,2
UH-3	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	6	18"	18"	18"	1,2

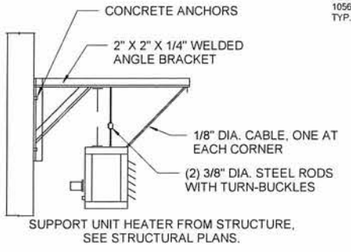
1. PROVIDE WITH FACTORY WALL MOUNT BRACKET
2. PROVIDE WITH FINGER PROOF FAN GUARD



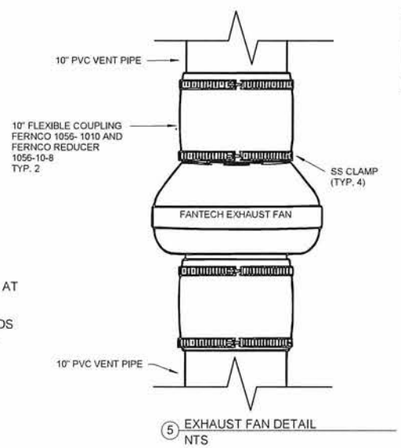
(2) DUCT LINER DETAIL
NTS



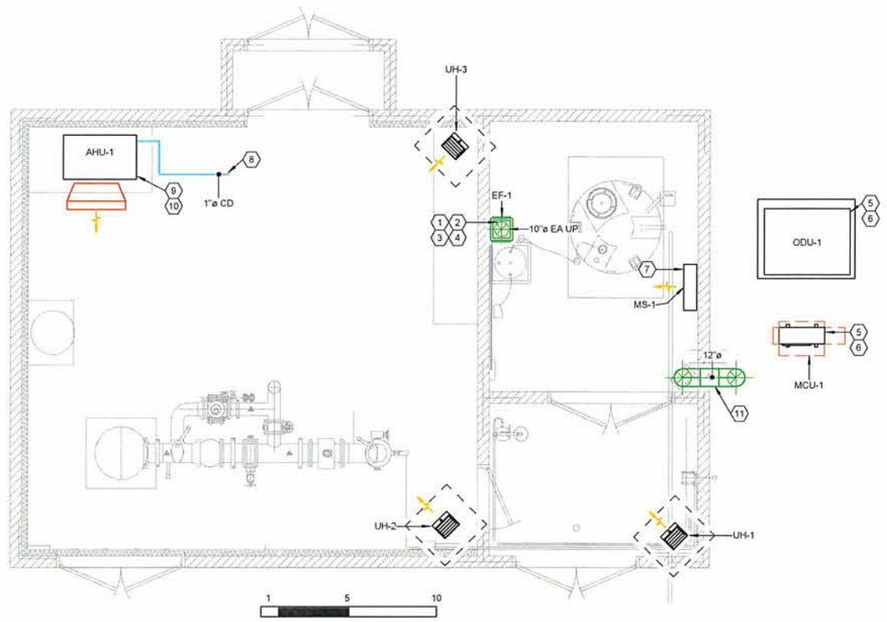
(4) GRADE LEVEL CURB DETAIL
NTS



(3) ELECTRIC UNIT HEATER DETAIL
NTS



(5) EXHAUST FAN DETAIL
NTS



700 PUMP STATION HVAC PLAN

KEYED NOTES

Key Value	Keynote Text
1	MOUNT FAN ON WALL INVERTICAL POSITION.
2	10" PVC EXHAUST PIPE. VENT THROUGH ROOF WITH 90 DEG BEND.
3	ALL EXHAUST FANS ARE TO HAVE MANUAL ON OVERRIDE. CORDINATE WITH ELECTRICAL.
4	EXHAUST FAN OPERATION TIED TO MAIN CONTROL PANNEL. CORDINATE WITH ELECTRICAL.
5	PROVIDE 4" HOUSEKEEPING PAD.
6	VERIFY LOCATION WITH OWNER.
7	BOTTOM OF UNIT IS TO BE 7 FT ABOVE FINISH FLOOR.
8	DRAIN CONDENSATE TO FLOOR DRAIN.
9	LOWSIDE RETURN.
10	INTERLOCK AIR HANDLING SYSTEM AND UNIT HEATERS TO CONTROL SYSTEM. CONTROL SYSTEM BY ELECTRICAL CONTRACTOR.
11	12" SCH 10 GALV. STEEL INTAKE VENT. SEE CIVIL DRAWINGS.

MITSUBISHI OUTDOOR UNIT (SPLIT) SCHEDULE

TAG	ASSOCIATED EQUIPMENT	MODEL	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	OPERATING TEMPERATURE RANGE (DEG F)	REFRIGERANT TYPE	REFRIGERANT PIPE DIM LIQUID / GAS PRESSURE (INCH)	MCA	MOCP	VOLT / PHASE	WEIGHT (LBS)	NOTES
MCU-1	MS-1	MUZ-GL12NA	12,000	14,400	14 - 115	R-410A	1/4 / 3/8	9	15	208 / 1	100	1

MITSUBISHI INDOOR UNIT (SPLIT) SCHEDULE

TAG	MODEL	TYPE	AIRFLOW	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	REFRIGERANT TYPE	REFRIGERANT PIPE DIM LIQUID / GAS PRESSURE (INCH)	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
MS-1	MSZ-GL12NA	WALL MOUNTED	145-399	12,000	14,400	R-410A	1/4 / 3/8	1	15	208 / 1	12	32	10	30	1

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	TONS	NOMINAL COOLING CAPACITY (BTUH)	STAGES	REFRIGERANT TYPE	EER	VOLT / PHASE	MCA	MOCP	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
ODU-1	CARRIER	38AUD	10	120,000	3	R-410A	11.2	480 / 3	20	25	50	45	60	520	1, 2, 3

1. PROVIDE WITH 2 REFRIGERANT CIRCUITS
2. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROLS
3. PROVIDE WITH HAIL GUARDS

AIR HANDLING UNIT SCHEDULE

TAG	MODEL	TYPE	AIRFLOW / W.C.	NOMINAL COOLING CAPACITY (BTUH)	REFRIGERANT TYPE	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
AHU-1	CARRIER 40RFA	INDOOR UNIT	3,000 / 0.6	120,000	R-410A	4	6	480 / 3	56	30	50	450	1, 2

1. MEDIUM STATIC FAN
2. TWO SPEED BLOWER

EXHAUST FAN SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	AIRFLOW (CFM)	MOTOR HP	RPM	STATIC PRESSURE (IN-WC)	MCA	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
EF-1	INLINE-PLASTIC	FANTECH	PRIOAIR 8" DUCT LINE	500	0.25	2,700	0.5	1	120 / 1	12"	13"	13"	20	1, 2, 3, 4

1. INSTALL WITH VFD FAN CONTROLLER
2. PROVIDE WITH BACKDRAFT DAMPER.
3. TO BE INSTALLED IN THE SURGE TANK VAULT. COORDINATE WITH ELECTRICAL
4. CONTROLLED WITH TIME SWITCH, PROVIDED BY ELECTRICAL.

COMISSIONING CHECKLIST

THE FOLLOWING CHECKLIST IS TO BE COMPLETED BY THE CONTRACTOR AND RETURNED TO THE ENGINEER AT JOB COMPLETION WITH AS-BUILT RED LINES.

[INITIAL -DATE]

GENERAL [-] THE DESIGN INTENT, NOTES AND DETAILS AND CHECK LIST ARE UNDERSTOOD.

START-UP [-] ALL START-UP CHECK LISTS ARE COMPLETE AND PREPARED TO SUBMIT TO THE OWNER.

SEQUENCE [-] THE FOLLOWING SEQUENCE HAS BEEN VERIFIED TO OPERATE CORRECTLY:

SEQUENCE

COOLING: MAINTAIN 80 DEG. MAX WITH 5 DEGREE DEAD-BAND.
WHEN THE PUMP MOTOR IS RUNNING:
P-1.1, 1.2: ON TWO WAY VALVE IS CLOSE
AH-1: ON/AUTO
VFD-1: MODULATE BASED ON ROOM TEMP.
UH-3,1: OFF

WHEN THE PUMP MOTOR IS OFF:
P1-1.1, 1.2: ON TWO WAY OPEN TO FLUSH
AH-1: ON/AUTO
VFD-1: MODULATE BASED ON ROOM TEMP.
UH-3,1: OFF

MAINTAIN 55 DEGREES WITH 5 DEGREE DEAD-BAND.
P-1.1,2: OFF
AH-1: OFF
UH-3,1: ON/AUTO

CHEMICAL ROOM

EXHAUST FAN IS TO RUN CONTINUOUSLY
COOLING: MS-1 ENGAGES AT TEMPERATURE SET POINT

HEATING: MS-1 ENGAGES AT TEMPERATURE SET POINT

LICENSED PROFESSIONAL ENGINEER — JOSEPH A. TAYLOR — 255215 — UTAH — 04/18/24 — STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

Bluefield Engineering

DESIGNED	BLUEFIELD	3			
DRAFTED	BLUEFIELD	2			
CHECKED	TG	1			
DATE	NOV 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
HVAC – 700 EAST
SITE PLAN

SHEET H-2

127.26.100

ELECTRIC UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	NOMINAL HEATING CAPACITY (BTUH)	WATTS	AIRFLOW (CFM)	VOLT / PHASE	MCA	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	NOTES
UH-1	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	1	18"	18"	18"	1,2
UH-2	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	1	18"	18"	18"	1,2
UH-3	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	1	18"	18"	18"	1,2
UH-4	Q-MARK	IUH-548	ELECTRIC	17,000	5,000	270	460 / 3	1	18"	18"	18"	1,2
UH-5	QMARK	LFK204F	WALL MOUNTED	5,000	1,500	100	208 / 1	7.2	20"	16"	5.25"	

1. PROVIDE WITH FACTORY WALL MOUNT BRACKET
2. PROVIDE WITH FINGER PROOF FAN GUARD

AIR HANDLING UNIT SCHEDULE

TAG	MODEL	TYPE	AIRFLOW / W.C.	NOMINAL COOLING CAPACITY (BTUH)	REFRIGERANT TYPE	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
AHU-1	CARRIER 39LD	INDOOR UNIT	8,000 / 0.5	202,000	R-410A	5	15	460 / 3	77	65	37	1100	1, 2

1. MEDIUM STATIC FAN
2. TWO SPEED BLOWER (VFD)

EXHAUST FAN SCHEDULE

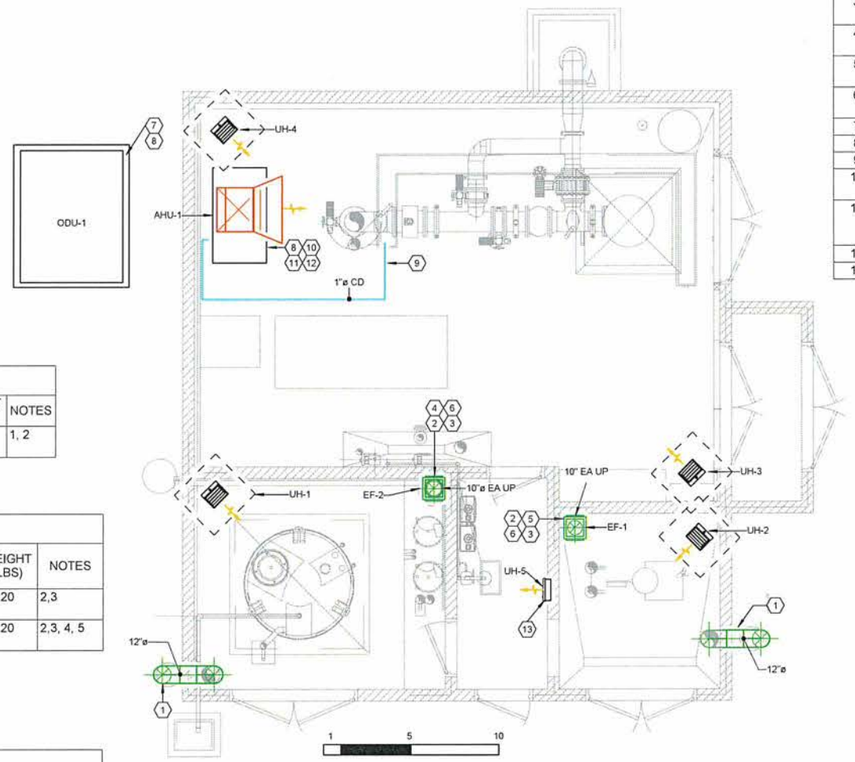
TAG	TYPE	MANUFACTURER	MODEL	AIRFLOW (CFM)	MOTOR HP	RPM	STATIC PRESSURE (IN-WC)	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
EF-1	INLINE-PLASTIC	FANTECH	PRIOAIR 8" DUCT LINE	450	0.25	3,600	0.5	2	15	120 / 1	10"	11"	11"	20	2,3
EF-2	INLINE-PLASTIC	FANTECH	PRIOAIR 10" DUCT LINE	720	0.25	2,900	0.5	3	15	120 / 1	12"	13"	13"	20	2,3, 4, 5

1. TIED TO LIGHT SWITCH.
2. TIED TO LINE VOLTAGE THERMOSTAT AND TO FLUORIDE SENSOR FOR EMERGENCY USE.
3. PROVIDE WITH BACKDRAFT DAMPER.
4. TO BE INSTALLED IN THE SURGE TANK VAULT. COORDINATE WITH ELECTRICAL
5. CONTROLLED VIA TIMER SUPPLIED BY ELECTRICAL.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	TONS	NOMINAL COOLING CAPACITY (BTUH)	STAGES	REFRIGERANT TYPE	SEER	VOLT / PHASE	MCA	MOCP	MOTOR HP	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
ODU-1	CARRIER	38AUD	20	220,000	3	R-410A	11.2	460 / 3	33	40	3.46	50	70	90	1,000	1, 2, 3

1. PROVIDE WITH 2 REFRIGERANT CIRCUITS
2. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROLS
3. PROVIDE WITH HAIL GUARDS



1000 E PUMP STATION HVAC PLAN

KEYED NOTES

Key Value	Keynote Text
1	12" SCH 10 GALV. STEEL INTAKE VENT, SEE CIVIL DRAWINGS.
2	MOUNT FAN ON WALL INVERTICAL POSITION.
3	10" PVC EXHAUST PIPE. VENT THRU ROOF WITH 90 DEG BEND. INTAKE TO BE AT 18" AFF.
4	EXHAUST FAN OPERATION TIED TO LEAK SENSOR. CORDINATE WITH ELECTRICAL.
5	EXHAUST FAN OPERATION TIED TO MAIN CONTROL PANNEL. CORDINATE WITH ELECTRICAL.
6	ALL EXHAUST FANS ARE TO HAVE MANUAL ON OVERRIDE. CORDINATE WITH ELECTRICAL.
7	PROVIDE 4" HOUSEKEEPING PAD.
8	COORDINATE EXACT LOCATION WITH OWNER.
9	DRAIN CONDENSATE TO FLOOR DRAIN.
10	INTERLOCK AIR HANDLING SYSTEM AND UNIT HEATERS TO CONTROL SYSTEM. CONTROL SYSTEM BY ELECTRICAL CONTRACTOR.
11	SEISMIC SUPPORT AIR HANDLER FROM WALL AND INSTALL ON VIBRATION ISOLATORS. INSTALL SEISMIC CABLE AT 45 DEGREE ANGLES FROM EACH CORNER.
12	LOWSIDE RETURN.
13	BOTTOM OF UNIT HEATER IS TO BE 2FT ABOVE FINISH FLOOR.

COMISSIONING CHECKLIST

THE FOLLOWING CHECKLIST IS TO BE COMPLETED BY THE CONTRACTOR AND RETURNED TO THE ENGINEER AT JOB COMPLETION WITH AS-BUILT RED LINES.

[INITIAL -DATE]

GENERAL [-] THE DESIGN INTENT, NOTES AND DETAILS AND CHECK LIST ARE UNDERSTOOD.

START-UP [-] ALL START-UP CHECK LISTS ARE COMPLETE AND PREPARED TO SUBMIT TO THE OWNER.

SEQUENCE [-] THE FOLLOWING SEQUENCE HAS BEEN VERIFIED TO OPERATE CORRECTLY:

SEQUENCE

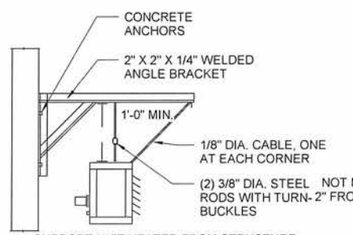
COOLING: MAINTAIN 80 DEG. MAX WITH 5 DEGREE DEAD-BAND.
WHEN THE PUMP MOTOR IS RUNNING:
P-1.1, 1.2: ON TWO WAY VALVE IS CLOSE
AH-1: ON/AUTO
VFD-1: MODULATE BASED ON ROOM TEMP.
UH-3,1: OFF

WHEN THE PUMP MOTOR IS OFF:
P1-1.1, 1.2: ON TWO WAY OPEN TO FLUSH
AH-1: ON/AUTO
VFD-1: MODULATE BASED ON ROOM TEMP.
UH-3,1: OFF

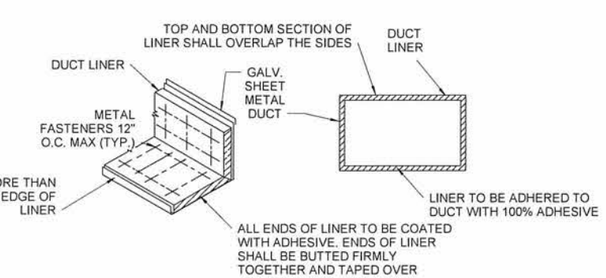
MAINTAIN 55 DEGREES WITH 5 DEGREE DEAD-BAND.
P-1.1,2: OFF
AH-1: OFF
UH-3,1: ON/AUTO

CHEMICAL ROOM
COOLING: EXHAUST FAN EF-1
ENERGIZED BY LINE VOLTAGE T-STAT.

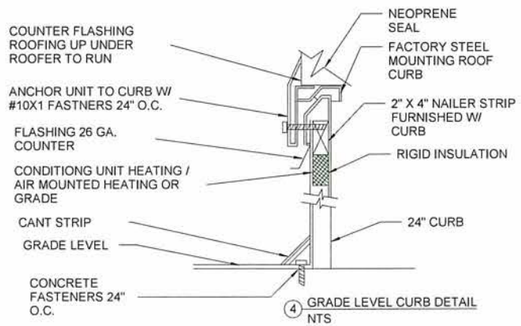
HEATING: UH-2 ENGAGES AT TEMPERATURE SET POINT



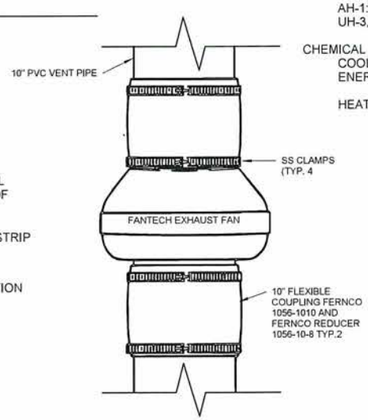
(2) ELECTRIC UNIT HEATER DETAIL
NTS



(3) DUCT LINER DETAIL
NTS



(4) GRADE LEVEL CURB DETAIL
NTS



(5) EXHAUST FAN DETAIL
1" = 10'-0"

HANSEN ALLEN & LUCE INC ENGINEERS	Bluefield Engineering	DESIGNED BLUEFIELD	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED BLUEFIELD	2						WELL PUMP STATION CONSTRUCTION HVAC – 1000 E PUMP STATION PLAN
		CHECKED TG	1						SHEET H–3
		DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

ASHRAE/ACCA COMPLIANCE FORM FOR STANDARD 183

Building or Zone Name:
JVWCD Well 700 E

Location or Address:
8215 S 1300 W, West Jordan, UT 84088

Design Conditions:

	Cooling	Heating
Weather Data Used	Salt Lake City Intl, UT, US	
Indoor Dry Bulb Design Temperature	80 °F	70 °F
Indoor Design Relative Humidity	50 %	34 %

Load Calculation Method:
(Indicate which of the following methods is used.)

- ■ **CLTD/CLF** — Cooling Load Temprature Difference / Cooling Load Factor methods
- **HB** — Heat Balance methods
- **TETD/TA** — Total Equivalent Temperature Difference / Time Averaging methods
- **TFM** — Transfer Function methods
- **RTS** — Radiant Time Series methods
- **OTHER** *(please specify)* _____

The undersigned attests that the above information is correct and that the procedures used to perform the load calculations comply with ANSI/ASHRAE/ACCA Standard 183

Signed: Gregory P Mockett — Digitally signed by Gregory P Mockett; DN: C=US, E=greg@bluefieldengineering.com, O=Bluefield Engineering/Gunthers Inc., OU=Engineering Department, CN=Gregory P Mockett; Date: 2023.12.01 15:00:26-07'00'

Submitted by: _____ **Date:** Nov 30, 2023

wrightsoft

Right-Suite® Universal 2023 Short Form
JVWCD Well 700 E
Bluefield Engineering LLC

Job: 23.099
Date: Nov 30, 2023
By:

81 S 700 E, American Fork, UT 84003 Phone: 801 692-0858

Project Information

For: Jordan Valley WCD
8215 S 1300 W, West Jordan, UT 84088

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	102	Inside db	(°F)	70	80
Outside RH	(%)	-	12	Inside RH	(%)	-	50
Outside wb	(°F)	-	63	Inside wb	(°F)	-	66
Daily range	(°F)	-	25	Design TD	(°F)	65	22
Moisture diff.	(gr/lb)	-	-49				

Heating Equipment

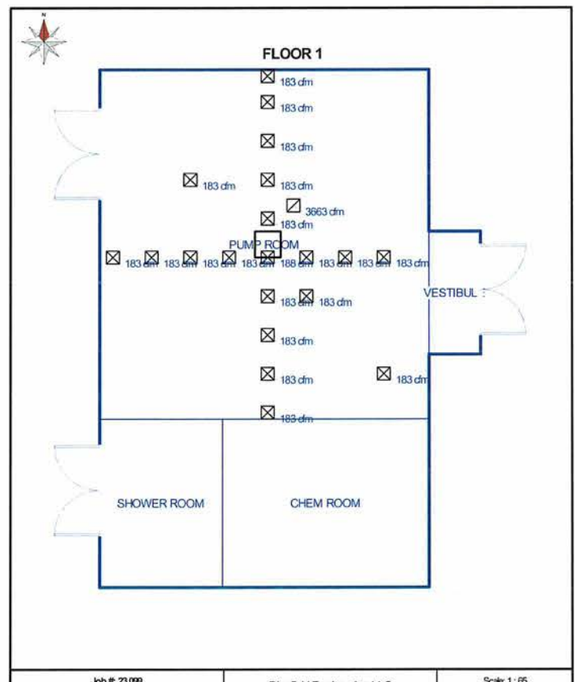
Make		
Model		
Type	Gas furnace	
Efficiency	80 AFUE	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	15.6	gpd
Leaving Air Temp	70.0	°F
Actual Heating Fan	3663	cfm

Cooling Equipment

Make		
Model		
Type	Split AC	
COP / EER / SEER	0	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	55.0	°F
Actual Cooling Fan	3663	cfm

Equipment Location	JVWCD Well 700 E	
System Type	PEAKCV	
Fan Motor Heat Type	PACKAGE	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
PUMP ROOM	689	21794	86282	0	1987	3663	Jul 1700 LDT
SHOWER ROOM	124	5815	0	0	555	0	Jul 1700 LDT
CHEM ROOM	208	7341	0	0	742	0	Jul 1700 LDT
VESTIBULE	38	2642	0	0	380	0	Jul 1700 LDT
JVWCD Well 700 E	1058	37592	86282	0	3663	3663	Jul 1700 LDT



Job #: 23.099 **Performed for:** Jordan Valley WCD 8215S 1300W West Jordan, UT 84088	**Bluefield Engineering LLC** 81 S 700 E American Fork, UT 84003 Phone: 801 692-0858	Scale: 1 : 65 Page 1 Right-Suite® Universal 2023 23.03 RSU01326 2023-Dec-01 14:22:05 ...Well House - Loads - 23113Dnp

LICENSED PROFESSIONAL ENGINEER — 282215 — E. TAYLOR GARDNER — 04/18/24 — STATE OF UTAH

This document is incomplete without the express coordination with Bluefield Engineering.

HANSEN ALLEN & LUCE inc ENGINEERS	Bluefield Engineering	DESIGNED BLUEFIELD	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED BLUEFIELD	2						WELL PUMP STATION CONSTRUCTION HVAC – 700 EAST MECHANICAL LOAD CLAC
		CHECKED TG	1						SHEET H–4
		DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

ASHRAE/ACCA COMPLIANCE FORM FOR STANDARD 183

Building or Zone Name:
JVWCD WII 1000 E

Location or Address:
8215 S 1300 W, West Jordan, UT 84088

Design Conditions:

	Cooling	Heating
Weather Data Used	Salt Lake City Intl. UT, US	
Indoor Dry Bulb Design Temperature	80 °F	70 °F
Indoor Design Relative Humidity	50 %	34 %

Load Calculation Method:
(Indicate which of the following methods is used)

- ■ **CLTD/CLF** — Cooling Load Temprature Difference / Cooling Load Factor methods
- ☐ **HB** — Heat Balance methods
- ☐ **TETD/TA** — Total Equivalent Temperature Difference / Time Averaging methods
- ☐ **TFM** — Transfer Function methods
- ☐ **RTS** — Radiant Time Series methods
- ☐ **OTHER** (please specify) _____

The undersigned attests that the above information is correct and that the procedures used to perform the load calculations comply with ANSI/ASHRAE/ACCAStandard 183

Signed: Gregory P Mockett **Date:** Digitally signed by Gregory P Mockett DN: C=US, E=greg@bluefieldengineering.com, O=Bluefield Engineering/Gunthers Inc, OU=Engineering Department, CN=Gregory P Mockett Date: 2023.12.01 15:01:10-07'00'

Submitted by: _____ **Date:** Nov 30, 2023

wrightsoft

Right-Suite® Universal 2023 Short Form
JVWCD WII 1000 E
Bluefield Engineering LLC

Job: 23.099
Date: Nov 30, 2023
By:

81 S 700 E, American Fork, UT 84003 Phone: 801 692-0856

Project Information

For: Jordan Valley WCD
8215 S 1300 W, West Jordan, UT 84088

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	102	Inside db	(°F)	70	80
Outside RH	(%)	-	12	Inside RH	(%)	-	50
Outside wb	(°F)	-	63	Inside wb	(°F)	-	66
Daily range	(°F)	-	25	Design TD	(°F)	65	22
Moisture diff.	(gr/lb)	-	-49				

Heating Equipment

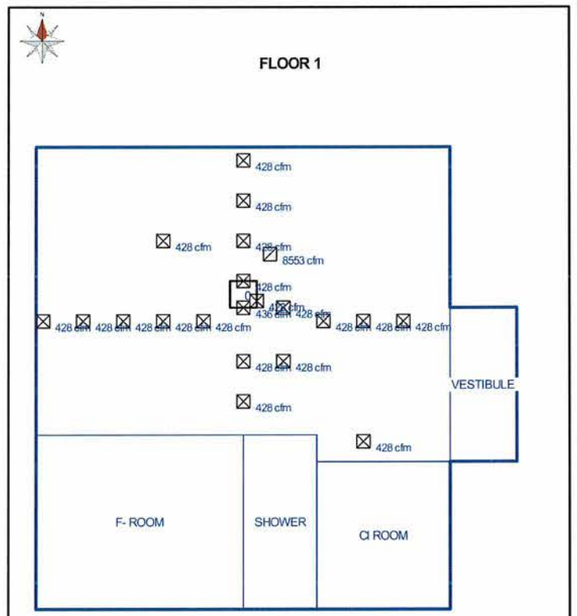
Make		
Model		
Type	Gas furnace	
Efficiency	80 AFUE	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	16.8	gpd
Leaving Air Temp	70.0	°F
Actual Heating Fan	8553	cfm

Cooling Equipment

Make		
Model		
Type	Split AC	
COP / EER / SEER	0	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	55.0	°F
Actual Cooling Fan	8553	cfm

Equipment Location	JVWCD WII 1000 E	
System Type	PEAKCV	
Fan Motor Heat Type	PACKAGE	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
0	687	21118	201451	0	4291	8553	Jul 1700 LDT
VESTIBULE	58	3535	0	0	1051	0	Jul 1700 LDT
CI ROOM	110	4757	0	0	1146	0	Jul 1700 LDT
F- ROOM	202	7720	0	0	1671	0	Jul 1700 LDT
SHOWER	72	2280	0	0	395	0	Jul 1700 LDT
JVWCD WII 1000 E	1127	39409	201451	0	8553	8553	Jul 1700 LDT



Job #: 23.099 **Performed for:** Jordan Valley WCD 8215 S 1300 W West Jordan UT 84088	**Bluefield Engineering LLC** 81 S 700 E American Fork, UT 84003 Phone 801 692-0856	Scale: 1 : 63 Page 1 Right-Suite® Universal 2023 23.0.03 RSU 01326 2023-Dec-01 14:27:00 ...Well House - Loads - 231130.rup

HANSEN ALLEN & LUCE INC ENGINEERS

Bluefield Engineering

DESIGNED	BLUEFIELD	3			
DRAFTED	BLUEFIELD	2			
CHECKED	TG	1			
DATE	NOV 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
HVAC – 1000 EAST
MECHANICAL LOAD CALCS

SHEET H–5
127.26.100

COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	700 East Pump House
Location:	West Jordan, Utah
Climate Zone:	5b
Project Type:	New Construction

Construction Site:	Owner/Agent:	Designer/Contractor:
700 East Utah		Bluefield Engineering 81 South 700 East American Fork, Utah 84003

Additional Efficiency Package(s)

Credits: 10.0 Required: 3.5 Proposed
10% cooling efficiency improvement, 3.5 credit

Mechanical Systems List

Quantity System Type & Description

1 Captive Air 10 Ton cSingle Zone w/ PerimeterSystems:
Cooling: 1 each - Packaged Terminal Unit, Capacity = 120 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.30 EER, Required Efficiency = 9.50 EER
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: 10 Ton Captive Aire -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Single-Zone VAV, 3600 CFM, 3.5 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW

4 Unit Heater 68.4 kW (Unknown w/ PerimeterSystem):
Heating: 1 each - Unit Heater, Electric, Capacity = 17 kBtu/h
No minimum efficiency requirement applies
Fan System: 270 CFM Fan -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 270 CFM, 0.1 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.09 kW

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title: Gregory P. Mockett
Signature: Date:

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 77.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2]*	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C405 [PR9]*	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.13.2 [FO5]* C403.13.3 [FO9]*	Snow/ice melting system and freeze-protection systems have sensors and controls configured to limit service for pavement temperature above 50F and outdoor temperature above 40F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6]*	Heated water supply piping conforms to pipe lengths and volume requirements. Refer to section details	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.6 [ME41]*	Thermally ineffective panel surfaces of some site heating panels have insulation >= R-3.5	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.8.4 [ME142]*	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. Those motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.8.6 [ME143]*	Each DX cooling system > 65 kBtu with a fan or supervisory cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.9 [ME144]*	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3 [ME35]*	HVAC equipment efficiency verified	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Mechanical Systems list for values.
C403.5.3 [ME113]*	Fault detection and diagnostics installed with air cooled unitary DX units or VRF units having economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [ME59]*	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.1 [ME59]*	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design outflow > 1,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.2 [ME115]*	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.6 [ME141]*	HVAC systems serving spaces in Group R-1 buildings with > 50 guestrooms. Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.4 [ME57]*	Exhaust air energy recovery on systems meeting Table C403.7.4(3) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.5 [ME116]*	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and kitchen hood rating requirements and maximum exhaust rate criteria	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply
C403.3.1, C403.3.2 [ME62]*	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3 [ME124]*	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3 [ME125]*	System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3 [ME126]*	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C402.5.7 for details	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.4 [ME83]*	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 85F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3.3 [ME35]*	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53]*	Air outlets and zone terminal devices have means for air balancing	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply
C403.11.3 [ME123]*, C403.11.3.1, C403.11.3.2 [ME123]*	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Section C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26]*	Low voltage dry-type distribution elevator transformers meet the minimum efficiency requirements of Table C405.6	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27]*	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(3) Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer. (Motors of classification groups are not tested)	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28]*	Elevators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce the electrical power consumed (speed) in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29]*	Total voltage drop across the combination of feeders and branch circuits <= 5%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.2 [EL30]*	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 65 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.12.1 [EL33]*	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.3.3, C408.2.5.3 [FI9]*	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.1 [FI17]*	HVAC systems and equipment capacity does not exceed calculated loads	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1 [FI47]*	Heating and cooling to each zone is controlled by a thermostat control. A minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.2 [FI30]*	Thermostatic controls have a 5°F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.3 [FI36]*	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [FI39]*	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.1, C403.4.2.2 [FI40]*	Automatic Controls: Setback to 55°F (heat) and 85°F (cool), 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.3 [FI41]*	Systems include optimum start controls	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406.2.4 [FI66]*	10% cooling efficiency improvement - all HVAC and Pond cooling equipment is 10% more efficient than required by 2018 IECC	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.1.1 [FI57]*	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming information, and a narrative illustrating in owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.1 [FI28]*	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.1 [FI31]*	HVAC equipment, systems and system to system relationships have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.2 [FI10]*	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.3 [FI32]*	Economizers have been tested to ensure proper operation	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.4 [FI29]*	Preliminary commissioning report completed and certified by registered design professional or approved agency	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI7]*	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI43]*	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.2 [FI30]*	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

This document is incomplete without the express coordination with Bluefield Engineering.

HANSEN ALLEN & LUCE inc ENGINEERS	Bluefield Engineering	DESIGNED BLUEFIELD	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED BLUEFIELD	2						WELL PUMP STATION CONSTRUCTION HVAC – 700 EAST MECHANICAL COMCHECK
		CHECKED TG	1						SHEET H–6
		DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	1000 East Pump House
Location:	West Jordan, Utah
Climate Zone:	5b
Project Type:	New Construction

Construction Site:
1000 East
Utah

Owner/Agent:

Designer/Contractor:
Bluefield Engineering
91 South 100 East
American Fork, Utah 84003

Additional Efficiency Package(s)

Credits: 10.0 Required: 3.5 Proposed
10% cooling efficiency improvement, 3.5 credit

Mechanical Systems List

Quantity System Type & Description

1 Captive Air 20 Ton (Single Zone w/ PerimeterSystem)
Cooling: 1 each - Packaged Terminal Unit, Capacity = 240 kBtu/h, Air Cooled Condenser, Air Economizer
Proposed Efficiency = 16.56 EER, Reduced Efficiency = 9.50 EER
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: 20 Ton Captive Aire – Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1: Supply, Single Zone VAV, 7000 CFM, 5.0 motor nameplate hp, 0.10 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.3 kW

2 Unit Heater 88H 54E (Unknown w/ PerimeterSystem)
Heating: 1 each - Unit Heater, Electric, Capacity = 17 kBtu/h
No minimum efficiency requirement applies
Fan System: 270 CFM Fan – Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 2: Supply, Constant Volume, 270 CFM, 0.1 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.59 kW

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name: Title: Gregory P. Mockett Date:

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 77.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2]*	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and documents where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9]*	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.12.2 [FI6]*	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service hot pavement temperature above 50F and ramdow temperature above 45F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [FI4]*	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exceptions:** Requirement does not apply.

Additional Comments/Assumptions:

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME142]*	Thermally ineffective panel surfaces of uses like heating panels have insulation >= R 3.5	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.8.4 [ME142]*	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. Those motors have the means to adjust motor speed	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.8.6 [ME143]*	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 3/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section	☐Complies ☐Does Not ☐Not Applicable	Requirement will be met.
C403.9 [ME144]*	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 220	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3 [ME152]*	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	See the Mechanical Systems list for values
C403.5.5 [ME112]*	Fault detection and diagnostics installed with air cooled unitary DX units or VRF units having economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [ME159]*	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.1 [ME159]*	Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >1,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.2 [ME113]*	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.4 [ME142]*	HVAC systems serving apartments in Group R-1 buildings with > 50 guestrooms. Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation zone sections C403.7.4.1 and C403.7.4.2)	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.4 [ME157]*	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2)	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.5 [ME116]*	Kitchen exhaust systems comply with requirements on anti-conditioned supply air limitations, and size/fly hood cavity requirements and maximum exhaust rate criteria	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.5, C403.5.1, C403.5.2 [ME42]*	Air economizers provided where required, meet the requirements for device capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3 [ME124]*	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.5.3.4 [ME125]*	System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3.5 [ME126]*	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.8.3.4 [ME63]*	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply
C403.3.3 [ME35]*	Hot gas bypass limited to: <= 240 kBtu/h – 50% >240 kBtu/h – 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53]*	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply
C403.11.1 , C403.11.1.1 , C403.11.1.2 [ME123]*	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26]*	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27]*	Electric motors meet the minimum efficiency requirements of Tables C405.10(1) through C405.10(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification program does not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28]*	Excavation and trenching work comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29]*	Total voltage drop across the combinations of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.2 [EL30]*	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.3 or C405.3	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31]*	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classroom and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.3.3 [FI1]*	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.1 [FI17]*	HVAC systems and equipment capacity does not exceed calculated loads	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [FI47]*	Heating and cooling to each zone is controlled by a thermostat control, located in one humidity control device for zone humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1 [FI18]*	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.4.1.3 [FI20]*	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.4.2 [FI19]*	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.1, C403.4.2.2 [FI46]*	Automatic Controls: Setback to 55°F (heat) and 85°F (cool), 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met
C403.4.2.3 [FI41]*	Systems include optimum start controls	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406.2.4 [FI66]*	10% cooling efficiency improvement - air HVAC and Mini cooling equipment is 10% more efficient than only used by 2021 IECC	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.1.1 [FI37]*	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3 [FI28]*	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.1 [FI33]*	HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.2 [FI35]	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.3 [FI32]	Economizers have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.4 [FI29]*	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI7]*	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.3 [FI43]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.2 [FI30]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

LICENSED PROFESSIONAL ENGINEER
282219
E. TAYLOR
GARNER
04/18/24
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

Bluefield Engineering

DESIGNED BLUEFIELD	3				
DRAFTED BLUEFIELD	2				
CHECKED TG	1				
DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
HVAC – 1000 EAST
MECHANICAL LOAD CALCS

SHEET H–7

127.26.100

DIVISION 22/23 - PLUMBING/HVAC

SECTION 22 05 00/23 05 00
COMMON WORK RESULTS FOR PLUMBING/HVAC

GENERAL CONDITIONS:

1. The General Conditions of the Contract, with the amendments, supplements, forms and requirements in Division 1, and herewith made a part of this Division.
2. All Sections of Division 15 shall comply with the Mechanical General Requirements. The standards established in this Section as to quality of materials and equipment, the type and quality of workmanship, mode of operations, safety rules, code requirements, etc., shall apply to all Sections of this Division as though they were repeated in each Division.

SCOPE OF WORK:
The project described herein is the 1000 E & 700 E Well Pump Construction, Salt Lake City, Utah. This work shall include all labor, materials, equipment, fixtures, and devices for the entire mechanical work and a complete operating and tested installation as required for this project.

SECTION 22/23 05 50 - COMMON WORK RESULTS FOR PLUMBING AND HVAC
SECTION 22/23 05 53 - IDENTIFICATION FOR PLUMBING/HVAC PIPING & EQUIPMENT
SECTION 22/23 07 00 - PLUMBING/HVAC INSULATION
SECTION 23 23 00 - REFRIGERANT PIPING
SECTION 23 31 13 - METAL DUCTS
SECTION 23 33 00 - DUCT ACCESSORIES
SECTION 23 57 80 - ROOFTOP AIR CONDITIONERS
SECTION 23 83 00 - POWER VENTILATORS
SECTION 23 85 00 - DIFFUSERS, REGISTERS AND GRILLES
SECTION 23 90 00 - TEMPERATURE CONTROLS
SECTION 23 99 00 - TESTING, ADJUSTING, BALANCING AND MAINTENANCE MANUALS

CODES & ORDINANCES:

All work shall be executed in accordance with all underwriters, public utilities, local and state rules and regulations applicable to the trade affected. Should any change in the plans and Specifications be required to comply with these regulations, the Contractor shall notify the Engineer before the time of submitting his bid. After entering into contract, the Contractor will be held to complete all work necessary to meet these requirements without extra expense to the Owner. Where work required by drawings or specifications is above the standard required, it shall be done as shown or specified.

Applicable codes are as follows:
2021 International Mechanical Code
2021 International Building Code
2021 International Plumbing Code
Utah State Codes and ammendments

SUBMITTALS AND SHOP DRAWINGS:

Submittals:

1. As soon as possible after the Contract is awarded, but in no case more than 5 calendar days thereafter, the Contractor shall submit to the Engineer four (4) copies of the descriptive literature covering products and materials to be used in the installation of mechanical systems for this Project. The review of the submitted data will require a minimum of 7 days. If the Contractors schedule requires return of submitted literature in less than the allotted time, the Contractor shall accelerate his submittal delivery date. The Contractor shall resubmit all items requiring re-review within 7 days of returned Submittals. Refer to each specification section for items requiring submittal review. Written approval of the Owner's Representative shall be obtained before installing any such equipment or materials for the project. The Submittals shall be prepared in an orderly manner, contained in a 3-ring loose-leaf binder with index and identification tabs each item or group of items and for each Specification Section. All items shall be submitted at one time except automatic temperature control drawings and seismic restraint drawings which may be submitted separately within 60 days of the Contract award date. Partial Submittals will not be reviewed until the complete Submittal is received.

2. Submitted literature shall bear the Contractor's stamp, indicating that he has checked all equipment being submitted; that each item will fit into the available space with the accesses shown on the Drawings; and, further, that each item conforms to the capacity and quality standards given in the Contract Documents.

3. Coordination Drawings: Detail major elements, components, and systems of plumbing and HVAC equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Indicate if sequence and coordination of installations are important to efficient flow of the Work. Include the following:
a. Planned piping and duct layout, including specialty locations and access areas.
b. Iearances for installing and maintaining insulation.
c. Clearances for servicing and maintaining equipment, accessories, and specialties, including space for disassembly required for periodic maintenance.
d. Equipment and accessory service connections and support details.
e. Exterior wall and foundation penetrations.
f. Fire-rated wall and floor penetrations.
g. Sizes and location of required concrete pads and bases.
h. Scheduling, sequencing, movement, and positioning of large equipment into building during construction.
i. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

4. Submitted literature shall clearly indicate performance, quality, and utility requirements; shall show dimension and size of connection points; and shall include derating factors that were applied for each item of equipment to provide capacity at job site elevation. Temperature control submittals shall include piping and wiring diagrams, sequence of operation and equipment. Equipment must fit into the available space with allowance for operation, maintenance, etc. Factory piped and wired equipment shall include shop drawings for all internal wiring and piping furnished with the unit.

5. Submitted literature shall clearly show all required field install wiring, piping, and accessory installations required by the Contractor to provide a complete operating system.

6. Review by the Owner's Representative is for general conformance of the submitted equipment to the Project Specification. In no way does such review relieve this Contractor of his obligation to furnish equipment and materials that comply in detail to the Specification nor does it relieve the Contractor of his obligation to determine actual field dimensions and conditions that may affect his work. Regardless of any items overlooked by the submittal review, the requirements of the Contract Drawings and Specifications must be followed and are not waived or superseded in any way by the review.

7. The Contractor is to review equipment by description, catalog number, and manufacturer's names. Standards of quality have been established by the Engineer for certain manufactured equipment items and specialties that are to be furnished by this Division. Alternate products and equipment may be proposed for use only if specifically named in the Specifications or if given written prior approval in published Addenda. Design equipment is the equipment listed on the drawings or if not listed on the drawings is the equipment first named in the Specifications.

Alternate Equipment:
1. The Contractor should protect himself with the supplier of alternate named equipment. Alternate named equipment will be reviewed only one time.

2. Should alternate equipment be submitted and be rejected, it shall not be resubmitted for review and it shall be the responsibility of this Contractor. The Contractor shall only submit on design equipment on future Submittals. Incomplete Submittal data will be rejected.

3. If the Engineer is required to do additional design work to incorporate changes caused by submitting equipment or products, different than the design equipment specified, as defined above, the Contractor shall reimburse the Engineer for additional time and expenses at the Engineers current, recognized, hourly rates.

DRAWINGS AND MEASUREMENTS:

Drawings:

1. The Contract Document Drawings show the general design, arrangements, and extent of the system. In certain cases, the Drawings may include details that show more nearly exact locations and arrangements; however, the locations, as shown diagrammatically, are to be regarded as general.

2. It shall be the Work of this Section to make such slight alterations as may be necessary to make adjustable parts fit to fixed parts, leaving all complete and in proper shape when done. All dimensions given on the Drawings shall be verified as related to this Work and with the Engineer's office before Work is started.

3. This Section shall carefully study building sections, space, clearances, etc., and then provide offsets in piping or ductwork as required to accommodate the building structure without additional cost to the Owner. In any case and at any time, a change in location required by obstacles or the installation of other trades not shown on the Mechanical Plans shall be made without charge.

4. The Drawings shall not be scaled for roughing in measurements nor shall they be used as shop drawings. Where Drawings are required for these purposes or where Drawings must be made from field measurements, the Contractor shall take the necessary measurements and prepare the Drawings. Shop drawings of the various subcontractors shall be coordinated to eliminate all interferences and to provide sufficient space for the installation of all equipment, piping, ductwork, etc.

5. The Drawings and Specifications have been prepared to supplement each other and they shall be interpreted as an integral unit with items shown on one and not the other being furnished and installed as though shown and called out on both.

Record Drawings:

1. Record Drawings for all systems and Sections of this Division shall be furnished as Work of this Section. Blue-line white prints of floor plans shall be furnished by the Engineer's office. These prints shall be accurately and neatly marked in colored pencil, showing all changes from schematics. Installation and commissioning checklists that are provided on the Drawings are to be initialed and dated upon completion.

2. These Drawings shall be reviewed with the Engineer's at least once each month, shall be submitted at time of final inspection, and shall be checked for accuracy. Failure to keep Record Drawings up-to-date shall be cause for withholding monthly payments.

CONTRACTOR'S USE OF BUILDING EQUIPMENT:

1. The Contractor may use equipment such as electric motors, fans, heat exchangers, filters, etc., with the written permission of the Owner. As each piece of equipment is used (such as electric motors and fans), maintenance procedures approved by the manufacturer are to be followed. A careful record is to be kept of the length of the time the equipment is used, maintenance procedures followed, and any difficulty encountered. The record is to be submitted to the Owner upon acceptance. All fan belts and filter media (such as bearings) shall be carefully inspected just prior to acceptance. Any excessive wear noted shall require replacement. Any damage by Contractor to be replaced by Contractor.

EXISTING CONDITIONS:

1. The Contractor shall carefully examine all existing conditions that might affect the mechanical system and shall compare these conditions with all Drawings and Specifications for Work included under this Contract. He shall, at such time, ascertain and check all conditions that may affect his Work. No allowance shall subsequently be made in his behalf for an extra expense incurred as a result of his failure or neglect to make such examination. This Contractor shall include in his bid proposal all necessary allowances to repair or replace any item that will remain or will be removed, and any item that will be damaged or destroyed by new construction.

2. The Contractor shall remove all abandoned piping, etc., required by new construction and cap or plug openings. No capping, etc., shall be exposed in occupied areas. All openings of items removed shall be sealed to match adjacent surfaces.

3. The Contractor shall verify the exact location of all existing services, utilities, piping, etc., and make connections to existing systems as required or as shown on the Drawings. The exact location of each utility line, together with size and elevation, shall be established before any on-site lines are installed. Should elevation or size of existing main utility lines make connections to them impossible as shown on Drawings, then notification of such shall immediately be given to the Owners Representative for a decision.

EQUIPMENT CAPACITIES:

1. Capacities shown for equipment in the Specifications and on the Drawings are the minimum acceptable. No equipment shall be considered as an alternate without prior approval of the design Engineer.
2. All equipment shall give the specified capacity and performance at the job-site elevation of 4,200 feet above sea level. Manufacturers' standard ratings shall be adjusted accordingly. All capacities and performances listed on Drawings or in Specifications are for job-site conditions.

SEISMIC REQUIREMENTS FOR EQUIPMENT:

1. All equipment must be furnished structurally adequate to withstand seismic forces as for the location of the Project. Equipment bases shall be designed for direct attachment of seismic snubbers and/or seismic anchors. Coordinate with structural.

COOPERATION WITH OTHER TRADES:

1. The general contractor shall be responsible for job site coordination. The Contractor shall refer to other Drawings and parts of this Specification that cover Work of other trades that is carried on in conjunction with the mechanical Work such that all Work can proceed without interference resulting from lack of coordination.

2. The Contractor shall properly size and locate all openings, chases, sleeves, equipment bases, and accesses. He shall provide accurate wiring diagrams to the Electrical Contractor for all equipment furnished under this Division.

3. The ceiling cavity must be carefully reviewed and coordinated with all trades. In the event of conflict, the installation of the mechanical equipment and piping shall be in the following order: plumbing, waste, and soil lines; supply, return, and exhaust ductwork; water piping; medical gases; fire protection piping; and pneumatic control piping.

4. The mechanical Contractor shall insure that the installation of all piping, ducts and equipment is in compliance with Articles 110-16 and 384-4 of the National Electrical Code relative to proper clearances in front of and over all electrical panels and equipment. No piping or ductwork will be allowed to run over an electrical panel.

RESPONSIBILITY OF CONTRACTOR:

1. The Contractor is responsible for the installation of a satisfactory piece of Work in accordance with the true intent of the Drawings and Specifications. He shall provide, as a part of his work and without expense, all incidental items required even though these items are not particularly specified or indicated. The installation shall be made so that its several component parts will function together as a workable system and shall be left with all equipment properly adjusted and in working order. (The Contractor shall familiarize the Owner's Representative with maintenance and lubrication instructions as prepared by the Contractor and shall explain and fully instruct him relative to operating, servicing, and maintenance of them.) Part of training package and P.M. program.

UNFIT OR DAMAGED WORK:
1. Any part of this installation that fails, is unfit, or becomes damaged during construction, shall be replaced or otherwise made good. The cost of such remedy shall be the responsibility of this Division and General Contractor.

WORKMANSHIP:
1. Workmanship shall be the best quality of its kind for the respective industries, trades, crafts, and practices, and shall be acceptable in every respect to the Owner's Representative. Nothing contained herein shall relieve the Contractor from making good and perfect work in all details in construction. All work shall be performed under the directories of any licensed journeyman. Contractor shall maintain a licensed journeyman on site at all times during construction.

SAFETY REGULATION:
1. The Contractor shall comply with all local and OSHA safety requirements in performance with this work. (See General Conditions). This Contractor shall be required to provide equipment, supervision, construction, procedures, and all other necessary items to assure safety to life and property.

ELECTRICAL SERVICES:
Motors:
1. All motors required under this Division shall be furnished and installed as work of this Division. All motor-starting equipment, unless otherwise specified in Division 23 shall be furnished as work of Division 26, Electrical. Motors shall be name plated with Class F insulation as manufactured by Lincoln Electric, US Motors, General Electric, Allis Chalmers, Century, or Reliance, designed for quiet continuous operations with maximum (Class B) 90 Degree C resistance heating rise with 40 Degree C ambient temperature at full load and rated speed and voltage individually specified with minimum 1.15 service factor. Motors shall be all of the same make except those incorporated in packaged units. All motors shall be provided with ball bearings and conduit connection boxes. Lifting eyes shall be provided on motors 1-1/2 horsepower and larger.
2. Unless Otherwise Specified, motors 3/4 horsepower and larger shall be 3 phase, 60 cycle, and motors 1/2 horsepower and smaller shall be single phase, 60 cycle. Contractor is to coordinate with available power voltage and phase. Refer to fan and equipment schedules on drawings for voltage characteristics, horsepower, size, etc. All single-phase motors shall have thermal overload protection. If motor-starting equipment is included in packaged units, all three phases shall have overload protection. All motors shall have a power factor of 85 percent or better. All motors 20 horsepower and larger shall be manufacturers Premium Efficiency grade and shall meet the NEMA MG 1-12.54" efficiency ratings for energy efficient motors. All two speed motors, unless otherwise specified, shall be 1800/1200 rpm dual winding type. All 3 phase motors shall be designed and manufactured to be capable of speed control through a variable frequency drive controller.
3. Motors and other electrical control equipment installed in damp or moist areas or in areas of other special conditions shall be designed and approved for the installation. Motors and electrical equipment in explosive locations shall be approved for those locations. Motors located outside buildings shall be totally enclosed.

Electric Wiring:
1. All equipment control wiring and all boiler control wiring, water heater control wiring, pump interlocks, automatic temperature control wiring including all necessary contacts, relays, and interlocks, whether low or line voltage, except power wiring, shall be furnished and installed as Work of this Division.
2. All equipment that requires an electrical connection shall be furnished so that it will operate properly and deliver full capacity on the electrical service available and also satisfy the requirements under "Motors," as Specified above.
3. The Mechanical Contractor must refer to the electrical control equipment and wiring shown on the Diagrams. Any changes or additions required by specific equipment furnished shall be the complete responsibility of the Contractor furnishing the equipment.
4. The Mechanical Contractor must coordinate with the Electrical Contractor to insure that all required components of control Work are included and fully understood. No additional cost shall accrue to the Owner as a result of lack of such coordination.

WORK, MATERIALS, AND QUALITY OF EQUIPMENT:
1. Unless Otherwise Specified, all materials shall be new and of the best quality of their respective kinds and all labor shall be done in a most thorough and workmanlike manner. Work shall be performed by an Electrician licensed in the state of Utah.
2. Products or equipment of any of the manufacturers cited herein or any of the products approved by the Addenda may be used. However, where lists of products are cited herein, the one first listed in the design equipment used in Drawings and Schedules to establish size, quality, function, and capacity standards. If other than design equipment is used, it shall be carefully checked for access to equipment, electrical and control requirements, valving, and piping. Should changes or additions occur in piping, valving, electrical work, etc., or if the work of other Contractors would be revised by the alternate equipment, the cost of all changes shall be borne as work of this Division.
3. Pipe of foreign manufacture will not be acceptable.
4. The access to equipment shown on the Drawings are the minimum acceptable space requirements. No equipment that reduces or restricts accessibility to this or any other equipment will be considered.

END OF SECTION 22 05 00/23 05 00

HANSEN ALLEN & LUCE inc ENGINEERS	Bluefield Engineering	DESIGNED BLUEFIELD	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED BLUEFIELD	2						WELL PUMP STATION CONSTRUCTION HVAC – 700 EAST & 1000 EAST SPECIFICATIONS
		CHECKED TG	1						SHEET H–8
		DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD		127.26.100

DIVISION 23 - HVAC
SECTION 23 23 00
REFRIGERANT PIPING

1. Piping:
   a. Hard Copper Tube: ASTM B 280, Type ACR, drawn temper.
   b. Soft Copper Tube: ASTM B 280, Type ACR, annealed temper.
2. Brazing Filler Metals: AWS A5.8, Classification BAg-1 (Silver).
3. Aboveground, within Building: Type ACR drawn-copper tubing.
4. Aboveground, within Building: drawn-copper tubing.
5. Refrigerant piping indicated is schematic only. Size and design the layout and installation of the piping, including oil traps, double risers, specialties, and pipe and tube sizes, to ensure proper operation and conformance with warranties of connected equipment.

END OF SECTION 23 23 00

DIVISION 23 - HVAC

SECTION 23 31 13
METAL DUCTS

GENERAL

1. Duct system design, as indicated, has been used to select and size air-moving and -distribution equipment and other components of air system. Changes to layout or configuration of duct system must be specifically approved in writing by Architect. Accompany requests for layout modifications with calculations showing that proposed layout will provide original design results without increasing system total pressure.
2. Duct material: galvanized, sheet steel, lock-forming quality; ASTM A 653/A 653M, coating designation; mill-phosphatized finish for surfaces of ducts exposed to view.
3. Underground duct shall be PVC pipe or PVC coated galvanized steel encased in concrete.
4. Duct liner: Comply with NFPA 90A or NFPA 90B and NAIMA's "Fibrous Glass Duct Liner Standard." ASTM C 1071 with coated surface exposed to airstream to prevent erosion of glass fibers.
   Thickness: 1".
   Thermal Conductivity (k-Value): .26 at 75 deg Fmean temperature.
   Fire-Hazard Classification: Maximum flame-spread rating of 25 and smoke-developed rating of 50, when tested according to ASTM C 411.
   Liner Adhesive: Comply with NFPA 90A or NFPA 90B and ASTM C 916.
5. Round duct: Diameter as applied to flat-oval ducts in this Article is the diameter of the size of round duct that has a circumference equal to perimeter of a given size of flat-oval duct. Round Ducts: Fabricate supply ducts of galvanized steel according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
6. Rectangular duct: Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction with galvanized, sheet steel, according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible." Comply with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
   a. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
   b. Materials: Free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.
7. Static-Pressure Classifications: Unless otherwise indicated, construct ducts to the following:
   a. Supply Ducts: 3" wg.
   b. Return Ducts: 2" wg, negative pressure.
   c. Exhaust Ducts: 2" wg, negative pressure.
8. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19" and larger and .0359" thick or less, with more than 10Ø of unbraced panel area, unless ducts are lined.
END OF SECTION 23 31 13

DIVISION 23 - HVAC
SECTION 23 33 00
AIR DUCT ACCESSORIES
GENERAL

1. Volume dampers: Factory fabricated with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

2. Pressure Classifications of 2" or Higher: End bearings or other seals for ducts with axles full length of damper blades and bearings at both ends of operating shaft.

3. Fire Dampers where indicated and as code required: Labeled to UL 555.
   Fire Rating: One and one-half and three hours.
   Frame: SMACNA Type B with blades out of airstream; fabricated with roll-formed, thick galvanized steel; with mitered and interlocking corners.
   Provide access door though ductwork and other systems for damper access.
   Fusible Link: Replaceable, 165° rated as indicated.
4. Manufactured Turning Vanes: Fabricate of 1.5" wide, curved blades set 3/4" o.c.; support with bars perpendicular to blades set 2" o.c.; and set into side strips suitable for mounting in ducts.

5. Flexible Ducts, Insulated: Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1.5" thick, glass-fiber insulation around a continuous inner liner.

END OF SECTION 23 33 00

DIVISION 23 - MECHANICAL
SECTION 23 57 80
ROOFTOP AIR CONDITIONERS

OUTDOOR ROOFTOP MOUNTED, HEATING AND COOLING UNIT.
SUBMITTALS
A. Product Data: For each model indicated.
B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection. Prepare the following by or under the supervision of a qualified professional engineer:
C. Design Calculations: Calculate requirements for selecting vibration isolators,vibration isolation base design, and seismic restraint design.
D. Detail mounting, securing, and flashing of roof curb to roof structure. Indicate coordinating requirements with roof membrane system.
E. Wiring Diagrams: Power, signal, and control wiring.
F. Field quality-control test reports.
G. Operation and maintenance data.
H. Warranties: Special warranties specified in this Section.
I. Rooftop unit fans and compressors are to be spring isolated.

QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
C. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
D. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
E. Comply with NFPA 54 for gas-fired furnace section.
F. ARI Compliance for Units with Capacities Less Than 135,000 Btuh (39.6 kW): Rate rooftop air-conditioner capacity according to ARI 210/240, "Unitary Air-Conditioning and Air-Source Heat Pump Equipment."
G. Sound Power Level Ratings: Comply with ARI 270, "Sound Rating of Outdoor Unitary Equipment."
H. ARI Compliance for Units with Capacities 135,000 Btuh (39.6 kW) and More: Rate rooftop air-conditioner capacity according to ARI 340/360, "Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment."
I. Sound Power Level Ratings: Comply with ARI 270, "Sound Rating of Outdoor Unitary Equipment."

WARRANTY
Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace components of rooftop air conditioners that fail in materials or workmanship within specified warranty period.
1. Warranty Period for Compressors: Manufacturer's standard, but not less than five years from date of Substantial Completion.
2. Warranty Period for Heat Exchangers: Manufacturer's standard, but not less than 10 years from date of Substantial Completion.
3. Warranty Period for Control Boards: Manufacturer's standard, but not less than three years from date of Substantial Completion.

PRODUCTS
MANUFACTURERS
The following requirements apply for product selection:
Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified:
1. Allied - Lennox Industries Inc.
2. American Standard - Trane

DESCRIPTION
Unit is an outdoor rooftop mounted, electrically controlled heating and cooling unit utilizing fully hermetic scroll compressors with on demand crankcase heaters for cooling duty and induced draft gas combustion for heating duty. Supply air shall be discharged downward or horizontally, as shown on contract drawings.

QUALITY ASSURANCE
A. Unit shall exceed 2012 IECC Energy Efficiency Standards. All units shall be ENERGY STAR qualified. On 03 to 06 sizes -- SEER shall be as high as 13. On 06 to 16 sizes -- EER shall be as high as 12.5 and on sizes 20 to 28 -- EER shall be as high as 11.6.
B. Unit shall be rated in accordance with ARI Standards 210 (03-12) and 360 on all others. All units shall be designed in accordance with UL Standard 1995. Unit shall be rated in accordance with ARI sound standards 270 or 370.
C. Unit shall be designed to conform to ASHRAE 15.
D. Unit shall be UL and UL, Canada, tested and certified in accordance with ANSI Z21.47 Standards as a total package.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
H. Unit shall be manufactured in a facility registered to ISO 9001:2000.
I. Each unit shall be subjected to a completely automated run testing on the assembly line.

DELIVERY, STORAGE, AND HANDLING
Unit shall be stored and handled per manufacturer's recommendations.
EQUIPMENT
A. General: The unit shall be a fully factory assembled, pre-tested, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, Puron refrigerant charge (R-410A), and special features required prior to field start-up.
B. Unit Cabinet:
1. Constructed of galvanized steel, bonderized and coated with a pre-painted baked enamel finish on all externally exposed surfaces. Internal surfaces shall be of a primer coated finish.
2. All airstream interior surfaces shall be insulated with a minimum 1/2-in. thick, 1 lb density foil-faced cleanable insulation. Insulation shall be bonded with a thermosetting resin (8 to 12% by weight nominal, phenol formaldehyde typical), and coated with an acrylic or other material that meets the NFPA 90 flame retardance requirements and has an "R" value of 3.70. Insulation shall also be encapsulated with panel design or tape edges ensuring secure fit.

C. Fans:
1. Indoor blower (evaporator fan):
a. Centrifugal supply air blower shall have rubber-isolated, cartridge type ball bearings (03-16) or pillow-block ball bearings (20-28) and adjustable belt drive.
b. Fan wheel shall be made from steel with a corrosion resistant finish. It shall be a dynamically balanced, double-inlet type with forward-curved blades.
c. The indoor fan system (blower wheels, motors, belts, and both bearings) shall slide out for easy access.
d. Evaporator-fan motors shall be continuous operation, open drip-proof. Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.
e. On sizes 03 to 16, fan belt shall be located on opposite side of evaporator coil to prevent damage from broken fan belts. On 20 to 28 sizes a fan belt catch system shall beused.
2. Condenser fans shall be of the direct-driven propeller type, with corrosion-resistant aluminum blades riveted to corrosion-resistant steel supports. They shall be dynamically balanced and discharge air upwards. Condenser-fan motors shall be totally enclosed, thermally protected, and be of a shaft down design to protect from direct contact from harsh environments.
3. Induced-draft blower shall be of the direct-driven, single inlet, forward-curved, centrifugal type. It shall be made from aluminized steel with a corrosion-resistant finish and shall be dynamically balanced.
D. Compressor(s):
1. Fully hermetic, scroll type with on demand crankcase heaters, internal high-pressure and temperature protection.
2. Factory mounted on rubber grommets and internally spring mounted for vibration isolation.
3. Be mounted on dedicated mounting plate to ensure secure design and reduced sound levels.
E. Coils:
1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Dual circuit models shall have face-split type evaporator coil.
3. Condenser and evaporator coils shall be single slab, single pass design to facilitate easy coil cleaning. Composite coils or coils that require unit top panels removed shall be unacceptable.
4. Coils shall be leak tested at 170 psig and pressure tested at 1875 psig.
5. Optional Coils:
a. Optional pre-coated aluminum-fin coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
F. Heating Section:
1. Induced-draft combustion type with energy saving direct-spark ignition system and redundant main gas valve with 2-stage capability on all 3-phase units.
2. Heat Exchanger:
a. The standard aluminized heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gage steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance.
b. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20-gage type 409 stainless steel, including stainless steel tubes, vestibule plate, and collector box.
3. Burners shall be of the in-shot type constructed of aluminum-coated steel.
4. All gas piping shall enter the unit at a single location. Gas entry shall be capable through side or bottom for unit.
5. All factory-installed orifices are for operation up to 2,000 feet of altitude. For altitudes between 2,000 ft and 7,000 ft, a factory certified kit shall be furnished for field installation.
6. The integrated gas controller (IGC) board shall include gas heat operation fault notification using an LED (light-emitting diode).
7. Unit shall be equipped with anti-cycle protection with one short cycle on unit flame rollout switch or 4 continuous short cycles on the high-temperature limit switch. Fault indication shall be made using an LED.
8. The IGC board shall contain algorithms that modify evaporator-fan operation to prevent future cycling on high-temperature limit switch.
9. The LED shall be visible without removal of control box access panel.
10. Gas burner tray, when disconnected, shall easily slide out for maintenance.
G. Refrigerant Components: Each refrigerant circuit shall include:
1. Balanced port thermostatic expansion valve (TXV) with removable power element.
2. Solid core refrigerant filter driers with pressure ports.
3. Refrigerant pressure gage ports and connections on suction, discharge, and liquid lines.
H. Filter Section:
1. Standard filter section shall consist of factory-installed 2-in. thick disposable fiberglass filters and shall be on a dedicated slide out track to easily facilitate access and replacement.
2. Filter section shall use standard size filters and be of common sizes within cabinet sizes.
3. Optional MERV-8 pleated filters of commercially available sizes shall be available.
4. Standard 2-in. filter rack shall be field convertible to 4-in. by removing a spacer rack on 03-16 sizes. A 4-in. filter capability shall be available as factory-installed option on the other sizes.
I. Controls and Safeties:
2. Safeties:
a. Unit shall incorporate a solid-state compressor lockout that provides optional reset capability at the space thermostat, should any of the following safety devices trip and shut off compressor:
1) Compressor lockout protection provided for overload.
2) Low-pressure protection.
3) Freeze protection (evaporator coil).
4) High-pressure protection (high pressure switch or internal).
5) Compressor reverse rotation protection (ComfortLink™ units only).
6) Loss of charge protection.
7) Start assist on singe-phase units.

LICENSED PROFESSIONAL ENGINEER
26021?
E. TAYLOR
TOOKER
04/18/24
STATE OF UTAH

b. Supply-air sensor shall be located in the unit and detect both heating and cooling operation.
c. Induced draft heating section shall be provided with the following minimum protections:

1) High-temperature limit switch.
2) Induced-draft motor speed sensor.
3) Flame rollout switch.
4) Flame proving controls.
5) Redundant gas valve.

J. Operating Characteristics:
1. Unit shall be capable of starting and running at 125 F ambient outdoor temperature per maximum load criteria of ARI Standard 210 (03-12 sizes) and 360 (16-28 sizes).
2. Unit with ComfortLink controls will operate in cooling down to an outdoor ambient temperature of 0° F. Electro-mechanical shall operate down to 40 F.
3. Unit shall be provided with fan time delay to prevent cold air delivery in Heating mode.

K. Electrical Requirements:
All unit power wiring shall enter unit cabinet at a single location -- side or bottom.

L. Motors:
1. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have line break thermal and current overload protection.
2. Evaporator fan motor shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers. Evaporator motors are designed specifically for Carrier and do not have conventional horsepower (hp) ratings listed on the motor nameplate. Motors are designed and qualified in the "air-over" location downstream of the cooling coil and carry a maximum continuous bhp rating that is the maximum application bhp rating for the motor; no "safety factors" above that rating may be applied.
3. All evaporator fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT), effective October 24, 1997.
4. Totally enclosed condenser-fan motor shall have permanently lubricated, sealed bearings, and inherent automatic-reset thermal overload protection.
5. Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection.

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4. Totally enclosed condenser-fan motor shall have permanently lubricated, sealed bearings, and inherent automatic-reset thermal overload protection.
5. Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection.

M. Special Features:
1. Convenience Outlet:
Optional factory-installed powered convenience outlet shall be internally mounted with an externally accessible 115-v, 2-plug
2. Non-Fused Disconnect Switch:
Shall be factory-installed, internally mounted, NEC and UL approved. Non-fused switch shall provide unit power shutoff. Shall be accessible from outside the unit and shall provide power off lockout capability.
3. Return Air/Supply Air Smoke Detector:
The smoke detector shall send input to the controller to shut down the unit in case smoke is detected. The smoke detector shall be factory installed in the return air section or shall be available as a field-installed accessory.
4. Mid-Low Fan Performance Motor/Drive (16-28 sizes):
This motor/drive shall provide low to medium motor and drive capability to enhance evaporator fan performance.
5. Horizontal Kit:
a. Horizontal kit shall contain all the necessary hardware to convert a vertical airflow unit to a horizontal airflow unit (16-28 sizes).
b. The unit shall also be available as a horizontal airflow unit directly from the factory.
6. Phase Loss Protection (3-phase units only):
Shall provide unit shutdown when an electrical phase loss is detected - automatic reset type.

END OF SECTION 23 57 80

DIVISION 23 - HVAC

SECTION 23 83 00
HVAC POWER VENTILATORS

GENERAL
1. Fan description: Coordiante with Electrical Engineering Plans. Corrosion resistant as requried. Centrifugal fans designed for installing in ceiling or wall, or for concealed in-line applications.
2. Housing: Galvanized steel lined with acoustical insulation. Plastic for corrosion resistant areas.
3. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.
4. Grille: Stainless-steel, louvered grille with flange on intake and thumbscrew attachment to fan housing.
5. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.
6. Variable-Speed Controller: Solid-state control to reduce speed from 100 percent to less than 50 percent.
7. Accessories: Manufacturer's standard roof jack or wall cap, and transition fittings.
8. Provide wall cap and room grille with each fan.

END OF SECTION 23 83 00

DIVISION 23 - HVAC

SECTION 23 85 00
DIFFUSERS, REGISTERS AND GRILLES

GENERAL
The frames for all registers, grilles, and diffusers shall match type of ceiling where they are to be installed. Special frames shall be provided for narrow T-bar ceilings. Refer to reflected ceiling plan and other specification divisions for ceiling type.

1. Floor supply and return registers and grilles shall be Titus CT-541 Linear Bar with Heavy Duty core support and Heavy Duty floor mounting frame Type 5 and Type A fasteners.
2. Sidewall return-air grilles from floor to 6 feet 0 inches above the floor shall be sight-proof, heavy-duty gymnasium type equal to Titus 33RL or 33RS with horizontal 40-degree deflection blades, baked enamel finish; grilles above 6 feet 0 inches from the floor shall be Titus 350RL, or 350RS with horizontal 40-degree deflection blades, baked enamel finish.
3. Exhaust-air registers in other than lay-in ceilings shall be Titus 355FL or 355FS with 40-degree deflection horizontal extruded aluminum blades with opposed-blade damper, baked enamel finish. Exhaust registers from 6 feet 0 inches above floor shall be sight-proof, heavy-duty gymnasium type equal to Titus 33RL or 33RS with horizontal 40-degree deflection blades, baked enamel finish with opposed blade damper.
4. Transfer grilles in ceilings shall be the same as specified for return-air grilles for that type of ceiling. Transfer grilles in walls shall be the same type as specified for return-air grilles in walls.
5. Door grilles shall be Titus T700L, nonvision with telescoping frame, baked enamel finish.
6. Return-air registers shall be the same as specified for exhaust registers.
7. Sidewall supply registers shall be aluminum Titus 300FS with opposed blade damper, baked enamel finish. Finish color as selected by Architect.
8. Ceiling supply registers shall be aluminum Titus 300FS with opposed blace damper, baked enamel finish. Finish color as selected by Architect.

Diffusers, Grilles and Registers to be by Tuttle & Bailey or approved equal.

END OF SECTION 23 85 00

DIVISION 23 - MECHANICAL

SECTION 23 90 00
TEMPERATURE CONTROLS

GENERAL
1. A 7 day programmable temperature thermostat shall be located in each zone and shall control the Roof-Top unit in sequence to maintain the space temperature setpoint.

2. Exhaust fans shall operate based on occupancy sensor with switch over-ride.

END OF SECTION 23 90 00

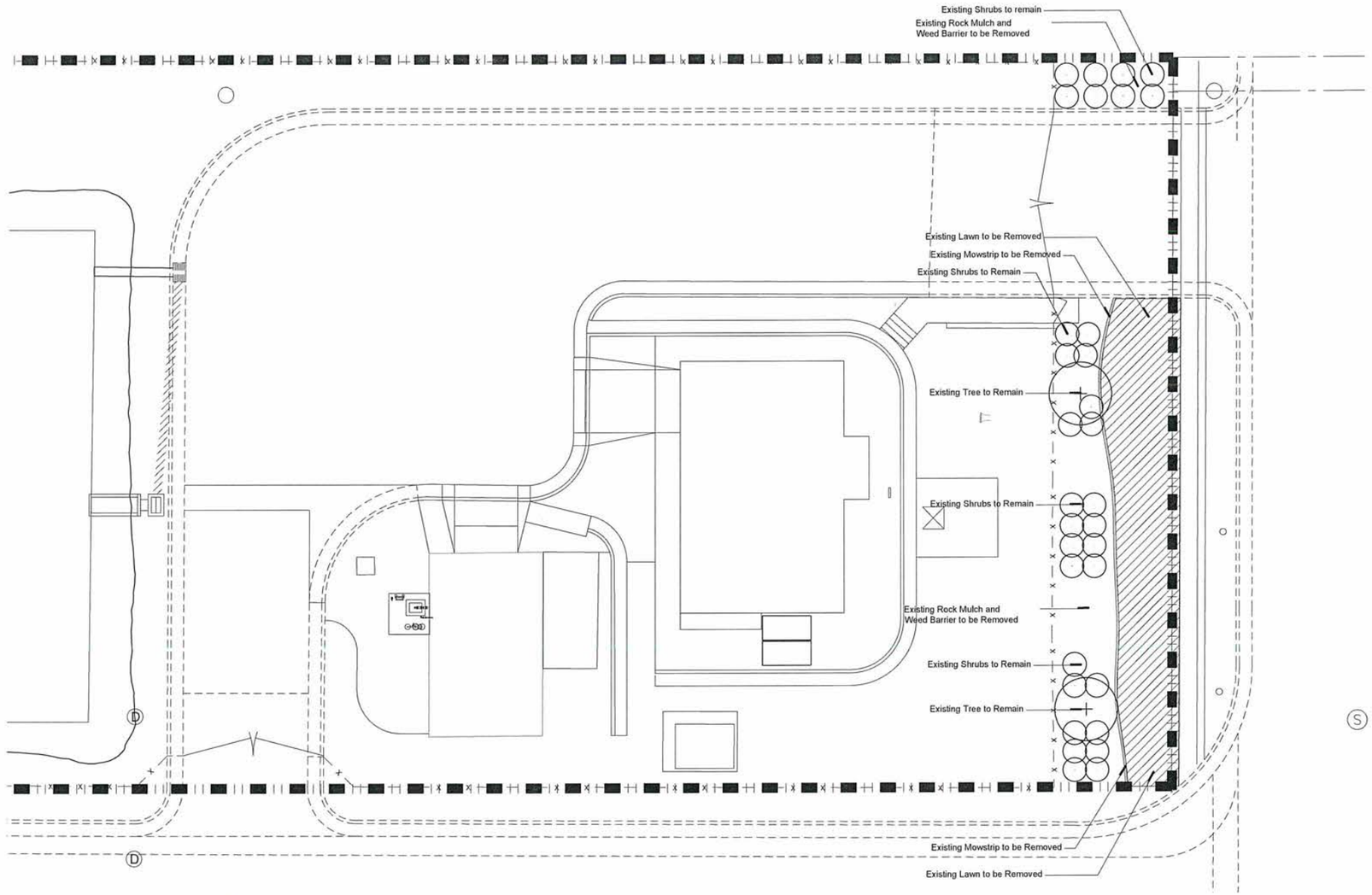
DIVISION 23 - MECHANICAL

SECTION 23 99 00
TESTING, ADJUSTING, BALANCING AND MAINTENANCE MANUALS

1. All air and water systems to be tested and balanced by an independent testing and balancing firm approved by the engineer. All systems shall be adjusted to perform within 5% of the design document requirements. A complete report shall be provided at the completion of the work.
2. Each system shall be commissioned to insure correct operation. A complete report shall be provided at the completion of the work.
3. Complete maintenance and operations manuals shall be provided for all equipment in the building. Manuals shall be provided in a 3-ring binder with tabs for each piece of equipment, warranty certificates and start-up documentation.

END OF SECTION 23 99 00

HANSEN ALLEN & LUCE INC ENGINEERS	Bluefield Engineering	DESIGNED BLUEFIELD	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT	WELL PUMP STATION CONSTRUCTION HVAC – 700 EAST & 1000 E SPECIFICATIONS	SHEET H–10
		DRAFTED BLUEFIELD	2								
		CHECKED TG	1								127.26.100
		DATE NOV 2023	NO.	DATE	REVISIONS	BY	APVD				



10' 0' 5' 10' 20' 40'

GRAPHIC SCALE

STATE OF UTAH
Eric A. Lyman
88-103729
5301
LICENSED LANDSCAPE ARCHITECT

04/26/2024

E. A. Lyman
Landscape Architecture
Land Planning
Urban Design

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E-mail: eric@ealyman.com

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS	PROJECT ENGINEER	DESIGNED EAL	3					SCALE
		DRAFTED	2					
		CHECKED EAL	1					
		DATE JUN 2024	NO.	DATE	REVISIONS	BY	APVD.	

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
LANDSCAPE – 700 EAST
LANDSCAPE DEMO. PLAN

SHEET
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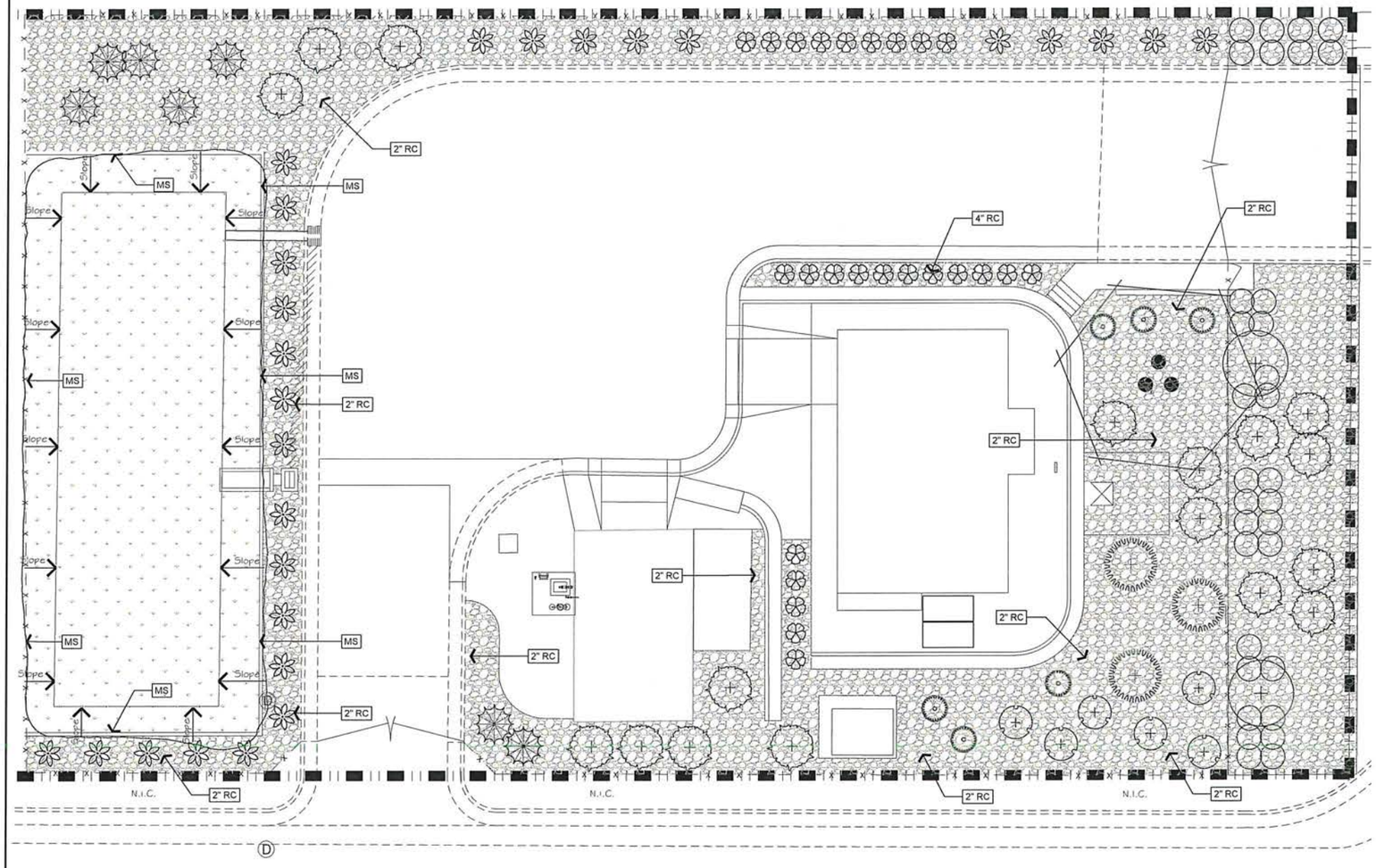

MISC	
	Upland Grass Seed Mix with Erosion Control Blanket - See Specifications
2" RC	Install 3" depth 2" washed Southtown Cobble (Utah Landscaping Rock). Install over DeWitt Pro-5 Weed Barrier.
MS	6" Extruded Mowstrip with Reinforcing Cable.
NOTES:	1. See details and specifications for additional information.

10' 0' 5' 10' 20' 40'

GRAPHIC SCALE

STATE OF UTAH
Eric A. Lyman
88-103729 5301
LICENSED LANDSCAPE ARCHITECT

04/26/2024

LANDSCAPE TABULATION

TOTAL LANDSCAPE AREA	10,772 S.F. (100%)
ROCK MULCH PLANTING BEDS	7594 S.F. (70%)
DETENTION POND	3178 S.F. (30%)
VEGETATIVE COVER (INCLUDES DETENTION BASIN (50% COVER) AND SHRUBS.	3611 S.F. (33.5%)

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PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
TREES					
	1	Celtis occidentalis	Common Hackberry	2" Cal.	B4B
	4	Existing Deciduous Tree to Remain		---	
EVERGREEN TREES					
	7	Juniperus scopulorum 'Gray Gleam'	Gray Gleam Juniper	6' Ht. Min.	B4B
SHRUBS					
	3	Cercocarpus ledifolius	Curl-Leaf Mountain Mahogany	5 gal.	Container
	64	Existing Shrub to Remain	Existing Shrub to Remain	---	
	6	Prunus besseyi 'Pawnee Buttes'	Sand Cherry	5 gal.	Container
	17	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	5 gal.	Container
GRASSES					
	25	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 gal.	Container
	27	Miscanthus purpurascens	Flame Grass	1 gal.	Container
	6	Pennisetum alopecuroides 'Desert Plains'	Desert Plains Fountain Grass	1 gal.	Container

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED EAL
DRAFTED
CHECKED EAL
DATE JUN 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

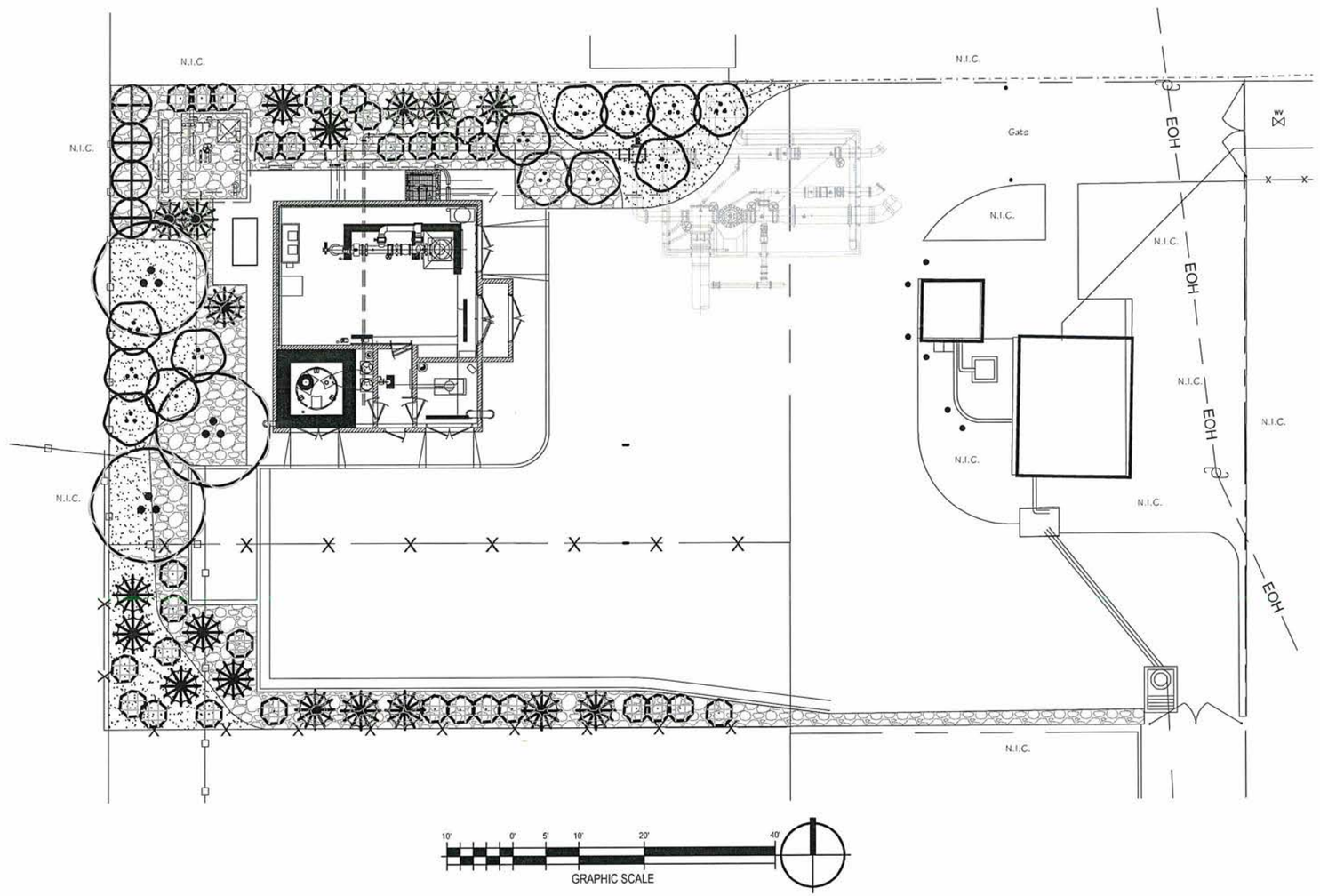
SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
LANDSCAPE – 700 EAST
LANDSCAPE PLAN

SHEET L1.2
127.26.100

7/04



SCHEDULE NOTE - QUANTITIES ARE PROVIDED FOR CONTRACTOR'S CONVENIENCE ONLY. CONTRACTOR IS TO VERIFY ALL QUANTITIES. CONTRACTOR SHALL ALSO VERIFY THAT ALL SHRUBS SHOWN ON THE PLANS ARE SHOWN ON THE SCHEDULE AND SHALL REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT BEFORE BIDDING.

PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
TREES					
	3	Prunus virginiana 'Canada Red'	Canada Red Chokecherry	25 gal.	Container
EVERGREEN TREES					
	18	Juniperus scopulorum 'Gray Gleam'	Gray Gleam Juniper	6' Ht. Min.	B&B
SHRUBS					
	4	Aronia melanocarpa 'Viking'	Viking Black Chokeberry	10 gal.	Container
	30	Chrysothamnus nauseosus	Rubber Rabbitbrush	5 gal.	Container
	13	Rhus trilobata 'Autumn Amber'	Autumn Amber Sumac	5 gal.	Container

MISC		
		Contractor to install 4 inch depth of 3" Southtowne Cobble (Utah Landscape Rock). Install over DeWitt Pro-5 Weed Barrier.
		Contractor to install 3 inch depth of 2" Southtowne Cobble (Utah Landscape Rock). Install over DeWitt Pro-5 Weed Barrier.
NOTES:		1. See details and specifications for additional information.

LANDSCAPE TABULATION:

TOTAL LANDSCAPE AREA	3532.9 S.F. (100%)
SHRUB VEGETATIVE COVER	1769.2 S.F. (50.1%)

STATE OF UTAH
Eric A. Lyman
88-103729
5301
LICENSED LANDSCAPE ARCHITECT
07/29/2024

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FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, INC. ENGINEERS	PROJECT ENGINEER	DESIGNED EAL	3					SCALE
		DRAFTED	2					
		CHECKED EAL	1					
		DATE JUL 2024	NO.	DATE	REVISIONS	BY	APVD.	

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
LANDSCAPE – 1000 EAST
LANDSCAPE PLAN

SHEET L1.3
127.26.100

7/04

WATER ALLOWANCE CALCULATION

STATION #	PLANT FACTOR CLASS	SQ/FT OF AREA	ANNUAL Eto	PLANT FACTOR VALUE	CONVERSION TO GALLONS	GALLONS ANNUALLY PER ZONE
1 - Shrub Drip	Low	4,674	x 31.17	0.30	0.62	27,098.08
2 - Shrub Drip	Low	2,918	x 31.17	0.30	0.62	16,917.46
3 - Upland Grass	No Irrigation	3,178	x 31.17	0.00	0.62	0.00
	TOTAL AREA	10,770			TOTAL GALLONS	44,015.53

WATER ALLOWANCE 44,015.53 / 10,770 = 4.09 GALS/SF/YEAR

STATE OF UTAH
Eric A. Lyman
88-103729
5301
LICENSED LANDSCAPE ARCHITECT
04/29/2024

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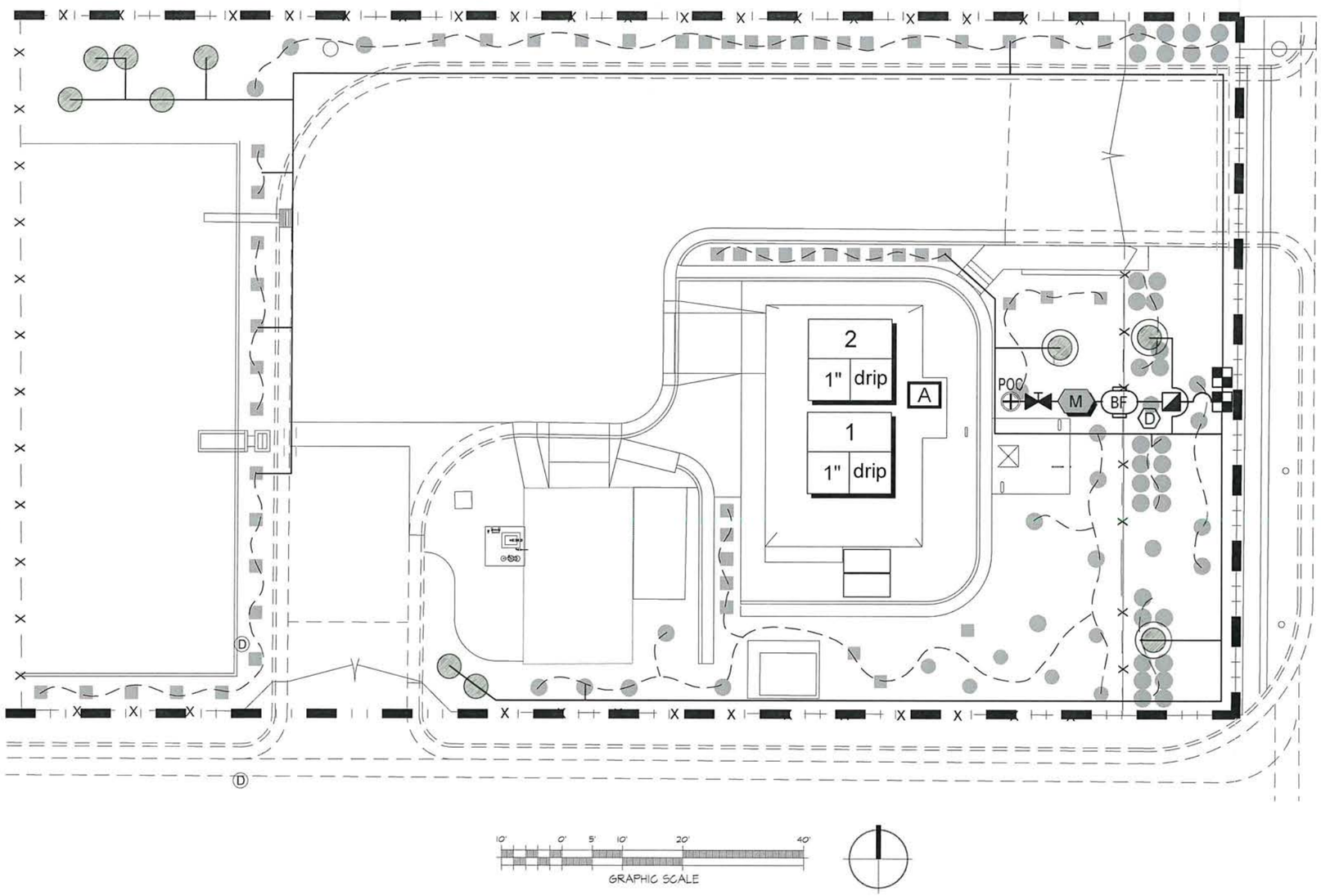
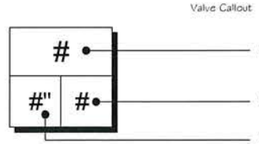


10' 0' 5' 10' 20' 40'
GRAPHIC SCALE

IRRIGATION_SCHEDULE

SYMBOL	BACKFLOW PREVENTERS	SIZE
BF	Wilkins 375 with wye strainer - Install in w/ Strong Box Aluminum Enclosure & Insulated Blanket- SBBC xxALI	1"
SYMBOL	**CONTROLLERS**	**SIZE**
A	Rain Bird ESP-TM2-4-120V with LINKWIFI Module WaterSense labeled	4 Zones
SYMBOL	**EQUIPMENT**	**SIZE**
M	Rain Bird 1" Landscape Water Meter Model FM100B	1"
	Mueller Mark II Onseal S4W Model H-10288	1"
D	Conbraco Weld Top Valve Model 78-154-01	3/4"
	Rain Bird 100-PESB Valve with PRB-QKCHK-100 Basket Filter	1"
	Rain Bird 33DRC 3/4" Quick Coupler Valve, two piece body	3/4"
SYMBOL	**IRRIGATION DRIP**	
	Rain Bird XB-20PC Emitter	
	Rain Bird PC-05 Emitter	
	Rain Bird XT-700 Drip Tubing	
	Netafim Tree Ring - Double (New Trees) TLCVX-18 360 Degrees	(See Details)
	Netafim Tree Ring - Single (New Trees) TLCVX-18 360 Degrees	(See Details)
SYMBOL	**IRRIGATION PIPE**	**SIZE**
	Irrigation Lateral Line: PVC Schedule 40	1"
	Irrigation Mainline: PVC Schedule 40	1"
	Pipe Sleeve	2"
SYMBOL	**POINT OF CONNECTION**	**SIZE**
POC	Culinary POC Min. 15 GPM @ 60 PSI Static	1"

Valve Callout



NOTE:
1. Location of POC, Mainline, and Valves are diagrammatic. Contractor to locate in landscape areas wherever feasible.

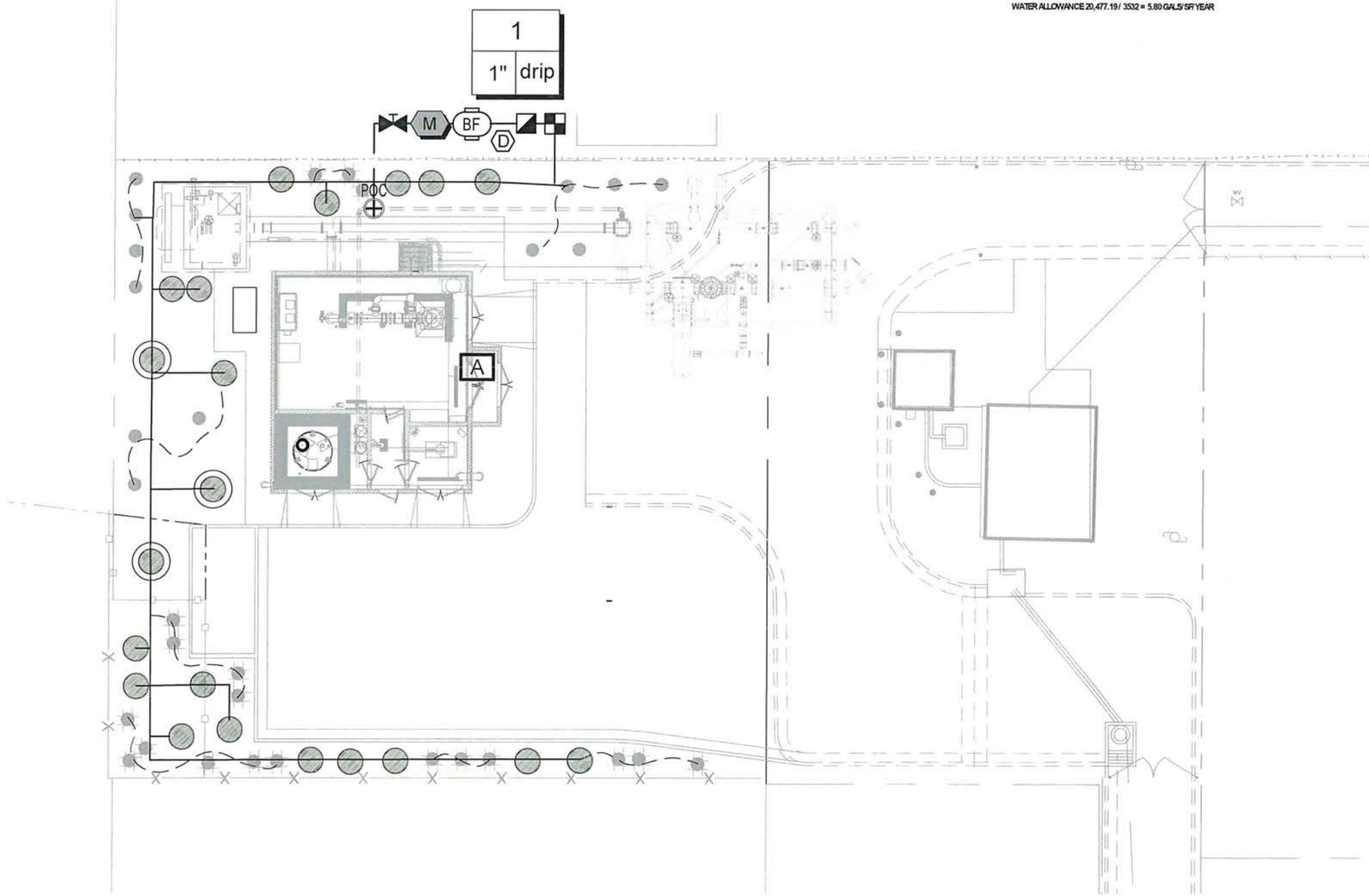
FILE NAME:
FILE DATE:

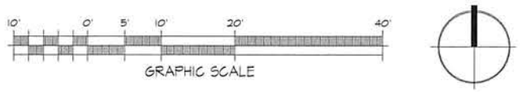
HANSEN ALLEN & LUCE, inc ENGINEERS	PROJECT ENGINEER	DESIGNED EAL	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED	2						WELL PUMP STATION CONSTRUCTION LANDSCAPE – 700 EAST IRRIGATION PLAN
		CHECKED EAL	1						SHEET L2.1 127.26.100
		DATE JUN 2024	NO.	DATE	REVISIONS	BY	APVD.		

7/04

STATION #	PLANT FACTOR CLASS	SQ/FT OF AREA	ANNUAL Eto	PLANT FACTOR VALUE	CONVERSION TO GALLONS	GALLONS ANNUALLY PER ZONE
1 - Shrub Drip	Low	3,532	x 31.17	0.30	0.62	20,477.19
	TOTAL AREA	3,532			TOTAL GALLONS	20,477.19

WATER ALLOWANCE 20,477.19 / 3532 = 5.80 GALS/SF/YEAR





STATE OF UTAH
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04/29/2024

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IRRIGATION_SCHEDULE

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SYMBOL	**CONTROLLERS**	**SIZE**
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	Netafim Tree Ring - Single (New Trees) TLCV6-18 360 Degrees	(See Details)
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	Irrigation Lateral Line: PVC Schedule 40	1"
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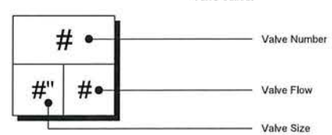
	Pipe Sleeve	2"
SYMBOL	**POINT OF CONNECTION**	**SIZE**
POC	Culinary POC Min, 15 GPM @ 60 PSI Static	1"

Valve Callout



NOTE:
1. Location of POC, Mainline, and Valves are diagrammatic. Contractor to locate in landscape areas wherever feasible.

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		CHECKED EAL	1					
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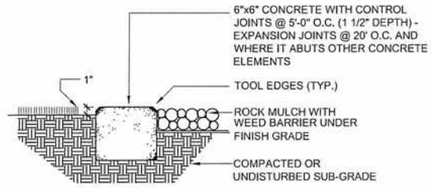
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
LANDSCAPE – 1000 EAST
IRRIGATION PLAN

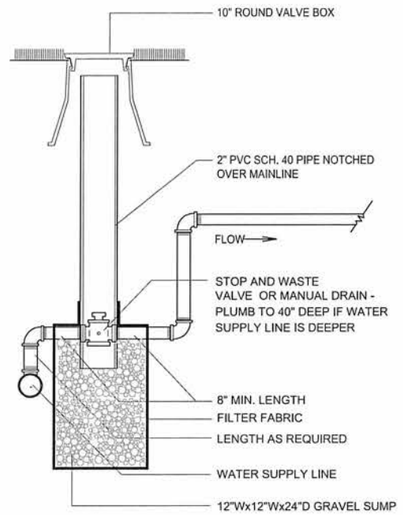
SHEET L2.2
127.26.100

7/04

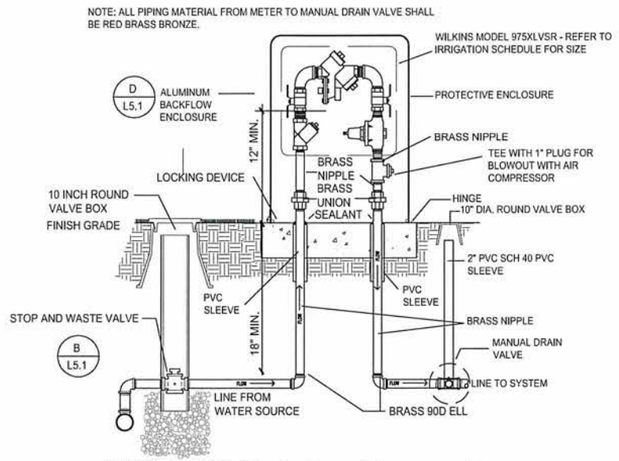


ZOOM
21NOTES:
1. MOWSTRIP TO BE CAST-IN-PLACE AND POURED USING TYPICAL WEIGHT STRUCTURAL CONCRETE.
2. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AROUND MOWSTRIPS-DO NOT CREATE A DAM EFFECT WITH PLACEMENT OF MOWSTRIP.
3. PRECISELY FOLLOW LAYOUT AS SHOWN ON PLANTING PLAN.
4. ALL CONTROL JOINTS AND EXPANSION JOINTS TO BE MADE PERPENDICULAR TO EDGE OF CONCRETE

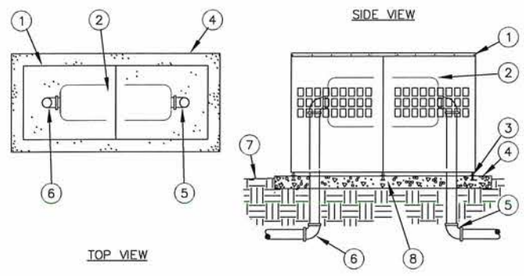
A Concrete Mowstrip
NO SCALE



B Stop and Waste Valve
NO SCALE



C 3/4" to 2" Mainline Connection
NO SCALE



LEGEND

1. ALUMINUM BACKFLOW ENCLOSURE.
2. BACKFLOW PREVENTER.
3. ANCHOR ROD (TYPICAL).
4. POURED CONCRETE BASE. - 6" MINIMUM THICKNESS - EXTEND 4" BEYOND OUTSIDE DIMENSIONS OF ENCLOSURE.
5. WATER SERVICE INLET PIPING.
6. WATER SERVICE OUTLET PIPING.
7. FINISH GRADE.
8. SUPPORT ROD (TYPICAL).

D Aluminum Backflow Enclosure
NO SCALE

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STATE OF UTAH — Eric K. Lyman — 88-103729 5301 — LICENSED LANDSCAPE ARCHITECT

04/29/2024

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		CHECKED EAL	1						SHEET L5.1
		DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

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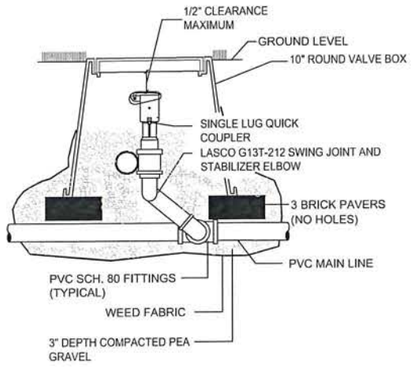
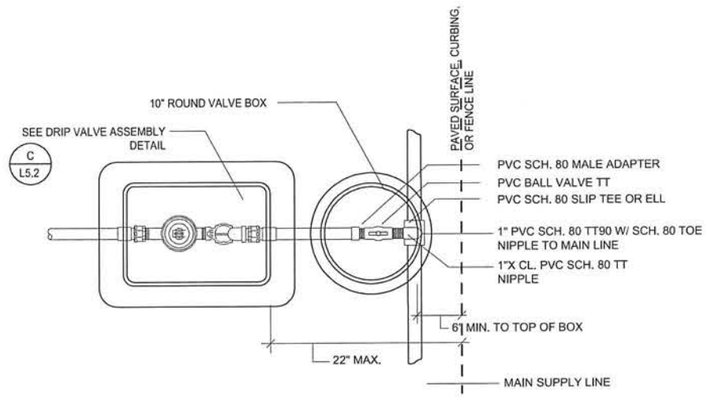
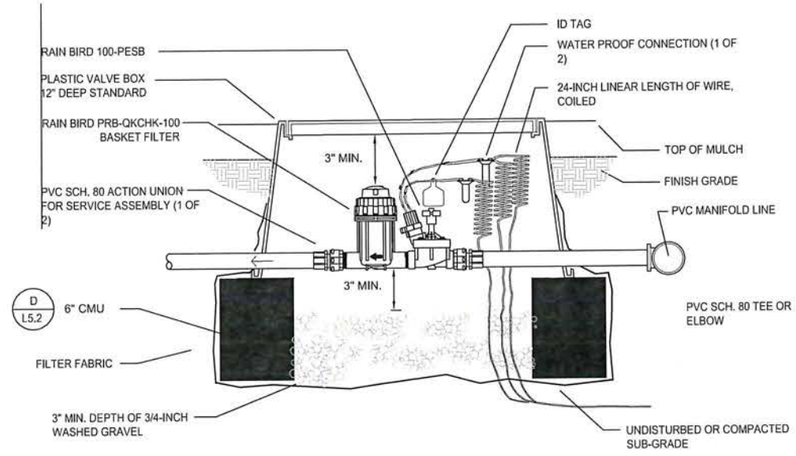


A Quick Coupler (Non-Manifold)
NO SCALE



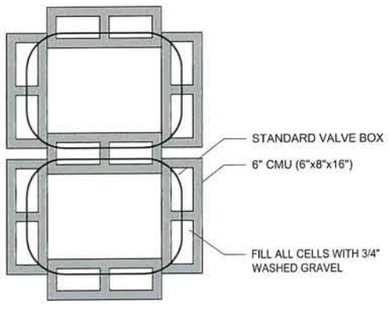
B Single Drip Valve Assebmly - Plan
NO SCALE

NOTE:
1. LIMIT ONE VALVE PER BOX.
2. 10" MIN. LATERAL LINE DEPTH AT VALVE BOX, 12" MIN. LATERAL LINE DEPTH EVERYWHERE ELSE.
3. CONTRACTOR TO PROVIDE 2" CLEARANCE BETWEEN WIRE AND BLOCK.
4. CENTER ASSEMBLY INSIDE OF VALVE BOX.

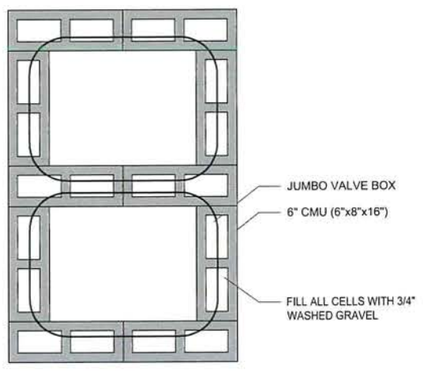


C Drip Valve Assembly
NO SCALE

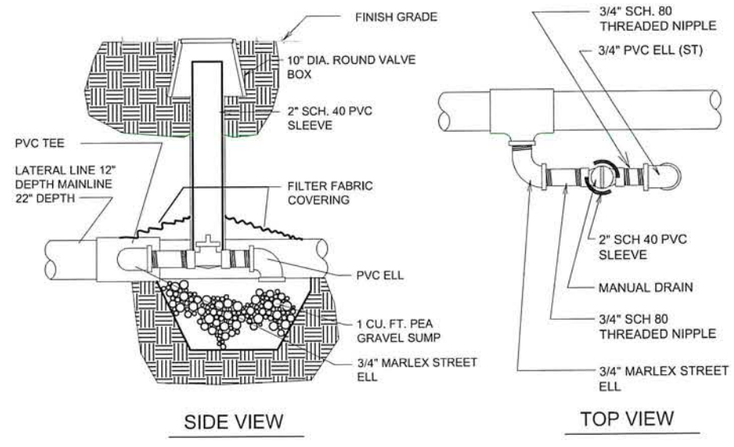
NOTE: STANDARD VALVE BOX TO REST UPON 4 CMU BLOCKS (ONE FOR EACH SIDE). VALVE BOXES LOCATED ADJACENT TO EACH OTHER MAY SHARE A CMU.



NOTE: JUMBO VALVE BOX TO REST UPON 6 CMU BLOCKS (ONE FOR EACH SIDE). VALVE BOXES LOCATED ADJACENT TO EACH OTHER MAY SHARE CMU'S.



D CMU Placement
NO SCALE



E Manual Drain Valve
NO SCALE

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STATE OF UTAH
Eric A. Lyman
88-103729
5301
LICENSED LANDSCAPE ARCHITECT
04/29/2024

FILE NAME:
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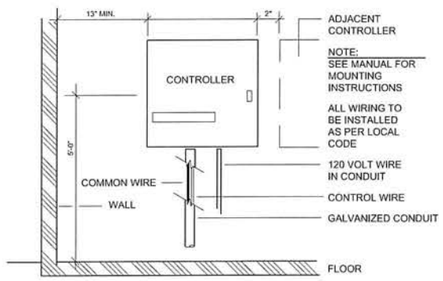
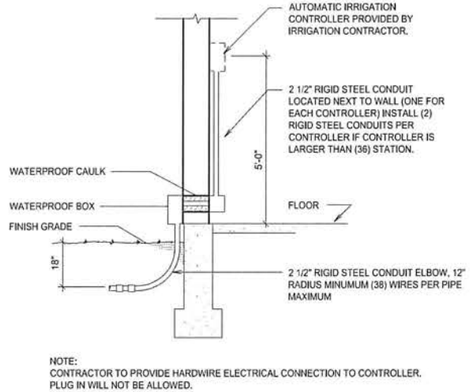
HANSEN ALLEN & LUCE inc ENGINEERS	PROJECT ENGINEER	DESIGNED EAL	3					SCALE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED	2						WELL PUMP STATION CONSTRUCTION LANDSCAPE IRRIGATION DETAILS
		CHECKED EAL	1						SHEET L5.2
		DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

7/04

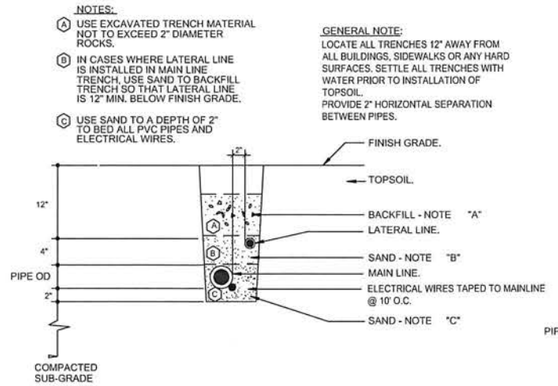


A Wall Mounted Controller
NO SCALE

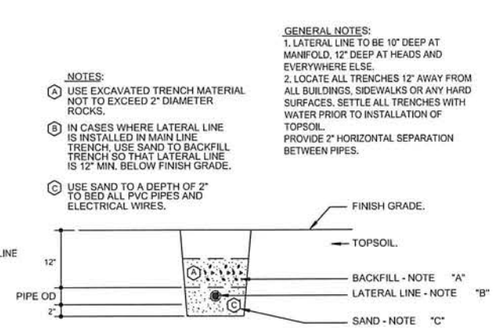


NOTE:
CONTRACTOR TO PROVIDE HARDWIRE ELECTRICAL CONNECTION TO CONTROLLER. PLUG IN WILL NOT BE ALLOWED.

B Interior Wall Mounted Controller
NO SCALE

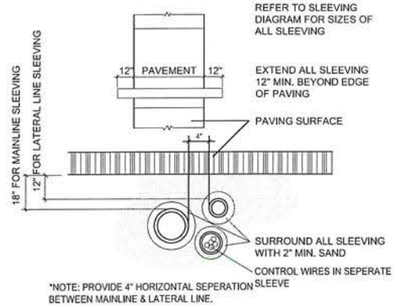


Main Line Trenching Detail

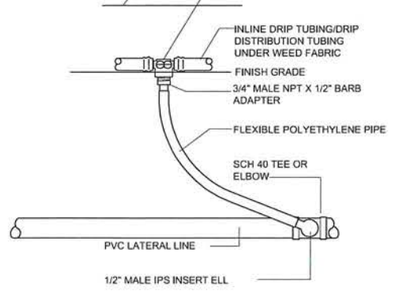


Lateral Line Trenching Detail

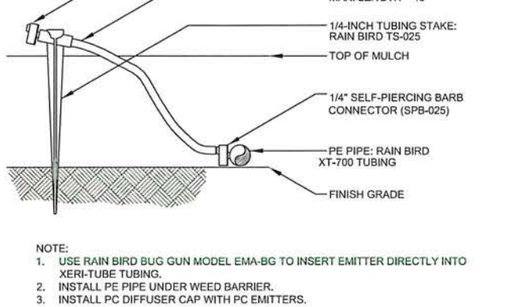
C Trenching Detail 3/4" - 2"
NO SCALE



D Typical Sleeving Detail
NO SCALE

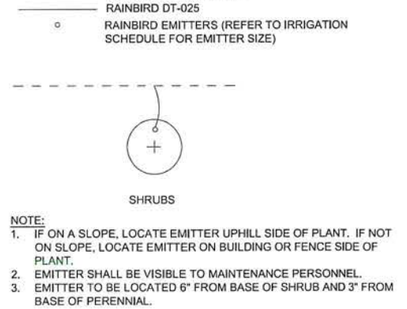


E PVC to PE Pipe Connection
NO SCALE



NOTE:
1. USE RAIN BIRD BUG GUN MODEL EMA-BG TO INSERT EMITTER DIRECTLY INTO XERI-TUBE TUBING.
2. INSTALL PE PIPE UNDER WEED BARRIER.
3. INSTALL PC DIFFUSER CAP WITH PC EMITTERS.

F Emitter into Distribution Tubing
NO SCALE



NOTE:
1. IF ON A SLOPE, LOCATE EMITTER UPHILL SIDE OF PLANT. IF NOT ON SLOPE, LOCATE EMITTER ON BUILDING OR FENCE SIDE OF PLANT.
2. EMITTER SHALL BE VISIBLE TO MAINTENANCE PERSONNEL.
3. EMITTER TO BE LOCATED 6" FROM BASE OF SHRUB AND 3" FROM BASE OF PERENNIAL.

G Shrub Drip - Plan View
NO SCALE

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FILE NAME:
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PROJECT ENGINEER

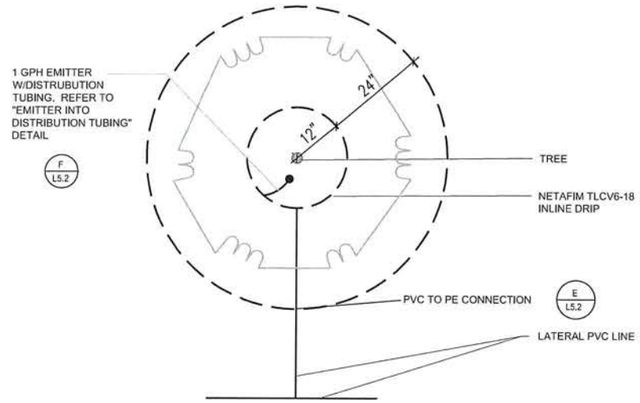
DESIGNED	EAL	3			
DRAFTED		2			
CHECKED	EAL	1			
DATE	JUNE 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

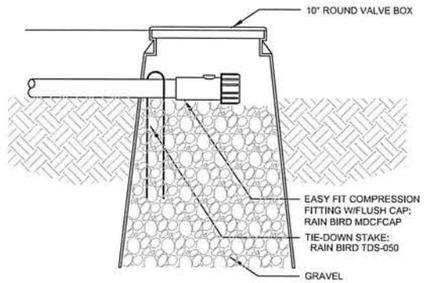
WELL PUMP STATION CONSTRUCTION
LANDSCAPE
IRRIGATION DETAILS

SHEET
L5.3
127.26.100



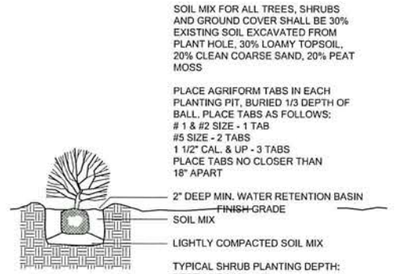
1. SET NETAFIM DRIP LINE ON TOP OF FINISH GRADE. STAPLE TO GROUND AND COVER WITH WEED BARRIER AND MULCH.
2. LOCATE INDICATOR EMITTER ON OUTSIDE OF OUTER DRIP RING ON EVERGREEN TREES ONLY.

A Tree Drip (New Tree) Plan View
NO SCALE



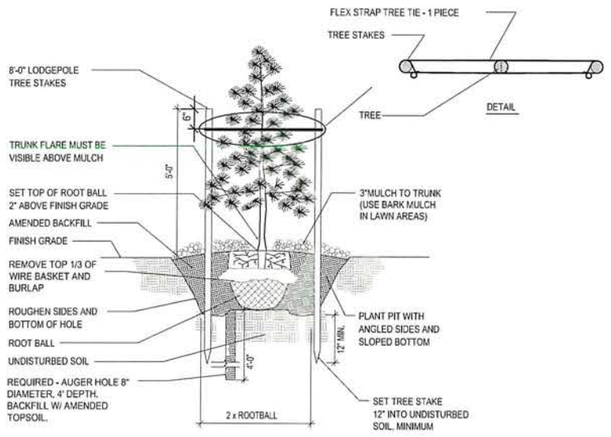
INSTALL FLUSH CAP AT LOW POINT OF EACH DRIP AREA

B Drip Flushing Cap
NO SCALE



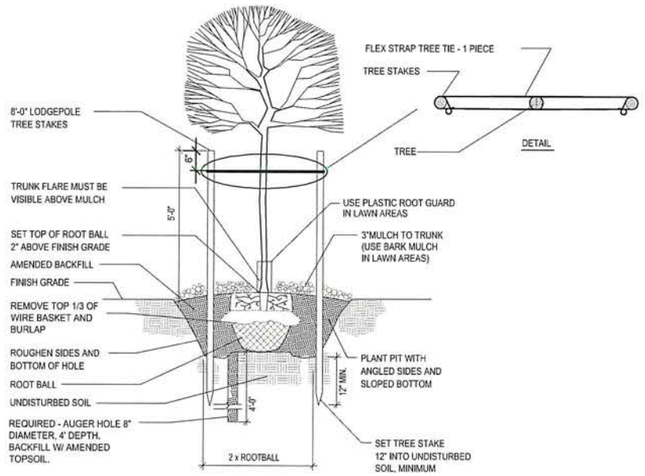
C Shrub Planting Detail
NO SCALE

NOTES:
1. INSTALL TREE IN HOLE, ADD 1ST LAYER OF COMPACTED SOIL MIX, CUT AND REMOVE ALL BURLAP, TWINE AND WIRE FROM TOP 1/3 OF BALL, ADD SECOND LAYER OF SOIL MIX.
2. SOIL MIX FOR ALL TREES SHALL BE 30% EXISTING SOIL EXCAVATED FROM PLANT HOLE, 30% LOAMY TOPSOIL, 20% CLEAN COARSE SAND, 20% PEAT MOSS
3. PLACE AGRIFORM TABLETS IN EACH PLANTING BIT, BURY AT 1/3 DEPTH OF ROOT BALL. PLACE 3 TABLETS IN EACH PIT, NO CLOSER THAN 18" APART
4. DIAMETER OF TREE RING IN LAWN AREAS IS TO BE 2'-0" WIDER THAN DIAMETER OF CANOPY.



D Conifer Tree Planting and Staking
NO SCALE

NOTES:
1. INSTALL TREE IN HOLE, ADD 1ST LAYER OF COMPACTED SOIL MIX, CUT AND REMOVE ALL BURLAP, TWINE AND WIRE FROM TOP 1/3 OF BALL, ADD SECOND LAYER OF SOIL MIX.
2. SOIL MIX FOR ALL TREES SHALL BE 30% EXISTING SOIL EXCAVATED FROM PLANT HOLE, 30% LOAMY TOPSOIL, 20% CLEAN COARSE SAND, 20% PEAT MOSS
3. PLACE AGRIFORM TABLETS IN EACH PLANTING BIT, BURY AT 1/3 DEPTH OF ROOT BALL. PLACE 3 TABLETS IN EACH PIT, NO CLOSER THAN 18" APART
4. DIAMETER OF TREE RING IN LAWN AREAS IS TO BE 4'-0".



E Deciduous Tree Planting and Staking
NO SCALE

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		DATE JUNE 2024	NO.	DATE	REVISIONS	BY	APVD.		127.26.100

7/04

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LICENSED LANDSCAPE ARCHITECT

04/29/2024

IRRIGATION / LANDSCAPE NOTES AS REQUIRED BY SANDY CITY

1. Mulch: After completion of all planting, all irrigated non-turf areas shall be covered with a minimum layer of four (4) inches of mulch to retain water, inhibit weed growth and moderate soil temperature. Non-porous material shall not be placed under the mulch. 4-inch mulch in all irrigated non-turf areas. If rock mulch, minimum is 3-inch. Bark mulch is not allowed in park strip. Rock mulch in park strip must be a minimum of 3". (In compliance)
2. Landscape Water Meter: A water meter and backflow prevention assembly that are in compliance with state code shall be installed for landscape irrigation systems, and the landscape water meter and backflow prevention assembly shall be separate from the water meter and backflow prevention assembly installed for indoor uses. The size of the meter shall be determined based on irrigation demand. (In compliance)
3. Pressure Regulation: A pressure regulating valve shall be installed and maintained by the consumer if the static service pressure exceeds 80 pounds per square inch (psi). The pressure-regulating valve shall be located between the landscape water meter and the first point of water use, or first point of division in the pipe, and shall be set at the manufacturer's recommended pressure for sprinklers. (Not needed since the Pressure Regulation is part of the drip control zone kit.)
4. Automatic controller: All irrigation systems shall include an electric automatic controller with multiple program and multiple repeat cycle capabilities and a flexible calendar program. All controllers shall be equipped with an automatic Rain Shutoff Device. (In compliance – Automatic Rain Shut-off not needed since the system is utilizing a smart controller that accounts for rain events.)
5. On slopes exceeding 30%, the irrigation system shall consist of Drip Emitters, Bubblers, or sprinklers with a maximum Precipitation Rate of 0.85 inches per hour and adjusted sprinkler cycle to eliminate Runoff. (In compliance)
6. Each valve shall irrigate a landscape with similar site, slope and soil conditions and plant materials with similar watering needs. Turf and non-turf areas shall be irrigated on separate valves. (In compliance)
7. Drip Emitters or a Bubbler shall be provided for each tree where practicable. Bubblers shall not exceed 1.5 gallons per minute per device. Bubblers for trees shall be on separate valve unless specifically exempted by Sandy City Public Utilities due to the limited number of trees on the project site. (In Compliance)
8. Sprinklers shall have matched Precipitation Rate with each control valve circuit. (Not Applicable)
9. Check valves shall be required where elevation differences will cause low-head drainage. Pressure compensating valves and sprinklers shall be required where a significant variation in water pressure will occur within the irrigation system due to elevation differences. (Not Applicable)
10. Drip irrigation lines shall be placed underground or otherwise permanently covered, except for Drip emitters and where approved as a temporary installation. Filters and end flush valves shall be provided as necessary. (Drip Laterals are underground. Drip distribution tubing is placed under the weed barrier.)
11. Irrigation zones with overhead spray or stream sprinklers shall be designed to operate between 6:00 p.m. and 10:00 a.m. to reduce water loss from wind and evaporation. This would exclude drip or bubbler zones. (Not Applicable)
12. Program valves for multiple repeat cycles where necessary to reduce runoff, particularly slopes and soils with slow infiltration rates. (In compliance)
13. Following construction and prior to release of the secondary bond guarantee posted for the project, a Water Use Efficiency Review will be conducted by a Landscape Irrigation Auditor. The auditor shall be independent of the Contractor, Design Engineer, and Developer/Project Owner. The water performance audit will verify that the irrigation system complies with the minimum standards required by Sandy City ordinance. The minimum efficiency required for the irrigation system is 60% for distribution efficiency for all fixed spray systems and 70% distribution efficiency for all rotor systems. The auditor shall furnish a certificate to the City, designer, installer and Developer/Project Owner certifying compliance with the minimum distribution requirements. Also, form "Substantial Completion of Water Audit" must be completed and sent to Public Utilities. Compliance with this provision is required before the City will release the bond for this project. (Not required)
14. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only planters with similar water use shall be used in that area. Lawn areas and planters shall be irrigated by separate valves. (In compliance)
15. A separate backflow prevention device shall be installed for the irrigation system. (I
16. A rain sensing overriding device shall be utilized so that the irrigation system will automatically turn off in the event of rain. (Not needed since the system is utilizing a smart controller that accounts for rain events.)
17. The irrigation system shall be designed to prevent overspray and water run-off onto adjacent-property, non-irrigated areas, walks, roadways or structures. (In compliance)
18. An automatic irrigation system using pop-up sprinkler heads shall be required for all new landscapes. Low flow sprinkler heads shall be used wherever possible. (Not applicable)
19. No irrigation of walkways or drive. (In compliance)
20. Water audit is required prior to bond being released. Suggest the audit be done within 60 days of installing irrigation and landscape. (Not required)

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED EAL
DRAFTED
CHECKED EAL
DATE JUNE 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
LANDSCAPE
DETAILS

SHEET L5.5

127.26.100

7/04

GENERAL DRAWING SYMBOLS

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

①	REFERENCE NOTE
1	DEMOLITION NOTE
1	REVISION NOTE
1	IDENTIFICATION NOTE
NO	PHOTO REFERENCE
XX / XX	EQUIPMENT REFERENCE
XXX	WIRE SIZE REFERENCE
PHOTO A XX	PHOTO REFERENCE
A / –	SECTION/ELEVATION REFERENCE
XXX–XXX	EQUIPMENT ID TAG

SECURITY SYMBOLS

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

MS	SECURITY MOTION SENSOR
	SECURITY CAMERA (FIXED)
PTZ	SECURITY CAMERA (PAN–TILT–ZOOM)
IL	SECURITY ILLUMINATOR
⊡	CONTROL STATION

GENERAL LINEWORK

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

———	NEW FACILITIES
—— --- ——	EXISTING FACILITIES TO REMAIN
//////	EXISTING FACILITIES TO BE REMOVED
—·—·—·—	EQUIPMENT OR PACKAGE BOUNDARY

LIGHT SWITCHES

$	SINGLE POLE SWITCH
$$	GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
$a $3	SWITCH SUPERSCRIPT 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 S = SURFACE F = FLUSH
⊡	CONTROL STATION
Ⓟ	PHOTOELECTRIC CONTROL UNIT

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

SCHEMATIC SWITCHES

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

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
		MOMENTARY PUSHBUTTON
		MAINTAINED POSITION MUSHROOM HEAD PUSHBUTTON
		LEVEL OR FLOAT
		LEVEL OR FLOAT
		TEMPERATURE
		TEMPERATURE
		FLOW
		FLOW
		TIME
		TIME
		FORCE OR TORQUE
		PRESSURE
OFF ON OR	OFF ON OX	SELECTOR SWITCH, TWO POSITION MAINTAINED CONTACT WITH OFF–ON LEGEND
JOG RUN OR	JOG RUN XO OX	SELECTOR SWITCH, TWO POSITION SPRING RETURN TO RIGHT WITH JOG–RUN LEGEND
HAND OFF AUTO OR	HAND OFF AUTO XOO OOX	SELECTOR SWITCH, THREE POSITION MAINTAINED CONTACT WITH HAND–OFF–AUTO LEGEND

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

CONDUIT/CONDUCTOR SCHEDULE THHN, THWN, THWN–2

AMP RATING	DRAWING ID TAG.	CONDUCTOR QTY.*	CONDUCTOR SIZE	MIN. CONDUIT SIZE	EXCEPTIONS
20** 20+	212	2	#12	3/4"	
	312	3		3/4"	
	412	4		3/4"	
30** 30+	20	2	#10	3/4"	
	30	3		3/4"	
	40	4		3/4"	
40** 50+	28	2	#8	3/4"	
	38	3		3/4"	
	48	4		3/4"	
55** 65+	26	2	#6	3/4"	
	36	3		3/4"	
	46	4		3/4"	1"(C9)
70** 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)
95** 115+	22	2	#2	1"	
	32	3		1"	1–1/4"(C9)
	42	4		1–1/4"	
110** 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 CONDUCTORS. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZES.

WHERE: C1 = ELECTRICAL METALLIC TUBING "**" = 60°C RATING
C2 = ELECTRICAL NON–METALLIC TUBING "+" = 75°C RATING
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
"**" = RATED AMPACITY AT 60°C
"+" = RATED AMPACITY AT 75°C
USE 60°C CONDUCTOR RATING WHEN TERMINATION RATINGS ARE NOT PUBLISHED

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

GENERAL NOTES:

1. 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.
2. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH–IN.
3. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH–IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
4. 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.
5. ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
6. 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.
7. 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.

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

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REGISTERED PROFESSIONAL ENGINEER No. 86–171214–2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3	
DRAFTED	GDS	2	
CHECKED	KBH	1	
DATE	JUNE 2023	NO.	DATE

REVISIONS | BY | APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
LEGEND, SHT. 1

SHEET E1.1

127.24.400

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.
- RACEWAY OR WIRING SYSTME ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED
- FLEX CONDUIT
- HOMERUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
- 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
- JUNCTION BOX
- JUNCTION BOX, WALL MOUNTED

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

PLAN SYMBOLS

EQUIPMENT

- CIRCUIT DISTRIBUTION PANELBOARD SURFACE MOUNTED DOOR DESIGNATES FRONT OF PANEL "A" DESIGNATES PANEL A
- CIRCUIT DISTRIBUTION PANELBOARD RECESSED DOOR DESIGNATES FRONT OF PANEL "A" DESIGNATES PANEL A
- POWER DISTRIBUTION PANELBOARD SURFACE OR FLOOR MOUNTED DOORS DESIGNATE FRONT OF PANEL MDP DESIGNATES MAIN DISTRIBUTION PANEL
- CONTROL PANEL ENCLOSURE

HVAC EQUIPMENT

- UNIT HEATER, WALL MOUNTED
- UNIT HEATER, WALL MOUNTED
- CONDENSING UNIT, PAD MOUNTED, SIDE DISCHARGE
- CONDENSING UNIT, PAD MOUNTED, UP FLOW
- ROOFTOP MOUNTED EQUIPMENT

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

POWER ONE-LINE SYMBOLS

- UTILITY METERING CURRENT TRANSFORMER
- POWER FEED
- DELTA WYE
- ANTENNA
- CONNECTION POINT
- UTILITY METERING SOCKET
- TRANSFER SWITCH ATS: AUTOMATIC TRANSFER SWITCH MTS: MANUAL TRANSFER SWITCH
- VFD — VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER
- F — FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- K — KEY INTERLOCK
- M — MOTOR (HP SHOWN)
- GENERATOR
- XXX — CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
- POWER FACTOR CAPACITOR
- CIRCUIT BREAKER
- M — UTILITY METERING SOCKET WITH CIRCUIT BREAKER
- MOTOR STARTER
- SURGE PROTECTOR
- TRANSFORMER
- FUSED SWITCH
- FUSE IN HOLDER
- SECURITY KEYPAD CONTROL STATION
- EQUIPMENT GROUND CONNECTION
- LUG
- CURRENT TRANSFORMER
- RTD
- VACUUM CONTACTOR

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

WIRING DEVICES

- 20 AMP RATED RECEPTACLE SINGLE STROKE = SINGLE DOUBLE STROKE = DUPLEX
  RECEPTACLE MODIFIERS: X-X = CIRCUIT NUMBER AF = ARK FAULT CIRCUIT INTERUPTER S = SURFACE MOUNTED IG = ISOLATED GROUND
- GFCI RECEPTACLE
- 480 VOLT RECEPTACLE
- SPECIAL RECEPTACLE (SEE DRAWINGS)
- RECESSED FLOOR RECEPTACLE - ANY RECEPTACLE INSIDE SQUARE
- GANGED RECEPTACLES IN COMMON BOX WITH COMMON COVER PLATE - GFCI
- GANGED RECEPTACLES IN COMMON BOX WITH COMMON COVER PLATE
- THERMOSTAT

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

CONTROL ONE-LINE SYMBOLS

- ENCLOSURE OR CONTROL PANEL
- PNL A / B — HOME RUN TO POWER PANEL "A" CIRCUIT "B"
- R — LIGHT A: AMBER LENS G: GREEN LENS R: RED LENS W: WHITE LENS
- COMBINATION MOTOR STARTER F: FUSED BLANK: CIRCUIT BREAKER
- XXX-XXX — EQUIPMENT IDENTIFICATION TAG
- ELECTRICAL CONNECTION POINT
- SINGLE RECEPTACLE
- GROUND CONNECTION
- XXX — WIRE SIZE CALLOUT REFER TO CONDUIT/CONDUCTOR SCHEDULE
- PNL B — DISTRIBUTION PANEL BOARD

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

MOTOR AND EQUIPMENT

- M — MOTOR
- F — 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
- 100A — DISCONNECT, NON-FUSED, 3 POLE, 100A RATED
- F — FUSED DISCONNECT SWITCH
- FIELD CONNECTION OR ELECTRICAL TERMINATION AT A FIELD DEVICE
- XXX-XXX — EQUIPMENT DESIGNATION

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

LIGHTING SYMBOLS

- F1 — DESIGNATES FIXTURE NUMBER - REFER TO FIXTURE SCHEDULE
- EM — DESIGNATES EMERGENCY FIXTURE

FLUORESCENT FIXTURES

- 1X2 FIXTURE
- 1X4 FIXTURE
- 18"X4' FIXTURE
- 1X8 FIXTURE
- 2X2 FIXTURE
- 2X4 FIXTURE
- 4X4 FIXTURE
- 4 FOOT STRIP
- 8 FOOT STRIP
- PENDANT MOUNTED
- 1X4 WALL MOUNTED FIXTURE
- 2 FOOT WALL MOUNTED FIXTURE
- 4 FOOT WALL MOUNTED FIXTURE

INCANDESCENT FIXTURES

- SURFACE MOUNTED
- PENDANT MOUNTED
- WALL MOUNTED
- RECESSED CANISTER FIXTURE
- RECESSED DIRECTIONAL OR WALL WASH FIXTURE

EXIT LIGHTS

- QUADRANTS INDICATE FACES ILLUMINATED
- SURFACE ON CEILING
- WALL MOUNTED
- WITH DIRECTIONAL ARROWS
- WITH EMERGENCY LIGHTS
- EMERGENCY FIXTURE

POLE MOUNTED FIXTURES

- SINGLE POLE MOUNTED FIXTURE. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS
- OR — 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.
- QUAD POLE MOUNTED FIXTURES. REFER TO FIXTURE SCHEDULE FOR POLE AND FIXTURE REQUIREMENTS.

EXTERIOR FIXTURES

- WALL PAK FIXTURE
- WARNING LIGHT

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

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

SCHEMATIC/CONTROL DIAGRAM SYMBOLS

- CONDUCTOR
- CONDUCTOR (OUTSIDE EQUIPMENT, ENCLOSURE OR CONTROLLER)
- ELECTRICAL CONNECTION OR NODE
- NO CONNECTION OR NODE
- NORMALLY CLOSED (NC) CONTACTS
- NORMALLY OPEN (NO) CONTACTS
- FUSE HOLDER AND FUSE
- F5 / 5A — FUSE TERMINAL FUSE NUMBER: F5 FUSE RATING: 5 AMPS
- FUSED SWITCH
- M / 30 — CONTACTOR (GANG OPERATED). NUMBER OF CONTACTS SHOWN. 30 = 30 AMP RATED
- MOTOR OVERLOAD MOTOR OVERLOAD MODIFIERS: BLANK = SOLID STATE ELECTRONIC BI = BI-METALLIC
- SOLENOID VALVE
- S — SOLENOID VALVE
- CRX / R — CONTROL RELAY X = RELAY NUMBER
- ON / W — PILOT LIGHT LEGEND PLATE: ON MODIFIERS: A: AMBER LENS B: BLUE LENS G: GREEN LENS R: RED LENS W: WHITE LENS
- ON / R — PILOT LIGHT - PUSH-TO-TEST
- USER DEFINED TERMINAL
- USER DEFINED TERMINAL
- M — MOTOR

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

GROUNDING SYSTEM SYMBOLS

- GROUND ROD
- GROUNDING CONNECTION WELDED
- GROUNDING CONNECTION BOLTED
- GROUNDING CONDUCTOR
- LIGHTNING ROD
- LIGHTNING CONDUCTOR

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

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 KEITH B. HEGERHORST — 9/27/24 — STATE OF UTAH

FILE NAME:
FILE DATE:

DESIGNED KBH	3						
DRAFTED GDS	2						
CHECKED KBH	1						
DATE JUNE 2023	NO.	DATE	REVISIONS			BY	APVD.

HANSEN ALLEN & LUCE INC ENGINEERS — PROJECT ENGINEER

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
LEGEND, SHT. 2

SHEET E1.2

127.24.400

7/04

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER		FIX	LAMP	LUMENS	KELVIN	MOUNTING	NOTES:
		NAME	CATALOG NO.	VA					
F1	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT	METALUX	4VT2-LD5-6-DR-W-UNV-L840-CD1-LW-U	50.6	LED	6000	4000	SURFACE	
F2	LED WALL MOUNTED FULL CUTOFF MINI AREA WALL PACK FOR WET LOCATIONS WITH PHOTO CONTROL	COOPER	AXCS1A-GRF-W -PC1	13.5	LED	1806	4000	WALL	1)
F3	2' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, WET LOCATION, UNIVERSAL VOLTAGE	METALUX	2VT2 LD5 3 DR UNV L840 WL SSL	22	LED	3000	4000	SURFACE	

NOTES: 1) BUILT-IN PHOTOCELL

700 E & 1000 E JVWCD WELL ENCLOSURES

700 E WELL ENCLOSURE	1000 E WELL ENCLOSURE	DESCRIPTION	MANUFACTURER	CATALOG NO.	DIMENSIONS (HxWxD, in)	INTERNAL PANEL	NOTES
CP-1		MAIN CONTROL PANEL/RTU	HOFFMAN	A36H30DLP3PT	36x30x12	A36P30	1), 3)
CP-2		CCTV ENCLOSURE	CHATTSWORTH	11900-X36	36x24x24	-	1), 2), 3), 4)
CP-3		SECURITY ENCLOSURE	HOFFMAN	A36H30DLP3PT	36x30x12	A36P30	1), 3)
-	CP-4	FLUORIDE CONTROL PANEL	HOFFMAN	CSD363012	36x30x12	CP3630	5), 6)
CP-5	-	SMALL MOTOR CONTROL PANEL	HOFFMAN	CSD202010	20x20x10	CP2020	5), 60
-	CP-5	SMALL MOTOR CONTROL PANEL	HOFFMAN	CSD242410	24x24x10	CP2424	5), 6)
CP-6		CHLORINATION CONTROL PANEL	HOFFMAN	A36H3012	36x30x12	A3630	3), 5), 6)
CP-7		VENTILATION CONTROL PANEL	HOFFMAN	CSD202010	20x20x10	CP2020	5), 6)
EE-1		SURGE VAULT EL. ENCL.	HOFFMAN	CSD20168	20x16x8	CP2016	5), 6)

NOTES: 1) INSTALL TOP OF ENCLOSURE +76" ABOVE FINISHED FLOOR.
2) NO EQUAL ACCEPTED.
3) INTERNAL COMPONENTS BY JVWCD.
4) ENCLOSURE REQUIRES A MIN. OF 44" CLEAR SPACE ON THE LEFT SIDE TO OPEN PROPERLY.
5) ENCLOSURE BY CONTRACTOR.
6) COMPONENTS BY CONTRACTOR

NOTES: 1. IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1–1972. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION, OR ARE AMMENDMENTS TO ANSI Y1.1–1972 AND ABBREVIATIONS DEFINED ON OTHER DRAWINGS. IN CASE OF CONFLICT THESE ABBREVIATIONS SHALL TAKE PRECEDENCE.

2. THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON DRAWING G3 OR OTHER CONTRACT DOCUMENTS.

ABBREVIATIONS

A	AMPERES, AMMETER	LS	LEVEL SWITCH
AC	ALTERNATING CURRENT	LTG	LIGHTING
ACC	AREA CONTROL CENTER	LV	LOW VOLTAGE (GENERALLY BELOW 600V)
AF	AMPERE FRAME	M	MOTOR, MOTOR CONTACTOR
AFD	ADJUSTABLE FREQUENCY DRIVE	MA	MILLIAMPERE
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AHAP	AS HIGH AS POSSIBLE	MBS	MANUAL BYPASS SWITCH
AIC	AMPERES INTERRUPTING CAPACITY	MCC	MOTOR CONTROL CENTER
AL	ALUMINUM	MCM	THOUSAND CIRCULAR MILLS
AR	ALARM RELAY	MCP	MAIN CONTROL PANEL,
ARV	AUTO TRANSFORMER REDUCED VOLTAGE STARTER		MAGNETIC CIRCUIT PROTECTOR
		MFR	MANUFACTURER
AS	AMMETER SELECTOR SWITCH	MH	MANHOLE
ASYM	ASYMMETRICAL	MIC	MICROPHONE
AT	AMPERE TRIP	MIN	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MIS	MANAGEMENT INFORMATION STATION
AUTO	AUTOMATIC	MISC	MISCELLANEOUS
AUX	AUXILIARY	MOV	MOTOR OPERATED VALVE
AWG	AMERICAN WIRE GAUGE	MR	MOTOR CONTACTOR RELAY
AV	AUDIO VISUAL	MSB	MAIN SWITCHBOARD
BC	BARE COPPER CONDUCTOR	MTD	MOUNTED
BKR	BREAKER	MTG HT	MOUNTING HEIGHT
BLDG	BUILDING	MTS	MANUAL TRANSFER SWITCH
BOT	BOTTOM	MV	MILLIVOLT
BTD	BEARING TEMPERATURE DETECTOR	N	NEW
C	CONDUIT	N/A	NOT APPLICABLE
CB	CIRCUIT BREAKER	NA	NON–AUTOMATIC
CDR	CONDUCTOR	NC	NORMALLY CLOSED
CHS	COMMUNICATIONS HAND STATION	NF	NON FUSED
CKT	CIRCUIT	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NORMALLY OPEN
CNTD	CONTINUED	NOM	NOMINAL
CO	CONVENIENCE OUTLET	NP	NAMEPLATE
C.O.	CONDUIT ONLY, SPARE	NS	TORQUE SWITCH
COMPR	COMPRESSOR	NTS	NOT TO SCALE
COMPT	COMPARTMENTS	OC	ON CENTER, OVERCURRENT
CONC	CONCRETE	OH	OVERHEAD
CPT	CONTROL POWER TRANSFORMER	OL'S	OVERLOADS
CR	CONTROL RELAY	P	POLE, PHASE
CT	CURRENT TRANSFORMER	PA	PUBLIC ACCESS
CU	COPPER	PB	PULLBOX, PUSH BUTTON
DB	DIRECT BURIAL, DUCT BANK	PDS	PRESSURE DIFFERENTIAL SWITCH
DC	DIRECT CURRENT	PF	POWER FACTOR
DCU	DISTRIBUTED CONTROL UNIT	PH	PHASE
DET	DETAIL	PLC	PROGRAMMABLE LOGIC CONTROLLER
DIAG	DIAGRAM	PNL	PANEL
DISC	DISCONNECT	PP	POWER PANEL
DS	DISCONNECT SWITCH	PR	PAIR
DWG	DRAWING	PRI	PRIMARY
E	EXISTING	PROVIDE	FURNISH, INSTALL AND CONNECT
EA	EACH	PSH/L	PRESSURE SWITCH, HIGH/LOW
ECP	EQUIPMENT CONTROL PANEL	PT	POTENTIAL TRANSFORMER
EL	ELEVATION	PVC	POLYVINYL CHLORIDE
ELEC	ELECTRIC(AL)	PW	PART WINDING
EM	EMERGENCY	PWR	POWER
ENCL	ENCLOSURE	RECP	RECEPTACLE
EPI	EMERGENCY POWER INTERLOCK	REQD	REQUIRED
EQUIP	EQUIPMENT	RGS	RIGID GALVANIZED STEEL CONDUIT
ETM	ELAPSED TIME METER	RMS	ROOT MEAN SQUARE
EXH	EXHAUST	RTD	RESISTANCE TEMPERATURE DETECTOR
EXP	EXPLOSION PROOF	RTU	REMOTE TERMINAL UNIT
F.C.	FAIL CLOSE	RVNR	REDUCED VOLTAGE NON–REVERSING
FDR	FEEDER	SCH	SCHEDULE
FIN	FINISHED	SEC	SECONDARY, SECONDS
FL	FLUORESCENT	SEL	SELECTOR
FLA	FULL LOAD AMPS	SH	SHIELDED
FLEX	FLEXIBLE	SPEC	SPECIFICATIONS
FO	FIBER OPTIC	SPDT	SINGLE POLE DOUBLE THROW
F.O.	FAIL OPEN	SPKR	SPEAKER
FS	FLOW SWITCH	SPST	SINGLE POLE SINGLE THROW
FUT	FUTURE	SS	STAINLESS STEEL, SPEED SWITCH
FVNR	FULL VOLTAGE NON REVERSING	S/S	SELECTOR SWITCH
FVR	FULL VOLTAGE REVERSING	SUB	SUBSTATION
G	GREEN GROUND CONDUCTOR	SV	SOLENOID VALVE
GALV	GALVANIZED	SW	SWITCH
GEN	GENERATOR	SWBD	SWITCHBOARD
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SWGR	SWITCHGEAR
GFR	GROUND FAULT RELAY	T1	TRANSFORMER NO. 1
GND,G	GROUND	TACH	TACHOMETER
H/A	HAND/AUTO	TB	TERMINAL BLOCK
HH	HAND HOLE	TC	TIME CLOCK, TIME CONTROLLER
HID	HIGH INTENSITY DISCHARGE	TDAD	TIME DELAY AFTER DE–ENERGIZATION (OFF–DELAY)
HOA	HAND/OFF/AUTO	TDAE	TIME DELAY AFTER ENERGIZATION (ON–DELAY)
HP	HORSEPOWER	TEL	TELEPHONE
HPS	HIGH PRESSURE SODIUM	TEMP	TEMPERATURE
HT	HEIGHT	TR	TIME DELAY RELAY
HTR	HEATER	TS	TEMPERATURE SWITCH
HV	HIGH VOLTAGE (GENERALLY ABOVE 600V)	TVSS	TELEVISION
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	TV	TRANSIENT VOLTAGE SURGE SUPPRESSER
HZ	HERTZ (CYCLES PER SECOND)	TYP	TYPICAL
I/O	INPUT/OUTPUT	UG	UNDERGROUND
IL	INDICATION LAMP	UON	UNLESS OTHERWISE NOTED
INCAN	INCANDESCENT	UPS	UNINTERRUPTIBLE POWER SUPPLY
INST	INSTANTANEOUS	US	UNSWITCHED
INSTR	INSTRUMENT	V	VOLTMETER
INTLK	INTERLOCK	VA	VOLT–AMP
JB	JUNCTION BOX	VC	VACUUM CONTACTOR
KV	KILOVOLT	VS	VOLTMETER SELECTOR SWITCH
KVA	KILOVOLT–AMPERE	W/	WATT, WIRE
KW	KILOWATT	W	WITH
KWH	KILOWATT HOUR	WM	WATTMETER
LC	LIGHTING CONTACTOR	W/O	WITHOUT
LCP	LOCAL CONTROL PANEL	WP	WEATHERPROOF
LDS	LEVEL DIFFERENTIAL SWITCH	WTD	WINDING TEMPERATURE DETECTOR
LO	LUGS ONLY	XFMR	TRANSFORMER
LOS	LOCI–OUT STOP	XS	MISCELLANEOUS SWITCHES (VIBRATION, ETC.)
LP	LIGHTING PANEL	ZS	POSITION (LIMIT) SWITCH

NOT ALL ABBREVIATIONS WILL BE USED ON THESE DRAWINGS

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642–2051
708 EAST 50 SOUTH FAX (801) 642–2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

FILE NAME:
FILE DATE:

PROFESSIONAL ENGINEER — No. 86–171214–2202 — KEITH B. HEGERHORST — 9/27/24 — STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
LEGEND & COMMON SCHEDULES

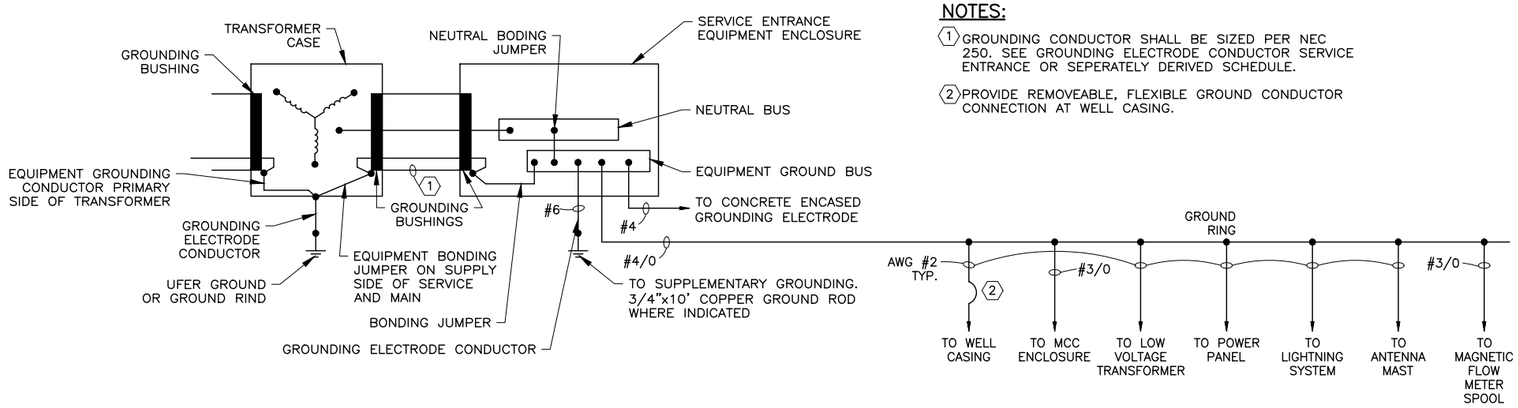
SHEET E1.3

127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



NOTES:

1. GROUNDING CONDUCTOR SHALL BE SIZED PER NEC 250. SEE GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPERATELY DERIVED SCHEDULE.
2. PROVIDE REMOVEABLE, FLEXIBLE GROUND CONDUCTOR CONNECTION AT WELL CASING.

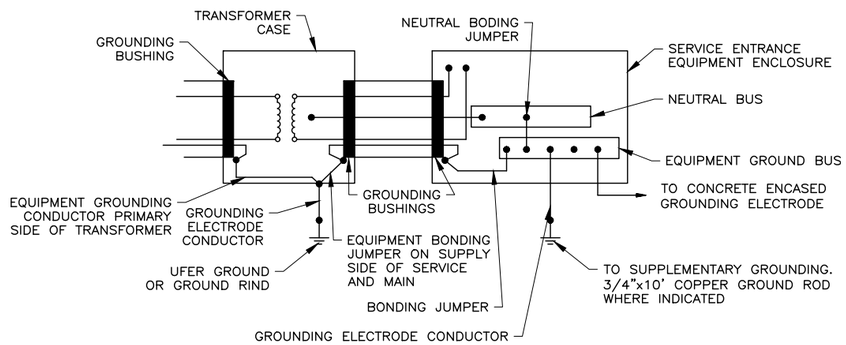
GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

THREE-PHASE SERVICE ENTRANCE GROUNDING DETAIL



SECONDARY POWER 1-PHASE, 3-WIRE TRANSFORMER GROUDNING DETAIL

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 — STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
COMMON DIAGRAMS

SHEET E1.4
127.24.400

7/24

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

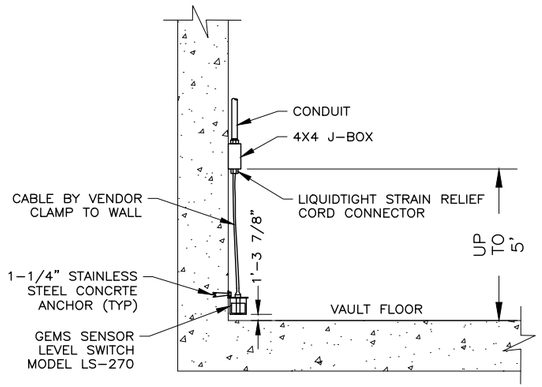
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

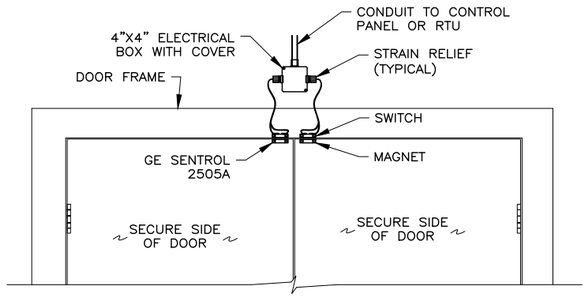
1. NOT USED.

SHEET KEYNOTES:

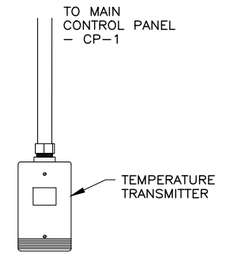
1. NOT USED.



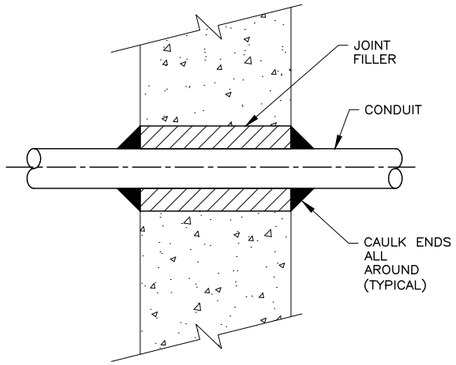
FLOOR FLOOD LEVEL SWITCH 1 | 1
1" = 1'-0" E3.7 | E4.9



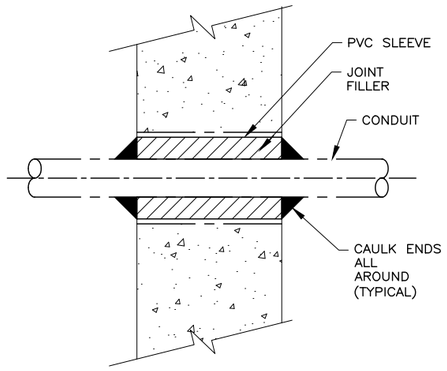
DOOR SECURITY DEVICES 2 | 2
1" = 1'-0" E3.7 | E4.9



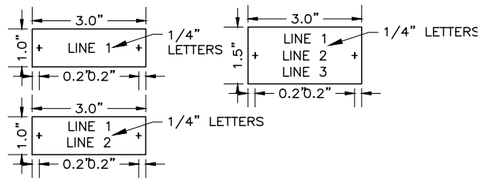
TEMPERATURE TRANSMITTER 3 | 3
3" = 1'-0" E3.7 | E4.9



CONDUIT PENETRATION THRU EXISTING CONCRETE OR WALL

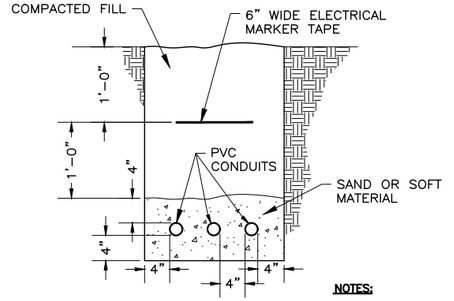


CONDUIT PENETRATION THRU NEW CONCRETE OR WALL



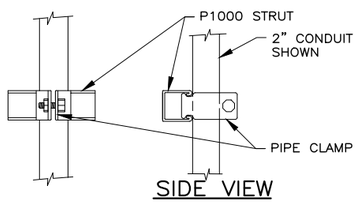
NAMEPLATE DETAIL 6 | 6
6" = 1'-0" E3.11 | E3.12

6 | 6 | 6
E4.13 | E4.16 | E4.18



NOTES:

1. SEE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAMS FOR QUANTITY OF CONDUITS.
2. REFER TO POWER PLANS FOR LOCATIONS OF EQUIPMENT AND VAULTS.

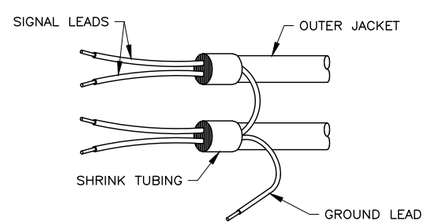


SIDE VIEW

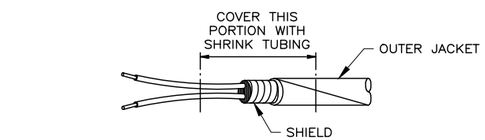
CONDUIT PIPE CLAMPS*			
SIZE	EMT	RGS	EMT/RGS
1/2"	P1426	P1111	–
3/4"	P1427	P1112	P1212
1"	P1428	P1113	P1213
1-1/4"	P1429	P1114	P1214
1-1/2"	P1430	P1115	P1215
2"	P1431	P1117	P1217
2-1/2"	P1118	P1118	–
3"	P1119	P1119	–
3-1/2"	P1120	P1120	–
4"	P1121	P1121	–

* = SUPPLIED WITH SLOTTED HEAD SCREW AND NUT

CONDUIT SUPPORT 8
3" = 1'-0" E2.2

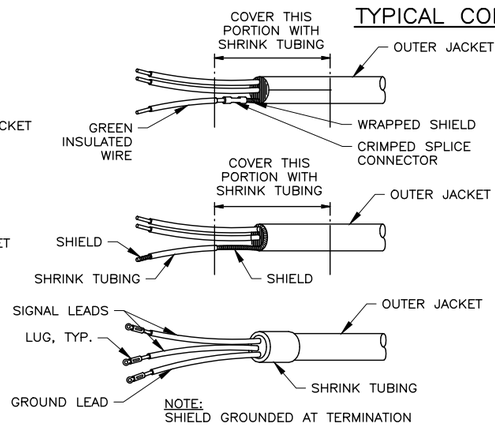


UNACCEPTABLE METHOD OF GROUNDING CONTROL CABLE SHIELD NTS



NOTE:
SHIELD NOT GROUNDED AT TERMINATION.

TERMINATION OF SHIELDED CONTROL CABLE NTS



NOTE:
SHIELD GROUNDED AT TERMINATION

TERMINATION OF SHIELDED CONTROL CABLE NTS

SIGNAL WIRE TERMINATIONS

TYPICAL CONDUIT TRENCH SECTION 7
1" = 1'-0" E3.5

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH
DRAFTED GDS
CHECKED KBH
DATE JUNE 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

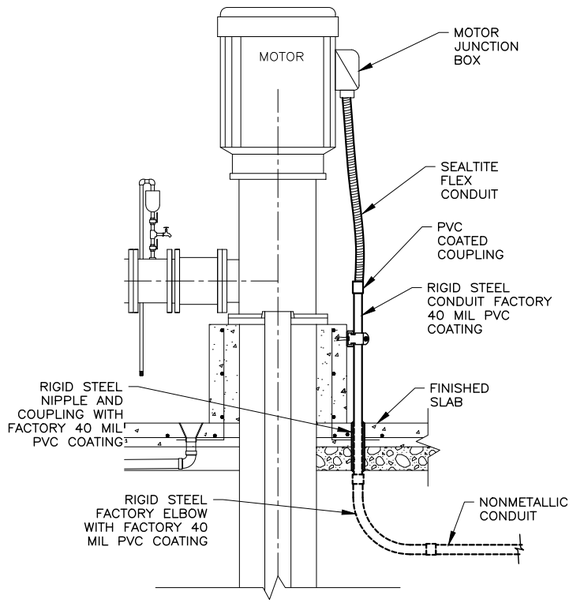
WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 1

SHEET E2.1
127.24.400

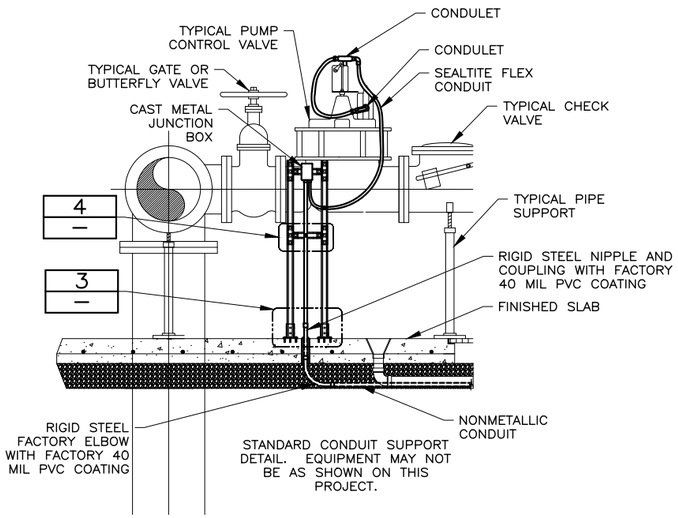
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

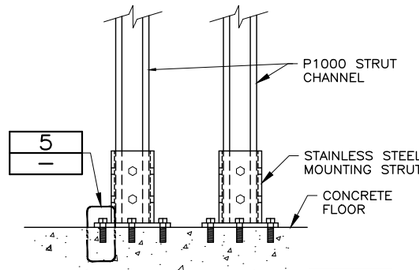


VERTICAL MOTOR CONDUIT INSTALLATION 1 — 1 E4.8
3/8" = 1'-0" E3.6

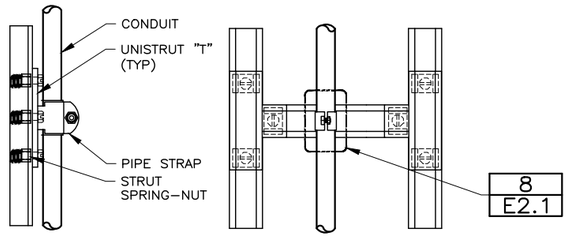


STANDARD CONDUIT SUPPORT DETAIL. EQUIPMENT MAY NOT BE AS SHOWN ON THIS PROJECT.

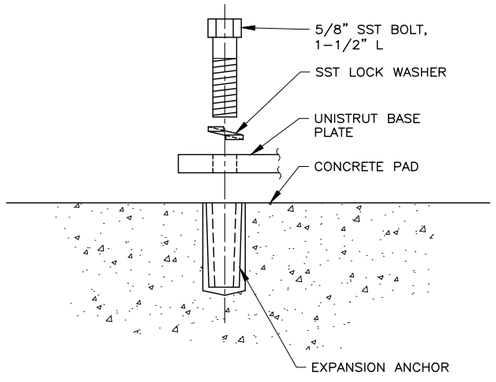
CONDUIT SUPPORT INSTALLATION 2 — 2 E4.9
3/4" = 1'-0" E3.7



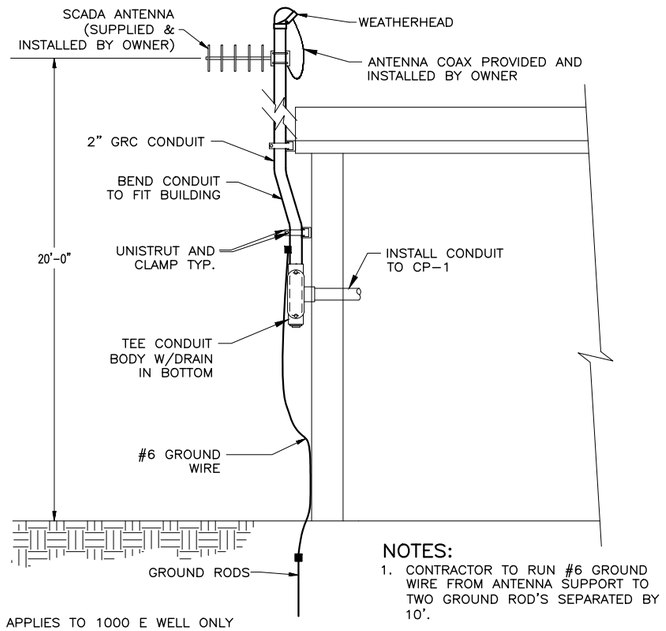
CONDUIT SUPPORT BASE 3 —
3" = 1'-0"



CONDUIT SUPPORT ATTACHMENT 4 —
3" = 1'-0"



SUPPORT ANCHOR 5 —
6" = 1'-0"



APPLIES TO 1000 E WELL ONLY

NOTES:
1. CONTRACTOR TO RUN #6 GROUND WIRE FROM ANTENNA SUPPORT TO TWO GROUND ROD'S SEPARATED BY 10'.

SCADA ANTENNA SUPPORT 6 E4.9
1' = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

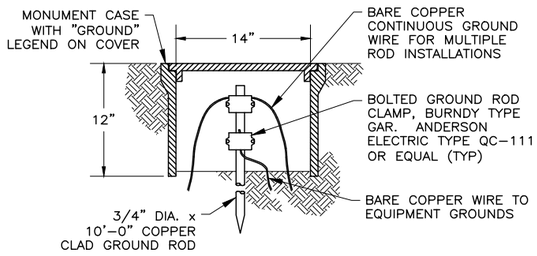
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

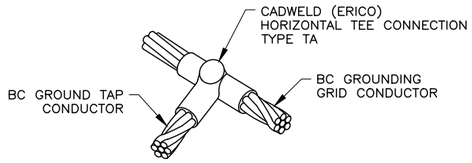
WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 2

SHEET E2.2
127.24.400

7/04

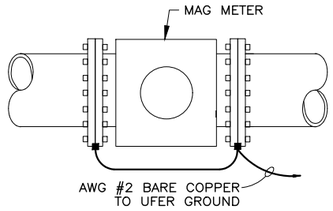


GROUND ROD AND WELL 1 | 1
1 1/2" = 1'-0" E-3.5 | E4.7

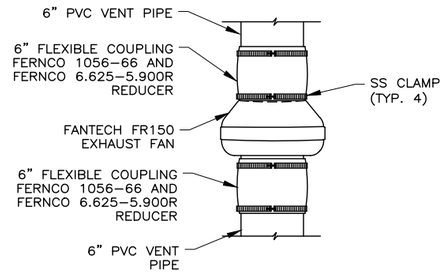


GROUND TEE CONNECTION 2 | 2
6" = 1'-0" E3.6 | E4.7
2
E4.8

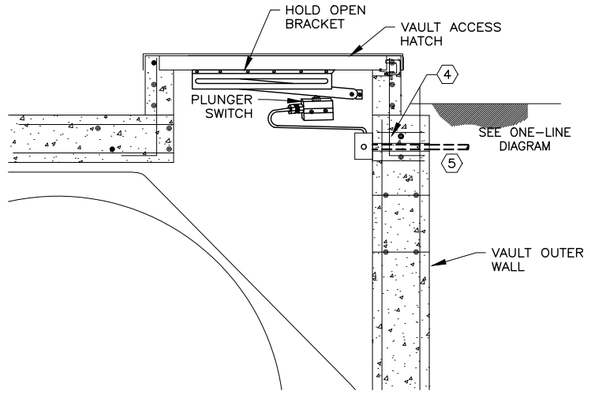
PER MANUFACTURERS DIRECTIONS



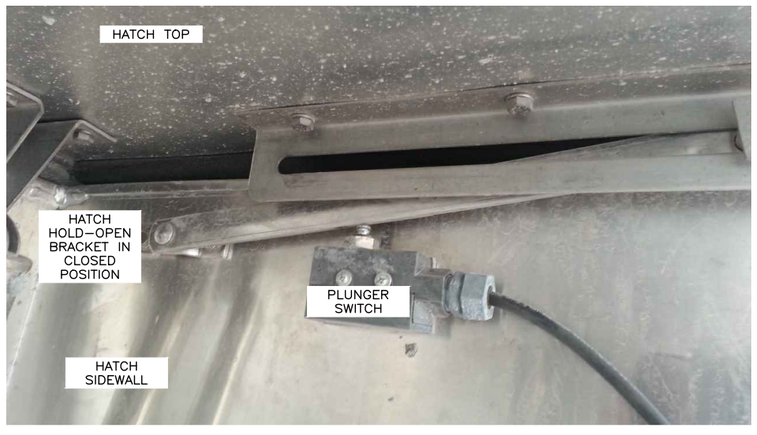
MAG METER GROUNDING 3 | 3
1 1/2" = 1'-0" E3.6 | E4.8



EXHAUST FAN INSTALLATION 4
1 1/2" = 1'-0" E5.1



HINGED HATCH SWITCH INSTALLATION 5
3/4" = 1'-0" E5.1



(TYPICAL HATCH INTRUSION SWITCH INSTALLATION)

PHOTO 1

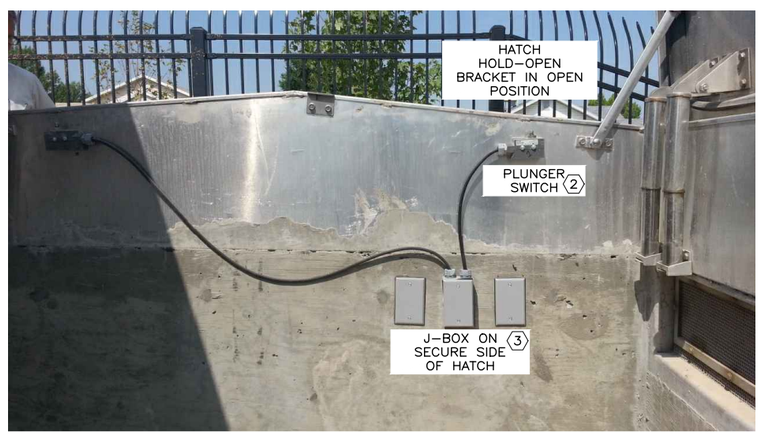


PHOTO 2

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS FOF CONDUIT AND CONDUCTOR REQUIREMENTS.
2. ALL CONDUCTORS FROM EACH DEVICE OR INSTRUMENT AS SPECIFIED ON CONTROL ONE-LINE TO BE CONTINUOUS FROM VAULT ENCLOSURE TO DEVICE WITHOUT SPLICES.

SHEET KEYNOTES:

1. SOIL SLOPES AWAY FROM TANK. HEIGHT OF POLE BASE SHALL BE 6-INCHES ABOVE SOIL AT HIGHEST POINT. MODIFY SLOPE TO ENSURE 70% OF POLE BASE IS BELOW GRADE.
2. PHOTO IS OF A PREVIOUS PROJECT WHERE TWO HATCH POSITION SWITCHES WERE INSTALLED. CONTRACTOR SHALL INSTALL ONLY ONE POSITION SWITCH ON THE PRIMARY HATCH. PLUNGER SWITCH SHALL BE ACTUATED WITH HATCH HOLD-OPEN BRACKET WHEN HATCH IS CLOSED.
3. LOCATE ALL J-BOXES ON SECURE SIDE OF HATCH.
4. SEAL CONDUIT PENETRATION WITH SEALANT.
5. CONDUITS SHALL EXIT BELOW GRADE. DO NOT INSTALL ANY EXPOSED J-BOXES OR CONDUIT ON THE NON-SECURE SIDE OF THE HATCH.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 3

SHEET E2.3
127.24.400

FILE NAME:
FILE DATE:
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

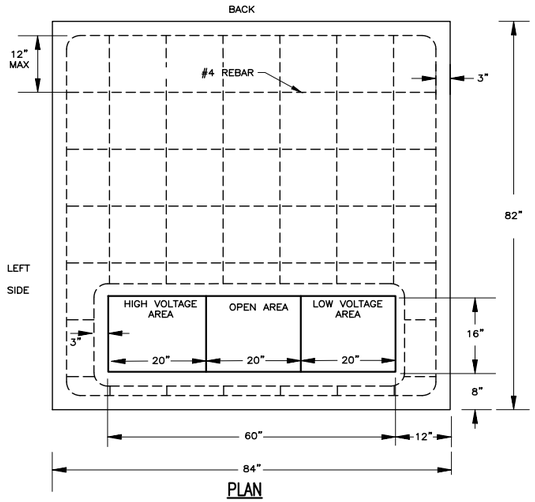
HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

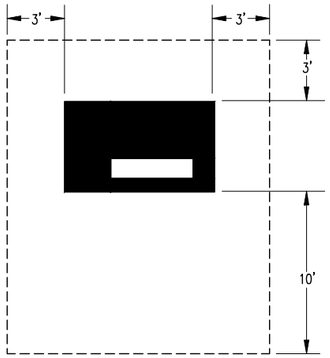
1. NOT USED.

SHEET KEYNOTES:

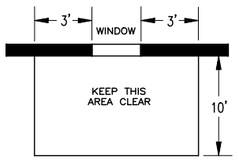
1. NOT USED.



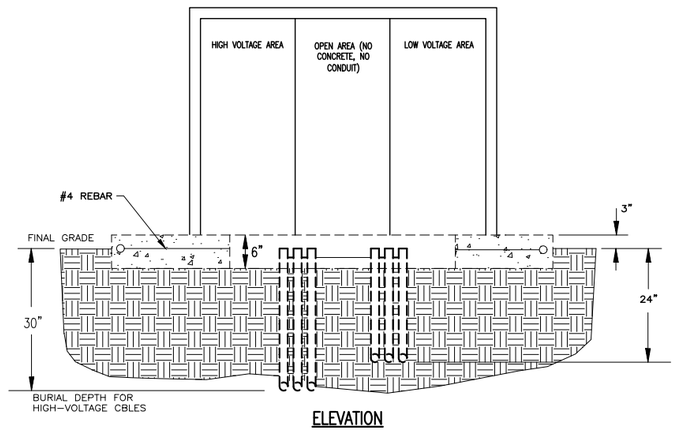
PLAN



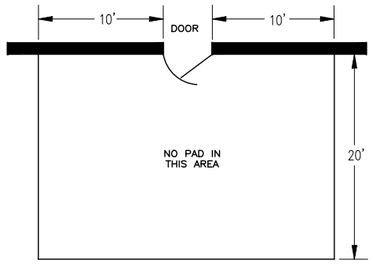
DETAIL "C"



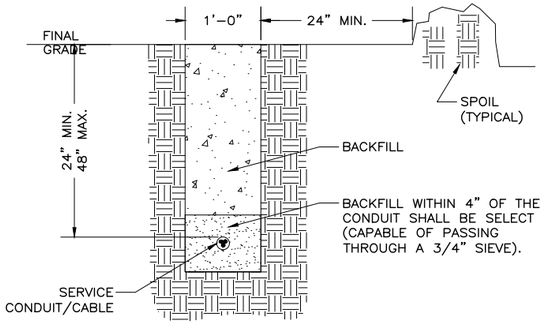
DETAIL "A"



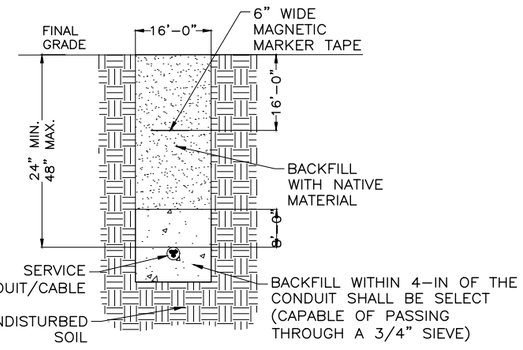
ELEVATION



DETAIL "B"



RMP PRIMARY CONDUIT TRENCH | 2 |
1" = 1'-0" | E3.5 |



RMP SECONDARY CONDUIT TRENCH | 3 | 3 |
1" = 1'-0" | E3.5 | E4.7 |

NOTES:

1. SITE PREPARATION: ALL DIRT BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.
2. CONCRETE: SHALL BE MADE USING A STANDARD BRAND OF PORTLAND CEMENT. STEEL REINFORCEMENT SHALL BE #4 REBAR PLACED ACCORDING TO THE DRAWINGS. THE PAD MUST BE POURED AT LEAST THREE FULL DAYS PRIOR TO SETTING THE UNIT. CONCRETE MUST BE KEPT ABOVE FREEZING AT LEAST 72 HOURS AFTER POURING. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. ALL WORK MUST BE DONE TO HIGH QUALITY STANDARDS.
3. PREFABRICATION: THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS. PREFABRICATED PADS SHALL BE SET LEVEL AND PLUMB.
4. TRANSFORMER CONDUIT WINDOW LAYOUT: LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 16" FROM THE RIGHT SIDE OF CONDUIT WINDOW ON THE PAD. NO MORE THAN 4 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE. DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE DIRT TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUITS BUT NOT FOR PLASTIC CONDUIT.
5. CLEARANCE: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST THREE FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURES. THE EDGES OF THE PAD MUST BE AT LEAST TEN FEET FROM ANY COMBUSTIBLE STRUCTURE. THE AREA IN FRONT OF THE PAD MUST HAVE TEN FEET OF CLEAR LEVEL WORKING AREA FOR MAINTENANCE OF THE UNIT.

RMP PAD MOUNTED TRANSFORMER | 1 | 1 |
3/4" = 1'-0" | E3.5 | E4.7 |

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 4

SHEET E2.4
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

J. Barrier Posts

Six-inch steel or concrete barrier posts shall be provided by the customer wherever vehicular traffic may pose a threat to padmounted equipment. Steel posts shall be painted or galvanized, and may be filled with concrete. Concrete posts shall be painted. The posts shall have a domed top, and be free of burrs and sharp edges. Each barrier post shall be set in a concrete foundation at least 12 inches in diameter and 24 inches in depth below grade (see Figure 14).

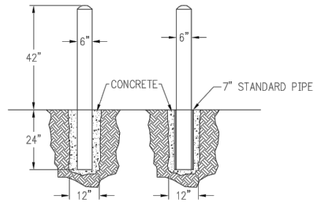


Figure 14 – Barrier Post Details

Posts shall meet the following additional requirements:

1. In areas where construction equipment traffic poses a temporary threat to equipment, barrier posts shall be provided by the customer, and shall remain in place until the threat has been eliminated.
2. Enough barrier posts shall be installed to adequately protect the padmounted equipment from vehicular traffic.
3. If the distance between two posts, or between a post and a non-traffic area, is greater than six feet, an intermediate post shall be installed (see Figure 15).
4. Barrier posts shall be placed so as not to obstruct the opening of the equipment doors, nor to impede the operation of the equipment. If this is not possible, removable posts shall be used in the obstructive location(s) (see Figure 16).

Distribution Construction Standard	Equipment Bases and Enclosures—General Information	PACIFICORP	
		4 Apr 07	GV 001 Page 11 of 12
Engineer (D. Wedam): Standards Manager (G. Lyons):			

RMP BOLLARD POST 1
SCALE: NONE —

5.4 Conduit Entrances

The padvault shall be constructed with TERM-A-DUCT or equivalent conduit entrances compatible with PVC, polyethylene (PE), or fiberglass 90°C-rated electrical-grade conduit. The standard conduit entrance locations are as follows, and are also shown in Figure 2:

Entrances at each end wall: Two 6.63″ entrances, two 4.5″ entrances, and two 2.38″ entrances.

Entrances at each side wall: Eight 4.5″ entrances and one 6.63″ entrance.

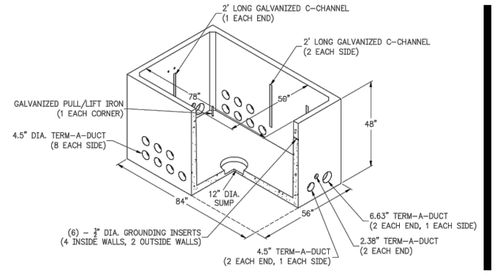


Figure 1—5′×7′ (56″× 84″) Vault, Cutaway View

MATERIAL SPECIFICATION Distribution	Padvault — 5′×7′ (56″×84″), for Three-Phase Sectionalizing Cabinets and Metering Equipment	PACIFICORP	
		14 Nov 12	ZG 621 Page 3 of 8
Engineer (E. Malek): T&D Stds Mgr (J. Jones):			

RMP METERING PAD_VAULT 2
SCALE: NONE —

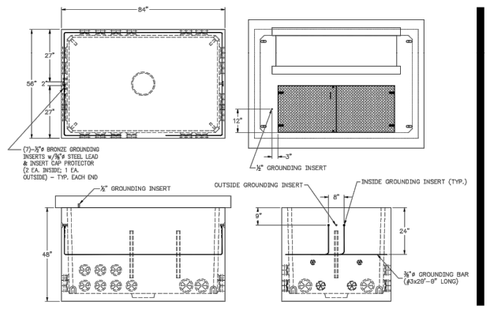


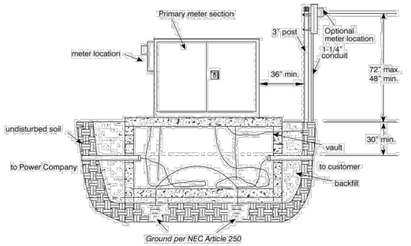
Figure 3—5′×7′ (56″× 84″) Vault Ground Grid Layout

5.6 Installation

This unit shall be set at the site by the supplier. The contractor shall be responsible to ensure that all earth under the vault is compacted and leveled to no more than 2% slope prior to setting the vault. A clean gravel base under the padvault may be necessary in areas where drainage is poor. The interface between the pad and the enclosure shall be sealed using a waterproof substance, such as tar or mastic. The top of the frame should be flush with the final grade in pedestrian areas. Setting depth shall be determined by the local regulatory authority for full-traffic areas.

MATERIAL SPECIFICATION Distribution	Padvault — 5′×7′ (56″×84″), for Three-Phase Sectionalizing Cabinets and Metering Equipment	PACIFICORP	
		14 Nov 12	ZG 621 Page 5 of 8
Engineer (E. Malek): T&D Stds Mgr (J. Jones):			

Figure 62—Underground Pad-Mounted Primary Metering Enclosure



Requirements:

1. The meter may be located on the primary metering enclosure, or post-mounted as shown in Figure 62.
2. The location of the metering vault will be mutually agreed upon between the customer and Power Company. The size of the metering vault will be specified by the Power Company.

9.6.3 Switchgear, Pad-Mounted Metering, EUSERC 400

Customers shall meet the requirements of EUSERC Section 400 when switchgear enclosures are required for metering primary voltage delivery services.

Requirements:

The customer shall provide/install:

1. Enclosure drawings for approval prior to fabrication
2. All necessary hardware per EUSERC, Section 400
3. A concrete vault for the switchgear metering enclosure

9.7 Metering in a Customer-Owned Substation

The customer shall consult the Power Company for the location of metering equipment for customer-owned substations. Power Company metering equipment is not allowed in these substations.

PACIFIC POWER ROCKY MOUNTAIN POWER

RMP METERING EQUIPMENT INSTALLATION 4
SCALE: NONE E4.6

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE INC ENGINEERS

DESIGNED	KBH	NO.	DATE	REVISIONS	BY	APVD.
DRAFTED	GDS	3				
CHECKED	KBH	2				
DATE	JUNE 2023	1				

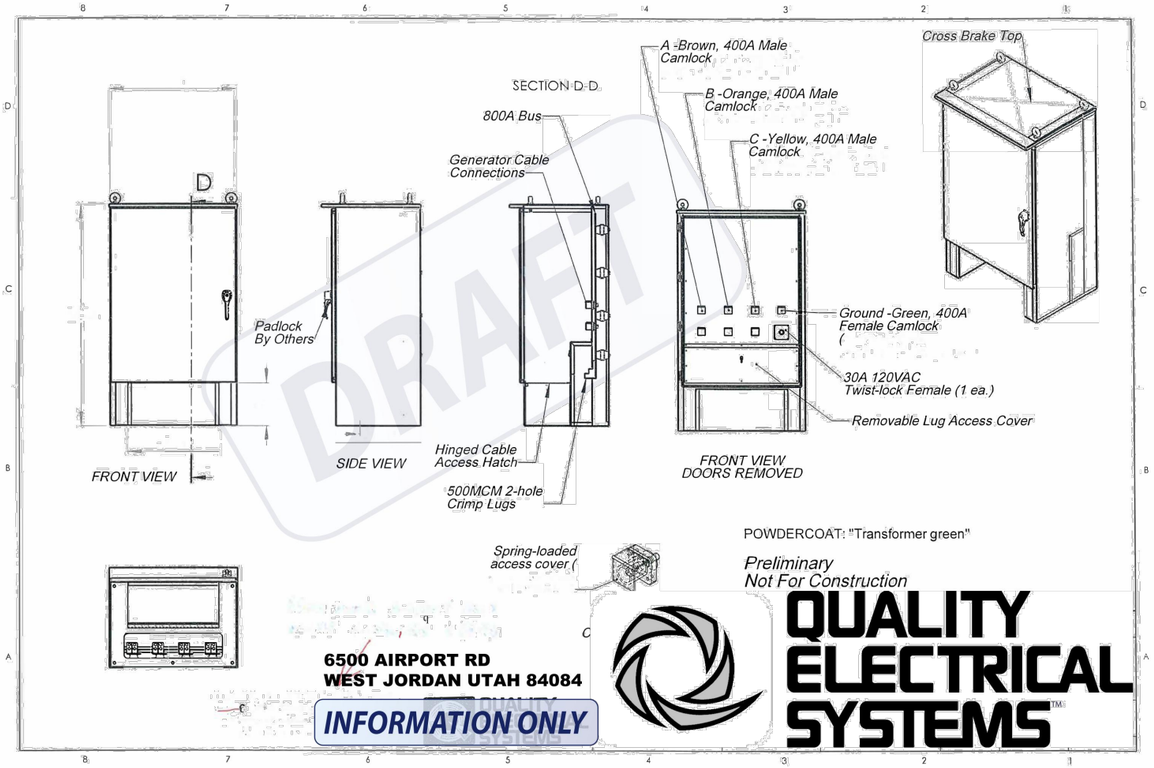
SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 5

SHEET E2.5
127.24.400

7/04



GENERATOR CONNECTION DETAIL 1
1' = 1'-0" E3.5

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. UNIT IS SUPPLIED WITH TWO 400A CONNECTORS PER PHASE.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE inc ENGINEERS

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
DETAILS, SHT. 6

SHEET E2.6
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

700 EAST PROJECT TAG LIST

HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
10	ODU-1	OUTDOOR CONDENSING UNIT	BUILDING EXTERIOR	H-1,3,5	CONTRACTOR	CONTRACTOR
12	UH-1	UNIT HEATER	EMERG. SHWR. ROOM	H-7,9,11	CONTRACTOR	CONTRACTOR
13	UH-2	UNIT HEATER	PUMP CONTROL ROOM	H-13,15,17	CONTRACTOR	CONTRACTOR
14	UH-3	UNIT HEATER	PUMP CONTROL ROOM	H-19,21,23	CONTRACTOR	CONTRACTOR
16	EF-3	EXHAUST FAN	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
60	AHU-1	AIR HANDLING UNIT	PUMP CONTROL ROOM	H-25,27,29	CONTRACTOR	CONTRACTOR
115	EF-1	EXHAUST FAN	CHEMICAL ROOM	CP-6	CONTRACTOR	CONTRACTOR
124	MCU-1	MITSUBISHI OUTDOOR UNIT	BUILDING EXTERIOR	L-16,18	CONTRACTOR	CONTRACTOR
125	MS-1	MITSUBISHI SPLIT UNIT	CHEMICAL ROOM	L-20,22	CONTRACTOR	CONTRACTOR

INSTRUMENTATION

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
52	PQM-1	POWER QUALITY MONITOR	PUMP CONTROL ROOM	L-20	CONTRACTOR	CONTRACTOR
62	AE-3	CONDUCTIVITY PROBE	PUMP CONTROL ROOM	AIT-3	CONTRACTOR	CONTRACTOR
63	AE-4	pH PROBE	PUMP CONTROL ROOM	AIT-4	CONTRACTOR	CONTRACTOR
64	AIT-4	pH INDICATOR/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
65	FE-1	WELL FLOW ELEMENT	PUMP CONTROL ROOM	FIT-1	CONTRACTOR	CONTRACTOR
66	FIT-1	WELL FLOW IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
67	PT-1	PRESSURE TRANSMITTER, SYSTEM	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
68	LT-1	LEVEL TRANSMITTER, WELL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
69	TIT-1	TURBIDITY IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
70	TE-1	TURBIDITY ELEMENT	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
73	DPT-1	DIFFERENTIAL PRESSURE TRANSMITTER	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
74	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
75	LIT-2	DAY TANK RADAR LEVEL IND/TRANSMITTER	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
78	WIT-1	DAY TANK WEIGHT SCALE	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
80	WE-1	DAY TANK SCALE ELEMENT	CHEMICAL ROOM	WIT-1	CONTRACTOR	CONTRACTOR
82	FE/FIT-2	CHLORINE FLOW METER	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
104	ZT-1	WASTE VALVE POSITION TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
119	PQM-2	POWER QUALITY MONITOR	PUMP CONTROL ROOM	VFD-1	CONTRACTOR	CONTRACTOR
169	LDS-1	STORAGE TANK LEAK DETECTION SENSOR	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
173	TIT-1	ROOM TEMPERATURE INDICATING/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
174	TIT-2	ROOM TEMPERATURE INDICATING/TRANSMITTER	CHEMICAL ROOM	CP-1	CONTRACTOR	CONTRACTOR
176	TIT-3	ROOM TEMPERATURE INDICATING/TRANSMITTER	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR

SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
85	PSH-1	HIGH PRESSURE SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
87	ZS-10A	SYSTEM VALVE FULL OPEN SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
88	ZS-10B	SYSTEM VALVE FULL CLOSED SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
89	LSH-1	FLOOR WATER LEVEL SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
91	LSH-3	FLOOR WATER LEVEL SWITCH	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
94	LSH-5	FLOOR WATER LEVEL SWITCH	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
108	VS-1	MOTOR VIBRATION SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
118	FS-1	SHOWER FLOW SWITCH	EMERG. SHWR. ROOM	CP-1	CONTRACTOR	CONTRACTOR
132	HS-1	EX. FAN HAND OFF AUTO SELECTOR SWITCH	SHOWER AREA	CP-6	CONTRACTOR	CONTRACTOR

VALVES

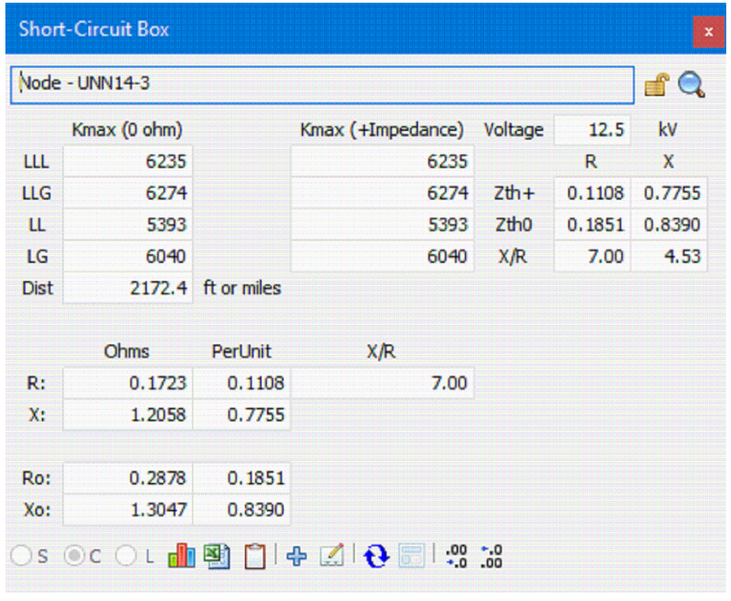
DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
160	V-1	WASTE VALVE	PUMP CONTROL ROOM	H-14,16,18	CONTRACTOR	CONTRACTOR
162	SV-1	SOLENOID VALVE, LUBE OIL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
163	V-2	SYSTEM VALVE	PUMP CONTROL ROOM	H-20,22,24	CONTRACTOR	CONTRACTOR
164	SV-3	SOLENOID VALVE, SURGE TANK AIR FILL	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
165	SV-4	SOLENOID VALVE, SURGE TANK AIR VENT	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
166	SV-5	SOLENOID VALVE, TURBIDITY	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR

PUMPS AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
19	CP-1	MAIN CONTROL PANEL/RTU	PUMP CONTROL ROOM	L-2	CONTRACTOR	CONTRACTOR
20	CP-2	CCTV ENCLOSURE	PUMP CONTROL ROOM	L-4	CONTRACTOR	CONTRACTOR
21	CP-3	SECURITY ENCLOSURE	PUMP CONTROL ROOM	L-6	CONTRACTOR	CONTRACTOR
23	CP-5	SMALL MOTOR CONTROL PANEL	PUMP CONTROL ROOM	H-3	CONTRACTOR	CONTRACTOR
24	CP-6	CHLORINATION CONTROL PANEL	CHEMICAL ROOM	L-8	CONTRACTOR	CONTRACTOR
25	P-1	WELL PUMP	PUMP CONTROL ROOM	RVSS-1	CONTRACTOR	CONTRACTOR
26	SP-2	SUMP PUMP	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
27	AC-1	AIR COMPRESSOR	PUMP CONTROL ROOM	H-8,10,12	CONTRACTOR	CONTRACTOR
28	PNL-H	PANELBOARD	PUMP CONTROL ROOM	MDP-1-1	CONTRACTOR	CONTRACTOR
29	XFMR-U	UTILITY TRANSFORMER	OUTSIDE	UTILITY	UTILITY COMPANY	UTILITY COMPANY
30	CTE-1	CURRENT TRANSFORMER ENCLOSURE	BUILDING EXTERIOR	XFMR-U	CONTRACTOR	CONTRACTOR
31	MS-1	METER SOCKET	BUILDING EXTERIOR	N/A	CONTRACTOR	CONTRACTOR
32	MSD-1	MAIN SERVICE DISCONNECT	BUILDING EXTERIOR	CTE-1	CONTRACTOR	CONTRACTOR
34	XFMR-T3	TRANSFORMER (120/240 V)	PUMP CONTROL ROOM	H-26,28	CONTRACTOR	CONTRACTOR
35	XFMR-T2	TRANSFORMER (208Y/120V)	PUMP CONTROL ROOM	H-2,4,6	CONTRACTOR	CONTRACTOR
40	PNL-L	PANELBOARD	PUMP CONTROL ROOM	XFMR-T2	CONTRACTOR	CONTRACTOR
43	EE-1	ELECTRICAL ENCLOSURE	SURGE VAULT	L-10,12	CONTRACTOR	CONTRACTOR
44	P-2	CHLORINE TRANSFER PUMP	CHEMICAL ROOM	CP-6	CONTRACTOR	CONTRACTOR
46	CDP-1	CHEMICAL DOSING PUMP	CHEMICAL ROOM	CP-6	CONTRACTOR	CONTRACTOR
49	MDP-1	MAIN DISTRIBUTION PANELBOARD	PUMP CONTROL ROOM	MSD-1	CONTRACTOR	CONTRACTOR
50	SLP-1	SOLUTION PUMP	PUMP CONTROL ROOM	CP-5	CONTRACTOR	CONTRACTOR
51	IC-1	IRRIGATION CONTROLLER	PUMP CONTROL ROOM	L-13	CONTRACTOR	CONTRACTOR
56	GC-1	GENERATOR CONNECTION	SITE	GENERATOR	CONTRACTOR	CONTRACTOR
57	VFD-1	VARIABLE FREQUENCY CONTROLLER	PUMP CONTROL ROOM	MDP-1-2	CONTRACTOR	CONTRACTOR
148	IWH-1	INLINE WATER HEATER	SHOWER AREA	L-15	CONTRACTOR	CONTRACTOR

SECURITY EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
95	ZS-1A	DOOR POSITION SWITCH	PUMP ROOM VEST.	CP-1	CONTRACTOR	CONTRACTOR
96	ZS-1B	DOOR POSITION SWITCH	PUMP ROOM VEST.	CP-1	CONTRACTOR	CONTRACTOR
97	ZS-2A	DOOR POSITION SWITCH	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
98	ZS-2B	DOOR POSITION SWITCH	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
109	ZS-8	HATCH POSITION SWITCH	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
135	CCTV-1	270-DEG FIXED CAMERA	BUILDING EXTERIOR	CP-2	OWNER	OWNER
136	CCTV-2	270-DEG FIXED CAMERA	BUILDING EXTERIOR	CP-2	OWNER	OWNER
137	CCTV-3	270-DEG FIXED CAMERA	CHEMICAL ROOM	CP-2	OWNER	OWNER
140	IL-1A	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
141	IL-1B	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
142	IL-2A	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
143	IL-2B	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
144	IL-3A	INFRARED ILLUMINATOR	CHEMICAL ROOM	CP-3	OWNER	OWNER
145	IL-3B	INFRARED ILLUMINATOR	CHEMICAL ROOM	CP-3	OWNER	OWNER



GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

700 EAST WELL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	EQUIPMENT RATING						DISCONNECT						STARTER		REMARKS
		VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	
AC-1	AIR COMPRESSOR	480	3	3	11,626	14	-	30	600	3	1	-	HARD-WIRED	INCL.	-	
CDP-1	CHLORINE DOSING PUMP	120	1	-	1,000	8.3	-	-	-	-	5-20R	-	PLUG-CORD	N/A	-	
CP-1	MAIN CONTROL PANEL	120	1	-	1,000	8.33	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-2	CCTV ENCLOSURE	120	1	-	200	1.7	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-3	SECURITY ENCLOSURE	120	1	-	300	2.5	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-5	SMALL MOTOR CONTROL PANEL	120	1	-	2,020	16.8	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-6	CHLORINATION CONTROL PANEL	120	1		1,844	15.4	-	-	-	-	-	-	HARD-WIRED	N/A	-	
DS-1	SAFETY SWITCH	240	1	-	-	-		30	240	2	3R	-	HARD-WIRED	N/A	-	
EE-1	ELECTRICAL ENCLOSURE	120	1		1,586	13.2	-	-	-	-	-	-	HARD-WIRED	N/A	-	
IC-1	IRRIGATION CONTROLLER	120	1	-	180	-		-	-	-	5-20R	-	PLUG-CORD	N/A	-	
IWH-1	INLINE WATER HEATER	120	1	-	200	-		-	-	-	-	-	HARD-WIRED	N/A	-	
P-1	WELL PUMP	460	3	300	257,043	323	-	-	-	-	-	-	HARD-WIRED	VFD	300 HP	1)
P-2	CHLORINE TRANSFER PUMP	120	1	0.5	1,176	9.8	-	-	-	-	5-20R	-	PLUG-CORD			
SLP-1	SOLUTION PUMP	480	3	1	1,734	2.1	-	-	-	-	-	-	HARD-WIRED	FVNR	00	
SP-3	SUMP PUMP	120	1	0.5	1,176	9.8	-	-	-	-	5-20R	-	PLUG-CORD	INCL.	-	
V-1	WASTE VALVE ACTUATOR	480	3	0.33	900	1.08		30	600	3	1	-	HARD-WIRED	INCL.	-	
V-1	SYSTEM VALVE ACTUATOR	480	3	0.33	900	1.08		30	600	3	1	-	HARD-WIRED	INCL.	-	
VFD-1	VFD MOTOR CONTRLLER	480	3	-	-	-		-	-	-	-	-	HARD-WIRED		300 HP	

NOTES: 1) REFER TO TYPICAL VFD CONTROL DIAGRAM ON E3.14

700 EAST HVAC MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	LOCATION	EQUIPMENT RATING						DISCONNECT						STARTER		REMARKS
			VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	
AHU-1	AIR HANDLER	INDOOR	480	3		2,660	3.2	4	30	600	3	1	6	HARD-WIRED	INCL.	-	
EF-1	EXHAUST FAN	CHEMICAL ROOM	120	1	F	96	0.8	1	-	-	-	5-20	-	PLUG-CORD	FVNR	00	
EF-3	EXHAUST FAN	SURGE VAULT	120	1	F	200			-	-	-	5-20	-	PLUG-CORD	RELAY	10A	1), 3)
MCU-1	MITSUBISHI OUTDOOR (SPLIT) UNIT	OUTDOOR	208	1		1,498	7.2	9	30	240	2	3R	15	HARD-WIRED	INCL.	-	
MS-1	MITSUBISHI (SPLIT) UNIT	INDOOR	208	1		166	0.8	1	30	240	2	1	15	HARD-WIRED	INCL.	-	1)
ODU-1	OUTDOOR UNIG	OUTDOOR	480	3		13,302	16	20	30	600	3	3R	25	HARD-WIRED	INCL.	-	
UH-1	UNIT HEATER	SHOWER AREA	480	3		5,000	6.01	-	30	600	3	1	10	HARD-WIRED	INCL.	-	
UH-2	UNIT HEATER	PUMP ROOM	480	3		5,000	6.01	-	-	-	-	-	-	HARD-WIRED	INCL.	-	2)
UH-3	UNIT HEATER	PUMP ROOM	480	3		5,000	6.01	-	-	-	-	-	-	HARD-WIRED	INCL.	-	2)

NOTES: 1) INDOOR UNIT RECEIVES POWER FROM OUTDOOR UNIT.
2) DISCONNECT NOT REQUIRED.
3) PROVIDE STARTER IN VAULT ELECTRICAL ENCLOSURE.

CP-5 SMALL MOTOR CONTROL PANEL

LOCATION: PUMP CONTROL ROOM
DIMENSIONS: 30" W x 12"D x 36" H
MOUNTING: SURFACE
FEED: BOTTOM
TYPE: CUSTOM
NEMA: 1
VOLTS: 120
PHASE: 1
WIRES: 3

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	PHASE LOADS CONT. WATTS	PHASE LOADS NON-CONT. WATTS	A NO	A CONT.	A N-CONT.
10	1	CONTROL POWER	#12	100		1	100	0
30	1	SOLUTION PUMP (1 HP)	212	1,920		2	1,920	0
		TOTAL WATTS:		2,020	0		2,020	0
		CONTINUOUS LOAD:		2,020				
		CONTINUOUS LOAD * 125%:		2,525				
		NON-CONTINUOUS LOAD:		0				
		DESIGN WATTS:		2,525				
		MIN. RATING (AMPS):		21				

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS	PROJECT ENGINEER	DESIGNED KBH	3					SCALE NONE	JORDAN VALLEY WATER CONSERVANCY DISTRICT
		DRAFTED GDS	2						WELL PUMP STATION CONSTRUCTION ELECTRICAL – 700 EAST SCHEDULES AND TABLES
		CHECKED KBH	1						SHEET E3.1
		DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.		127.24.400

7/04

MDP-1 PANELBOARD

	MFGR: SQUARE D	800 AMPS	VOLTS: 480Y/277
DIMENSIONS: 42"W x 9.5"D x 50"H	TYPE: I-LINE	X M.L.O.	PHASE: 3
MOUNTING: SURFACE	NEMA: 1	22,000 A.I.C.	WIRES: 4
FEED: TOP		X SPD	FED FROM:

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
225	3	PANELBOARD H	440	41,774	16,790	1	16,086	6,351	14,145	5,895	11,542	4,545
800	3	WELL VFD MOTOR CONTROLLER	2-340	268,219		2	89,406	0	89,406	0	89,406	0
		SPACE				3						
		SPACE				4						
		TOTAL WATTS:		309,993	16,790		105,493	6,351	103,552	5,895	100,949	4,545
		CONTINUOUS LOAD:		309,993								
		CONTINUOUS LOAD * 125%:		387,491								
		NON-CONTINUOUS LOAD:		16,790								
		DESIGN WATTS:		404,282								
		MIN. RATING (AMPS):		487								

XFMR-T2 TRANSFORMER

LOCATION: PUMP CONTROL ROOM	16.0 PRIMARY AMPS	PRIMARY VOLTS: 480
DIMENSIONS: "W x "D x "H	37.0 SECONDARY AMPS	SECONDARY VOLTS: 208Y/120
MOUNTING: WALL		KVA: 15
FEED: SIDE		FED FROM: PNL H

	CONT. WATTS	N-CONT. WATTS	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
	8,133	3,156	4,423	1,356	2,482	900	1,229	900
TOTAL WATTS:	8,133	3,156	4,423	1,356	2,482	900	1,229	900
CONTINUOUS LOAD:	8,133							
CONTINUOUS LOAD * 125%:	10,167							
NON-CONTINUOUS LOAD:	3,156							
DESIGN WATTS:	13,323							

CP-6 CHEMICAL ROOM CONTROL PANEL

LOCATION: CHLORINATION ROOM	TYPE: CUSTOM	VOLTS: 120
DIMENSIONS: 30" W x 12"D x 36" H	NEMA: 4X	PHASE: 1
MOUNTING: SURFACE		WIRES: 3
FEED: BOTTOM		

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	NON-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.
10	1	EXHAUST FAN	212	288		1	288	0
20	1	TRANSFER PUMP	212		1,176	2	0	1,176
20	1	RECEPT. (IN CONTROL PANEL)	#12		180	3	0	180
5	1	CHLORINE DOSING PUMP POWER	#12	100		4	100	0
10	1	CONTROL POWER	#12	100		5	100	0
		TOTAL WATTS:		488	1,356		488	1,356
		CONTINUOUS LOAD:		488				
		CONTINUOUS LOAD * 125%:		610				
		NON-CONTINUOUS LOAD:		1,356				
		DESIGN WATTS:		1,966				
		MIN. RATING (AMPS):		16				

EE-1 ELECTRICAL ENCLOSURE

LOCATION: SURGE TANK VAULT	MFGR: N/A	N/A AMPS	VOLTS: 240/120
DIMENSIONS: 20"W x 8"D x 24"H	TYPE: CUSTOM	20 M.C.B.	PHASE: 1
MOUNTING: SURFACE	NEMA: 4X FIBERGLASS		WIRES: 3
FEED: SIDE			FED FROM: PANELBOARD L

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO			PHASE LOADS B CONT.	B N-CONT.	C CONT.	C N-CONT.
10	1	CONTROL POWER		100		1			100	0		
10	1	EF-3, EXHAUST FAN	212	150		2					150	0
20	1	SP-2, RECPT. SUMP PUMP	212	1,176		3			1,176	0		
20	1	VAULT OUTLET	212		180	4					0	180
20	1	VAULT LIGHTS	212	76		5			76	0		
20	1	AVAILABLE SPARE				6						
		TOTAL WATTS:		1,252	180		0	0	1,252	0	0	180
		CONTINUOUS LOAD:		1,252								
		CONTINUOUS LOAD * 125%:		1,565								
		NON-CONTINUOUS LOAD:		180								
		DESIGN WATTS:		1,745								
		MIN. RATING (AMPS):		7								

PANELBOARD H

LOCATION: PUMP CONTROL ROOM	MFGR: SQUARE D	225 AMPS	VOLTS: 480Y/277
DIMENSIONS: 20"W x 5.75"D x "H	TYPE: NF	X M.L.O.	PHASE: 3
MOUNTING: SURFACE	NEMA: 1	22,000 A.I.C.	WIRES: 4
FEED: BOTTOM		X SPD	FED FROM: MDP-1

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
25	3	ODU-1 OUTDOOR CONDENSING UNIT	30	4,429		1	8,851	1,356					2	1,356	4,423	20	XFMR-T2 TRANSFORMER	25	3
-	-	-	-	4,429		3			6,911	900			4	900	2,482	-	-	-	-
-	-	-	-	4,429		5					5,658	900	6	900	1,229	-	-	-	-
20	3	UH-1 UNIT HEATER	312	1,666		7	1,666	3,045					8	3,045		312	AC-1 AIR COMPRESSOR	20	3
-	-	-	-	1,666		9			1,666	3,045			10	3,045		-	-	-	-
-	-	-	-	1,666		11					1,666	3,045	12	3,045		-	-	-	-
20	3	UH-2 UNIT HEATER	312	1,666		13	1,666	300					14	300		312	V-1 WASTE VALVE ACTUATOR		3
-	-	-	-	1,666		15			1,666	300			16	300		-	-	-	-
-	-	-	-	1,666		17					1,666	300	18	300		-	-	-	-
20	3	UH-3 UNIT HEATER	312	1,666		19	1,666	300					20	300		312	V-2 SYSTEM VALVE ACTUATOR		3
-	-	-	-	1,666		21			1,666	300			22	300		-	-	-	-
-	-	-	-	1,666		23					1,666	300	24	300		-	-	-	-
25	3	AHU-1 AIR HANDLER UNIT		886		25	2,236	1,350					26	1,350	1,350	20	XFMR-T3 EXISTING BUILDING	30	2
-	-	-	-	886		27			2,236	1,350			28	1,350	1,350	-	-	-	-
-	-	-	-	886		29					886	0	30				SPACE		
	1	AVAILABLE SPACE				31	0	0					32				SPACE		
	1	AVAILABLE SPACE				33			0	0			34				SPACE		
	1	AVAILABLE SPACE				35					0	0	36				SPACE		
	1	AVAILABLE SPACE				37	0	0					38				SPACE		
	1	AVAILABLE SPACE				39			0	0			40				SPACE		
	1	AVAILABLE SPACE				41					0	0	42				SPACE		
		TOTAL WATTS:		30,941	0		16,086	6,351	14,145	5,895	11,542	4,545		16,790	10,833				
		CONTINUOUS LOAD:		41,774															
		CONTINUOUS LOAD * 125%:		52,217															
		NON-CONTINUOUS LOAD:		16,790															
		DESIGN WATTS:		69,008															
		MIN. RATING (AMPS):		83															

PANELBOARD L

LOCATION: PUMP CONTROL ROOM	MFGR: SQUARE D	225 AMPS	VOLTS: 208Y/120
DIMENSIONS: 20"W x 5.75"D x "H	TYPE: NQ	50 M.C.B.	PHASE: 3
MOUNTING: SURFACE	NEMA: 1	10,000 A.I.C.	WIRES: 4
FEED: BOTTOM		X SPD	FED FROM: XFMR-T2

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
20	1	LTS, INTERIOR	212	810		1	1,810	0					2		1,000	212	CP-1 MAIN CONTROL PANEL/RTU	20	1
20	1	LTS, EXTERIOR	212	81		3			281	0			4		200	212	CP-2 CCTV ENCLOSURE	20	1
20	1	RECPT. PUMP CONTROL ROOM	212		720	5					300	720	6		300	212	CP-3 SECURITY ENCLOSURE	20	1
	1	AVAILABLE SPACE				7	488	1,356					8	1,356	488	28	CP-6 CHEMICAL RM CONTROL PANEL	40	1
20	1	RECPT., CHEMICAL RM. & SHOWER	212		900	9			1,252	900			10	0	1,252	212	EE-1 ELECTRICAL ENCLOSURE	20	2
20	1	RECPT. EXTEIOR & VESTIBULE	212	180		11					180	180	12	180	0	-	-	-	-
20	1	RECPT. IRRIGATION CONTROLLER	212	100		13	2,120	0					14	0	2,020	20	CP-5 SMALL MOTOR CONTROL PANEL	30	1
20	1	IWH-1 INLINE WATER HEATER	212	200		15			949	0			16		749	212	MCU-1 MITSUBISHI OUTDOOR UNIT	15	2
	1	AVAILABLE SPACE				17					749	0	18		749	-	-	-	-
	1	AVAILABLE SPACE				19	5	0					20		5	212	POWER QUALITY METER CENCL.	20	1
	1	AVAILABLE SPACE				21			0	0			22				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				23					0	0	24				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				25	0	0					26				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				27			0	0			28				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				29					0	0	30				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				31	0	0					32				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				33			0	0			34				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				35					0	0	36				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				37	0	0					38				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				39			0	0			40				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				41					0	0	42				AVAILABLE SPACE		1
		TOTAL WATTS:		1,371	1,620		4,423	1,356	2,482	900	1,229	900		1,536	6,763				
		CONTINUOUS LOAD:		8,133															
		CONTINUOUS LOAD * 125%:		10,167															
		NON-CONTINUOUS LOAD:		3,156															
		DESIGN WATTS:		13,323															
		MIN. RATING (AMPS):		37															

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

		NO.	DATE	REVISIONS	BY	APVD.
DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023					

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
SCHEDULES

SHEET E3.2

127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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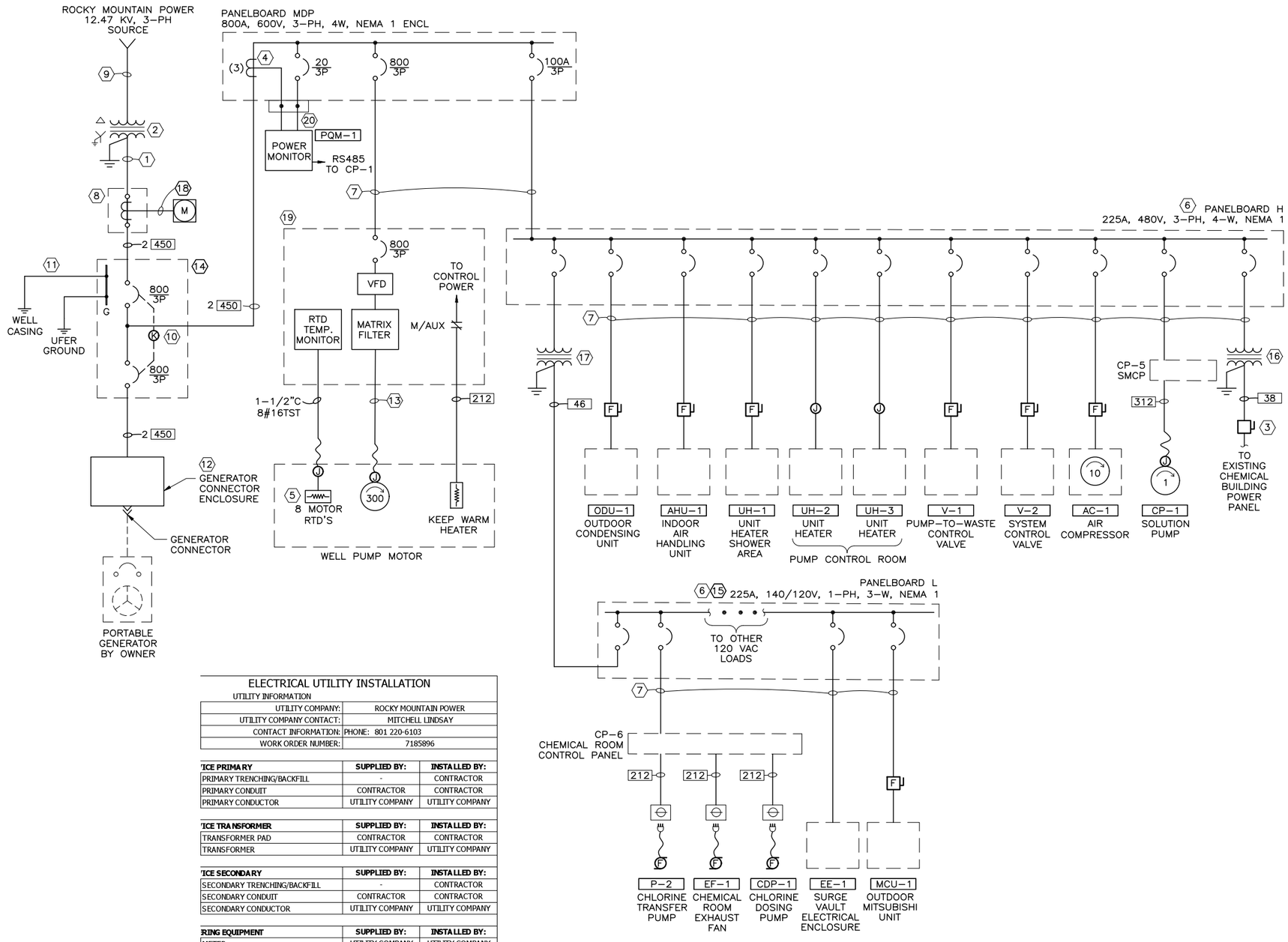
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



POWER ONE-LINE DIAGRAM

ELECTRICAL UTILITY INSTALLATION

UTILITY INFORMATION

UTILITY COMPANY:	ROCKY MOUNTAIN POWER
UTILITY COMPANY CONTACT:	MITCHELL LINDSAY
CONTACT INFORMATION:	PHONE: 801 220-6103
WORK ORDER NUMBER:	7185896

'ICE PRIMARY	SUPPLIED BY:	INSTALLED BY:
PRIMARY TRENCHING/BACKFILL	-	CONTRACTOR
PRIMARY CONDUIT	CONTRACTOR	CONTRACTOR
PRIMARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY

'ICE TRANSFORMER	SUPPLIED BY:	INSTALLED BY:
TRANSFORMER PAD	CONTRACTOR	CONTRACTOR
TRANSFORMER	UTILITY COMPANY	UTILITY COMPANY

'ICE SECONDARY	SUPPLIED BY:	INSTALLED BY:
SECONDARY TRENCHING/BACKFILL	-	CONTRACTOR
SECONDARY CONDUIT	CONTRACTOR	CONTRACTOR
SECONDARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY

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

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

GENERAL NOTES:

1. REFER TO ELECTRICAL PLANS FOR EQUIPMENT LOCATIONS.

SHEET KEYNOTES:

1. 3-4" CONDUITS BY CONTRACTOR, CONDUCTORS BY ROCKY MOUNTAIN POWER.
2. UTILITY TRANSFORMER SUPPLIED AND INSTALLED BY ROCKY MOUNTAIN POWER. TRANSFORMER PAD BY CONTRACTOR. REFER TO ROCKY MOUNTAIN POWER STANDARD DETAILS.
3. PROVIDE A 240V, 60A, 2 POLE, 3W NEMA 3R DISCONNECT. INSTALL DISCONNECT ON SOUTH WEST CORNER OF EXISTING BUILDING. WHEN NEW POWER SOURCE HAS BEEN INSTALLED AND ENERGIZED, REMOVE THE OLD SERVICE EXPOSED CONDUIT AND CONDUCTORS.
4. EQUIPMENT SUPPLIER SHALL SIZE CT'S AS REQUIRED.
5. MOTOR SHALL HAVE SIX WINDING AND TWO BEARING RTD'S.
6. CIRCUIT BREAKER SIZES AND PANEL RATINGS ARE SHOWN ON PANEL SCHEDULE.
7. REFER TO CIRCUIT ID SHOWN IN PANELBOARD SCHEDULES, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE SHOWN IN IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
8. CT METERING ENCLOSURE: 800A, 600V CT METERING ENCLOSURE. CT'S PROVIDED AND INSTALLED BY UTILITY COMPANY.
9. 4"C, CONDUCTORS PROVIDED AND INSTALLED BY UTILITY COMPANY. AVAILABLE FAULT CURRENT INDICATED IN THE SHORT-CIRCUIT TABLE ON E3.1
10. PROVIDE A KIRK KEY LOCKING SYSTEM. LOCKING SYSTEM SHALL BE USED AS A MANUAL TRANSFER SWITCH FOR THE PORTABLE GENERATOR.
11. REFER TO GROUNDING DETAIL ON E1.4 FOR CONDUCTOR REQUIREMENTS.
12. REFER TO SITE PLAN ON E3.5 FOR LOCATION OF GENERATOR CONNECTOR ENCLOSURE. ROUTE CONDUIT CONDUCTORS IN A WAY THAT LENGTH OF CONDUCTORS FOR PARALLEL RUNS IS THE SAME. SEE QES GENERATOR CONNECTOR ENCLOSURE DETAIL ON SHEET E2.2.
13. VFD CONDUCTORS: 2 EA, 2-1/2"C, W/3-4/0 SHIELDED VFD CABLE (BELDEN 29532 OR APPROVED EQUAL).
14. MAIN SERVICE DISCONNECT: 600V, CIRCUIT BREAKERS IN A NEMA 3R ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" AND "GENERATOR". LABEL AVAILABLE FAULT CURRENT AS REQUIRED BY NEC 110.24.
15. PANELBOARD L: 240V, 225A, 3-PH, 4-W, NEMA 1.
16. TRANSFORMER T3: 10 KVA, 480V PRIMARY 120/240V SECONDARY.
17. TRANSFORMER T2: 15 KVA, 480V PRIMARY 208Y/120V SECONDARY.
18. 1"C, CONDUCTORS PROVIDED AND INSTALLED BY UTILITY COMPANY.
19. VARIABLE FREQUENCY DRIVE (VFD) MOTOR CONTROLLER: 480 VAC, 3-PHASE WITH A MATRIX HARMONIC FILTER, IN A NEMA 1 ENCLOSURE.
20. THE POWER QUALITY METER SHALL BE LOCATED IN PUMP CONTROL ROOM IN A SEPARATE ENCLOSURE NEAR THE JVWCD RTU. CONTRACTOR SHALL INSTALL 1-1"C FROM THE MDP J-BOX TO THE PQM ENCLOSURE. INSTALL 4#10 CONDUCTORS FOR THE CT CIRCUITS. INSTALL 4#12 FOR THE VOLTAGE CIRCUITS.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

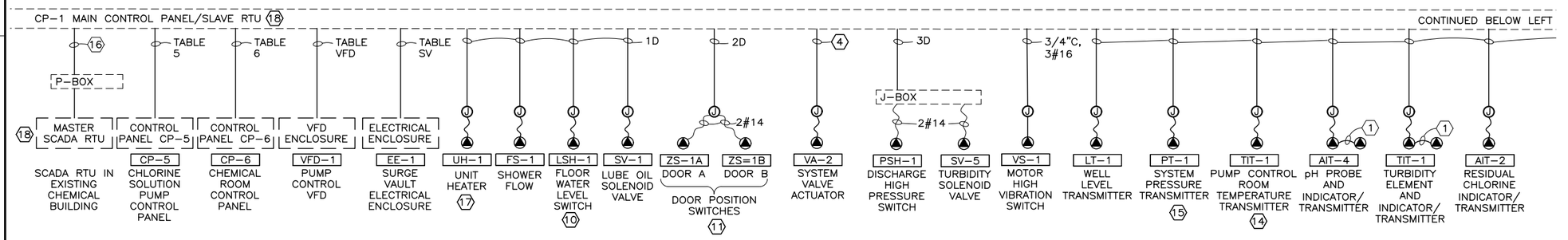
SCALE: NONE

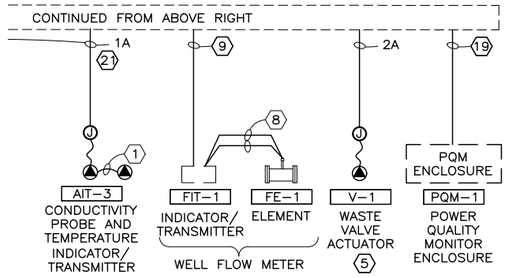
JORDAN VALLEY WATER CONSERVANCY DISTRICT

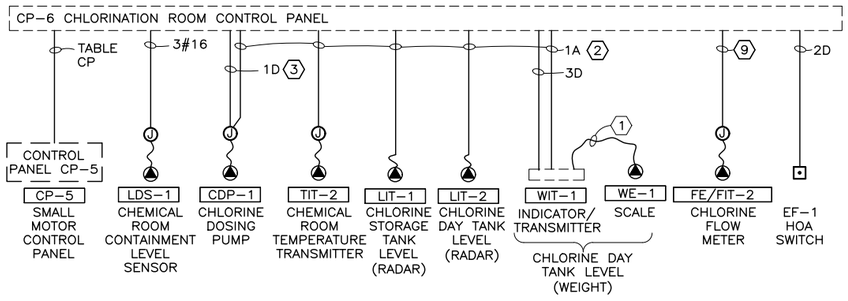
WELL PUMP STATION CONSTRUCTION
ELECTRICAL - 700 EAST
POWER ONE-LINE DIAGRAM

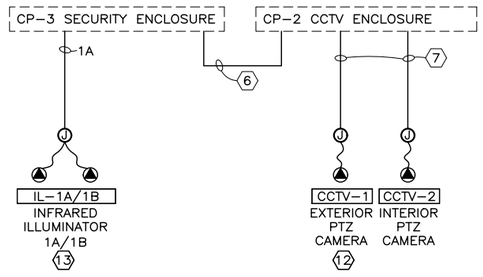
SHEET E3.3
127.24.400

7/04









INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAMS

I&C WIRE/CONDUIT TABLE

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1A	3/4"	1	#18TSP	1 ANALOG SIGNAL
2A	3/4"	2	#18TSP	2 ANALOG SIGNALS
3A	3/4"	3	#18TSP	3 ANALOG SIGNALS
IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1D	3/4"	2	#14	1 SIGNAL
2D	3/4"	3	#14	1 COMMON, 2 DISCRETE SIG.
3D	3/4"	4	#14	VARIES
4D	3/4"	5	#14	VARIES

TABLE 5 (CP-1 TO CP-5 SMALL MOTOR CP)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#16	+24VDC	24VDC SOURCE FROM CP-1
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN REMOTE MODE
	1	#16	+24VDC	PUMP RUNNING
	1	#16	120 VAC	FUSED 120 VAC TO CP-1
	1	#16	120 VAC	SWITCHED RUN COMMAND
	3	#16	-	SPARE
1"	-		-	SPARE

TABLE VFD

E	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO VFD
1"	1	#14	+24VDC	+24VDC
	1	#14	+24VDC	VFD FAULT
	1	#14	+24VDC	VFD FILTER HIGH TEMPERATURE
	1	#14	+24VDC	VFD HIGH TEMP. SHUTDOWN
	1	#14	+24VDC	VFD HOA IN AUTO POSITION
	1	#14	+24VDC	VFD HOA IN HAND POSITION
	1	#14	+24VDC	VFD RUNNING
	1	#14	+24VDC	VFD START
	1	#14	+24VDC	VFD STOP
	1	#14	120 VAC	COMMON
	1	#14	120 VAC	VFD CALL RUN
3/4"	1	#18TSP	4-20 mA	VFD COMMAND SPEED
	1	#18TSP	4-20 mA	VFD RUNNING SPEED
3/4"	1	RS485	MODBUS	BELDEN 9842 (RTD TEMP. MONITOR)
3/4"	1	-	CAT6U	ETHERNET
	1	-	CAT6U	POWER QUALITY MONITOR
3/4"	-	-	-	PULL STRING

TABLE 6 (CP-1 TO CHEMICAL RM CP-6)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#16	+24VDC	24VDC SOURCE FROM CP-1
	1	#16	+24VDC	CONTAINMENT TRENCH HIGH LEVEL ALARM
	1	#16	+24VDC	EF HOA IN AUTO MODE
	1	#16	+24VDC	EF HOA IN HAND MODE
	1	#16	+24VDC	EXHAUST FAN ON
	1	#16	+24VDC	FLOW METER POWER RETURN
	1	#16	+24VDC	FLOW METER POWER SOURCE
	1	#16	+24VDC	TP HOA IN AUTO MODE
	1	#16	+24VDC	TP HOA IN HAND MODE
	1	#16	+24VDC	TRANSFER PUMP ON
	1	#16	120 VAC	120VAC SOURCE TO CP-1
	1	#16	120 VAC	CALL FOR EXHAUST FAN RUN
	1	#16	120 VAC	DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	TRANSFER PUMP COMMAND ON
	4	#16	-	SPARE
1-1/2"	1	#18TSP	4-20 mA	CHLORINE DOSE RATE
	1	#18TSP	4-20 mA	DAY TANK LEVEL (RADAR)
	1	#18TSP	4-20 mA	DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	ROOM TEMPERATURE
	1	#18TSP	4-20 mA	STORAGE TANK LEVEL (RADAR)
3/4"	1	RS485	MODBUS	FLOW SIGNAL
1"	-		-	SPARE

TABLE CP (CP-5 TO CHEMICAL RM CP-6)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#14	120VAC	120 VAC FUSED TO CP-1
	1	#14	120VAC	120 VAC SWITCHED FROM CP-1
	1	#14	120VAC	HOR SWITCH COMMON (FUSED)
	1	#14	120VAC	HOR SWITCH IN HAND POSITION
	1	#14	120VAC	HOR SWITCH IN REMOTE POSITION
	1	#14	120VAC	SOLUTION PUMP ON
	1	#14	120VAC	SOLUTION PUMP OFF

TABLE SV (CP-1 TO SURGE VAULT)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO SURGE VAULT
3/4"	1	#14	+24VDC	SOURCE FROM CP-1
	1	#14	+24VDC	EF-3 EXHAUST FAN RUN
	1	#14	+24VDC	LSH-5 VAULT FLOOD SWITCH
	1	#14	+24VDC	ZS-8 ACCESS HATCH POSITION SW.
	1	#14	120 VAC	SV-4 AIR RELEASE SOL. VALVE OPEN
	1	#14	120 VAC	SV-3 AIR SUPPLY SOL. VALVE OPEN
	1	#14	120 VAC	120 VAC COMMON
3/4"	1	#16TSP	#16TSP	DPT-1 DIFFERENTIAL PRESSURE TRANS.

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

3/4:CGENERAL NOTES:

1. FOR DEVICE AND EQUIPMENT LOCATIONS REFER TO ELECTRICAL PLAN SHEETS.
2. ALL CONDUIT SHALL BE 3/4", EXCEPT AS NOTED. CONDUITS TO BE ROUTED AT CONTRACTORS OPTION.

SHEET KEYNOTES:

1. VENDOR SUPPLIED CABLE, INSTALLED BY CONTRACTOR.
2. INSTALL ANALOG CONDUCTORS FROM FIELD DEVICE TO CP-1 VIA CP-4 WITHOUT TERMINATING IN THE CHEMICAL ROOM CONTROL PANEL.
3. WIRE TO PUMP EXTERNAL STOP.
4. 3/4"C, 3#14 VALVE FO/FC POSITION. 3#14 FO/FC POSITION COMMAND.
5. 1-TSP FOR VALVE POSITION COMMAND, 1-TSP FOR VALVE POSITION.
6. 1"C WITH CAT 6 CONDUCTOR BY CONTRACTOR.
7. 3/4"C WITH CAT 6 CONDUCTOR BY CONTRACTOR.
8. 1-1/4"C, CONDUCTORS PROVIDED BY FLOW METER SUPPLIER AND INSTALLED BY CONTRACTOR.
9. 3/4"C, INSTALL BELDEN 9841 CONDUCTOR (#14TSP - MODBUS). INSTALL 2#16 DC POWER TO FLOW METER.
10. SHOWN FOR PUMP ROOM FLOOD SWITCH LSH-1. DUPLICATE FOR THE SHOWER ROOM FLOOD SWITCH LSH-3.
11. SHOWN FOR PUMP ROOM DOOR POSITION SWITCHES ZS-1A/1B. DUPLICATE FOR SHOWER AREA DOOR SWITCHES ZS-2A/2B.
12. SHOWN FOR EXTERNAL CAMERA CCTV-1. DUPLICATE FOR EXTERNAL CAMERA CCTV-2.
13. SHOWN FOR EXTERNAL ILLUMINATORS 1A/1B. DUPLICATE FOR EXTERNAL ILLUMINATORS 2A/2B AND INTERNAL ILLUMINATORS 3A/3B.
14. SHOWN FOR PUMP ROOM TEMPERATURE INDICATING/ TRANSMITTER TIT-1. DUPLICATE FOR CHEMICAL ROOM TEMPERATURE INDICATING/TRANSMITTER TIT-2 AND SHOWER AREA TEMPERATURE INDICATING/TRANSMITTER TIT-3.
15. SHOWN FOR SYSTEM PRESSURE TRANSMITTER PT-1. DUPLICATE FOR CHLORINE SYSTEM TRANSMITTER PT-2.
16. 2" CONDUIT WITH TWO FIBER OPTIC CABLES: 6 STRAND 62.5/125 MICROMETER MULTIMODE OPTICAL CABLE CORPORATION DX06-0550 SERIES. TERMINATE ALL FIBERS WITH ST CONNECTORS. TEST TERMINATED FIBERS AND PROVIDE RESULTS TO JVWCD.
17. SHOWN FOR SHOWER AREA UNIT HEATER UH-1. DUPLICATE FOR PUMP CONTROL ROOM UNIT HEATERS UH-2 AND UH-3.
18. THE OWNER WILL MODIFY THE EXISTING RTU IN THE CHEMICAL BUILDING TO BECOME THE MASTER RTU. THE OWNER WILL BUILD THE NEW CP-1/RTU TO BE A SLAVE RTU.
19. REFER TO E3.3, KEYNOTE 20
20. 24VDC POWER SUPPLIED TO FLOW METER FROM CP-1 VIA ONE TSP.
21. DEVICE IS DUAL CHANNEL, CONDUCTIVITY AND TEMPERATURE. OWNER WILL NOT MONITOR TEMPERATURE.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL - 700 EAST
INST. & CONTROL ONE-LINE DIAGRAM

SHEET E3.4
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
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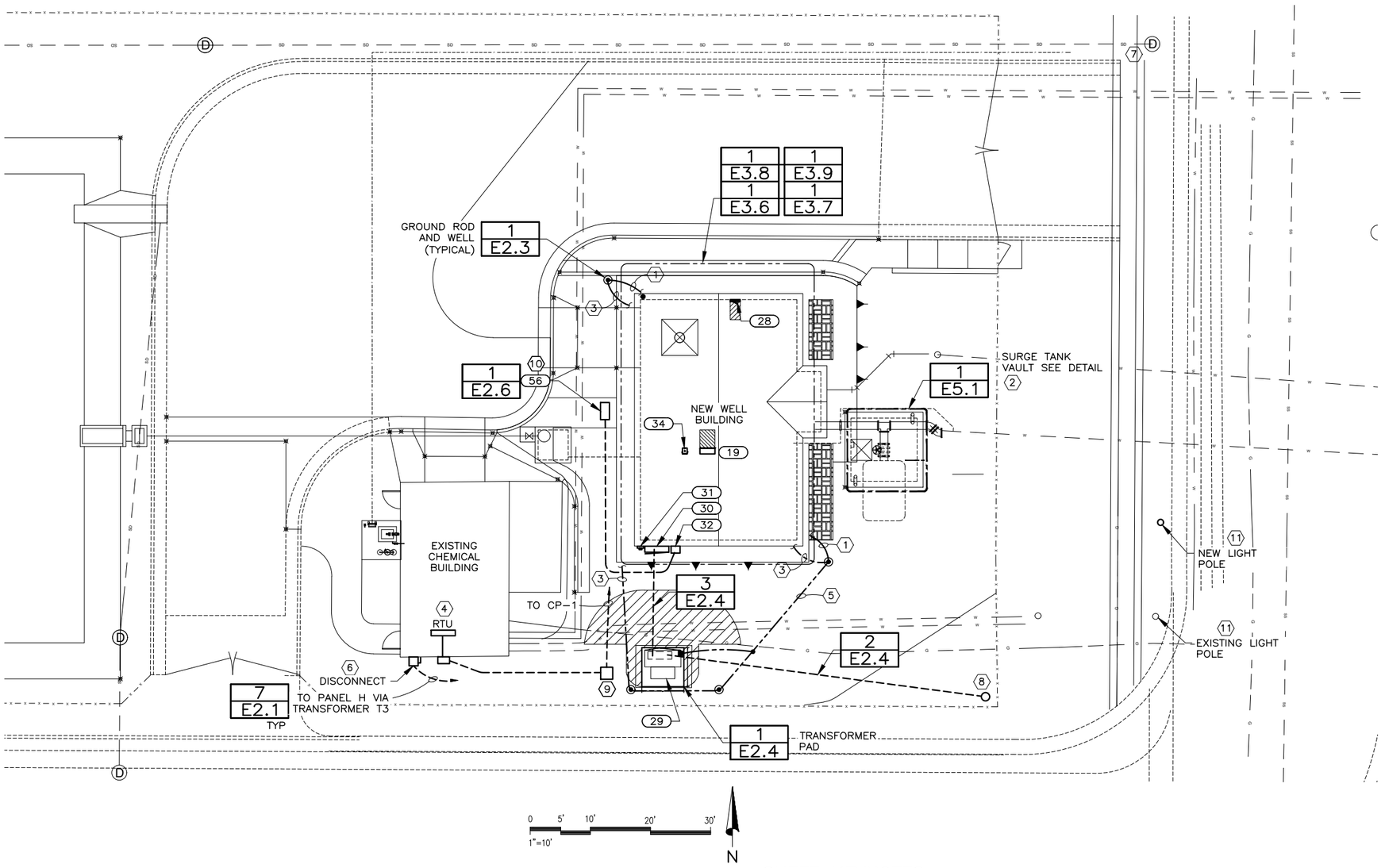

700 EAST SITE PLAN ITEM LIST (E3.5)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
28	PNL-H	PANELBOARD	MDP-1-1	PUMP CONTROL ROOM
29	XFMR-U	UTILITY TRANSFORMER	UTILITY	OUTSIDE
30	CTE-1	CURRENT TRANSFORMER ENCLOSURE	XFMR-U	BUILDING EXTERIOR
31	MS-1	METER SOCKET	N/A	BUILDING EXTERIOR
32	MSD-1	MAIN SERVICE DISCONNECT	CTE-1	BUILDING EXTERIOR
34	XFMR-T3	TRANSFORMER (120/240 V)	H-26,28	PUMP CONTROL ROOM
56	GC-1	GENERATOR CONNECTION	GENERATOR	SITE

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE-LINE AND PANELBOARD SCHEDULES. SEE ALSO THE CONDUIT/CONDUCTOR TABLE.
2. REFER TO SHEET E5.3 FOR INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEM.
3. EXISTING CHEMICAL BUILDING (CB) HAS DOOR POSITION SWITCHES WIRED TO THE CB RTU. MAINTAIN CIRCUIT INTEGRITY.

SHEET KEYNOTES:

1. UP TO LIGHTNING PROTECTION. SEE SHEET E5.3 FOR LIGHTNING SYSTEM INSTALLATION REQUIREMENTS.
2. SURGE TANK. SEE SHEET E5.1 FOR ELECTRICAL INSTALLATION REQUIREMENTS.
3. TO UFER GROUND IN FOOTING.
4. APPROXIMATE LOCATION OF EXISTING RTU.
5. REFER TO GROUNDING DETAIL ON E1.4 FOR CONDUCTOR SIZES.
6. COORDINATE WITH OWNER THE LOCATION OF DISCONNECT FOR SUPPLY POWER TO EXISTING CHEMICAL BUILDING,
7. APPROXIMATE LOCATION OF EXISTING MILBANK PEDESTAL TO BE DISCONNECTED AND SALVAGED TO OWNER. PROVIDE POWER FOR EXISTING BUILDING FROM PANEL H/TRANSFORMER T3
8. APPROXIMATE LOCATION OF EXISTING 4" CONDUIT ROUTED TO RMP POWER POLE. EXTEND CONDUIT TO NEW TRANSFORMER LOCATION.
9. 24"x24"x24" PULL BOX. SEE E3.4 KEYNOTE 16. INSTALL A 2-IN PVC WATER DRAIN TO DAYLIGHT LOCATION BELOW THE DRAIN INTAKE LEVEL. SECURE A 1/8-IN METAL SCREEN ON THE DRAIN PIPE.
10. COORDINATE WITH OWNER FOR THE LOCATION OF GENERATOR CONNECTOR ENCLOSURE DURING CONSTRUCTION. LOCATION SHOWN IS APPROXIMATE.
11. EXISTING STREET LIGHT AND POLE BASE TO BE REMOVED. INSTALL A NEW POLE BASE AND A NEW STREET LIGHT 10 FEET NORTH IN PARK STRIP. REROUTE EXISTING CONDUIT/CONDUCTORS TO NEW LIGHT POLE LOCATION MAINTAINING CIRCUIT INTEGRITY. COORDINATE WITH CITY FOR FINAL LOCATION AND MINIMUM STREET LIGHTING REQUIREMENTS.
    POLE:
    PRODUCT NUMBER: HAPCO ITEM# 77509BPP1
    DESCRIPTION: POL, AL, PED, 5/22/E, 18 MH, BLK.
    LIGHT:
    PRODUCT NUMBER: HADCO S5976-AK3UBG1505A
    DESCRIPTION: VS70 MOD TYPE III ACORN GLOBE SINGLE ACORN S6936

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
SITE PLAN

SHEET E3.5
127.24.400

FILE NAME:
FILE DATE:
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
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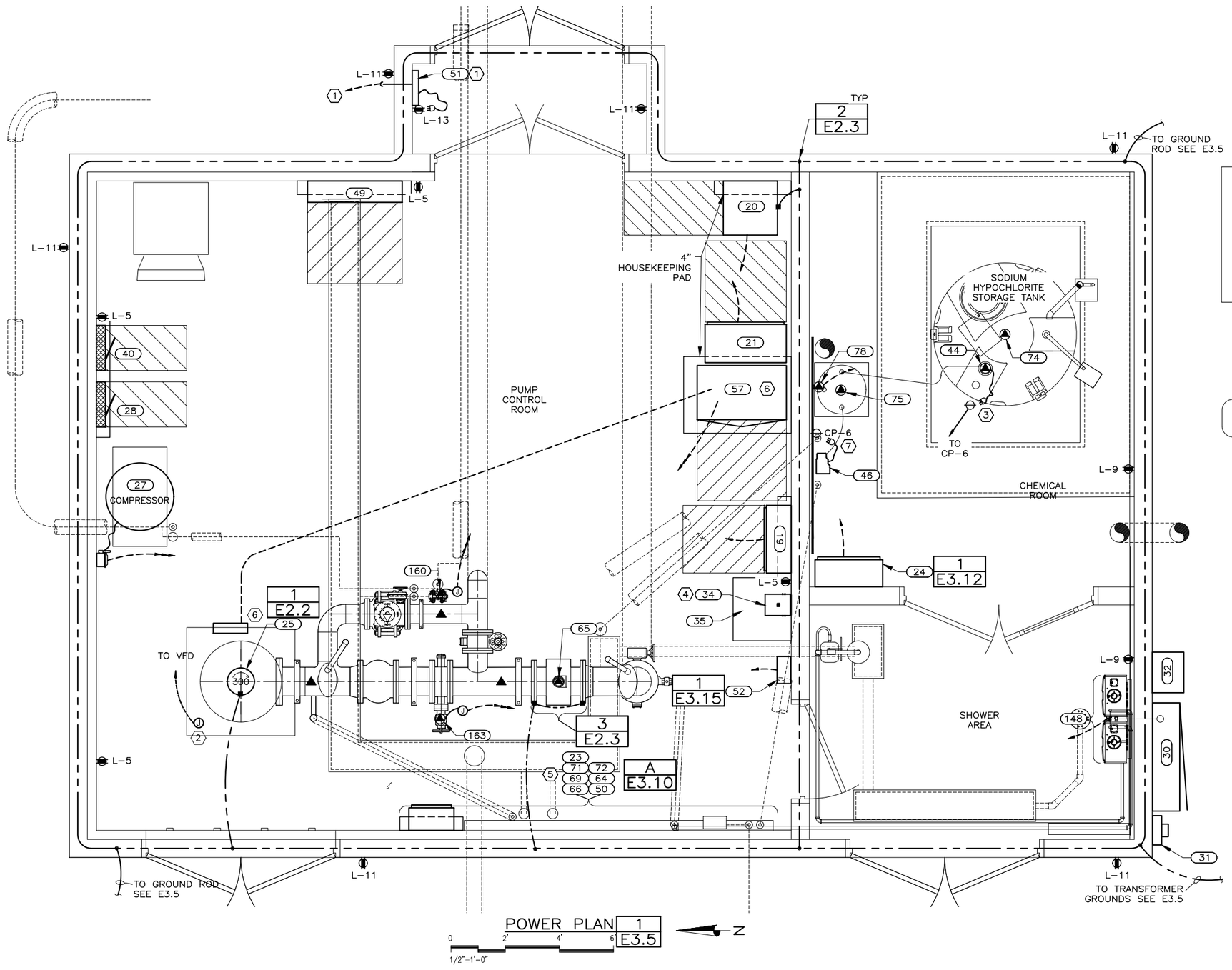


POWER PLAN 1 E3.5
0 2' 4' 6
1/2"=1'-0"

700 EAST POWER PLAN ITEM LIST (E3.6)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
20	CP-2	CCTV ENCLOSURE	L-4	PUMP CONTROL ROOM
21	CP-3	SECURITY ENCLOSURE	L-6	PUMP CONTROL ROOM
23	CP-5	SMALL MOTOR CONTROL PANEL	H-3	PUMP CONTROL ROOM
24	CP-6	CHLORINATION CONTROL PANEL	L-8	CHEMICAL ROOM
25	P-1	WELL PUMP	RVSS-1	PUMP CONTROL ROOM
27	AC-1	AIR COMPRESSOR	H-8,10,12	PUMP CONTROL ROOM
28	PNL-H	PANELBOARD	MDP-1-1	PUMP CONTROL ROOM
30	CTE-1	CURRENT TRANSFORMER ENCLOSURE	XFMR-U	BUILDING EXTERIOR
31	MS-1	METER SOCKET	N/A	BUILDING EXTERIOR
32	MSD-1	MAIN SERVICE DISCONNECT	CTE-1	BUILDING EXTERIOR
34	XFMR-T3	TRANSFORMER (120/240 V)	H-26,28	PUMP CONTROL ROOM
35	XFMR-T2	TRANSFORMER (208Y/120V)	H-2,4,6	PUMP CONTROL ROOM
40	PNL-L	PANELBOARD	XFMR-T2	PUMP CONTROL ROOM
44	P-2	CHLORINE TRANSFER PUMP	CP-6	CHEMICAL ROOM
46	CDP-1	CHEMICAL DOSING PUMP	CP-6	CHEMICAL ROOM
49	MDP-1	MAIN DISTRIBUTION PANELBOARD	MSD-1	PUMP CONTROL ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
51	IC-1	IRRIGATION CONTROLLER	L-13	PUMP CONTROL ROOM
52	PQM-1	POWER QUALITY MONITOR	L-20	PUMP CONTROL ROOM
57	VFD-1	VARIABLE FREQUENCY CONTROLLER	MDP-1-2	PUMP CONTROL ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
65	FE-1	WELL FLOW ELEMENT	FIT-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
74	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	CP-1	CHEMICAL ROOM
75	LIT-2	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	CHEMICAL ROOM
78	WIT-1	DAY TANK WEIGHT SCALE	CP-1	CHEMICAL ROOM
148	IWH-1	INLINE WATER HEATER	L-15	SHOWER AREA
160	V-1	WASTE VALVE	H-14,16,18	PUMP CONTROL ROOM
163	V-2	SYSTEM VALVE	H-20,22,24	PUMP CONTROL ROOM

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE-LINE AND PANELBOARD SCHEDULES FOR THE CIRCUIT ID, THEN THE CONDUIT AND CONDUCTOR REQUIREMENTS ARE IN THE CONTUIT/CONDUCTOR TABLE ON E1.3
2. DRAWING IS CONCEPTUAL. CONTRACTOR SHALL VERIFY FINAL SIZES OF EQUIPMENT BEFORE ROUGHING-IN ANY UNDERGROUND CONDUITS.
3. INSTALL ALL INTERIOR RECEPTACLES AT +48" AFF. INSTALL ALL EXTERIOR RECEPTACLES AT +18" AND PROVIDE IN-SERVICE W/P COVER.
4. POWER FOR HVAC EQUIPMENT SHOWN ON E3.9.

SHEET KEYNOTES:

1. IRRIGATION CONTROLLER. INSTALL 60" ABOVE FLOOR. PROVIDE A 2" CONDUIT WITH PULL STRING TO PLANTER AREA.
2. MOTOR KEEP WARM HEATER CONNECTION BOX. VERIFY EXACT LOCATION WITH MOTOR SUPPLIER.
3. INSTALL RECEPTACLE +36" ABOVE THE FLOOR ON MOUNTING STRUT.
4. INSTALL TRANSFORMER FOR EXISTING CHEMICAL BUILDING ABOVE TRANSFORMER T2. PROVIDE AT LEAST 12" OF SPACE IN BETWEEN TRANSFORMERS TO ALLOW FOR HEAT DISSIPATION.
5. REFER TO E3.10 POWER TO WET WALL INSTRUMENTATION. INSTALL SWITCHES ABOVE WET CHEMISTRY INSTRUMENTATION.
6. VERIFY CONDUIT STUB-UP LOCATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
7. INSTALL RECEPTACLE WITHIN 55 INCHES OF THE DOSING PUMP..

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

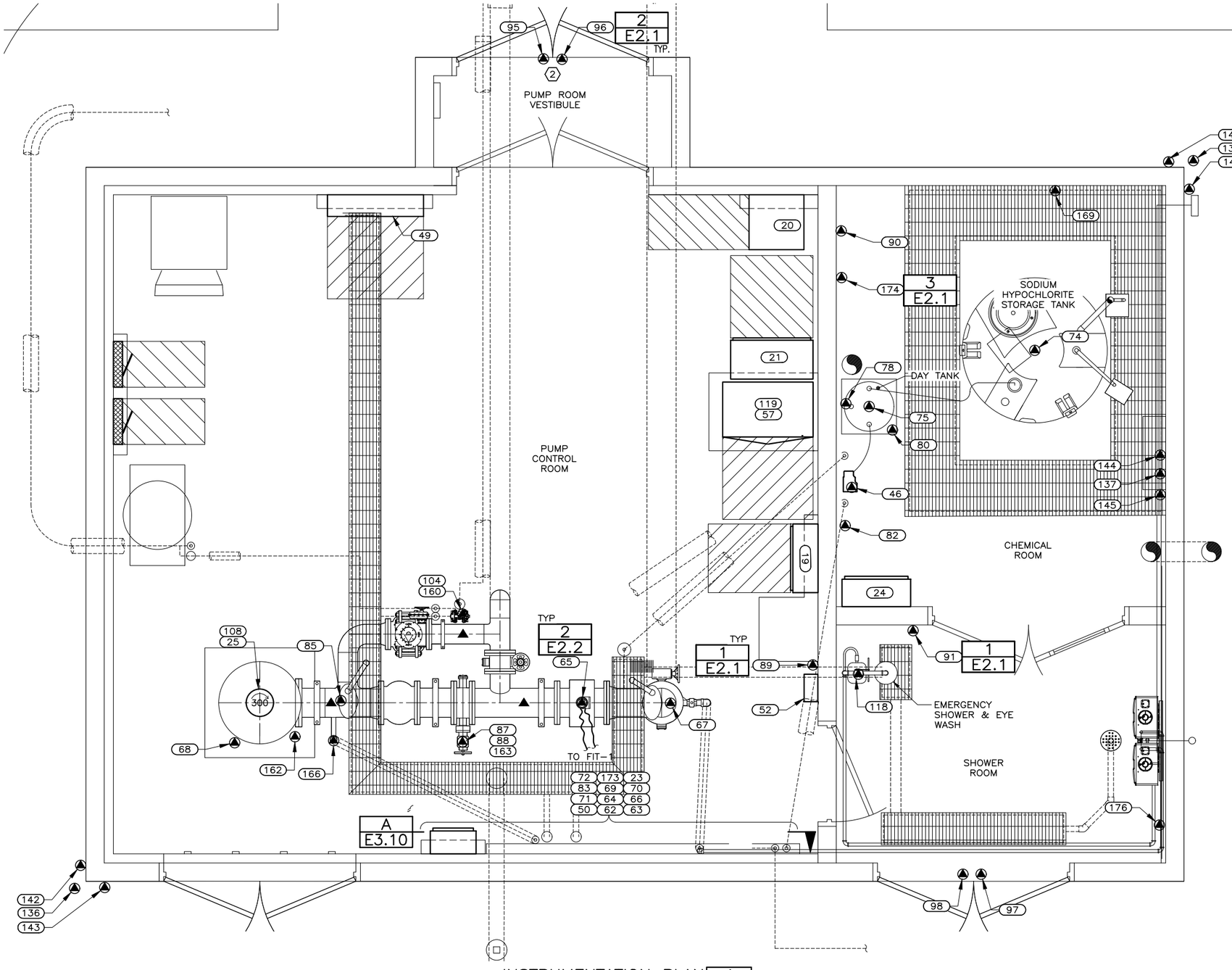
SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
POWER PLAN

SHEET E3.6
127.24.400

7/04



INSTRUMENTATION PLAN 1 E3.5

0 2' 4' 6'

1/2"=1'-0"

N

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

700 EAST INST. & CONTROL PLAN ITEM LIST (E3.7)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
20	CP-2	CCTV ENCLOSURE	L-4	PUMP CONTROL ROOM
21	CP-3	SECURITY ENCLOSURE	L-6	PUMP CONTROL ROOM
23	CP-5	SMALL MOTOR CONTROL PANEL	H-3	PUMP CONTROL ROOM
24	CP-6	CHLORINATION CONTROL PANEL	L-8	CHEMICAL ROOM
25	P-1	WELL PUMP	RVSS-1	PUMP CONTROL ROOM
46	CDP-1	CHEMICAL DOSING PUMP	CP-6	CHEMICAL ROOM
49	MDP-1	MAIN DISTRIBUTION PANELBOARD	MSD-1	PUMP CONTROL ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
52	PQM-1	POWER QUALITY MONITOR	L-20	PUMP CONTROL ROOM
57	VFD-1	VARIABLE FREQUENCY CONTROLLER	MDP-1-2	PUMP CONTROL ROOM
62	AE-3	CONDUCTIVITY PROBE	AIT-3	PUMP CONTROL ROOM
63	AE-4	pH PROBE	AIT-4	PUMP CONTROL ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
65	FE-1	WELL FLOW ELEMENT	FIT-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
67	PT-1	PRESSURE TRANSMITTER, SYSTEM	CP-1	PUMP CONTROL ROOM
68	LT-1	LEVEL TRANSMITTER, WELL	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
70	TE-1	TURBIDITY ELEMENT	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
74	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	CP-1	CHEMICAL ROOM
75	LIT-2	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	CHEMICAL ROOM
78	WIT-1	DAY TANK WEIGHT SCALE	CP-1	CHEMICAL ROOM
80	WE-1	DAY TANK SCALE ELEMENT	WIT-1	CHEMICAL ROOM
82	FE/FIT-2	CHLORINE FLOW METER	CP-1	CHEMICAL ROOM
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	CP-1	PUMP CONTROL ROOM
85	PSH-1	HIGH PRESSURE SWITCH	CP-1	PUMP CONTROL ROOM
87	ZS-10A	SYSTEM VALVE FULL OPEN SWITCH	CP-1	PUMP CONTROL ROOM
88	ZS-10B	SYSTEM VALVE FULL CLOSED SWITCH	CP-1	PUMP CONTROL ROOM
89	LSH-1	FLOOR WATER LEVEL SWITCH	CP-1	PUMP CONTROL ROOM
91	LSH-3	FLOOR WATER LEVEL SWITCH	CP-1	SHOWER AREA
95	ZS-1A	DOOR POSITION SWITCH	CP-1	PUMP ROOM VEST.
96	ZS-1B	DOOR POSITION SWITCH	CP-1	PUMP ROOM VEST.
97	ZS-2A	DOOR POSITION SWITCH	CP-1	SHOWER AREA
98	ZS-2B	DOOR POSITION SWITCH	CP-1	SHOWER AREA
104	ZT-1	WASTE VALVE POSITION TRANSMITTER	CP-1	PUMP CONTROL ROOM
108	VS-1	MOTOR VIBRATION SWITCH	CP-1	PUMP CONTROL ROOM
118	FS-1	SHOWER FLOW SWITCH	CP-1	EMERG. SHWR. ROOM
119	PQM-2	POWER QUALITY MONITOR	VFD-1	PUMP CONTROL ROOM
135	CCTV-1	270-DEG FIXED CAMERA	CP-2	BUILDING EXTERIOR
136	CCTV-2	270-DEG FIXED CAMERA	CP-2	BUILDING EXTERIOR
137	CCTV-3	270-DEG FIXED CAMERA	CP-2	CHEMICAL ROOM
140	IL-1A	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
141	IL-1B	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
142	IL-2A	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
143	IL-2B	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
144	IL-3A	INFRARED ILLUMINATOR	CP-3	CHEMICAL ROOM
145	IL-3B	INFRARED ILLUMINATOR	CP-3	CHEMICAL ROOM
160	V-1	WASTE VALVE	H-14,16,18	PUMP CONTROL ROOM
162	SV-1	SOLENOID VALVE, LUBE OIL	CP-1	PUMP CONTROL ROOM
163	V-2	SYSTEM VALVE	H-20,22,24	PUMP CONTROL ROOM
166	SV-5	SOLENOID VALVE, TURBIDITY	CP-1	PUMP CONTROL ROOM
169	LDS-1	STORAGE TANK LEAK DETECTION SENSOR	CP-1	CHEMICAL ROOM
173	TIT-1	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	PUMP CONTROL ROOM
174	TIT-2	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	CHEMICAL ROOM
176	TIT-3	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	SHOWER AREA

GENERAL NOTES:

1. FOR CONDUIT AND WIRE REQUIREMENTS REFER TO I&C ONE-LINE DIAGRAM ON E3.4.
2. DEVICES SHOWN ARE DIAGRAMMATIC. VERIFY DEVICE LOCATIONS PRIOR TO CONDUIT ROUGH-IN.

SHEET KEYNOTES:

1. NOT USED.
2. THIS SET OF DOUBLE DOORS WILL HAVE A REMOVABLE TRANSOM ABOVE THE DOOR FRAME. MODIFY LOCATION OF J-BOX AS REQUIRED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

PROJECT ENGINEER

HANSEN ALLEN & LUCE Inc ENGINEERS

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
INST. & CONTROL PLAN

SHEET E3.7

127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

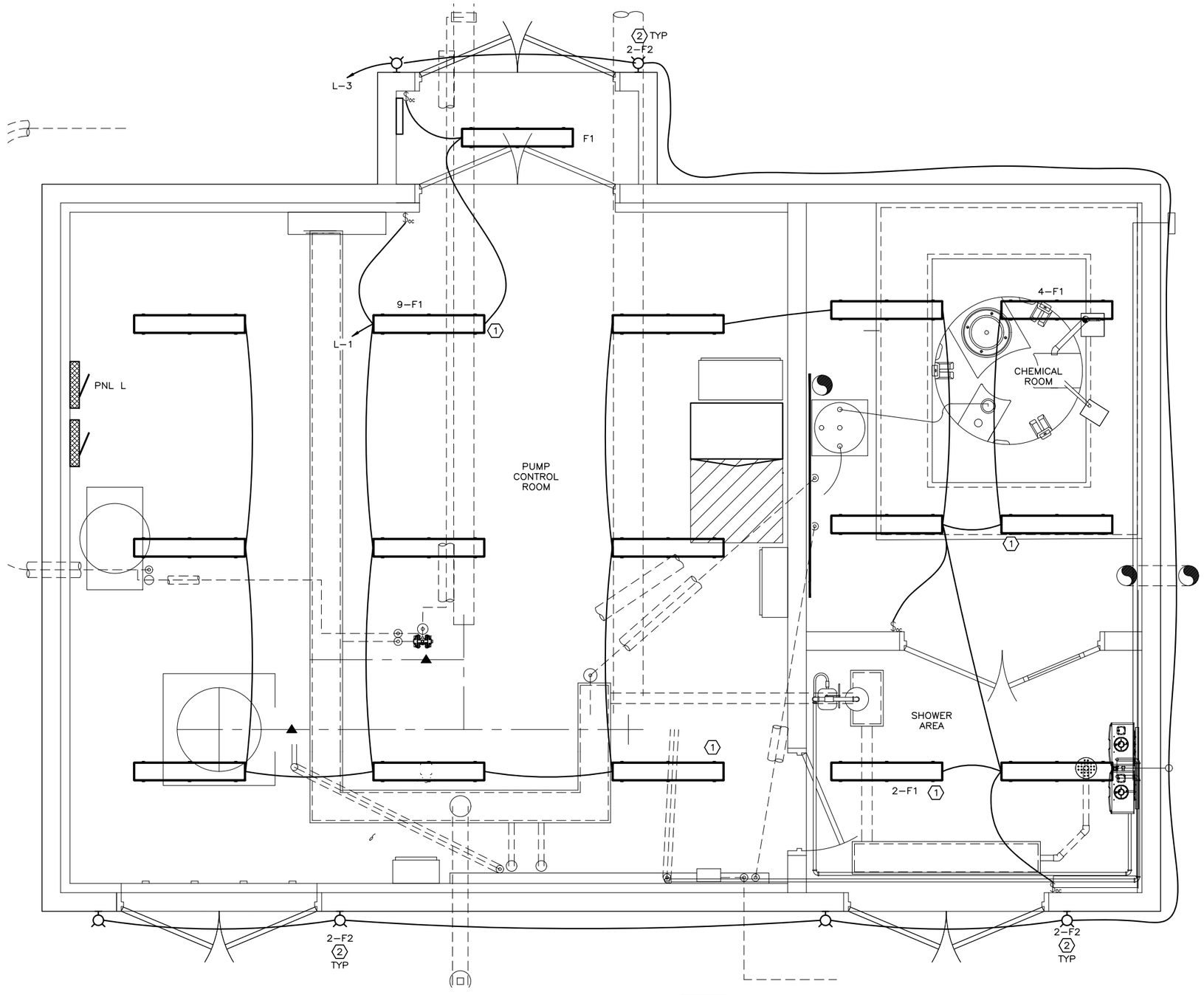
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO PANELBOARD SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE PROVIDED ON THE CONDUIT/CONDUCTOR TABLE ON E1.1
2. FIXTURE SCHEDULE LOCATED ON E1.3.

SHEET KEYNOTES:

1. PROVIDE A 90-MINUTE BATTERY IN THIS FIXTURE.
2. INSTALL EXTERIOR FIXTURES 6-IN ABOVE TOP OF DOOR.



LIGHTING PLAN 1 E3.5

0 2' 4' 6'
1/2"=1'-0"

N

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
LIGHTING PLAN

SHEET E3.8
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

700 EAST HVAC PLAN ITEM LIST (E3.9)

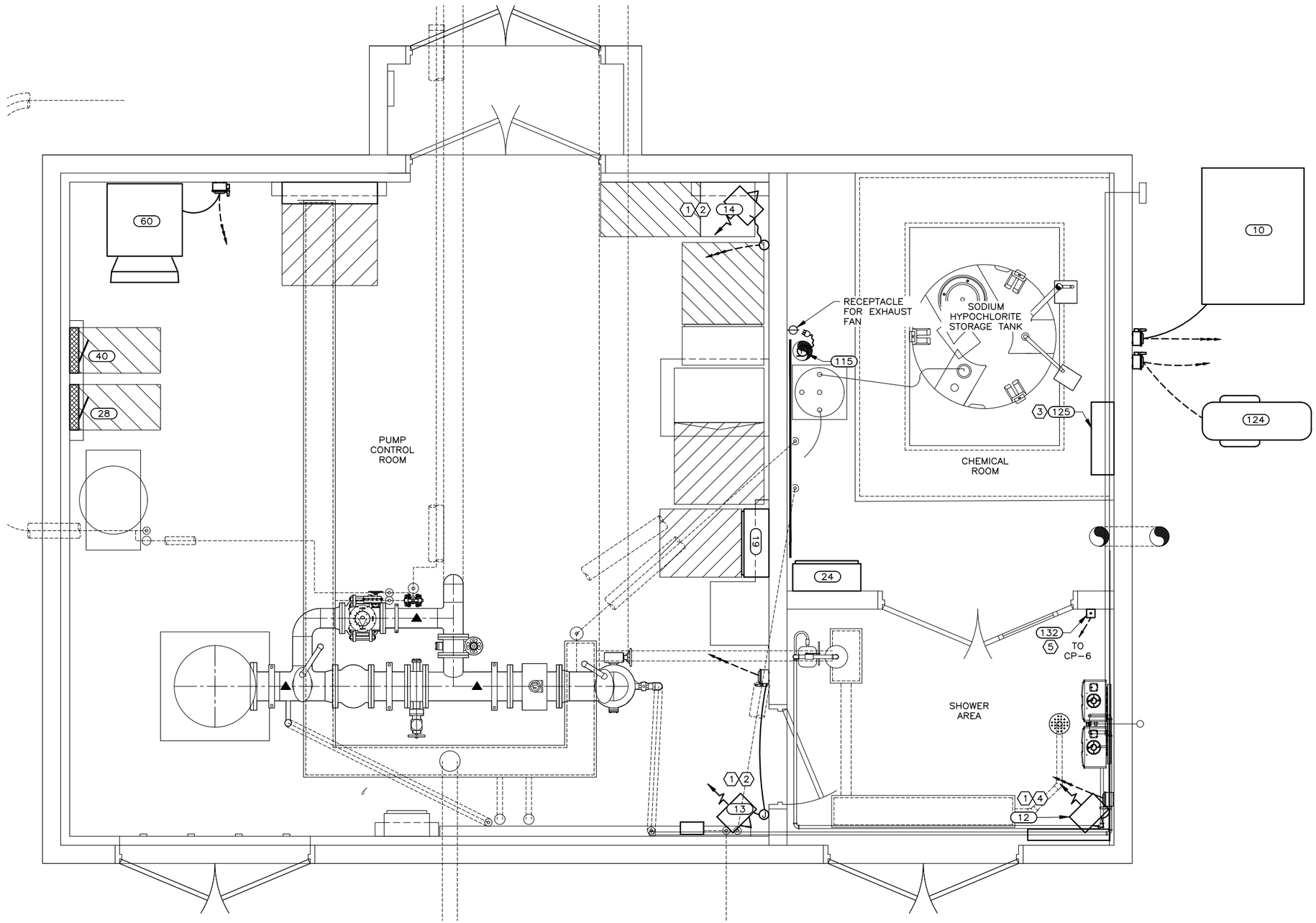
DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	ODU-1	OUTDOOR CONDENSING UNIT	H-1,3,5	BUILDING EXTERIOR
12	UH-1	UNIT HEATER	H-7,9,11	EMERG. SHWR. ROOM
13	UH-2	UNIT HEATER	H-13,15,17	PUMP CONTROL ROOM
14	UH-3	UNIT HEATER	H-19,21,23	PUMP CONTROL ROOM
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
24	CP-6	CHLORINATION CONTROL PANEL	L-8	CHEMICAL ROOM
28	PNL-H	PANELBOARD	MDP-1-1	PUMP CONTROL ROOM
40	PNL-L	PANELBOARD	XFMR-T2	PUMP CONTROL ROOM
60	AHU-1	AIR HANDLING UNIT	H-25,27,29	PUMP CONTROL ROOM
115	EF-1	EXHAUST FAN	CP-6	CHEMICAL ROOM
124	MCU-1	MITSUBISHI OUTDOOR UNIT	L-16,18	BUILDING EXTERIOR
125	MS-1	MITSUBISHI SPLIT UNIT	L-20,22	CHEMICAL ROOM
132	HS-1	EX. FAN HAND OFF AUTO SELECTOR SWITCH	CP-6	SHOWER AREA

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" FOR EACH ELECTRICAL LOAD IS LISTED IN THE ITEM TABLE ON THIS SHEET. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO THE POWER ONE-LINE (E3.3) 4AND PANELBOARD SCHEDULES (E3,1 & E3.2) FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
2. PLAN IS DIAGRAMMATIC. REFER TO MANUFACTURERS INSTALLATION REQUIREMENT FOR CONDUIT LOCATIONS PRIOR TO CONDUIT ROUGH-IN.

SHEET KEYNOTES:

1. REFER TO E3.4 FOR WIRE AND CONDUIT REQUIREMENTS.
2. PUMP CONTROL ROOM UNIT HEATER CONTROLLED FROM CP-1.
3. MITSUBISHI INDOOR UNIT RECEIVES POWER FROM THE OUTDOOR UNIT.
4. SHOWER AREA UNIT HEATER CONTROLLED FROM CP-1.
5. INSTALL RECESSED SWITCH +60-IN ABOVE FINISHED FLOOR. REFER TO INSTRUMENTATION AND CONTROL ONE-LINE DRAWING FOR WIRE AND CONDUIT REQUIREMENTS. LABEL "CHEMICAL ROOM EXHAUST FAN"



HVAC POWER PLAN 1 E3.5
0 2' 4' 6'
1/2"=1'-0"

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

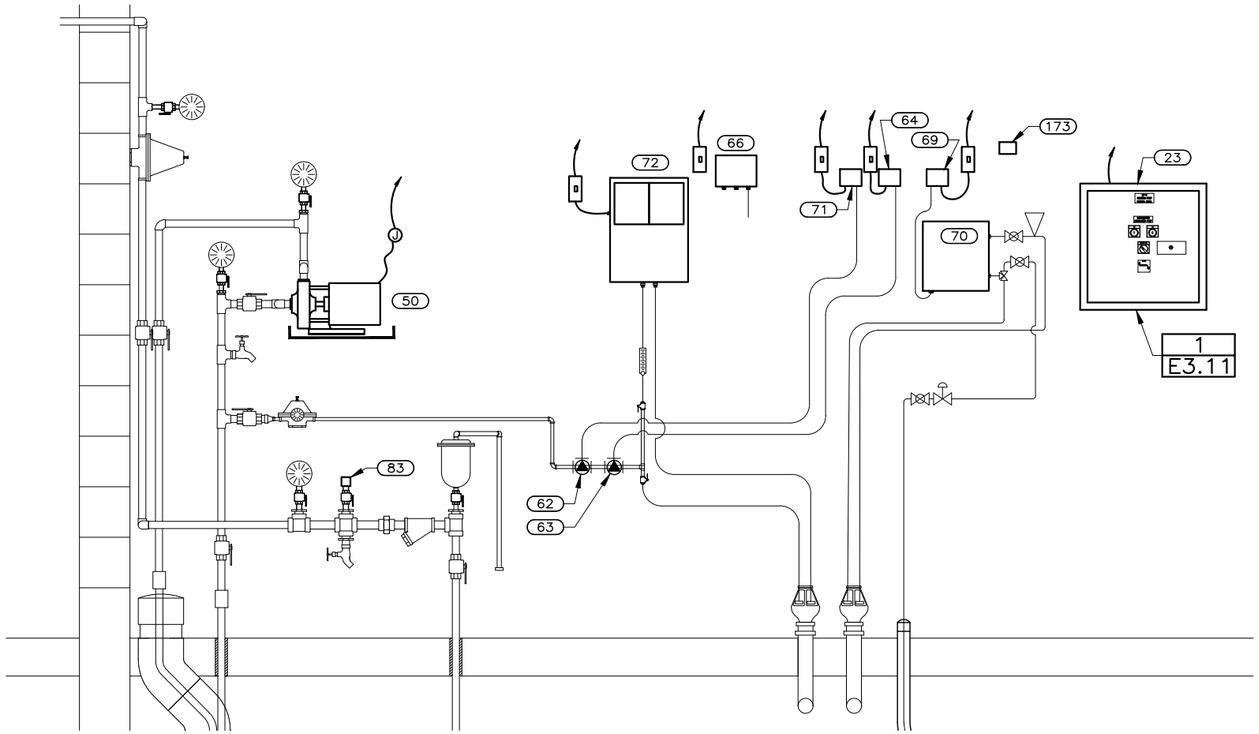
SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
HVAC PLAN

SHEET E3.9
127.24.400

7/04



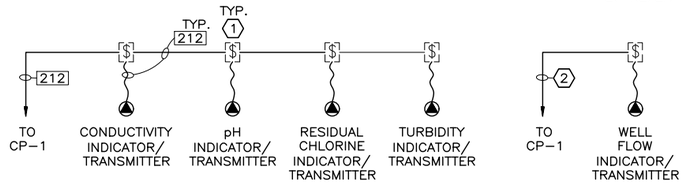
INSTRUMENTATION PANEL | A | E3.7

0 0.5' 1' 2' 3'

1"=1'-0"

700 EAST INSTRUMENTATION PANEL ITEM LIST (E3.10)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
23	CP-5	SMALL MOTOR CONTROL PANEL	H-3	PUMP CONTROL ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
62	AE-3	CONDUCTIVITY PROBE	AIT-3	PUMP CONTROL ROOM
63	AE-4	pH PROBE	AIT-4	PUMP CONTROL ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
70	TE-1	TURBIDITY ELEMENT	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	CP-1	PUMP CONTROL ROOM
173	TIT-1	OM TEMPERATURE INDICATING/TRANSMIT	CP-1	PUMP CONTROL ROOM



INSTRUMENTATION POWER DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAMS ON E3.4.

SHEET KEYNOTES:

1. INSTALL SWITCH NEAR INSTRUMENT AND LABEL EACH SWITCH FOR THE INSTRUMENT IT CONTROLS.
2. REFER TO E3.4, KEYNOTE 9.

FILE NAME:
FILE DATE:

PROJECT ENGINEER

HANSEN ALLEN & LUCE INC ENGINEERS

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

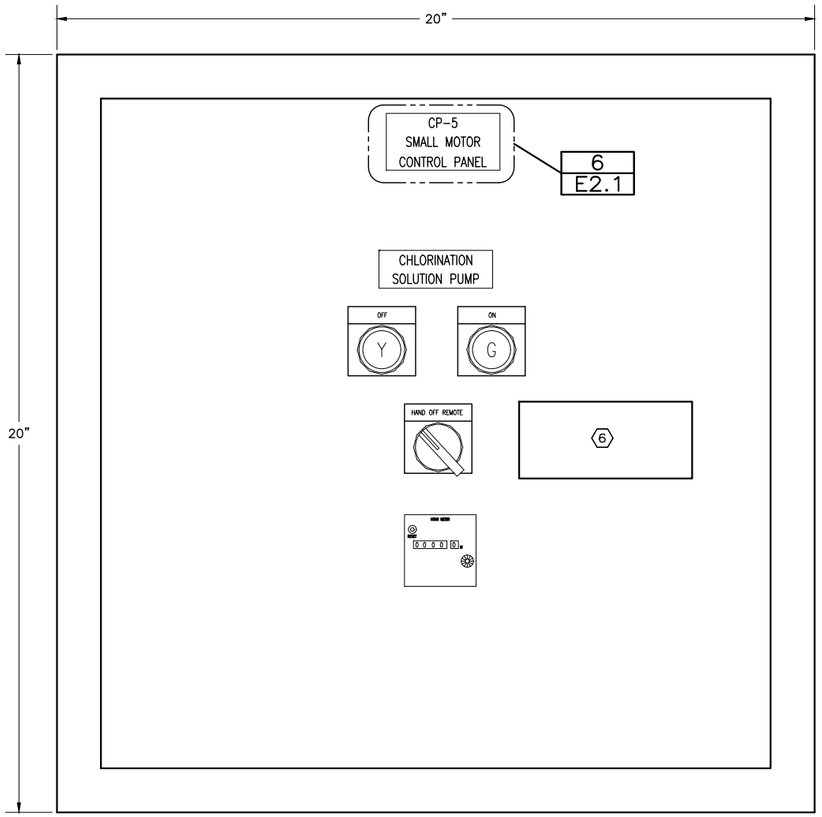
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
INSTRUMENTATION PANEL

SHEET E3.10

127.24.400

7/04



CP-5 SMALL MOTOR CONTROL PANEL | 1

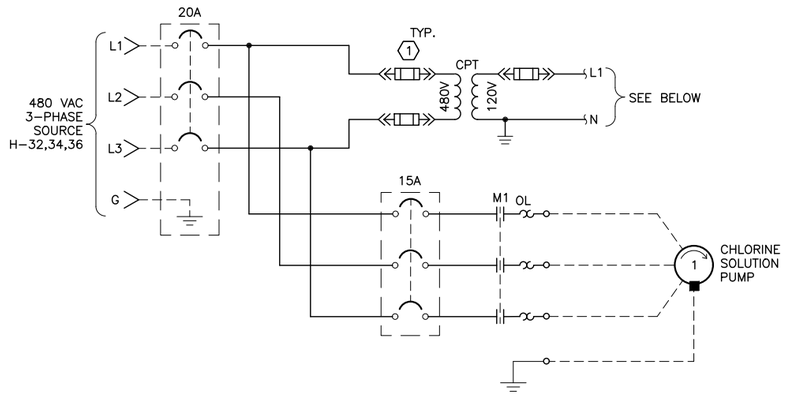
6" = 1'-0" | E3.6

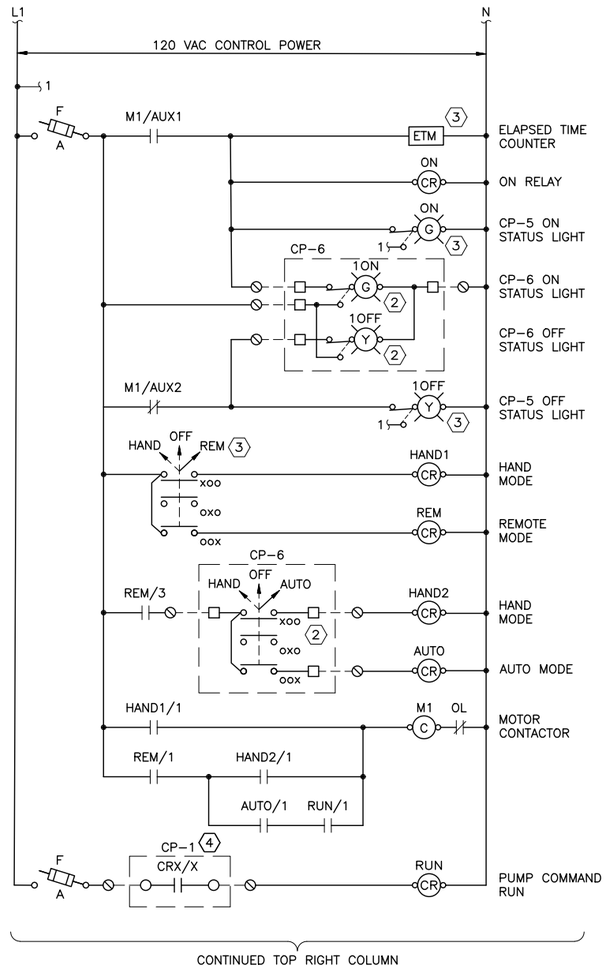
TABLE 5 (CP-1 TO CP-5 SMALL MOTOR CP)

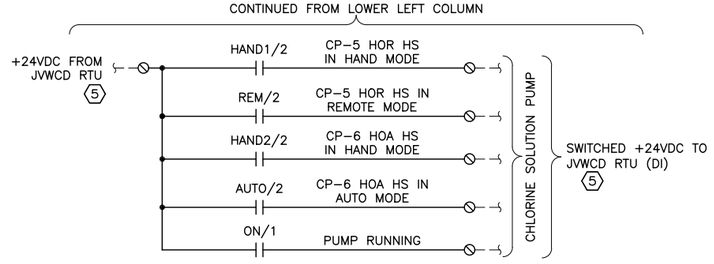
CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#16	+24VDC	24VDC SOURCE FROM CP-1
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN REMOTE MODE
	1	#16	+24VDC	PUMP RUNNING
	1	#16	120 VAC	FUSED 120 VAC TO CP-1
	1	#16	120 VAC	SWITCHED RUN COMMAND
	3	#16	-	SPARE
1"	-		-	SPARE

TABLE CP (CP-5 TO CHEMICAL RM CP-6)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#14	120VAC	120 VAC FUSED TO CP-1
	1	#14	120VAC	120 VAC SWITCHED FROM CP-1
	1	#14	120VAC	HOR SWITCH COMMON (FUSED)
	1	#14	120VAC	HOR SWITCH IN HAND POSITION
	1	#14	120VAC	HOR SWITCH IN REMOTE POSITION
	1	#14	120VAC	SOLUTION PUMP ON
	1	#14	120VAC	SOLUTION PUMP OFF







CP-5 TYPICAL CONTROL DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL PANEL DIMENSIONS SHOWN ARE ANTICIPATED. CONTRACTOR SHALL MODIFY FOR THE SUPPLIED COMPONENTS.
2. CONTRACTOR SHALL DETERMINE INTERIOR ARRANGEMENT. CONTRACTOR SHALL PROVIDE WIRE NUMBERS, TERMINAL NUMBERS AND OVERCURRENT DEVICE NUMBERS.
3. CP-5 SHALL INCLUDE THE MOTOR CONTROLLER, AND SWITCHES AS SHOWN.

SHEET KEYNOTES:

1. FUSES SIZED BY EQUIPMENT SUPPLIER.
2. DEVICE LOCATED IN CP-6 THE CHEMICAL ROOM CONTROL PANEL.
3. DEVICE INSTALLED ON ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
4. 24VDC RELAY IN CP-1 SWITCHING 120 VAC FROM CP-5. RELAY PROVIDED IN CP-1 BY OWNER.
5. JVWCD RTU WILL PROVIDE A 24VDC SOURCE TO A DRY CONTACT IN CP-5, WITH SWITCHED SIGNAL BACK TO THE RTU.
6. PROVIDE A LABEL: "LEAVE SWITCH IN REMOTE TO ENABLE CONTROL FROM CHEMICAL ROOM CONTROL PANEL".

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
CP-5 SMALL MOTOR CONTROL PANEL

SHEET: E3.11

127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
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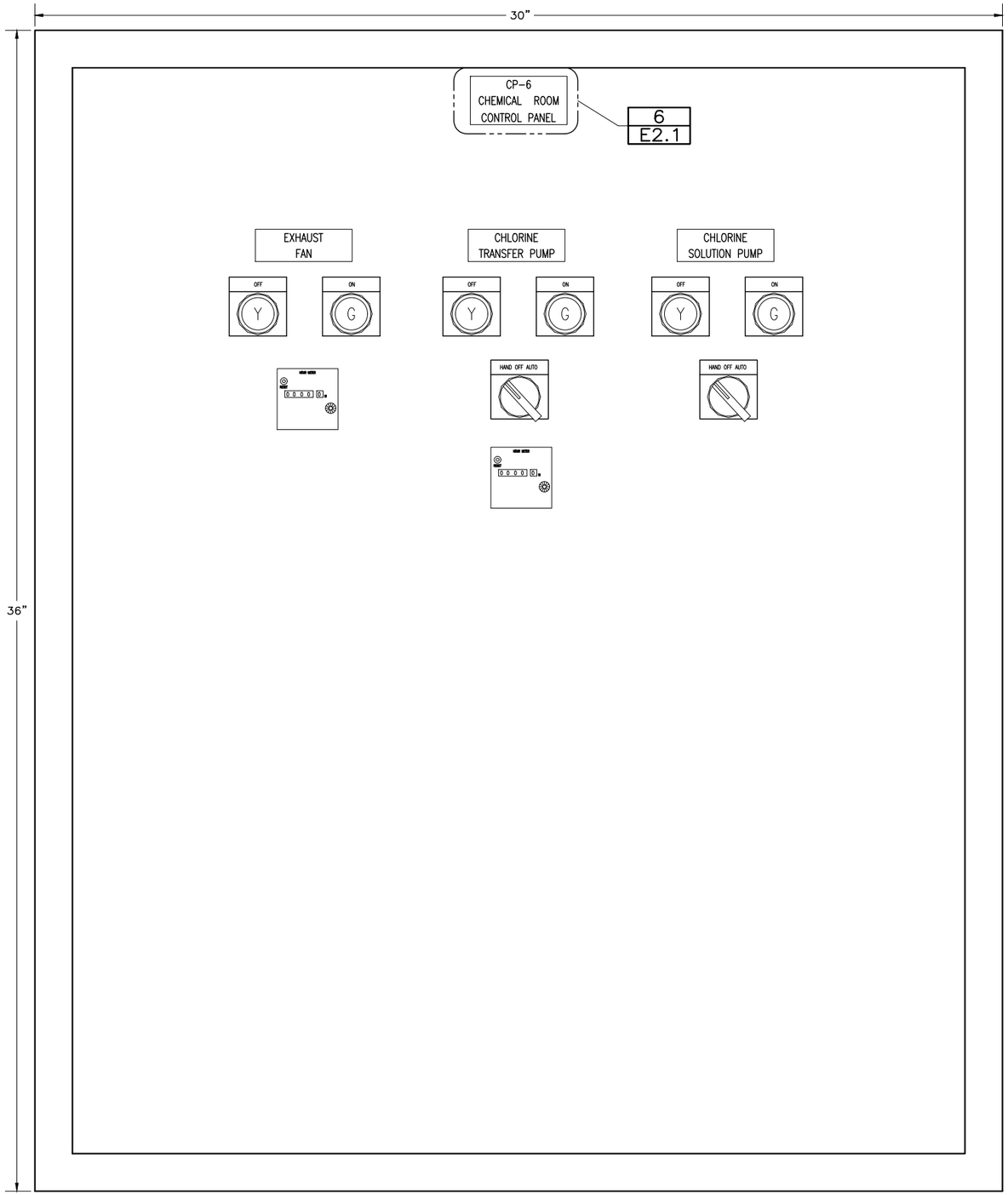

GENERAL NOTES:

1. CONTROL PANEL DIMENSIONS SHOWN ARE ANTICIPATED. CONTRACTOR SHALL MODIFY FOR THE SUPPLIED COMPONENTS.
2. CONTRACTOR SHALL DETERMINE INTERIOR ARRANGEMENT.
3. REFER TO E3.13 FOR TYPICAL CONTROL DIAGRAM.

SHEET KEYNOTES:

1. NOT USED.

CP-6 CHEMICAL ROOM CONTROL PANEL 1
6" = 1'-0" E3.6

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
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DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

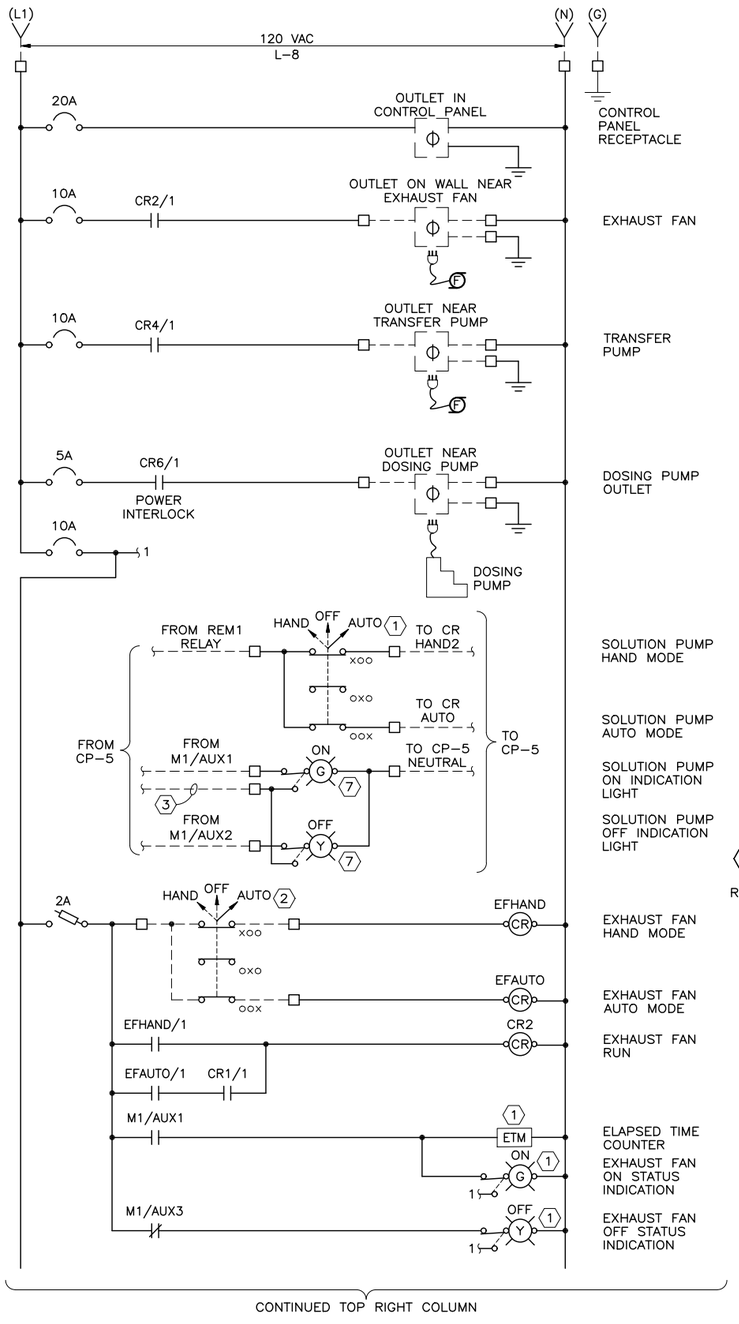
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
CP-6 CHEMICAL ROOM CONTROL PANEL

SHEET E3.12
127.24.400

7/04



CONTINUED TOP RIGHT COLUMN

CONTINUED FROM LOWER LEFT COLUMN

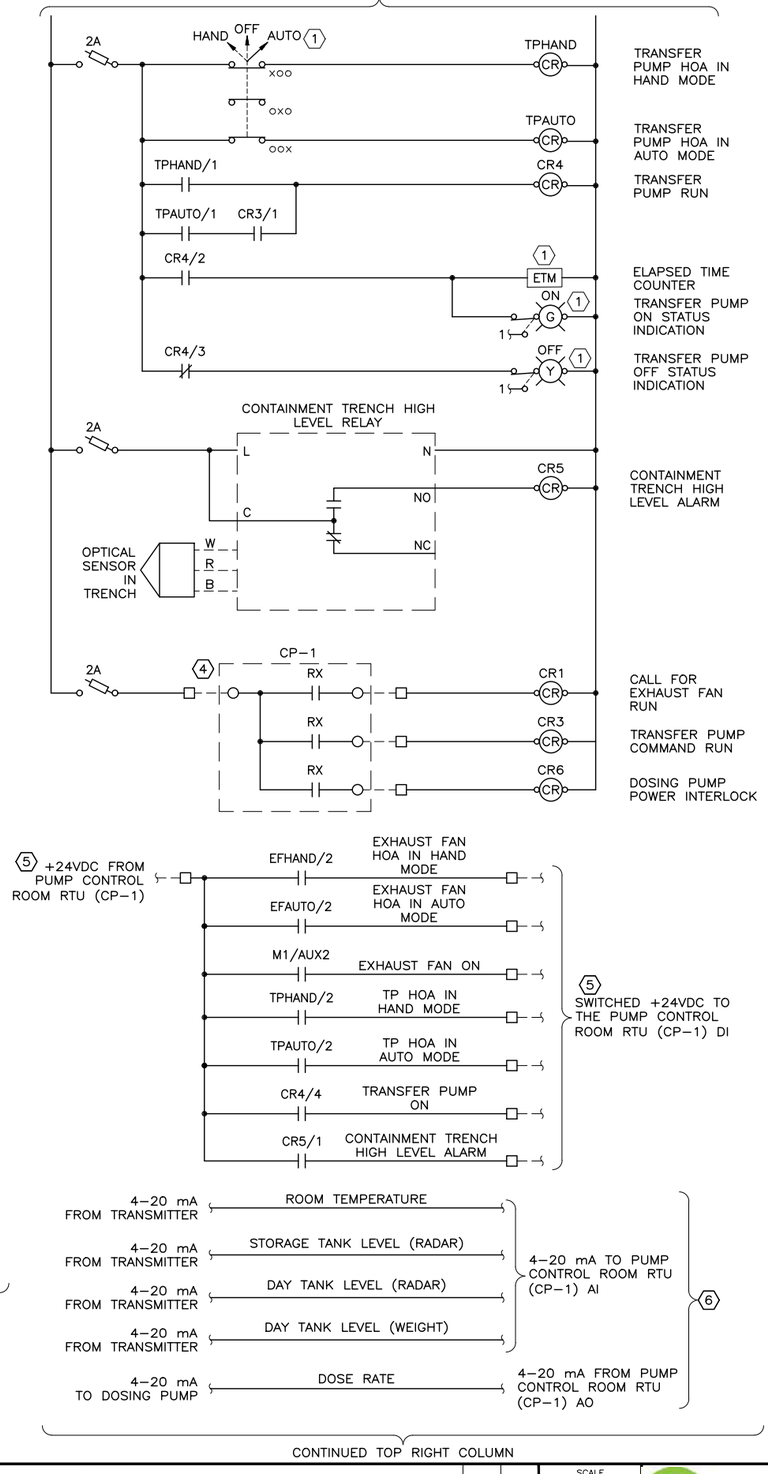


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TABLE 6 (CP-1 TO CHEMICAL RM CP-6)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#16	+24VDC	24VDC SOURCE FROM CP-1
	1	#16	+24VDC	CONTAINMENT TRENCH HIGH LEVEL ALARM
	1	#16	+24VDC	EF HOA IN AUTO MODE
	1	#16	+24VDC	EF HOA IN HAND MODE
	1	#16	+24VDC	EXHAUST FAN ON
	1	#16	+24VDC	FLOW METER POWER RETURN
	1	#16	+24VDC	FLOW METER POWER SOURCE
	1	#16	+24VDC	TP HOA IN AUTO MODE
	1	#16	+24VDC	TP HOA IN HAND MODE
	1	#16	+24VDC	TRANSFER PUMP ON
	1	#16	120 VAC	120VAC SOURCE TO CP-1
	1	#16	120 VAC	CALL FOR EXHAUST FAN RUN
	1	#16	120 VAC	DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	TRANSFER PUMP COMMAND ON
	4	#16	-	SPARE
1-1/2"	1	#18TSP	4-20 mA	CHLORINE DOSE RATE
	1	#18TSP	4-20 mA	DAY TANK LEVEL (RADAR)
	1	#18TSP	4-20 mA	DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	ROOM TEMPERATURE
	1	#18TSP	4-20 mA	STORAGE TANK LEVEL (RADAR)
3/4"	1	RS485	MODBUS	FLOW SIGNAL
1"	-		-	SPARE

TABLE CP (CP-5 TO CHEMICAL RM CP-6)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#14	120VAC	120 VAC FUSED TO CP-1
	1	#14	120VAC	120 VAC SWITCHED FROM CP-1
	1	#14	120VAC	HOR SWITCH COMMON (FUSED)
	1	#14	120VAC	HOR SWITCH IN HAND POSITION
	1	#14	120VAC	HOR SWITCH IN REMOTE POSITION
	1	#14	120VAC	SOLUTION PUMP ON
	1	#14	120VAC	SOLUTION PUMP OFF

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

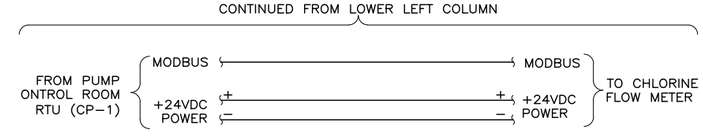
GENERAL NOTES:

1. CONTROL DIAGRAM IS TYPICAL FOR THE CHEMICAL ROOM CONTROL PANEL. MODIFY AS REQUIRED FOR THE DEVICES SUPPLIED.
2. CONTRACTOR SHALL PROVIDE FUSE, TERMINAL AND WIRE NUMBERS AS REQUIRED.
3. REFER TO E3.12 FOR CONTROL PANEL EXTERIOR ARRANGEMENT.

SHEET KEYNOTES:

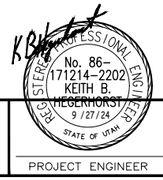
1. DEVICE SHALL BE INSTALLED IN ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
2. HOA SWITCH INSTALLED IN SHOWER ROOM.
3. FROM CP-5, FUSED CONTROL POWER.
4. 24VDC RELAY IN CP-1 SWITCHING 120 VAC FROM CP-6. RELAY PROVIDED IN CP-1 BY OWNER.
5. WELL BUILDING RTU WILL PROVIDE A 24VDC SOURCE TO A DRY CONTACT IN THE CHEMICAL ROOM CONTROL PANEL, WITH SWITCHED 24VDC BACK TO CP-1.
6. INSTALL ANALOG SIGNALS THROUGH CHEMICAL ROOM CONTROL PANEL. NO TERMINATION REQUIRED.

CONTINUED FROM LOWER LEFT COLUMN



CP-6 TYPICAL CONTROL WIRING DIAGRAM

FILE NAME:
FILE DATE:



HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
CP-6 WIRING DIAGRAM

SHEET E3.13
127.24.400

7/04

H.P.E., INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

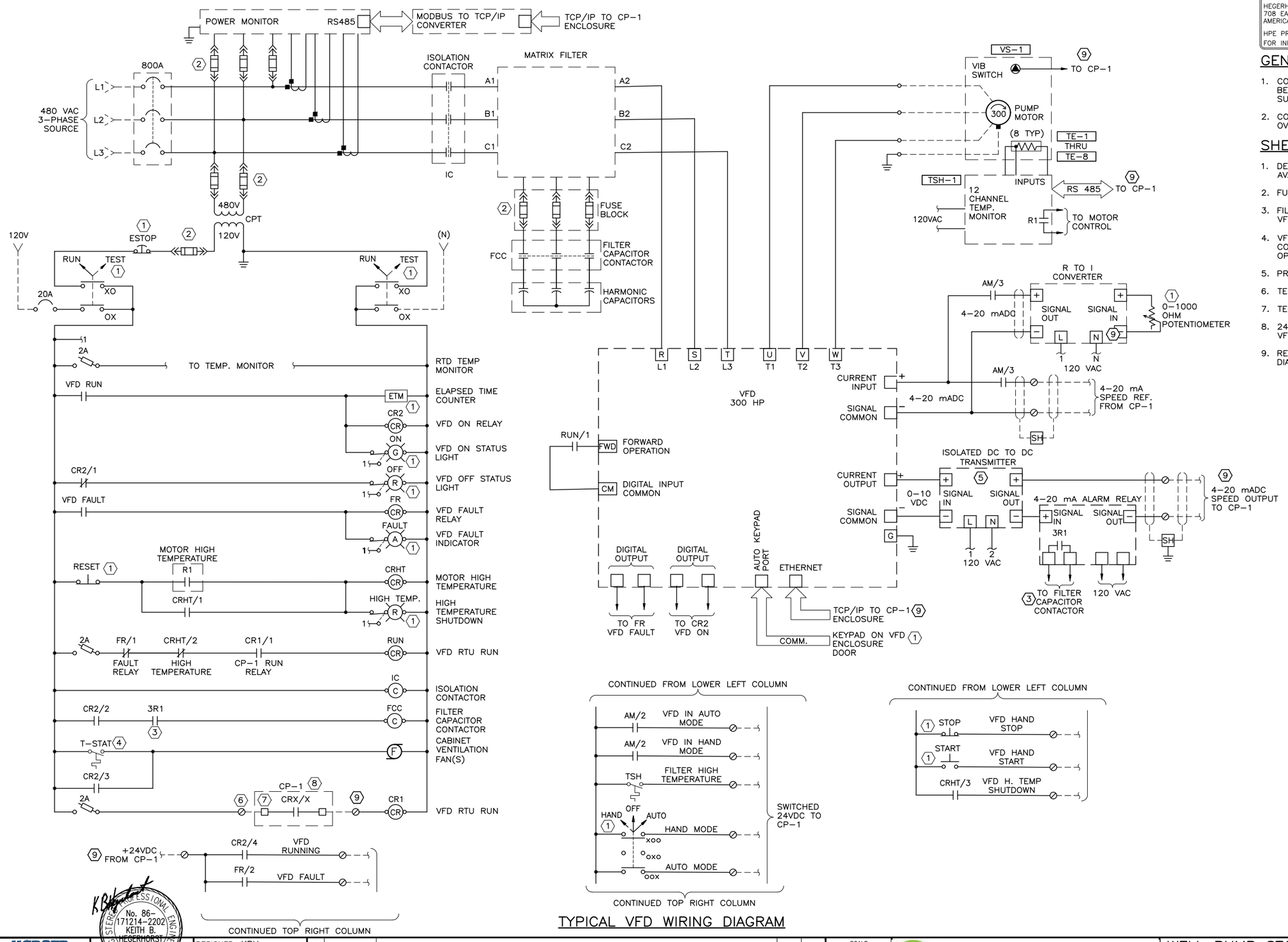
HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL DIAGRAM SHOWN IS CONCEPTUAL AND SHALL BE MODIFIED AS REQUIRED FOR THE SPECIFIC VFD SUPPLIED.
2. CONTRACTOR SHALL PROVIDE TERMINAL, WIRE AND OVERCURRENT DEVICE NUMBERS AS REQUIRED.

SHEET KEYNOTES:

1. DEVICE SHALL BE LOCATED ON ENCLOSURE DOOR AVAILABLE TO THE OPERATOR.
2. FUSES SIZED BY EQUIPMENT MANUFACTURER.
3. FILTER CAPACITORS SHALL BE DE-ENERGIZED WHEN VFD IS OPERATING LESS THAN 30% OUTPUT HERTZ.
4. VFD CIRCULATION FAN(S) SHALL BE THERMOSTATICALLY CONTROLLED AND OPERATE WHEN THE VFD IS OPERATING.
5. PROVIDE SIGNAL CONVERTER AS REQUIRED.
6. TERMINAL IN VFD ENCLOSURE
7. TERMINAL IN CP-1 ENCLOSURE.
8. 24VDC RELAY IN CP-1 SWITCHING 120 VAC FROM VFD-1. RELAY PROVIDED IN CP-1 BY OWNER.
9. REFER TO INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM FOR WIRE AND CONDUIT REQUIREMENTS.



TYPICAL VFD WIRING DIAGRAM

TABLE VFD

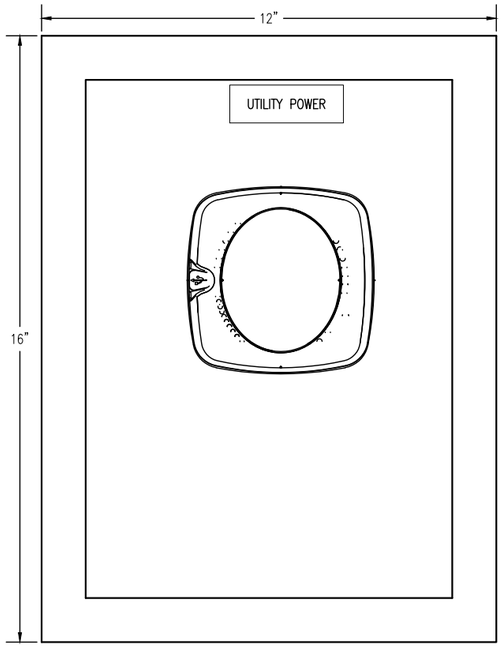
E	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO VFD
1"	1	#14	+24VDC	+24VDC
	1	#14	+24VDC	VFD FAULT
	1	#14	+24VDC	VFD FILTER HIGH TEMPERATURE
	1	#14	+24VDC	VFD HIGH TEMP. SHUTDOWN
	1	#14	+24VDC	VFD HOA IN AUTO POSITION
	1	#14	+24VDC	VFD HOA IN HAND POSITION
	1	#14	+24VDC	VFD RUNNING
	1	#14	+24VDC	VFD START
	1	#14	+24VDC	VFD STOP
	1	#14	120 VAC	COMMON
	1	#14	120 VAC	VFD CALL RUN
3/4"	1	#18TSP	4-20 mA	VFD COMMAND SPEED
	1	#18TSP	4-20 mA	VFD RUNNING SPEED
3/4"	1	RS485	MODBUS	BELDEN 9842 (RTD TEMP. MONITOR)
3/4"	1	-	CAT6U	ETHERNET
	1	-	CAT6U	POWER QUALITY MONITOR
3/4"	-	-	-	PULL STRING

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

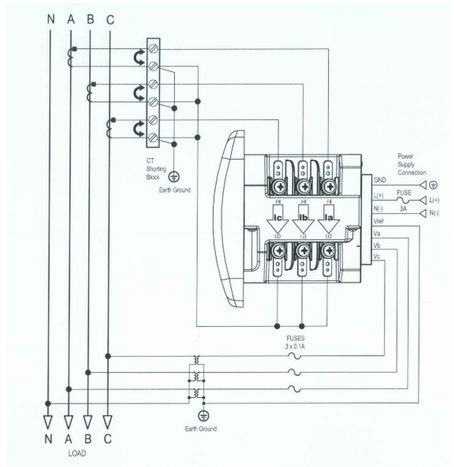
FILE NAME:
FILE DATE:

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

HANSEN ALLEN & LUCE, INC. ENGINEERS
PROJECT ENGINEER
SCALE: NONE
JORDAN VALLEY WATER CONSERVANCY DISTRICT
WELL PUMP STATION CONSTRUCTION
ELECTRICAL
TYPICAL VFD CONTROL DIAGRAM
SHEET E3.14
127.24.400
7/04



POWER QUALITY METER ENCLOSURE 1
6" = 1'-0" E3.6



POWER QUALITY
WIRING DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
POWER QUALITY METER

SHEET E3.15
127.24.400

7/04

700 E WELL RTU ANALOG INPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
AI	CONDUCTIVITY, WELL WATER	ANALYZER, CONTUCTIVITY
AI	LEVEL (RADAR), DAY TANK	TRANSMITTER, LEVEL, RADAR
AI	LEVEL (RADAR), S. HYPOCHLORITE STRG TANK	TRANSMITTER, LEVEL, RADAR
AI	LEVEL (WEIGHT), DAY TANK	TRANSMITTER, TANK WEIGHT SCALE
AI	LEVEL, SURGE TANK WATER	TRANSMITTER, DIFFERENTIAL PRESSURE
AI	LEVEL, WELL WATER	TRANSM1TTER, LELVE, SUBMERSIBLE
AI	pH, WELL WATER	ANALYZER, pH
AI	POSITION, WASTE VALVE	VALVE ACTUATOR
AI	PRESSURE, SYSTEM DISCHARGE	TRANSMITTER, PRESSURE
AI	RESIDUAL CHLORINE, WELL DISCHARGE	ANALYZER, RESIDUAL CHLORINE
AI	SPEED, PUMP RUNNING	VFD, WELL PUMP
AI	TEMPERATURE, CHEMICAL ROOM	TRANSMITTER, TEMPERATURE
AI	TEMPERATURE, PUMP CONTROL ROOM	TRANSMITTER, TEMPERATURE
AI	TERMPERATURE, SHOWER AREA ROOM	TRANSMITTER, TEMPERATURE
AI	TURBIDITY, WELL WATER	ANALYZER, TURBIDITY

MODBUS SIGNALS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
RS485	MOTOR WINDING/BEARING TEMPERATURES	MOTOR RTD TEMPERATURE MONITOR
RS485	WELL FLOW	FLOW METER
RS485	CHLORINE SYSTEM FLOW	FLOW METER

ANALOG OUTPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
AO	COMMAND, CHLORINE DOSE RATE	DOSING PUMP, CHLORINE
AO	POSITION COMMAND, WASTE VALVE	VALVE ACTUATOR
AO	WELL SPEED CONTROL	WELL VFD

DISCRETE INPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
DI	ALARM, CHEMICAL ROOM CONTAINMENT DRAIN LEVEL	SWITCH, LEVEL
DI	ALARM, PUMP ROOM FLOOR HIGH WATER LEVEL	SWITCH, LEVEL
DI	ALARM, SHOWER AREA FLOOR HIGH WATER LEVEL	SWITCH, LEVEL
DI	ALARM, SURGE TANK VAULT FLOOR HIGH WATER LEVEL	SWITCH, LEVEL
DI	ALARM, VFD TROUBLE	MOTOR CONTROLLER
DI	FLOW, EYE WASH SHOWER	SWITCH, FLOW
DI	MODE, CHEMICAL ROOM EF HOA IN HAND	MOTOR CONTROLLER
DI	MODE, CHEMICAL ROOM EF HOA IN HAND	MOTOR CONTROLLER
DI	MODE, CHLORINE SOLUTION PUMP HOA IN AUTO	MOTOR CONTROLLER
DI	MODE, CHLORINE SOLUTION PUMP HOA IN HAND	MOTOR CONTROLLER
DI	MODE, CHLORINE SOLUTION PUMP HOR IN HAND	MOTOR CONTROLLER
DI	MODE, CHLORINE SOLUTION PUMP HOR IN REMOTE	MOTOR CONTROLLER
DI	MODE, WELL VFD HOA INI AUTO	MOTOR CONTROLLER
DI	MODE, WELL VFD HOA INI HAND	MOTOR CONTROLLER
DI	POSITION, PUMP ROOM VEST. DOOR A OPEN	SWITCH, POSITION
DI	POSITION, PUMP ROOM VEST. DOOR B OPEN	SWITCH, POSITION
DI	POSITION, SHOWER AREA DOOR A OPEN	SWITCH, POSITION
DI	POSITION, SHOWER AREA DOOR B OPEN	SWITCH, POSITION
DI	POSITION, SURGE TANK HATCH OPEN	SWITCH, POSITION
DI	POSITION, SYSTEM VALVE FULL-CLOSED	SWITCH, POSITION
DI	POSITION, SYSTEM VALVE FULL-OPEN	SWITCH, POSITION
DI	POSITION, VFD START SWITCH CLOSED	SWITCH, START
DI	POSITION, VFD STOP SWITCH OPEN	SWITCH, STOP
DI	PRESSURE, WELL DISCHARGE PRESSURE HIGH	SWITCH, PRESSURE
DI	STATUS, CHEMICAL ROOM EF ON	MOTOR CONTROLLER
DI	STATUS, CHLORINE SOLUTION PUMP ON	MOTOR CONTROLLER
DI	STATUS, SURGE TANK VAULT EF ON	MOTOR CONTROLLER
DI	STATUS, WELL VFD RUNNING	MOTOR CONTROLLER
DI	TEMPERTURE WELL VFD TRANSFORMER HIGH	MOTOR CONTROLLER
DI	TEMPERTURE, WELL MOTOR HIGH	MOTOR HT RELAY
DI	VIBRATION, WELL MOTOR HIGH	MOTOR CONTROLLER

DISCRETE OUTPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
DO	CALL FOR HEAT, CHEMICAL ROOM	UHIT HEATER
DO	CALL FOR HEAT, PUMP CONTROL ROOM	UHIT HEATER
DO	CALL FOR HEAT, SHOWER AREA	UHIT HEATER
DO	COMMAND RUN, CHLORINATION RM EF	MOTOR CONTROLLER
DO	COMMAND RUN, CHLORINE SOLUTION PUMP	MOTOR CONTROLLER
DO	COMMAND RUN, WELL VFD	MOTOR CONTROLLER
DO	PUMP INHIBIT, CHLORINE DOSING PUMP	CHLORINE DOSING PUMP
DO	SV COMMAND OPEN, SURGE TANK AIR SUPPLY	VALVE, SOLENOID
DO	SV COMMAND OPEN, SURGE TANK AIR VENT	VALVE, SOLENOID
DO	SV COMMEND OPEN, TURBIDITY SUPPLY	VALVE, SOLENOID
DO	SV COMMAND OPEN, OIL LUBE	VALVE, SOLENOID
DO	COMMAND, VFD START	MOTOR CONTROLLER
DO	COMMAND, SYSTEM VALVE FULL-OPEN	VALVE ACTUATOR
DO	COMMAND, SYSTEM VALVE FULL-CLOSE	VALVE ACTUATOR

H.P.E. INC. ELECTRICAL ENGINEERS
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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. INPUT-OUTPUT LIST DOES NOT INCLUDE THE EXISTING CHEMICAL BUILDING I/O.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
RTU PLC INPUT AND OUTPUT LISTS

SHEET E3.16
127.24.400

7/04

1000 EAST PROJECT TAG LIST

HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
11	ODU-1	OUTDOOR CONDENSING UNIT	BUILDING EXTERIOR	H-1,3,5	CONTRACTOR	CONTRACTOR
15	UH-5	UNIT HEATER	SHOWER AREA	L-21,23	CONTRACTOR	CONTRACTOR
16	EF-3	EXHAUST FAN	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
17	UH-1	UNIT HEATER	FLUORIDATION ROOM	H-7,9,11	CONTRACTOR	CONTRACTOR
18	UH-2	UNIT HEATER	CHLORINATION ROOM	H-13,15,17	CONTRACTOR	CONTRACTOR
61	AHU-1	AIR HANDLING UNIT	PUMP CONTROL ROOM	H-25,27,29	CONTRACTOR	CONTRACTOR
116	EF-2	EXHAUST FAN	FLUORIDATION ROOM	CP-4	CONTRACTOR	CONTRACTOR
117	EF-1	EXHAUST FAN	CHLORINATION ROOM	CP-7	CONTRACTOR	CONTRACTOR
122	UH-3	UNIT HEATER	PUMP CONTROL ROOM	H-19,21,23	CONTRACTOR	CONTRACTOR
123	UH-4	UNIT HEATER	PUMP CONTROL ROOM	H-25,27,29	CONTRACTOR	CONTRACTOR

PUMPS AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
19	CP-1	MAIN CONTROL PANEL/RTU	PUMP CONTROL ROOM	L-2	CONTRACTOR	CONTRACTOR
20	CP-2	CCTV ENCLOSURE	PUMP CONTROL ROOM	L-4	CONTRACTOR	CONTRACTOR
21	CP-3	SECURITY ENCLOSURE	PUMP CONTROL ROOM	L-6	CONTRACTOR	CONTRACTOR
22	CP-4	FLUORIDE CONTROL PANEL	FLUORIDATION ROOM	L-8	CONTRACTOR	CONTRACTOR
23	CP-5	SMALL MOTOR CONTROL PANEL	PUMP CONTROL ROOM	H-32,34,26	CONTRACTOR	CONTRACTOR
25	P-1	WELL PUMP	PUMP CONTROL ROOM	VFD-1	CONTRACTOR	CONTRACTOR
26	SP-2	SUMP PUMP	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
27	AC-1	AIR COMPRESSOR	PUMP CONTROL ROOM	H-8,10,12	CONTRACTOR	CONTRACTOR
28	PNL-H	PANELBOARD	PUMP CONTROL ROOM	XFMR-T1	CONTRACTOR	CONTRACTOR
33	VFD-1	VARIABLE FREQUENCY CONTROLLER	PUMP CONTROL ROOM	PMDE-2	CONTRACTOR	CONTRACTOR
35	XFMR-T2	TRANSFORMER (208Y/120V)	PUMP CONTROL ROOM	H-2,4,6	CONTRACTOR	CONTRACTOR
36	PME-1	PRIMARY METERING EQUIPMENT	SITE	UTILITY	UTILITY COMPANY	CONTRACTOR
37	XFMR-T4	TRANSFORMER (480Y/277V)	EAST BUILDING	H2-1	CONTRACTOR	CONTRACTOR
38	TC-1	TABLET CHLORINATOR	CHLORINATION ROOM	L-11,13	OWNER	CONTRACTOR
39	VFD-1	VFD-1 VENTILATION FAN POWER	PUMP CONTROL ROOM	H-26,28,30	CONTRACTOR	CONTRACTOR
40	PNL-L	PANELBOARD	PUMP CONTROL ROOM	XFMR-T2	CONTRACTOR	CONTRACTOR
41	VFD-1	VFD-1 CONTROL POWER	PUMP CONTROL ROOM	L-10,12	CONTRACTOR	CONTRACTOR
42	FDS-1	TRANSFORMER FEEDER DISCONNECT	SITE	PMDE-2	CONTRACTOR	CONTRACTOR
43	EE-1	ELECTRICAL ENCLOSURE	SURGE VAULT	L-10,12	CONTRACTOR	CONTRACTOR
45	P-2A	FLUORIDE TRANSFER PUMP	FLUORIDATION ROOM	CP-4	CONTRACTOR	CONTRACTOR
47	CDP-1	CHEMICAL DOSING PUMP	FLUORIDATION ROOM	CP-4	CONTRACTOR	CONTRACTOR
48	P-2B	FLUORIDE TRANSFER PUMP	FLUORIDATION ROOM	CP-4	CONTRACTOR	CONTRACTOR
50	SLP-1	SOLUTION PUMP	PUMP CONTROL ROOM	CP-5	CONTRACTOR	CONTRACTOR
53	SLP-2	SOLUTION PUMP (MIDVALE)	PUMP CONTROL ROOM	CP-5	CONTRACTOR	CONTRACTOR
54	CDP-2	CHEMICAL DOSING PUMP	FLUORIDATION ROOM	CP-4	CONTRACTOR	CONTRACTOR
55	MS-1	METER SOCKET	SITE	-	UTILITY COMPANY	UTILITY COMPANY
58	PMDE-1	PAD MOUNTED SWITCHGEAR	SITE	PME-1	CONTRACTOR	CONTRACTOR
59	PMDE-2	PAD MOUNTED SWITCHGEAR	SITE	PMDE-1	CONTRACTOR	CONTRACTOR
111	AM-1	ANTENNA MAST	BUILDING EXTERIOR	0	CONTRACTOR	CONTRACTOR
114	CP-7	EF CONTROL PANEL	CHLORINATION ROOM	L-18	CONTRACTOR	CONTRACTOR
120	FDS-3	FUSED DISCONNECT SWITCH	SITE	PMDE-1	CONTRACTOR	CONTRACTOR
121	PNL-H2	PANELBOARD	SITE	XFMR-T3	CONTRACTOR	CONTRACTOR
131	XFMR-T3	PAD MOUNTED TRANSFORMER	SITE	-	CONTRACTOR	CONTRACTOR
148	IWH-1	INLINE WATER HEATER	SHOWER AREA	L-15	CONTRACTOR	CONTRACTOR
151	FDS-2	FUSED DISCONNECT SWITCH	OUTSIDE	PMDE-1	CONTRACTOR	CONTRACTOR
152	XFMR-T1	PAD MOUNTED TRANSFORMER	OUTSIDE	PMDE-2	CONTRACTOR	CONTRACTOR
153	IC-1	VFD INTERRUPTING CONTACTOR	OUTSIDE	PMDE-2	CONTRACTOR	CONTRACTOR

SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
85	PSH-1	HIGH PRESSURE SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
87	ZS-10A	SYSTEM VALVE FULL OPEN SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
88	ZS-10B	SYSTEM VALVE FULL CLOSED SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
89	LSH-1	FLOOR WATER LEVEL SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
92	LSH-3	FLOOR WATER LEVEL SWITCH	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
94	LSH-5	FLOOR WATER LEVEL SWITCH	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
107	LSH-2	FLOOR WATER LEVEL SWITCH	CHLORINATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
108	VS-1	MOTOR VIBRATION SWITCH	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
118	FS-1	SHOWER FLOW SWITCH	EMERG. SHWR. ROOM	CP-1	CONTRACTOR	CONTRACTOR
133	HS-1	EX. FAN HAND OFF AUTO SELECTOR SWITCH	SHOWER AREA	CP-7	CONTRACTOR	CONTRACTOR
134	HS-2	EX. FAN HAND OFF AUTO SELECTOR SWITCH	SHOWER AREA	CP-4	CONTRACTOR	CONTRACTOR

VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
160	V-1	WASTE VALVE	PUMP CONTROL ROOM	H-14,16,18	CONTRACTOR	CONTRACTOR
162	SV-1	SOLENOID VALVE, LUBE OIL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
163	V-2	SYSTEM VALVE	PUMP CONTROL ROOM	H-20,22,24	CONTRACTOR	CONTRACTOR
164	SV-3	SOLENOID VALVE, SURGE TANK AIR FILL	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
165	SV-4	SOLENOID VALVE, SURGE TANK AIR VENT	SURGE VAULT	EE-1	CONTRACTOR	CONTRACTOR
166	SV-5	SOLENOID VALVE, TURBIDITY	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR

INSTRUMENTATION

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
62	AE-3	CONDUCTIVITY PROBE	PUMP CONTROL ROOM	AIT-3	CONTRACTOR	CONTRACTOR
63	AE-4	pH PROBE	PUMP CONTROL ROOM	AIT-4	CONTRACTOR	CONTRACTOR
64	AIT-4	pH INDICATOR/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
65	FE-1	WELL FLOW ELEMENT	PUMP CONTROL ROOM	FIT-1	CONTRACTOR	CONTRACTOR
66	FIT-1	WELL FLOW IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
67	PT-1	PRESSURE TRANSMITTER, SYSTEM	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
68	LT-1	LEVEL TRANSMITTER, WELL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
69	TIT-1	TURBIDITY IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
70	TE-1	TURBIDITY ELEMENT	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
73	DPT-1	DIFFERENTIAL PRESSURE TRANSMITTER	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
76	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
77	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
79	WIT-1A	DAY TANK WEIGHT SCALE	FLUORIDATION ROOM	L-14	CONTRACTOR	CONTRACTOR
81	WE-1A	DAY TANK SCALE ELEMENT	FLUORIDATION ROOM	WIT-1A	CONTRACTOR	CONTRACTOR
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
84	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
86	WIT-1B	DAY TANK WEIGHT SCALE	FLUORIDATION ROOM	L-16	CONTRACTOR	CONTRACTOR
104	ZT-1	WASTE VALVE POSITION TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
105	WE-1B	DAY TANK SCALE ELEMENT	FLUORIDATION ROOM	WIT-1B	CONTRACTOR	CONTRACTOR
110	AE-1	FLUORIDE GAS ANALYSIS ELEMENT	FLUORIDATION ROOM	ASH-1	CONTRACTOR	CONTRACTOR
112	AAH-1	FLUORIDE LEAK ALARM	PUMP CONTROL ROOM	L-22	CONTRACTOR	CONTRACTOR
127	FE/FIT-2A	FLUORIDE FLOW INDICATOR/TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
128	FE/FIT-2B	FLUORIDE FLOW INDICATOR TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
129	FE/FIT-3	CHLORINE FLOW INDICATOR/TRANSMITTER	CHLORINATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
171	LDS-1	CONTAINMENT TRENCH LEAK DETECTION SENSOR	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
173	TIT-1	ROOM TEMPERATURE INDICATING/TRANSMITTER	PUMP CONTROL ROOM	CP-1	CONTRACTOR	CONTRACTOR
175	TIT-2	ROOM TEMPERATURE INDICATING/TRANSMITTER	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
176	TIT-3	ROOM TEMPERATURE INDICATING/TRANSMITTER	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
177	TIT-4	ROOM TEMPERATURE INDICATING/TRANSMITTER	CHLORINATION ROOM	CP-1	CONTRACTOR	CONTRACTOR

SECURITY EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	POWER SOURCE	SUPPLIED BY	INSTALLED BY
95	ZS-1A	DOOR POSITION SWITCH	PUMP ROOM VEST.	CP-1	CONTRACTOR	CONTRACTOR
96	ZS-1B	DOOR POSITION SWITCH	PUMP ROOM VEST.	CP-1	CONTRACTOR	CONTRACTOR
99	ZS-3A	DOOR POSITION SWITCH	CHLORINATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
100	ZS-3B	DOOR POSITION SWITCH	CHLORINATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
101	ZS-4A	DOOR POSITION SWITCH	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
102	ZS-4B	DOOR POSITION SWITCH	FLUORIDATION ROOM	CP-1	CONTRACTOR	CONTRACTOR
103	ZS-5	DOOR POSITION SWITCH	SHOWER AREA	CP-1	CONTRACTOR	CONTRACTOR
109	ZS-8	HATCH POSITION SWITCH	SURGE VAULT	CP-1	CONTRACTOR	CONTRACTOR
135	CCTV-1	270-DEG FIXED CAMERA	BUILDING EXTERIOR	CP-2	OWNER	OWNER
136	CCTV-2	270-DEG FIXED CAMERA	BUILDING EXTERIOR	CP-2	OWNER	OWNER
138	CCTV-3	270-DEG FIXED CAMERA	CHLORINATION ROOM	CP-2	OWNER	OWNER
140	IL-1A	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
141	IL-1B	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
142	IL-2A	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
143	IL-2B	INFRARED ILLUMINATOR	BUILDING EXTERIOR	CP-3	OWNER	OWNER
146	IL-3A	INFRARED ILLUMINATOR	CHLORINATION ROOM	CP-3	OWNER	OWNER
147	IL-3B	INFRARED ILLUMINATOR	CHLORINATION ROOM	CP-3	OWNER	OWNER

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

1000 EAST HVAC MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	LOCATION	EQUIPMENT RATING						DISCONNECT						STARTER		REMARKS
			VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	
AHU-1	AIR HANDLER	INDOOR	480	3		3,325	4	5	30	600	3	1	15	HARD-WIRED	INCL.	-	
EF-1	EXHAUST FAN	FLUORIDE ROOM	120	1	F	192	1.6	2	-	-	-	5-20	-	HARD-WIRED	FVNR	00	
EF-2	EXHAUST FAN	CHLORINE ROOM	120	1	F	288	2.4	3	-	-	-	5-20	-	HARD-WIRED	FVNR	00	
EF-3	EXHAUST FAN	SURGE VAULT	120	1	F	200			-	-	-	-	-	HARD-WIRED	RELAY	10A	1), 3)
ODU-1	OUTDOOR UNIG	OUTDOOR	480	3		21,948	26.4	33	60	600	3	3R	40	HARD-WIRED	INCL.	-	
UH-1	UNIT HEATER	FLUORIDE ROOM	480	3		5,000	6.01	-	30	600	3	1	NF	HARD-WIRED	INCL.	-	
UH-2	UNIT HEATER	CHLORINE ROOM	480	3		5,000	6.01	-	30	600	3	1	NF	HARD-WIRED	INCL.	-	
UH-3	UNIT HEATER	PUJMP ROOM	480	3		5,000	6.01	-	-	-	-	-	-	HARD-WIRED	INCL.	-	2)
UH-4	UNIT HEATER	PUJMP ROOM	480	3		5,000	6.01	-	-	-	-	-	-	HARD-WIRED	INCL.	-	2)
UH-5	WALL HEATER	SHOWER AREA	208	1		1,500	5.76	7.2	-	-	-	-	-	HARD-WIRED	INCL.	-	1)

NOTES: 1) PROVIDE MANUAL STARTER AS THE LOCAL DISCONNECT SWITCH. FIELD LOCATE NEAR UNIT.
2) DISCONNECT NOT REQUIRED.
3) PROVIDE STARTER IN VAULT ELECTRICAL ENCLOSURE.

1000 EAST WELL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	EQUIPMENT RATING						DISCONNECT						STARTER		REMARKS
		VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	
AC-1	AIR COMPRESSOR	480	3	3	11,626	14	-	30	600	3	1	-	HARD-WIRED	INCL.	-	
CDP-1	CHLORINE DOSING PUMP	120	1	-	1,000	8.3	-	-	-	-	5-20R	-	PLUG-CORD	N/A	-	
CDP-1	CHLORINE DOSING PUMP	120	1	-	1,000	8.3	-	-	-	-	5-20R	-	PLUG-CORD	N/A	-	
CP-1	MAIN CONTROL PANEL	120	1	-	1,000	8.33	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-2	CCTV ENCLOSURE	120	1	-	200	1.7	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-3	SECURITY ENCLOSURE	120	1	-	300	2.5	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-4	FLUORIDE CONTROL PANEL	120	1	-	3,112	25.9	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-5	SMALL MOTOR CONTROL PANEL	480	3	-	3,638	4.4	-	-	-	-	-	-	HARD-WIRED	N/A	-	
CP-7	EXHAUST FAN CONTROL PANEL	120	1		200	1.0										
EE-1	ELECTRICAL ENCLOSURE	120	1		1,586	13.2	-	-	-	-	-	-	HARD-WIRED	N/A	-	
IWH-1	INLINE WATER HEATER	120	1	-	200	-		-	-	-	-	-	HARD-WIRED	N/A		
P-1	WELL PUMP	4160	3	300	634,398	88.2	-	-	-	-	-	-	HARD-WIRED	VFD	700 HP	1)
P-2A	FLUORIDE TRANSFER PUMP	120	1	0.5	1,176	9.8	-	-	-	-	5-20R	-	PLUG-CORD			
P-2B	FLUORIDE TRANSFER PUMP	120	1	0.5	1,176	9.8	-	-	-	-	5-20R	-	PLUG-CORD			
PC-1	TABLET CHLORINATOR	208	1		2,880	13.8	-	-	-	-	-	-	HARD-WIRED	N/A	-	
SLP-1	SOLUTION PUMP	480	3	1	1,734	2.1	-	-	-	-	-	-	HARD-WIRED	FVNR	00	
SLP-2	SOLUTION PUMP	480	3	1	1,734	2.1	-	-	-	-	-	-	HARD-WIRED	FVNR	00	
SP-3	SUMP PUMP	120	1	0.5	1,176	9.8	-	-	-	-	5-20R		PLUG-CORD	INCL.	-	

NOTES: 1) REFER TO TYPICAL VFD CONTROL DIAGRAM ON E4.18

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE Inc ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
TABLES

SHEET E4.1

127.24.400

17/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. GIVEN THE CIRCUIT ID, REFER FOR WIRE AND CONDUIT REQUIREMENTS REFER TO THE CONDUIT/CONDUCTOR TABLE ON E1.2.

SHEET KEYNOTES:

1. NOT USED.

PMDE-1 NEW PAD-MOUNTED DISTRIBUTION EQUIPMENT

LOCATION: E SIDE OF EXIST EAST BUILDING | MFGR: S&C | 600 AMPS | VOLTS: 12,470
DIMENSIONS: | TYPE: PME-12 | 600 SWITCH | PHASE: 3
MOUNTING: FLOOR | NEMA: 3R | A.I.C. | WIRES: 4
FEED: BOTTOM | FED FROM: PME-1

A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
50	3	PMDE-2, NEW WELL		720,414	24,906	1	240,698	9,305	239,586	8,513	240,130	7,089
20	3	XFMR-T3, EXISTING WELL		237,285	2,576	2	78,443	2,076	80,969	500	77,873	0
	3	SPARE WAY				3						
		TOTAL WATTS:		957,699	27,482		319,141	11,381	320,555	9,013	318,003	7,089
		CONTINUOUS LOAD:		957,699								
		CONTINUOUS LOAD * 125%:		1,197,123								
		NON-CONTINUOUS LOAD:		27,482								
		DESIGN WATTS:		1,224,606								
		MIN. RATING (AMPS):		57								

XFMR-T3 NEW PAD-MOUNTED TRANSFORMER

LOCATION: E SIDE OF EXIST EAST BUILDING | 13.9 PRIMARY AMPS | PRIMARY VOLTS: 12,470
DIMENSIONS: "W x "D x "H | 359.9 SECONDARY AMPS | SECONDARY VOLTS: 480
MOUNTING: PAD MOUNTED, LIQUID FILLED | KVA: 300
FEED: BOTTOM | FED FROM: PMDE-1

DESCRIPTION	CONT. WATTS	N-CONT. WATTS	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
			PHASE LOADS					
PANELBOARD H2	237,285	2,576	78,443	2,076	80,969	500	77,873	0
TOTAL WATTS:	237,285	2,576	78,443	2,076	80,969	500	77,873	0
CONTINUOUS LOAD:	237,285							
CONTINUOUS LOAD * 125%:	296,606							
NON-CONTINUOUS LOAD:	2,576							
DESIGN WATTS:	299,182							

MDP-2 NEW MAIN DISTRIBUTION PANELBOARD

LOCATION: E SIDE OF EXIST. EAST BUILDING | MFGR: SQUARE D COMPANY | 800 AMPS | VOLTS: 480
DIMENSIONS: | TYPE: I-LINE | X M.L.O. | PHASE: 3
MOUNTING: SURFACE | NEMA: 3R | 42,000 A.I.C. | WIRES: 3
FEED: BOTTOM | FED FROM: XFMR-T3

DISC. A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
40	2	XFMR-T4, NEW PNL L2	28	3,666	2,576	1	570	2,076	3,096	500		
600	3	RVSS-1, WELL MOTOR (250 HP)	2-335	233,619	0	2	77,873	0	77,873	0	77,873	0
		TOTAL WATTS:		237,285	2,576		78,443	2,076	80,969	500	77,873	0
		CONTINUOUS LOAD:		237,285								
		CONTINUOUS LOAD * 125%:		296,606								
		NON-CONTINUOUS LOAD:		2,576								
		DESIGN WATTS:		299,182								
		MIN. RATING (AMPS):		360								

RVSS-1 EXISTING WELL MOTOR CONTROLLER (TO REMAIN)

LOCATION: EXISTING EAST BUILDING, EAST WALL | MFGR: ALLEN BRADLEY | 600 AMPS | VOLTS: 480
DIMENSIONS: | TYPE: | 600 FUSES | PHASE: 3
MOUNTING: FLOOR | NEMA: 1 | | WIRES: 3
FEED: TOP | | | FED FROM: PNL-H2

DISC. A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
600	3	WELL MOTOR RVSS (250 HP)	E	233,619	0	1	77,873	0	77,873	0	77,873	0
		SPACE				2						
		TOTAL WATTS:		233,619	0		77,873	0	77,873	0	77,873	0
		CONTINUOUS LOAD:		233,619								
		CONTINUOUS LOAD * 125%:		292,024		E	EXISTING MOTOR CORCUIT. NO CONTRACTOR WORK ANTICIPATED					
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		292,024								
		MIN. RATING (AMPS):		352								

XFMR-T4 NEW TRANSFORMER

LOCATION: EXISTING EAST BUILDING, EAST WALL | 14.9 PRIMARY AMPS | PRIMARY VOLTS: 480
DIMENSIONS: " H x "W x "D | 29.8 SECONDARY AMPS | SECONDARY VOLTS: 240/120
MOUNTING: WALL | KVA: 15
FEED: BOTTOM | FED FROM: PNL H2

DESCRIPTION	CONT. WATTS	N-CONT. WATTS	A CONT.	A N-CONT.	B CONT.	B N-CONT.
			PHASE LOADS			
PNL-L2 PANELBOARD	3,666	2,576	570	2,076	3,096	500
TOTAL WATTS:	3,666	2,576	570	2,076	3,096	500
CONTINUOUS LOAD:	3,666					
CONTINUOUS LOAD * 125%:	4,583					
NON-CONTINUOUS LOAD:	2,576					
DESIGN WATTS:	7,159					

PNL-L2 NEW PANELBOARD

LOCATION: EXISTING EAST BUILDING | MFGR: SQUARE D | 125 AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: NQ | 35 M.C.B. | PHASE: 1
MOUNTING: SURFACE | NEMA: 1 | 10,000 A.I.C. | WIRES: 3
FEED: BOTTOM | X SPD | FED FROM: XFMR-T4

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
							PHASE LOADS										
20	1	*EAST BLD LIGHTS	212	250		1	250	180			2	180		212	++VAULT RECEPTACLE	20	1
20	1	*EAST BLD HEAT	212	120		3			620	0	4		500	212	++VAULT EXHAUST FAN	20	1
20	1	*EAST BLD RECEPTACLE	212		540	5	200	540			6		200	212	++VAULT LIGHTS	20	1
20	1	*EAST BLD SCADA RTU	212	800		7			1,976	0	8		1,176	212	++VAULT SUMP PUMP (EST. 1/2 HP)	20	1
30	2	**EXISTING PANEL W IN WELL BLDG	20	120	1,356	9	120	1,356			10				SPARE	20	1
-	-	-		500	500	11			500	500	12				SPARE	20	1
	1	AVAILABLE SPACE				13	0	0			14				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				15			0	0	16				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				17	0	0			18				AVAILABLE SPACE		1
		TOTAL WATTS:		1,790	2,396		570	2,076	3,096	500		180	1,876				
		CONTINUOUS LOAD:		3,666													
		CONTINUOUS LOAD * 125%:		4,583			* EXISTING BRANCH CIRCUIT IN PUSHMATIC PANEL, RE-FED FROM PNL L2										
		NON-CONTINUOUS LOAD:		2,576			** EXISTING FEEDER FROM REMOVED 30A DISCONNECT SWITCH, RE-FED FROM PNL L2										
							++ EXISTING FEEDER FROM REMOVED FROM PNL-SERVICE, RE-FED FROM PNL L2										
		DESIGN WATTS:		7,159													
		MIN. RATING (AMPS):		30													

PNL-P EXISTING PUSHMATIC PANELBOARD (TO BE REMOVED)

LOCATION: EXISTING EAST BUILDING | MFGR: - | - AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: - | - M.C.B. | PHASE: 1
MOUNTING: EXISTING | NEMA: 1 | | WIRES: 3
FEED: EXISTING | | | FED FROM: PNL-SERVICE

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
							PHASE LOADS										
40	2	LIGHTS	E	250		1	250	540			2	540		E	RECEPTACLES	20	1
20	1	HEATER	E	120		3			920	0	4		800	E	SCADA RTU	20	1
20	1				540	5	0	540			6				SPARE	20	1
		PNL-1 (SUB-FED 30A FUSED DISCONNECT)					120	1,356	500	500							
		TOTAL WATTS:		370	540		370	2,436	1,420	500		540	800				
		CONTINUOUS LOAD:		1,170													
		CONTINUOUS LOAD * 125%:		1,463			E = EXISTING BRANCH CIRCUIT										
		NON-CONTINUOUS LOAD:		1,080			RECIRCUIT ALL BRANCH CIRCUITS TO NEW PANEL L2										
		DESIGN WATTS:		2,543													
		MIN. RATING (AMPS):		11													

PNL-W EXISTING WELL BUILDING PANEL (TO REMAIN)

LOCATION: EXISTING WELL BUILDING | MFGR: SQUARE D | AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: QO-612 | 30 M.C.B. | PHASE: 1
MOUNTING: SURFACE | NEMA: 1 | 10,000 A.I.C. | WIRES: 3
FEED: BOTTOM | X SPD | FED FROM: 30A FUSED DISCONNECT

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
							PHASE LOADS										
40	2	LIGHTS	E	120		1	120	1,176			2	1,176		E	SWAMP COOLER (EST. 1/2 HP)	20	1
20	1	COOLER	E		500	3			500	500	4		500	E	MOTOR HEATER	20	1
20	1	GFCI RECEPTACLE	E		180	5	0	180			6				AVAILABLE SPACE		1
		TOTAL WATTS:		120	680		120	1,356	500	500		1,176	500				
		CONTINUOUS LOAD:		620													
		CONTINUOUS LOAD * 125%:		775			E = EXISTING BRANCH CIRCUIT										
		NON-CONTINUOUS LOAD:		1,856			RECIRCUIT ALL BRANCH CIRCUITS TO NEW PANEL L2										
		DESIGN WATTS:		2,631													
		MIN. RATING (AMPS):		11													

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-17214-2202 — KEITH B. HEGERHORST — 9/27/24 — STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
SCHEDULES, SHT. 1

SHEET E4.2
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

PMDE-2 PAD-MOUNTED DISTRIBUTION EQUIPMENT

LOCATION: SITE | MFGR: S&C | 200 AMPS | VOLTS: 12,470
DIMENSIONS: | TYPE: VISTA 933122 | X M.L.O. | PHASE: 3
MOUNTING: FLOOR | NEMA: 3R | A.I.C. | WIRES: 3
FEED: BOTTOM | FED FROM: PMDE-1

A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
10E	3	XFMR-T1, NEW PNL MDP1	*	72,955	25,690	1	24,498	10,745	23,357	8,083	25,100	6,863
50E	3	VFD-1 WELL MOTOR CONTROLLER	*	655,685	0	2	218,562	0	218,562	0	218,562	0
		SPACE				3						
		TOTAL WATTS:		728,640	25,690		243,059	10,745	241,919	8,083	243,662	6,863
		CONTINUOUS LOAD:		728,640								
		CONTINUOUS LOAD * 125%:		910,800		* SEE POWER ONE-LINE DIAGRAM						
		NON-CONTINUOUS LOAD:		25,690								
		DESIGN WATTS:		936,490								
		MIN. RATING (AMPS):		43								

VFD-1 NEW WELL MOTOR CONTROLLER

LOCATION: PUMP CONTROL ROOM | MFGR: | 100 AMPS | VOLTS: 12,470
DIMENSIONS: | TYPE: | | PHASE: 3
MOUNTING: FLOOR | NEMA: 3R | A.I.C. | WIRES: 3
FEED: BOTTOM | FED FROM: PMDE-2

DISC. A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
50	3	WELL MOTOR (750 HP)	*	655,685	0	1	218,562	0	218,562	0	218,562	0
		SPACE				2						
		TOTAL WATTS:		655,685	0		218,562	0	218,562	0	218,562	0
		CONTINUOUS LOAD:		655,685								
		CONTINUOUS LOAD * 125%:		819,606		* SEE POWER ONE-LINE DIAGRAM						
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		819,606								
		MIN. RATING (AMPS):		38								

XFMR-T1 NEW PAD-MOUNTED TRANSFORMER

LOCATION: SITE | 5.4 PRIMARY AMPS | PRIMARY VOLTS: 12,470
DIMENSIONS: "W x "D x "H | 140.6 SECONDARY AMPS | SECONDARY VOLTS: 480
MOUNTING: PAD MOUNTED, LIQUID FILLED | KVA: 112.5
FEED: BOTTOM | FED FROM: PMDE-2

		CONT. WATTS	N-CONT. WATTS	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
				PHASE LOADS					
	PNL-MDP1 PANELBOARD	* 72,955	25,690	24,498	10,745	23,357	8,083	25,100	6,863
	TOTAL WATTS:	72,955	25,690	24,498	10,745	23,357	8,083	25,100	6,863
	CONTINUOUS LOAD:	72,955							
	CONTINUOUS LOAD * 125%:	91,193		* SEE POWER ONE-LINE DIAGRAM					
	NON-CONTINUOUS LOAD:	25,690							
	DESIGN WATTS:	116,884							

PNL-H PANELBOARD

LOCATION: PUMP CONTROL ROOM | MFGR: SQUARE D | 225 AMPS | VOLTS: 480Y/277
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: NF | 150 M.C.B. | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 22,000 A.I.C. | WIRES: 4
FEED: BOTTOM | X SPD | FED FROM: XFMR-T1

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	P
							PHASE LOADS												
50	3	CU-1 CONDENSING UNIT	36	9,743		1	12,241	2,892					2	2,892	2,498	30	XFMR T2, TRANSFORMER	25	3
-	-	-	-	9,743		3			11,279	2,100			4	2,100	1,535	-	-	-	-
-	-	-	-	9,743		5					11,823	676	6	676	2,080	-	-	-	-
20	3	UH-1 UNIT HEATER	312	1,666		7	1,666	5,813					8	5,813		30	AIR COMPRESSOR (15 HP)	40	3
-	-	-	-	1,666		9			1,666	5,813			10	5,813		-	-	-	-
-	-	-	-	1,666		11					1,666	5,813	12	5,813		-	-	-	-
20	3	UH-2 UNIT HEATER	312	1,666		13	1,666	300					14	300		312	WASTE VALVE ACTUATOR	20	3
-	-	-	-	1,666		15			1,666	300			16	300		-	-	-	-
-	-	-	-	1,666		17					1,666	300	18	300		-	-	-	-
20	3	UH-3 UNIT HEATER	312	2,500		19	2,500	300					20	300		312	SYSTEM VALVE ACTUATOR	20	3
-	-	-	-	2,500		21			2,500	300			22	300		-	-	-	-
-	-	-	-	2,500		23					2,500	300	24	300		-	-	-	-
	1	AVAILABLE SPACE				25	2,750	0					26		2,750	312	VFD VENTILATION FAN POWER	20	3
	1	AVAILABLE SPACE				27			2,750	0			28		2,750	-	-	-	-
	1	AVAILABLE SPACE				29					2,750	0	30		2,750	-	-	-	-
	1	AVAILABLE SPACE				31	1,313	0					32	0	1,313	312	CP-5 SMALL MOTOR CONTROL PANEL	20	3
	1	AVAILABLE SPACE				33			1,163	0			34	0	1,163	-	-	-	-
	1	AVAILABLE SPACE				35					1,163	0	36	0	1,163	-	-	-	-
	1	AVAILABLE SPACE				37	0	0					38				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				39			0	0			40				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				41					0	0	42				AVAILABLE SPACE		1
		TOTAL WATTS:		46,728	0		22,136	9,305	21,024	8,513	21,569	7,089		24,906	18,000				
		CONTINUOUS LOAD:		64,729															
		CONTINUOUS LOAD * 125%:		80,911															
		NON-CONTINUOUS LOAD:		24,906															
		DESIGN WATTS:		105,817															
		MIN. RATING (AMPS):		127															

CP-5 SMALL MOTOR CONTROL PANEL

LOCATION: PUMP CONTROL ROOM | TYPE: CUSTOM | N/A AMPS | VOLTS: 480
DIMENSIONS: 30" W x 12"D x 36" H | NEMA: 1 | 20 M.C.B. | PHASE: 3
MOUNTING: SURFACE | | | WIRES: 3
FEED: - | | 10,000 A.I.C. | FED FROM: PNL H

BRKR A	P	DESCRIPTION	WIRE SIZE	CONT. WATTS	NON-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
							PHASE LOADS					
10	1	CONTROL POWER	-	150		1	150	0				
15	1	SOLUTION PUMP NO. 1	312	1,744	0	2	581	0	581	0	581	0
15	1	SOLUTION PUMP NO. 2	312	1,744	0	3	581	0	581	0	581	0
						4						
		TOTAL WATTS:		3,638	0		1,313	0	1,163	0	1,163	0
		CONTINUOUS LOAD:		3,638								
		CONTINUOUS LOAD * 125%:		4,547								
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		4,547								
		MIN. RATING (AMPS):		5								

XFMR-T2 TRANSFORMER

LOCATION: PUMP CONTROL ROOM | 18.7 PRIMARY AMPS | PRIMARY VOLTS: 480
DIMENSIONS: 14.75" H x 9.75"W x 9.75"D | 43.1 SECONDARY AMPS | SECONDARY VOLTS: 208Y/120
MOUNTING: WALL | KVA: 30
FEED: BOTTOM | FED FROM: PNL H

DESCRIPTION	CONT. WATTS	N-CONT. WATTS	A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
			PHASE LOADS					
PANELBOARD L	4,855	9,452	2,698	4,332	1,707	1,670	450	3,450
TOTAL WATTS:	4,855	9,452	2,698	4,332	1,707	1,670	450	3,450
CONTINUOUS LOAD:	4,855							
CONTINUOUS LOAD * 125%:	6,069							
NON-CONTINUOUS LOAD:	9,452							
DESIGN WATTS:	15,521							

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 9/27/24 — STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
SCHEDULES, SHT. 2

SHEET E4.3
127.24.400

7/04

PNL-L PANELBOARD

LOCATION: PUMP CONTROL ROOM | MFGR: SQUARE D | 225 AMPS | VOLTS: 208Y/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: NQ | 90 M.C.B. | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 10,000 A.I.C. | WIRES: 4
FEED: BOTTOM | X SPD | FED FROM: XFMR-T2

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	BRKR P
20	1	LTS, INTERIOR	212	810	1		1,810	0					2		1,000	212	CP-1, MAIN CONTROL PANEL/RTU	20	1
20	1	LTS, EXTERIOR	212	55	3				255	0			4		200	212	CP-2, CCTV ENCLOSURE	20	1
20	1	RECPT. PUMP CONTROL ROOM	212		900	5					300	900	6		300	212	CP-3. SECURITY ENCLOSURE	20	1
20	1	RECPT. CHLORINATION ROOM	212		180	7	588	2,712					8	2,532	588	28	CP-4, FLUORIDATION RM CP	40	1
20	1	RECPT. EXTERIOR & VESTIBULE	212		720	9			1,252	720			10	0	1,252	30	EE-1, ELECTRICAL ENCLOSURE	30	2
20	2	TC-1 TABLET CHLORINATOR	212		1,440	11					0	1,620	12	180	0	-	-	-	-
-	-	-	-		1,440	13	100	1,440					14		100	212	WIT-1A MIDVALE DAY TANK SCALE	20	1
20	1	IWH-1 INLINE WATER HEATER	212		200	15			100	200			16		100	212	WIT-1B JVWCD DAY TANK SCALE	20	1
20	1	RECPT. FLUORIDATION ROOM	212		180	17					150	180	18		150	212	CP-7 CHLORINATION ROOM EF	20	1
20	1	RECPT. SHOWER AREA	212		180	19	200	180					20		200	212	VFD-1 CONTROL POWER	20	1
20	2	UH-5 SHOWER AREA UNIT HEATER	212		750	21			100	750			22		100	212	AAH-1, FLUORIDE LEAK ALARM	20	1
-	-	-	-		750	23					0	750	24				SPARE	20	1
20	1	SPARE			25		0	0					26				AVAILABLE SPACE		1
20	1	SPARE			27				0	0			28				AVAILABLE SPACE		1
	1	AVAILABLE SPACE			29						0	0	30				AVAILABLE SPACE		1
		TOTAL WATTS:		865	6,740		2,698	4,332	1,707	1,670	450	3,450		2,712	3,990				
		CONTINUOUS LOAD:		4,855															
		CONTINUOUS LOAD * 125%:		6,069															
		NON-CONTINUOUS LOAD:		9,452															
		DESIGN WATTS:		15,521															
		MIN. RATING (AMPS):		43															

EE-1 ELECTRICAL ENCLOSURE

LOCATION: SURGE TANK VAULT | MFGR: N/A | N/A AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 8"D x 24"H | TYPE: CUSTOM | 20 M.C.B. | PHASE: 1
MOUNTING: SURFACE | NEMA: 4X FIBERGLASS | | WIRES: 3
FEED: SIDE | | | FED FROM: PANELBOARD L

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS B CONT.	B N-CONT.	C CONT.	C N-CONT.
10	1	CONTROL POWER		100	1		100	0		
10	1	EF-3, EXHAUST FAN	212	150	2				150	0
20	1	SP-2, RECPT. SUMP PUMP	212	1,176	3		1,176	0		
20	1	VAULT OUTLET	212		180	4			0	180
20	1	VAULT LIGHTS	212	76	5		76	0		
20	1	AVAILABLE SPARE			6					
		TOTAL WATTS:		1,252	180		0	0	1,252	0	0	180
		CONTINUOUS LOAD:		1,252						
		CONTINUOUS LOAD * 125%:		1,565						
		NON-CONTINUOUS LOAD:		180						
		DESIGN WATTS:		1,745						
		MIN. RATING (AMPS):		7						

CP-4 FLUORIDATION ROOM CONTROL PANEL

LOCATION: CHEM. BLD, FLUORIDATION ROOM | TYPE: CUSTOM | VOLTS: 120
DIMENSIONS: 30" W x 12"D x 36" H | NEMA: 12 | PHASE: 1
MOUNTING: WALL | | WIRES: 3
FEED: BOTTOM | | FED FROM: PNL L

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	NON-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.
10	1	EXHAUST FAN	212	288	1		288	0
20	1	TRANSFER PUMP NO. 1	212		1,176	2	0	1,176
20	1	TRANSFER PUMP NO. 2	212		1,176	3	0	1,176
20	1	RECEPT. (IN CONTROL PANEL)	#12		180	4	0	180
5	1	CHL. DOSING PUMP NO. 1 POWER	#12	100		5	100	0
5	1	CHL. DOSING PUMP NO. 2 POWER	#12	100		6	100	0
10	1	CONTROL POWER	#12	100		7	100	0
		TOTAL WATTS:		588	2,532		588	2,532
		CONTINUOUS LOAD:		588				
		CONTINUOUS LOAD * 125%:		735				
		NON-CONTINUOUS LOAD:		2,532				
		DESIGN WATTS:		3,267				
		MIN. RATING (AMPS):		27				

Short-Circuit Box

Node - OH_11402001.0294005/354720

	Kmax (0 ohm)		Kmax (+Impedance)	Voltage	12.5	kV
LLL	6051		6051		R	X
LLG	5945		5945	Zth+	0.1260	0.8013
LL	5222		5222	Zth0	0.2856	1.0634
LG	5397		5397	X/R	6.36	3.72
Dist	3895.2	ft or miles				

	Ohms	PerUnit	X/R
R:	0.1959	0.1260	6.36
X:	1.2461	0.8013	
Ro:	0.4442	0.2856	
Xo:	1.6536	1.0634	

S C L

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

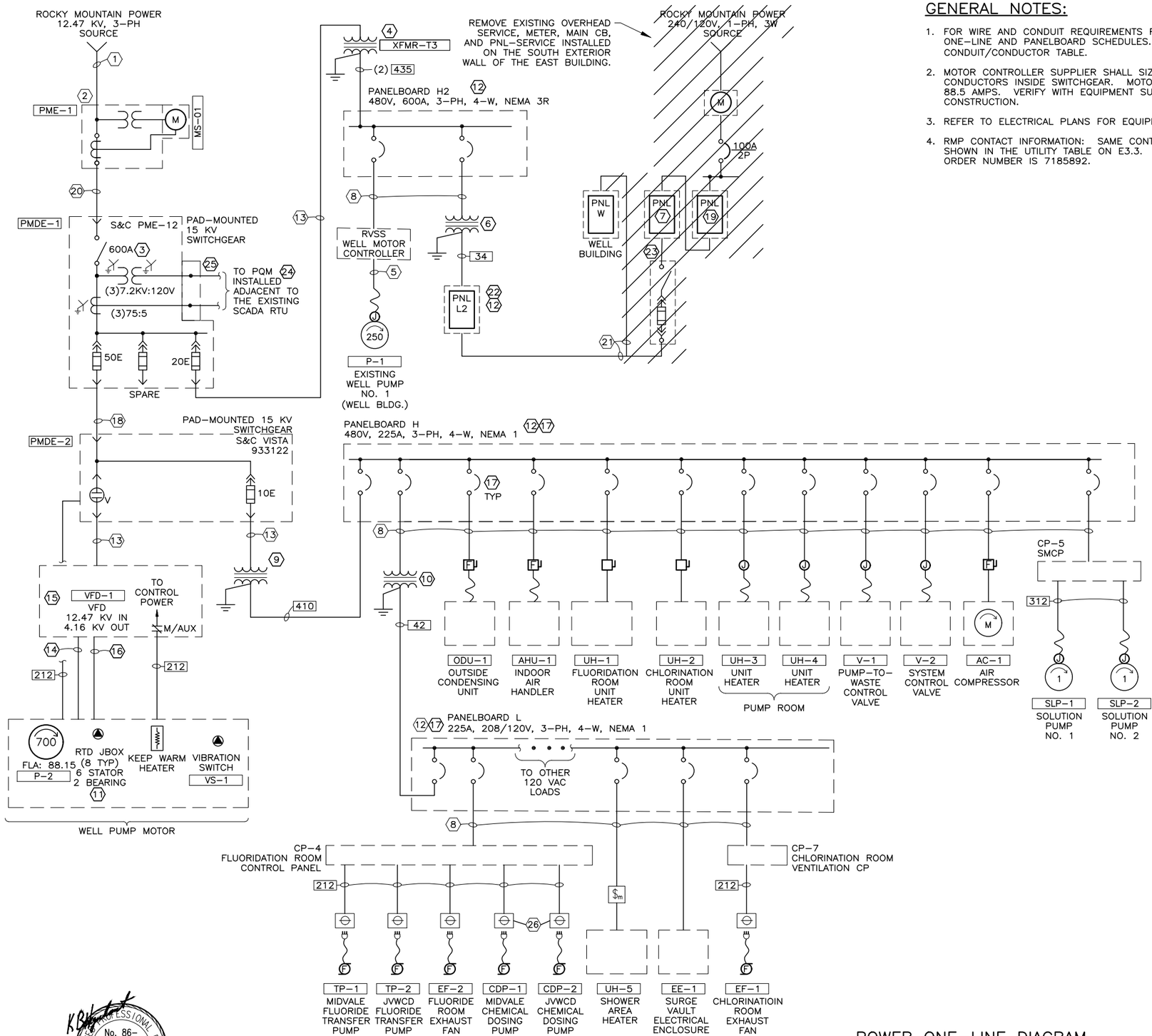
SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
SCHEDULES, SHT. 3

SHEET E4.4
127.24.400

7/04



GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE–LINE AND PANELBOARD SCHEDULES. SEE ALSO THE CONDUIT/CONDUCTOR TABLE.
2. MOTOR CONTROLLER SUPPLIER SHALL SIZE FUSES AND CONDUCTORS INSIDE SWITCHGEAR. MOTOR FLA APPR. 88.5 AMPS. VERIFY WITH EQUIPMENT SUPPLIER DURING CONSTRUCTION.
3. REFER TO ELECTRICAL PLANS FOR EQUIPMENT LOCATIONS.
4. RMP CONTACT INFORMATION: SAME CONTACT PERSON AS SHOWN IN THE UTILITY TABLE ON E3.3. THE RMP WORK ORDER NUMBER IS 7185892.

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642–2051
708 EAST 50 SOUTH FAX (801) 642–2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

SHEET KEYNOTES:

1. NEW 6–IN CONDUIT. CONDUCTOR PROVIDED AND INSTALLED BY ROCKY MOUNTAIN POWER (RMP). COORDINATE WITH RMP AS REQUIRED.AVAILABLE FAULT CURRENT INDICATED ON SHORT–CIRCUIT TABLE ON E4.4.
2. PRIMARY METERING ENCLOSURE WITH METER SOCKET: PROVIDED BY RMP. INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY RMP. PT'S AND CT'S PROVIDE BY RMP.
3. MAIN SERVICE DISCONNECT: 15 KV, 600A RATED SWITCH NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" WITH AVAILABLE FAULT CURRENT AS REQUIRED BY NEC 110.24.
4. TRANSFORMER T3: 300 KVA, OIL–FILLED PAD MOUNTED RANSFORMER, 12,470 V PRIMARY, 480Y/277 V SECONDARY.
5. EXISTING TO REMAIN. NO CONTACTOR WORK ANTICIPATED.
6. TRANSFORMER T4: 15 KVA, 480 V PRIMARY, 120/240 V SECONDARY. INSTALL IN THE EAST BUILDING NEAR THE EXISTING PUSHMATIC PANELBOARD.
7. EXISTING PUSHMATIC PANELBOARD IN EAST BUILDING TO BE REMOVED. RE–WIRE ALL BRANCH CIRCUITS TO NEW PANELBOARD L2.
8. REFER TO PANELBOARD SCHEDULE FOR CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENT ARE AS SHOWN ON THE CONDUIT/CONDUCTOR TABLE ON E1.2.
9. TRANSFORMER T1: 112.5 KVA, PAD MOUNTED, OIL–FILLED 12,470 V PRIMARY, 480/277 V SECONDARY TRANSFORMER.
10. TRANSFORMER T2: 30 KVA, 480 V PRIMARY, 208Y/120 V SECONDARY, 3–PH, 4–W.
11. MOTOR SHALL HAVE SIX WINDING AND TWO BEARING RTD'S
12. REFER TO PANEL SCHEDULES FOR ADDITIONAL PANEL INFORMATION.
13. 4"C, 3 NO. 2 CU, 15 KV SHIELDED CONDUCTORS
14. 4"C, 3 NO. 2 CU, 5 KV SHIELDED CONDUCTORS.
15. MEDIUM VOLTAGE VARIABLE FREQUENCY DRIVE (VFD) MOTOR CONTROLLER, 12,470 V INPUT, 4,160V OUTPUT, 100 AMP, 3PH, 3W, NEMA 1 ENCLOSURE
16. 1–1/2"C, 8 EA, #24TST CONDUCTORS
17. REFER TO PANELBOARD SCHEDULES FOR CB RATINGS
18. A 6–IN CONDUIT IS INSTALLED FROM NEAR THE UTILITY POLE TO A LOCATION S–E OF THE NEW WELL BUILDING. INSTALL NEW CONDUIT AS REQUIRED. INSTALL 3 NO. 2 CU, 15 KV SHIELDED CONDUCTORS.
19. EXISTING PANEL SERVICE TO BE REMOVED. RE–WIRE 4 20A/1P VAULT CIRCUITS TO PANELBOARD L2. PROVIDE NEW CONTINUOUS CONDUCTORS FROM PANELBOARD TO VAULT.
20. 4"C, 3 NO. 4/0 CU, 15 KV SHIELDED CONDUCTORS.
21. THE EXISTING PANELBOARD W (WELL) LOCATED IN THE WELL BUILDING SHALL REMAIN. RE–FEED PANEL FROM THE NEW PANELBOARD L2 IN THE EAST BUILDING.
22. NEW PANELBOARD L2. INSTALL WHERE THE PUSHMATIC PANELBOARD WAS LOCATED.
23. REMOVE THE 30A FUSED DISCONNECT.
24. THE POWER QUALITY METER (PQM) WILL BE LOCATED IN A SEPARATE ENCLOSURE NEAR THE EXISTING SCADA RTU IN THE EXISTING EAST BUILDING. CONTRACTOR TO INSTALL (2) 1" CONDUITS FROM THE PME–12 J–BOX TO THE PQM ENCLOSURE. INSTALL (4) #10 CONDUCTORS FOR THE CT CIRCUITS. INSTALL (4) #12 CONDUCTORS FOR THE PT CIRCUITS.
25. TERMINATE THE CIRCUITS IN THE PME–12 J–BOX. CT CIRCUIT SHALL TERMINATE ON A SHORTING TERMINAL BLOCK. PT CIRCUIT SHALL TERMINATE ON A STANDARD TERMINAL BLOCK. LABEL EACH TERMINAL BLOCK.
26. PROVIDE AND INSTALL A TWIST–LOCK PLUG–RECEPTACLE (L5–20) FOR THE FLUORIDE DOSING PUMPS.

PROGRESS PRINT
6–5–2024
95%
Not to be used for construction.
Hegerhorst Power Engineering, Inc.

POWER ONE–LINE DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
No. 86–171214–2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:
7/04

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

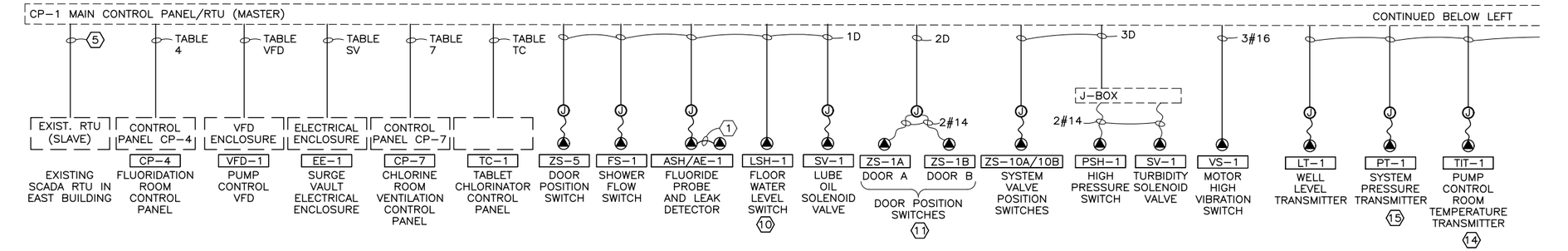
DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
POWER ONE–LINE DIAGRAM

SHEET
E4.5
127.24.400



INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAMS

I&C WIRE/CONDUIT TABLE

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1A	3/4"	1	#18TSP	1 ANALOG SIGNAL
2A	3/4"	2	#18TSP	2 ANALOG SIGNALS
3A	3/4"	3	#18TSP	3 ANALOG SIGNALS
IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1D	3/4"	2	#14	1 SIGNAL
2D	3/4"	3	#14	1 COMMON, 2 DISCRETE SIG.
3D	3/4"	4	#14	VARIES
4D	3/4"	5	#14	VARIES

TABLE 5 (CP-1 TO CP-5 SMALL MOTOR CP)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#16	+24VDC	24VDC SOURCE FROM CP-1
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	C-5 HOA IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN HAND MODE
	1	#16	+24VDC	CP-6 HOR IN REMOTE MODE
	1	#16	+24VDC	PUMP RUNNING
	1	#16	120 VAC	FUSED 120 VAC TO CP-1
	1	#16	120 VAC	SWITCHED RUN COMMAND
	3	#16	-	SPARE
1"	-		-	SPARE

TABLE TC

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO TABLET CHLORINATOR
3/4"	1	#14	+24VDC	+24VDC
	1	#14	+24VDC	CHLORINATOR FAULT
	1	#14	+24VDC	CHLORINATOR RUNNING
	4	#14	-	SPARE
	1	#14	120 VAC	COMMON
	1	#14	120 VAC	CALL FOR DOSING PUMP RUN
3/4"	1	#18TSP	4-20 mA	DOSING COMMAND
3/4"	-	-	-	PULL STRING

TABLE 7 (CP-1 TO CHLORINE ROOM CP-7)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	CHLORINE ROOM VENTILATION CP SIGNAL DESCRIPTION
3/4"	1	#16	+24VDC	SOURCE FROM CP-1
	1	#16	+24VDC	EF-2 HOA IN HAND
	1	#16	+24VDC	EF-2 HOA IN AUTO
	1	#16	+24VDC	EF-2 ON
	1	#16	120 VAC	SOURCE FROM CP-1
	1	#16	120 VAC	CALL FOR EF-2 RUN
	2	#16	-	SPARE

TABLE VFD

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO VFD
1"	1	#14	+24VDC	+24VDC
	1	#14	+24VDC	MOTOR HIGH T. SHUTDOWN
	1	#14	+24VDC	VFD FAULT
	1	#14	+24VDC	VFD HAND START
	1	#14	+24VDC	VFD HAND STOP
	1	#14	+24VDC	VFD HOA IN AUTO
	1	#14	+24VDC	VFD HOA IN HAND
	1	#14	+24VDC	VFD RUNNING
	1	#14	+24VDC	VFD TRANSFORMER HIGH TEMP.
	1	#14	120 VAC	120V RETURN
	1	#14	120 VAC	VFD CALL RUN
	2	#14		SPARE
3/4"	1	#18TSP		VFD RUNNING SPEED
	1	#18TSP		VFD COMMAND SPEED
3/4"	1	RS485		BELDEN 9842 (TEMP. MONITOR)
3/4"	1	CAT6U		ETHERNET
3/4"	-	-		PULL STRING

TABLE SV (CP-1 TO SURGE VAULT)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO SURGE VAULT
3/4"	1	#14	+24VDC	SOURCE FROM CP-1
	1	#14	+24VDC	EF-3 EXHAUST FAN RUN
	1	#14	+24VDC	LSH-5 VAULT FLOOD SWITCH
	1	#14	+24VDC	ZS-8 ACCESS HATCH POSITION SW.
	1	#14	120 VAC	SV-4 AIR RELEASE SOL. VALVE OPEN
	1	#14	120 VAC	SV-3 AIR SUPPLY SOL. VALVE OPEN
	1	#14	120 VAC	120 VAC COMMON
3/4"	1	#16TSP	#16TSP	DPT-1 DIFFERENTIAL PRESSURE TRANS.

TABLE 5 (CP-4 TO SMALL MOTOR CP-5)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#14	120 N	P1 120V NEUTRAL
	1	#14	120VAC	P1 FUSED 120 VAC
	1	#14	120VAC	P1 HOA AUTO MODE
	1	#14	120VAC	P1 HOA HAND MODE
	1	#14	120VAC	P1 HOR IN REMOTE MODE
	1	#14	120VAC	P1 NOT RUNNING
	1	#14	120VAC	P1 PUMP RUNNING
	1	#14	120 N	P2 120V NEUTRAL
	1	#14	120VAC	P2 FUSED 120 VAC
	1	#14	120VAC	P2 HOA AUTO MODE
	1	#14	120VAC	P2 HOA HAND MODE
	1	#14	120VAC	P2 HOR IN REMOTE MODE
	1	#14	120VAC	P2 NOT RUNNING
	1	#14	120VAC	P2 PUMP RUNNING
	4	#14		SPARES

TABLE 4 (CP-1 TO FLUORIDATION RM CP-4)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1-1/2"	1	#16	+24VDC	CONTAINEMNT TRENCH HIGH LEVEL ALARM
	1	#16	+24VDC	EF HOA IN AUTO MODE
	1	#16	+24VDC	EF HOA IN HAND MODE
	1	#16	+24VDC	EXHAUST FAN ON
	1	#16	+24VDC	JVWCD TP HOA IN AUTO MODE
	1	#16	+24VDC	JVWCD TP HOA IN HAND MODE
	1	#16	+24VDC	JVWCD TRANSFER PUYMP ON
	1	#16	+24VDC	MIDVALE TP HOA IN HAND MODE
	1	#16	+24VDC	MIDVALE TRANSFER PUMP ON
	1	#16	+24VDC	MIDVALE TP HOA IN AUTO MODE
	1	#16	+24VDC	SOURCE FROM CP-1
	1	#16	+24VDC	MIDVALE FLUORIDE FIT DC POWER
	1	#16	+24VDC	MIDVALE FLUORIDE FIT DC RETURN
	1	#16	+24VDC	JVWCD FLUORIDE FIT DC POWER
	1	#16	+24VDC	JVWCD FLUORIDE FIT DC RETURN
	1	#16	120 VAC	EXHAUST FAN COMMAND RUN
	1	#16	120 VAC	JVWCD DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	JVWCD TRANSFER PUMP COMMAND RUN
	1	#16	120 VAC	MIDVALE DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	MIDVALE TRANSFER PUMP COMMAND RUN
	1	#16	120 VAC	SOURCE FROM CP-1
	6	#16	-	SPARE
1-1/2"	1	#18TSP	4-20 mA	JVWCD DAY TANK LEVEL (RADAR)
	1	#18TSP	4-20 mA	JVWCD DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	JVWCD DOSING PUMP DOSE RATE
	1	#18TSP	4-20 mA	MIDVALE DAY TAMIL LEVEL (RADAR)
	1	#18TSP	4-20 mA	MIDVALE DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	MIDVALE DOSING PUMP DOSE RATE
	1	#18TSP	4-20 mA	ROOM TEMPERATURE
	1	#18TSP	4-20 mA	STORAGE TANK LEVEL (RADAR)
1"C	1	RS485	MODBUS	MIDVALE FLOW METER
	1	RS485	MODBUS	JVWCD FLOW METER
1"C	-		-	SPARE

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR DEVICE AND EQUIPMENT LOCATIONS REFER TO INSTRUMENTATION AND CONTROL PLAN SHEET E4.8.
2. ALL CONDUIT SHALL BE 3/4", EXCEPT AS NOTED. CONDUITS TO BE ROUTED AT CONTRACTORS OPTION.

SHEET KEYNOTES:

1. VENDOR SUPPLIED CABLE, INSTALLED BY CONTRACTOR.
2. INSTALL ANALOG CONDUCTORS FROM FIELD DEVICE TO CP-1 VIA CP-4 WITHOUT TERMINATING IN THE CHEMICAL ROOM CONTROL PANEL.
3. WIRE TO PUMP EXTERNAL STOP.
4. INSTALL RECEPTACLE WITHIN 55 INCHES OF DOSING PUMP.
5. 2"C, CONDUIT WITH TWO FIBER OPTIC CABLES: 6 STRAND 62.5/125 MICROMETER MULTIMODE OPTICAL CABLE CORPORATION DX06-0550 SERIES. TERMINATE ALL FIBERS WITH ST CONNECTORS. TEST TERMINATED FIBERS AND PROVIDE RESULTS TO JVWCD.
6. 1"C BY CONTRACTOR, CAT 6 CONDUCTOR.
7. SHOWN FOR DAY TANK NO. 1. DUPLICATE FOR DAY TAN NO. 2.
8. 1-1/4"C, CONDUCTORS PROVIDED BY FLOW METER SUPPLIER, INSTALLED BY CONTRACTOR.
9. 3/4"C, INSTALL BELDEN 9841 CONDUCTOR (#14TSP - MODBUS). INSTALL 2#16 DC POWER TO FLOW METER.
10. SHOWN FOR PUMP ROOM FLOOD SWITCH LSH-1. DUPLICATE FOR SHOWER ROOM FLOOD SWITCH LSH-3, AND CHLORINATION ROOM FLOOD SWITCH LSH-2.
11. SHOWN FOR PUMP ROOM DOOR POSITION SWITCHES ZS-1A/1B. DUPLICATE FOR FLUORIDATION ROOM DOOR SWITCHES ZS-3A/3B AND CHLORINATION ROOM DOOR SWITCHES ZS-4A/4B.
12. SHOWN FOR EXTERNAL CAMERA 1 CCTV-1. DUPLICATE FOR EXTERNAL CAMERA 2 CCTV-2.
13. SHOWN FOR EXTERNAL ILLUMINATORS IL 1A & 1B. DUPLICATE FOR EXTERNAL ILLUMINATORS IL-2A/2B AND INTERNAL ILLUMINATORS IL-3A/3B.
14. SHOWN FOR PUMP ROOM TEMPERATURE INDICATING/ TRANSMITTER TIT-1. DUPLICATE FOR SHOWER AREA TEMPERATURE INDICATING/TRANSMITTER TT-3 AND AND CHLORINE ROOM TEMPERATURE INDICATING/TRANSMITTER TT-4.
15. SHOWN FOR SYSTEM PRESSURE TRANSMITTER PT-1. DUPLICATE FOR FLUORIDATION SYSTEM PRESSURE TRANSMITTER. PT-2.
16. NOT USED.
17. SHOWN FOR MIDVALE DOSING PUMP CDP-1. DUPLICATE FOR JVWCD DOSING PUMP CDP-2.
18. SHOWN FOR DAY TANK NO. 1 RADAR LEVEL LIT-1A. DUPLICATE FOR DAY TANK NO. 2 RADAR LEVEL LIT-1B.
19. 1-TSP FOR VALVE POSITION COMMAND, 1-TSP FOR VALVE POSITION.
20. SHOWN FOR FLUORIDE FLOW INDICATOR/TRANSMITTER FIT-2A. DUPLICATE FOR FLUORIDE FLOW INDICATOR/ TRANSMITTER FIT-2B AND CHLORINE FLOW INDICATOR/TRANSMITTER FIT-3. 24VDC POWER SUPPLIED TO FLOW METER FROM CP-1 VIA ONE TSP CONDUCTOR.
21. DEVICE IS DUAL CHANNEL, CONDUCTIVITY AND TEMPERATURE. OWNER WILL NOT MONITOR TEMPERATURE.
22. SHOWN FOR MIDVALE FLUORIDE FLOW METER FE/FIT-2A. DUPLICATE FOR JVWCD FLUORIDE FLOW METER FE/FIT-2B.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL - 1000 EAST
INST. & CONTROL ONE-LINE DIAGRAM

SHEET E4.6
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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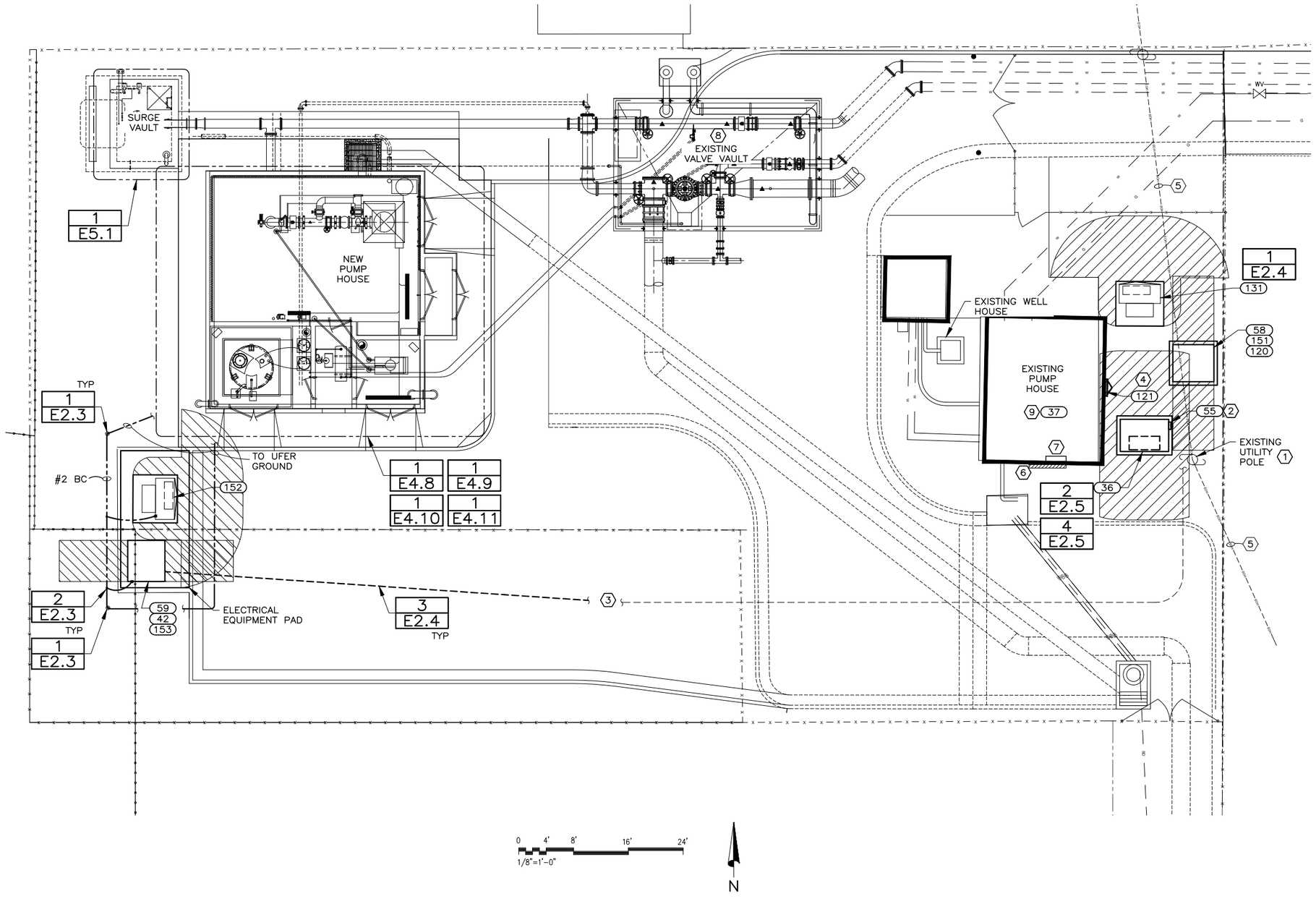
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



1000 EAST SITE PLAN ITEM LIST (E4.7)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
36	PME-1	PRIMARY METERING EQUIPMENT	UTILITY	SITE
37	XFMR-T4	TRANSFORMER (480Y/277V)	H2-1	EAST BUILDING
42	FDS-1	TRANSFORMER FEEDER DISCONNECT	PMDE-2	SITE
55	MS-1	METER SOCKET	-	SITE
58	PMDE-1	PAD MOUNTED SWITCHGEAR	PME-1	SITE
59	PMDE-2	PAD MOUNTED SWITCHGEAR	PMDE-1	SITE
120	FDS-3	FUSED DISCONNECT SWITCH	PMDE-1	SITE
121	PNL-H2	PANELBOARD	XFMR-T3	SITE
131	XFMR-T3	PAD MOUNTED TRANSFORMER	-	SITE
151	FDS-2	FUSED DISCONNECT SWITCH	PMDE-1	OUTSIDE
152	XFMR-T1	PAD MOUNTED TRANSFORMER	PMDE-2	OUTSIDE
153	IC-1	VFD INTERRUPTING CONTACTOR	PMDE-2	OUTSIDE

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE-LINE AND PANELBOARD SCHEDULES FOR THE CIRCUIT ID, THEN REFER TO THE CONDUIT/CONDUCTOR TABLE ON E1.1 FOR THE CONDUIT AND WIRE REQUIREMENTS.
2. NOT ALL CONDUIT IS SHOWN ON THIS PLAN.
3. REFER TO CIVIL SITE PLAN FOR ADDITIONAL SITE DETAILS.

SHEET KEYNOTES:

1. UTILITY POLE TO REMAIN. COORDINATE WITH ROCKY MOUNTAIN POWER (RMP) TO REMOVE OVERHEAD SERVICE CONDUCTORS AND INSTALL CONDUIT RISER FOR NEW SERVICE CONDUCTORS TO THE PAD MOUNTED METERING EQUIPMENT.
2. PRIMARY METERING EQUIPMENT: PROVIDED BY RMP AND INSTALLED BY CONTRACTOR. PROVIDE EXTERNAL MOUNTED METER SOCKET AS REQUIRED BY RMP. RMP TO PROVIDE INTERNAL PT'S, CT'S AND UTILITY METER. RMP TO PROVIDE AND INSTALL CONDUCTORS FROM POLE TO EQUIPMENT.
3. THERE IS AN EXISTING 6-IN CONDUIT BURIED CONDUIT FROM APPROXIMATELY THIS LOCATION TO THE UTILITY POLE AREA. EAST SITE TASK: CONTRACTOR SHALL EXPOSE AND EXTEND THE CONDUIT TO THE PAD MOUNTED SWITCHGEAR PMS-1. WEST SITE TASK: EXPOSE AND EXTEND CONDUIT UNDERGROUND TO THE PAD MOUNTED SWITCHGEAR PMS-2. PROVIDE, INSTALL AND TERMINATE CONDUCTORS AS SHOWN ON THE ONE-LINE DIAGRAM.
4. COORDINATE WITH RMP TO REMOVE THE EXISTING BUILDING OVERHEAD SERVICE TO THE UTILITY POLE. REMOVE THE EXISTING CT ENCLOSURE. INSTALL PANELBOARD H NEAR THE SAME LOCATION. RE-FEED MOTOR CONTROLLER INSIDE THE EXISTING BUILDING AND MAINTAIN ELECTRICAL INTEGRITY FOR THE BUILDING.
5. EXISTING OVERHEAD UTILITY POWER TO REMAIN.
6. AFTER THE NEW SERVICE AND EQUIPMENT IS INSTALLED, REMOVE THE OVERHEAD 120/240 V SERVICE TO THE EXISTING BUILDING SOUTH WALL.
7. APPROXIMATE LOCATION OF THE SCADA RTU ENCLOSURE IN THE EAST BUILDING.
8. NO CONTRACTOR WORK ANTICIPATED IN VAULT.
9. SEE E4.5 KEYNOTE 6.

FILE NAME:
FILE DATE:

STATE OF UTAH REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

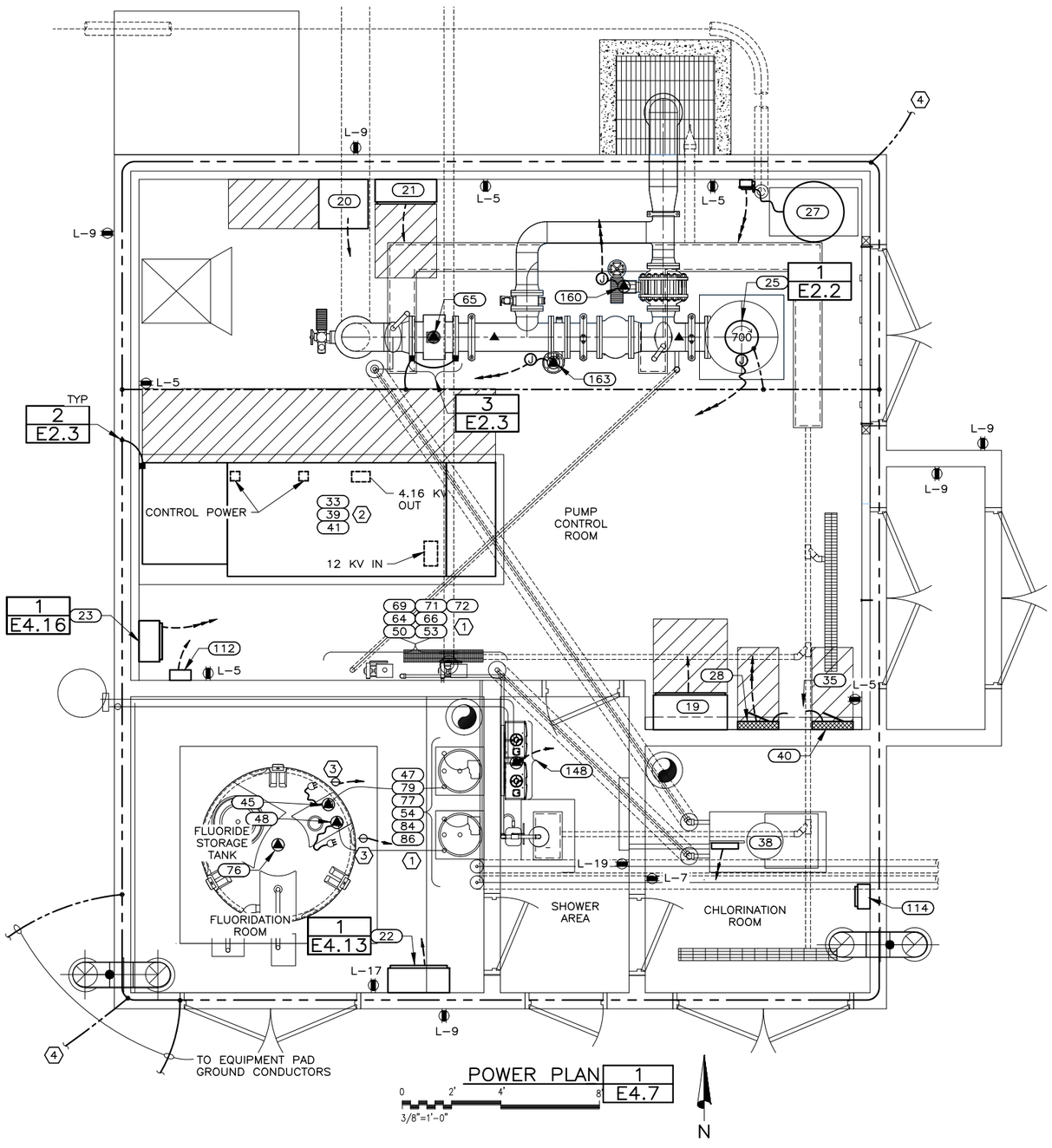
SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
SITE PLAN

SHEET E4.7
127.24.400

7/04



1000 EAST POWER PLAN ITEM LIST (E4.7)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
20	CP-2	CCTV ENCLOSURE	L-4	PUMP CONTROL ROOM
21	CP-3	SECURITY ENCLOSURE	L-6	PUMP CONTROL ROOM
22	CP-4	FLUORIDE CONTROL PANEL	L-8	FLUORIDATION ROOM
23	CP-5	SMALL MOTOR CONTROL PANEL	H-32,34,26	PUMP CONTROL ROOM
25	P-1	WELL PUMP	VFD-1	PUMP CONTROL ROOM
27	AC-1	AIR COMPRESSOR	H-8,10,12	PUMP CONTROL ROOM
28	PNL-H	PANELBOARD	XFMR-T1	PUMP CONTROL ROOM
33	VFD-1	VARIABLE FREQUENCY CONTROLLER	PMDE-2	PUMP CONTROL ROOM
35	XFMR-T2	TRANSFORMER (208Y/120V)	H-2,4,6	PUMP CONTROL ROOM
38	TC-1	TABLET CHLORINATOR	L-11,13	CHLORINATION ROOM
39	VFD-1	VFD-1 VENTILATION FAN POWER	H-26,28,30	PUMP CONTROL ROOM
40	PNL-L	PANELBOARD	XFMR-T2	PUMP CONTROL ROOM
41	VFD-1	VFD-1 CONTROL POWER	L-10,12	PUMP CONTROL ROOM
45	P-2A	FLUORIDE TRANSFER PUMP	CP-4	FLUORIDATION ROOM
47	CDP-1	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
48	P-2B	FLUORIDE TRANSFER PUMP	CP-4	FLUORIDATION ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
53	SLP-2	SOLUTION PUMP (MIDVALE)	CP-5	PUMP CONTROL ROOM
54	CDP-2	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
65	FE-1	WELL FLOW ELEMENT	FIT-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
76	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
77	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
79	WIT-1A	DAY TANK WEIGHT SCALE	L-14	FLUORIDATION ROOM
84	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
86	WIT-1B	DAY TANK WEIGHT SCALE	L-16	FLUORIDATION ROOM
112	AAH-1	FLUORIDE LEAK ALARM	L-22	PUMP CONTROL ROOM
114	CP-7	EF CONTROL PANEL	L-18	CHLORINATION ROOM
148	IWH-1	INLINE WATER HEATER	L-15	SHOWER AREA
160	V-1	WASTE VALVE	H-14,16,18	PUMP CONTROL ROOM
163	V-2	SYSTEM VALVE	H-20,22,24	PUMP CONTROL ROOM

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AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" FOR EACH DEVICE IS LISTED IN THE ITEM TABLE ON THIS SHEET. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE-LINE AND PANELBOARD SCHEDULES FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
2. PLAN IS DIAGRAMMATIC. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS FOR CONDUIT LOCATIONS PRIOR TO CONDUIT ROUGH-IN.
3. INSTALL ALL INTERIOR RECEPTACLES AT +36-IN ABOVE FINISHED FLOOR. INSTALL ALL EXTERIOR RECEPTACLES AT +18-IN ABOVE FINISHED SURFACE AND PROVIDE AN IN-SERVICE W/P COVER.
4. MEDIUM VOLTAGE VFD FLOOR PLAN IS FOR A TMIEC VFD. IF OTHER MANUFACTURER UNIT IS SUPPLIED, CONTRACTOR SHALL MODIFY DIMENSIONS AND CONDUIT LOCATIONS AS REQUIRED.

SHEET KEYNOTES:

1. POWER FOR DEVICES ON INSTRUMENTATION WALL AND DAY TANK AREA SHOWN ON E4.12.
2. VFD REQUIRES SEPARATE 480 VAC POWER SOURCE FOR VENTILATION FANS AND 120 VAC FOR CONTROL POWER. REFER TO ITEM LIST FOR POWER SOURCE.
3. PROVIDE A NEMA L5-20 TWIST LOCK RECEPTACLE INSTALLED +48" AFF ON A STRUT SUPPORT.
4. TO ROOF LIGHTNING PROTECTION SYSTEM. REFER TO E6.3.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

HANSEN ALLEN & LUCE inc ENGINEERS

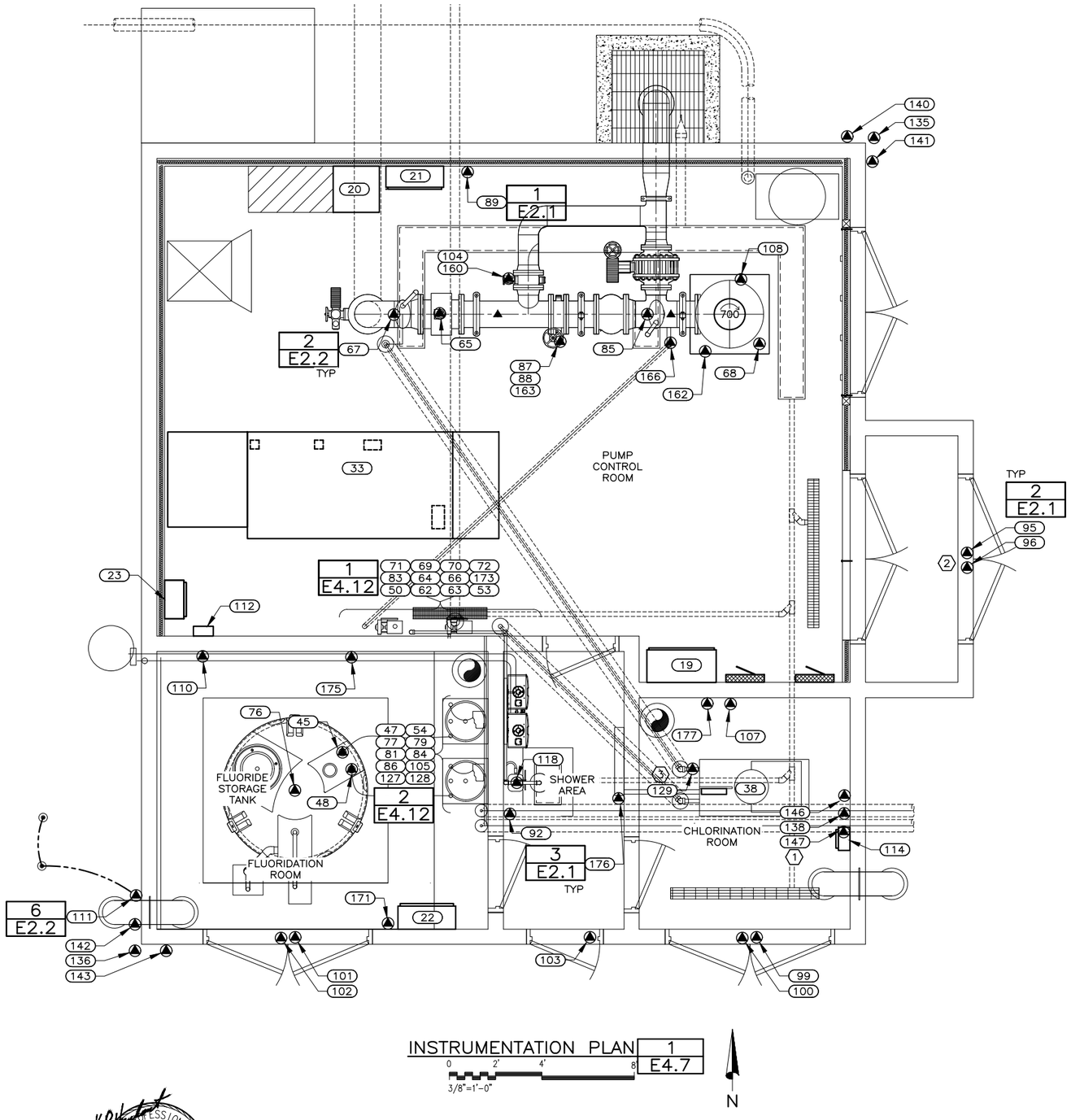
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
POWER PLAN

SHEET E4.8
127.24.400

7/04



INSTRUMENTATION PLAN 1 / E4.7

3/8"=1'-0"

1000 EAST INSTR. & CONTROL PLAN ITEM LIST (E4.8)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
20	CP-2	CCTV ENCLOSURE	L-4	PUMP CONTROL ROOM
21	CP-3	SECURITY ENCLOSURE	L-6	PUMP CONTROL ROOM
22	CP-4	FLUORIDE CONTROL PANEL	L-8	FLUORIDATION ROOM
23	CP-5	SMALL MOTOR CONTROL PANEL	H-32,34,26	PUMP CONTROL ROOM
33	VFD-1	VARIABLE FREQUENCY CONTROLLER	PMDE-2	PUMP CONTROL ROOM
38	TC-1	TABLET CHLORINATOR	L-11,13	CHLORINATION ROOM
45	P-2A	FLUORIDE TRANSFER PUMP	CP-4	FLUORIDATION ROOM
47	CDP-1	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
48	P-2B	FLUORIDE TRANSFER PUMP	CP-4	FLUORIDATION ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
53	SLP-2	SOLUTION PUMP (MIDVALE)	CP-5	PUMP CONTROL ROOM
54	CDP-2	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
62	AE-3	CONDUCTIVITY PROBE	AIT-3	PUMP CONTROL ROOM
63	AE-4	pH PROBE	AIT-4	PUMP CONTROL ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
65	FE-1	WELL FLOW ELEMENT	FIT-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
67	PT-1	PRESSURE TRANSMITTER, SYSTEM	CP-1	PUMP CONTROL ROOM
68	LT-1	LEVEL TRANSMITTER, WELL	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
70	TE-1	TURBIDITY ELEMENT	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
76	LIT-1	STORAGE TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
77	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
79	WIT-1A	DAY TANK WEIGHT SCALE	L-14	FLUORIDATION ROOM
81	WE-1A	DAY TANK SCALE ELEMENT	WIT-1A	FLUORIDATION ROOM
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	CP-1	PUMP CONTROL ROOM
84	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
85	PSH-1	HIGH PRESSURE SWITCH	CP-1	PUMP CONTROL ROOM
86	WIT-1B	DAY TANK WEIGHT SCALE	L-16	FLUORIDATION ROOM
87	ZS-10A	SYSTEM VALVE FULL OPEN SWITCH	CP-1	PUMP CONTROL ROOM
88	ZS-10B	SYSTEM VALVE FULL CLOSED SWITCH	CP-1	PUMP CONTROL ROOM
89	LSH-1	FLOOR WATER LEVEL SWITCH	CP-1	PUMP CONTROL ROOM
92	LSH-3	FLOOR WATER LEVEL SWITCH	CP-1	SHOWER AREA
95	ZS-1A	DOOR POSITION SWITCH	CP-1	PUMP ROOM VEST.
96	ZS-1B	DOOR POSITION SWITCH	CP-1	PUMP ROOM VEST.
99	ZS-3A	DOOR POSITION SWITCH	CP-1	CHLORINATION ROOM
100	ZS-3B	DOOR POSITION SWITCH	CP-1	CHLORINATION ROOM
101	ZS-4A	DOOR POSITION SWITCH	CP-1	FLUORIDATION ROOM
102	ZS-4B	DOOR POSITION SWITCH	CP-1	FLUORIDATION ROOM
103	ZS-5	DOOR POSITION SWITCH	CP-1	SHOWER AREA
104	ZT-1	WASTE VALVE POSITION TRANSMITTER	CP-1	PUMP CONTROL ROOM
105	WE-1B	DAY TANK SCALE ELEMENT	WIT-1B	FLUORIDATION ROOM
107	LSH-2	FLOOR WATER LEVEL SWITCH	CP-1	CHLORINATION ROOM
108	VS-1	MOTOR VIBRATION SWITCH	CP-1	PUMP CONTROL ROOM
110	AE-1	FLUORIDE GAS ANALYSIS ELEMENT	ASH-1	FLUORIDATION ROOM
111	AM-1	ANTENNA MAST	0	BUILDING EXTERIOR
112	AAH-1	FLUORIDE LEAK ALARM	L-22	PUMP CONTROL ROOM
114	CP-7	EF CONTROL PANEL	L-18	CHLORINATION ROOM
118	FS-1	SHOWER FLOW SWITCH	CP-1	EMERG. SHWR. ROOM
127	FE/FIT-2A	FLUORIDE FLOW INDICATOR/TRANSMITTER	CP-1	FLUORIDATION ROOM
128	FE/FIT-2B	FLUORIDE FLOW INDICATOR TRANSMITTER	CP-1	FLUORIDATION ROOM
129	FE/FIT-3	CHLORINE FLOW INDICATOR/TRANSMITTER	CP-1	CHLORINATION ROOM
135	CCTV-1	270-DEG FIXED CAMERA	CP-2	BUILDING EXTERIOR
136	CCTV-2	270-DEG FIXED CAMERA	CP-2	BUILDING EXTERIOR
138	CCTV-3	270-DEG FIXED CAMERA	CP-2	CHLORINATION ROOM
140	IL-1A	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
141	IL-1B	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
142	IL-2A	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
143	IL-2B	INFRARED ILLUMINATOR	CP-3	BUILDING EXTERIOR
146	IL-3A	INFRARED ILLUMINATOR	CP-3	CHLORINATION ROOM
147	IL-3B	INFRARED ILLUMINATOR	CP-3	CHLORINATION ROOM
160	V-1	WASTE VALVE	H-14,16,18	PUMP CONTROL ROOM
162	SV-1	SOLENOID VALVE, LUBE OIL	CP-1	PUMP CONTROL ROOM
163	V-2	SYSTEM VALVE	H-20,22,24	PUMP CONTROL ROOM
166	SV-5	SOLENOID VALVE, TURBIDITY	CP-1	PUMP CONTROL ROOM
171	LDS-1	CONTAINMENT TRENCH LEAK DETECTION SENSOR	CP-1	FLUORIDATION ROOM
173	TIT-1	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	PUMP CONTROL ROOM
175	TIT-2	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	FLUORIDATION ROOM
176	TIT-3	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	SHOWER AREA
177	TIT-4	ROOM TEMPERATURE INDICATING/TRANSMITTER	CP-1	CHLORINATION ROOM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM ON E4.5.
2. LOCATIONS OF DEVICES SHOWN AT THE PUMP IS DIAGRAMMATIC. VERIFY ACTUAL LOCATION DURING CONSTRUCTION PRIOR TO CONDUIT ROUGH-IN.

SHEET KEYNOTES:

1. INSTALL ILLUMINATOR ABOVE CONTROL PANEL.
2. THIS SET OF DOUBLE DOORS WILL HAVE A REMOVABLE TRANSOM ABOVE THE DOOR FRAME. MODIFY LOCATION OF J-BOX AS REQUIRED.
3. PRIOR TO CONDUIT ROUGH-IN VERIFY ACTUAL LOCATION OF THE CHLORINE FLOW METER DURING CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
INST. & CONTROL PLAN

SHEET E4.9

127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

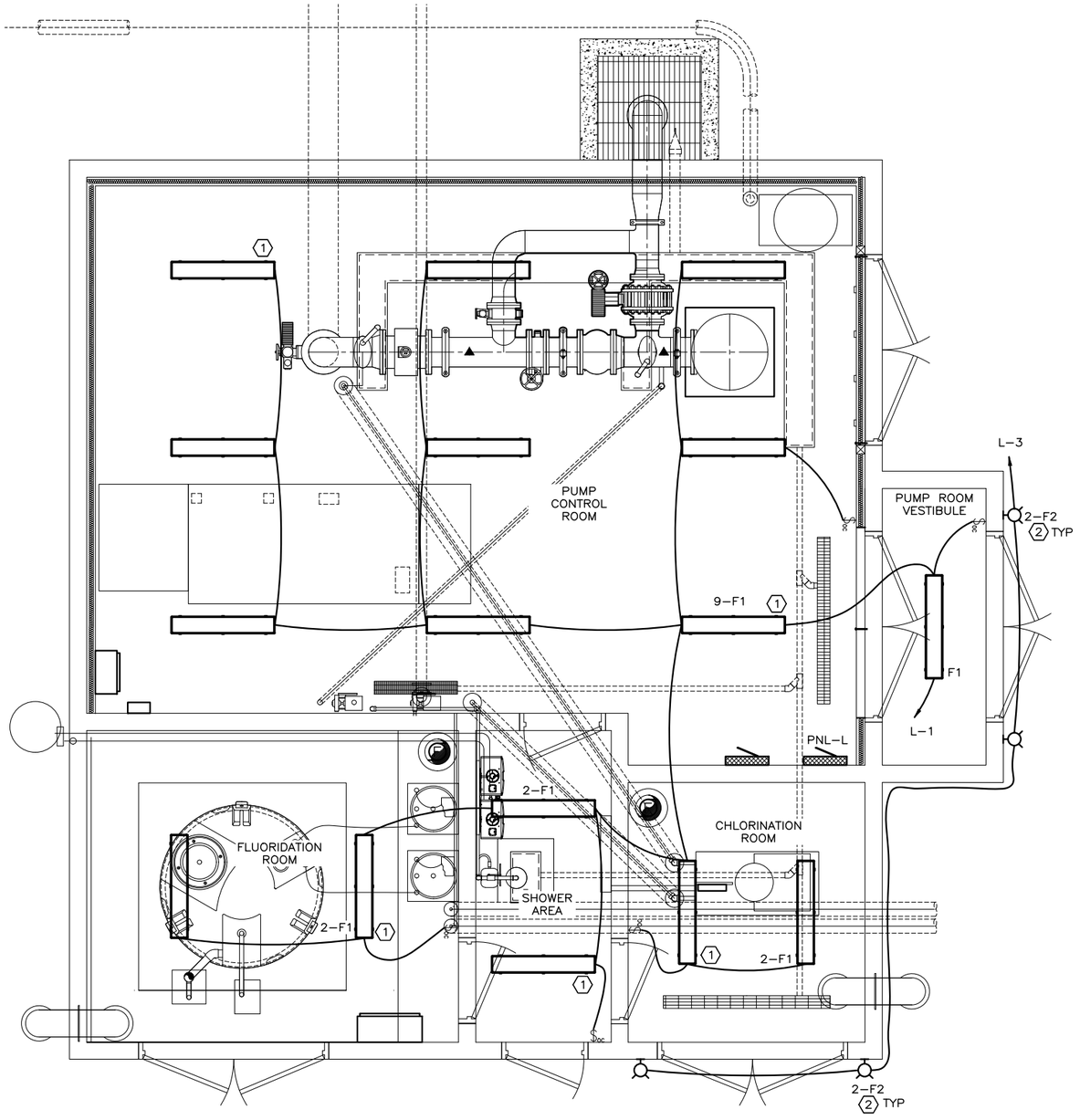
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO PANELBOARD SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE PROVIDED ON THE CONDUIT/CONDUCTOR TABLE ON E1.1 SEE ALSO THE CONDUIT/CONDUCTOR TABLE.
2. FIXTURE SCHEDULE LOCATED ON E1.3.

SHEET KEYNOTES:

1. PROVIDE FIXTURE WITH A 90-MINUTE EMERGENCY POWER BATTERY.
2. INSTALL FIXTURE 6-IN ABOVE TOP OF DOOR.



LIGHTING PLAN 1 / E4.7

0 2' 4' 8'
3/8"=1'-0"

N

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

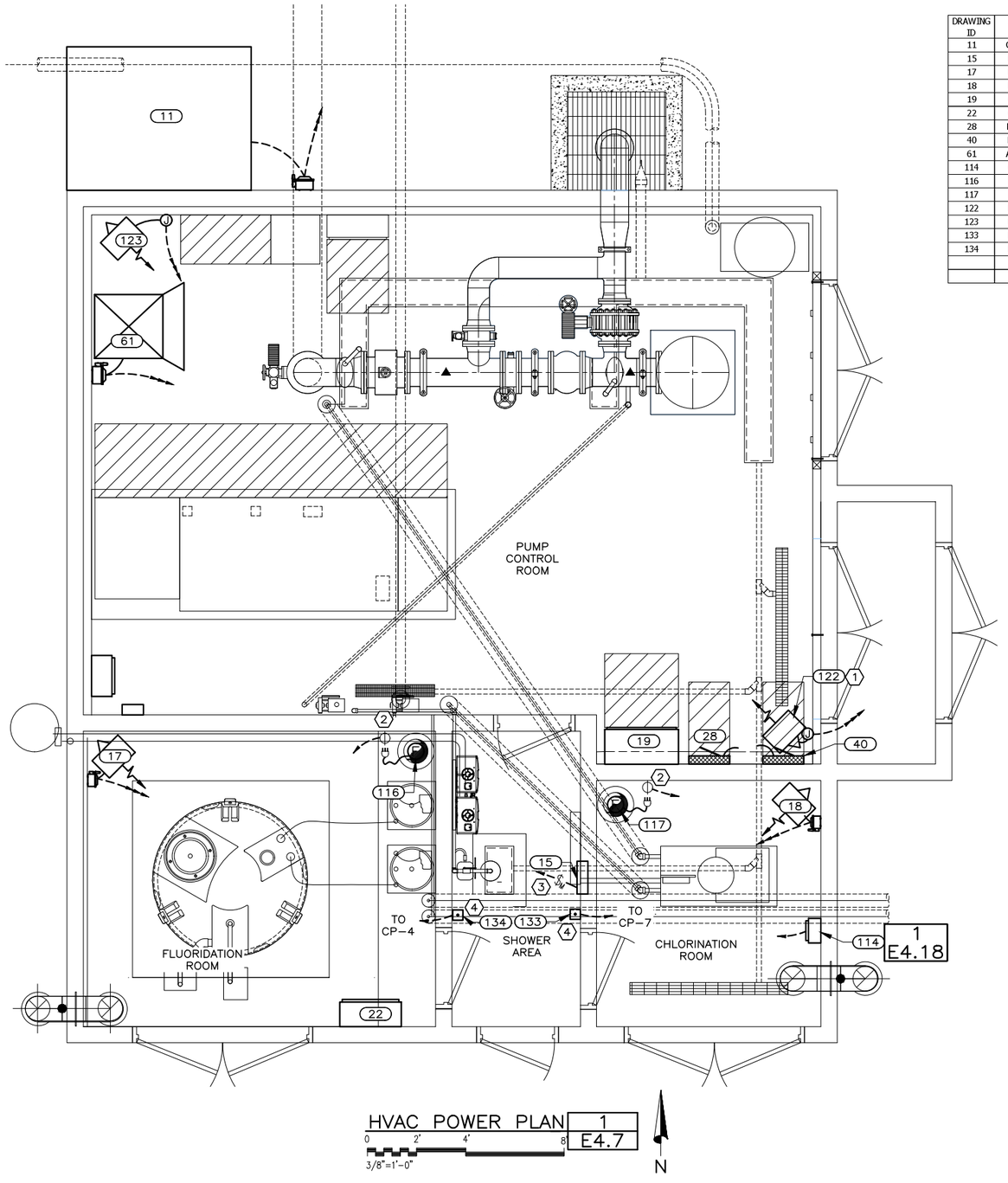
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
LIGHTING PLAN

SHEET E4.10
127.24.400

HANSEN ALLEN & LUCE INC ENGINEERS

7/04



1000 EAST HVAC PLAN ITEM LIST (E4.11)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
11	ODU-1	OUTDOOR CONDENSING UNIT	H-1,3,5	BUILDING EXTERIOR
15	UH-5	UNIT HEATER	L-21,23	SHOWER AREA
17	UH-1	UNIT HEATER	H-7,9,11	FLUORIDATION ROOM
18	UH-2	UNIT HEATER	H-13,15,17	CHLORINATION ROOM
19	CP-1	MAIN CONTROL PANEL/RTU	L-2	PUMP CONTROL ROOM
22	CP-4	FLUORIDE CONTROL PANEL	L-8	FLUORIDATION ROOM
28	PNL-H	PANELBOARD	XFMR-T1	PUMP CONTROL ROOM
40	PNL-L	PANELBOARD	XFMR-T2	PUMP CONTROL ROOM
61	AHU-1	AIR HANDLING UNIT	H-25,27,29	PUMP CONTROL ROOM
114	CP-7	EF CONTROL PANEL	L-18	CHLORINATION ROOM
116	EF-2	EXHAUST FAN	CP-4	FLUORIDATION ROOM
117	EF-1	EXHAUST FAN	CP-7	CHLORINATION ROOM
122	UH-3	UNIT HEATER	H-19,21,23	PUMP CONTROL ROOM
123	UH-4	UNIT HEATER	H-25,27,29	PUMP CONTROL ROOM
133	HS-1	EX. FAN HAND OFF AUTO SELECTOR SWITCH	CP-7	SHOWER AREA
134	HS-2	EX. FAN HAND OFF AUTO SELECTOR SWITCH	CP-4	SHOWER AREA

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AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" FOR EACH DEVICE IS LISTED IN THE ITEM TABLE ON THIS SHEET. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO POWER ONE-LINE AND PANELBOARD SCHEDULES FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
2. PLAN IS DIAGRAMMATIC. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS FOR CONDUIT LOCATIONS PRIOR TO CONDUIT ROUGH-IN.

SHEET KEYNOTES:

1. UNIT HEATER INSTALLED ABOVE ELECTRICAL EQUIPMENT.
2. LABEL "EXHAUST FAN DISCONNECT".
3. FIELD INSTALL A 2-POLE MANUAL MOTOR STARTER AND LABEL AS "HEATER DISCONNECT".
4. INSTALL RECESSED SWITCH +60-IN ABOVE FINISHED FLOOR. REFER TO INSTRUMENTATION AND CONTROL ONE-LINE DRAWING FOR WIRE AND CONDUIT REQUIREMENTS. LABEL "FLUORIDATION ROOM EXHAUST FAN" OR "CHLORINATION ROOM EXHAUST FAN" AS REQUIRED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

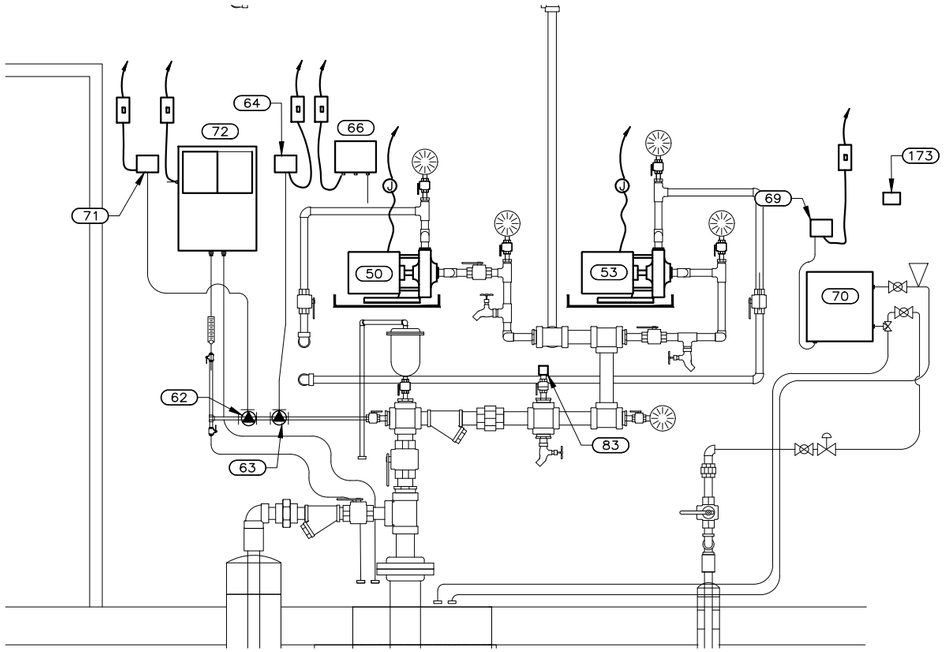
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
HVAC POWER PLAN

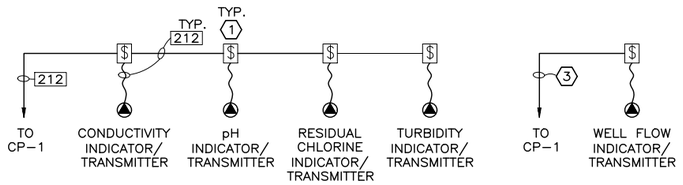
SHEET E4.11
127.24.400

7/04



INSTRUMENTATION PANEL 1
E4.8

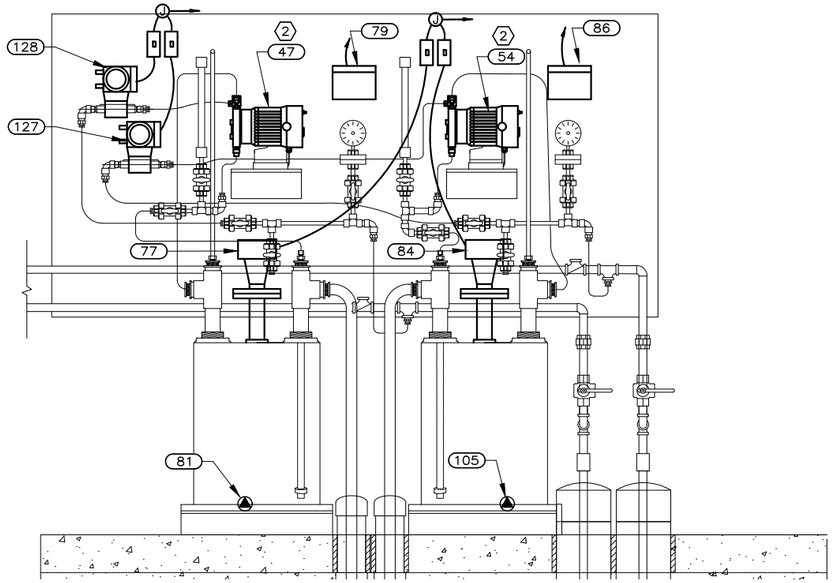
0 0.5' 1' 2' 3'
1"=1'-0"



INSTRUMENTATION POWER DIAGRAM

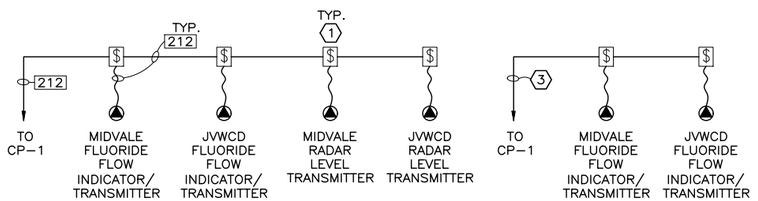
1000 EAST INST. WALL & DAY TANK AREA ITEM LIST (E4.12)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
47	CDP-1	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
50	SLP-1	SOLUTION PUMP	CP-5	PUMP CONTROL ROOM
53	SLP-2	SOLUTION PUMP (MIDVALE)	CP-5	PUMP CONTROL ROOM
54	CDP-2	CHEMICAL DOSING PUMP	CP-4	FLUORIDATION ROOM
62	AE-3	CONDUCTIVITY PROBE	AIT-3	PUMP CONTROL ROOM
63	AE-4	pH PROBE	AIT-4	PUMP CONTROL ROOM
64	AIT-4	pH INDICATOR/TRANSMITTER	CP-1	PUMP CONTROL ROOM
66	FIT-1	WELL FLOW IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
69	TIT-1	TURBIDITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
70	TE-1	TURBIDITY ELEMENT	CP-1	PUMP CONTROL ROOM
71	AIT-3	CONDUCTIVITY IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
72	AIT-2	RESIDUAL CHLORINE IND/TRANSMITTER	CP-1	PUMP CONTROL ROOM
77	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
79	WIT-1A	DAY TANK WEIGHT SCALE	L-14	FLUORIDATION ROOM
81	WE-1A	DAY TANK SCALE ELEMENT	WIT-1A	FLUORIDATION ROOM
83	PT-2	PRESSURE TRANSMITTER, CHEMICAL	CP-1	PUMP CONTROL ROOM
84	LIT-2A	DAY TANK RADAR LEVEL IND/TRANSMITTER	CP-1	FLUORIDATION ROOM
86	WIT-1B	DAY TANK WEIGHT SCALE	L-16	FLUORIDATION ROOM
105	WE-1B	DAY TANK SCALE ELEMENT	WIT-1B	FLUORIDATION ROOM
127	FE/FIT-2A	FLUORIDE FLOW INDICATOR/TRANSMITTER	CP-1	FLUORIDATION ROOM
128	FE/FIT-2B	FLUORIDE FLOW INDICATOR TRANSMITTER	CP-1	FLUORIDATION ROOM
173	TIT-1	)OM TEMPERATURE INDICATING/TRANSMITT	CP-1	PUMP CONTROL ROOM



DAY TANK AREA ELEVATION 2
E4.8

0 0.5' 1' 2' 3'
1"=1'-0"



INSTRUMENTATION POWER DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" FOR EACH DEVICE IS LISTED IN THE ITEM TABLE ON THIS SHEET. FOR WIRE AND CONDUIT REQUIREMENTS REFER TO THE POWER ONE-LINE AND PANELBOARD SCHEDULES FOR HE CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.

SHEET KEYNOTES:

1. INSTALL SWITCH NEAR INSTRUMENT AND LABEL SWITCH FOR THE INSTRUMENT IS CONTROLS.
2. REFER TO THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM ON E4.6 FOR POWER AND CONTROL/MONITORING CONDUIT AND CONDUCTORS.
3. FLOW METER IS DC POWERED. REFER TO E4.6/KEYNOTE 9,

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

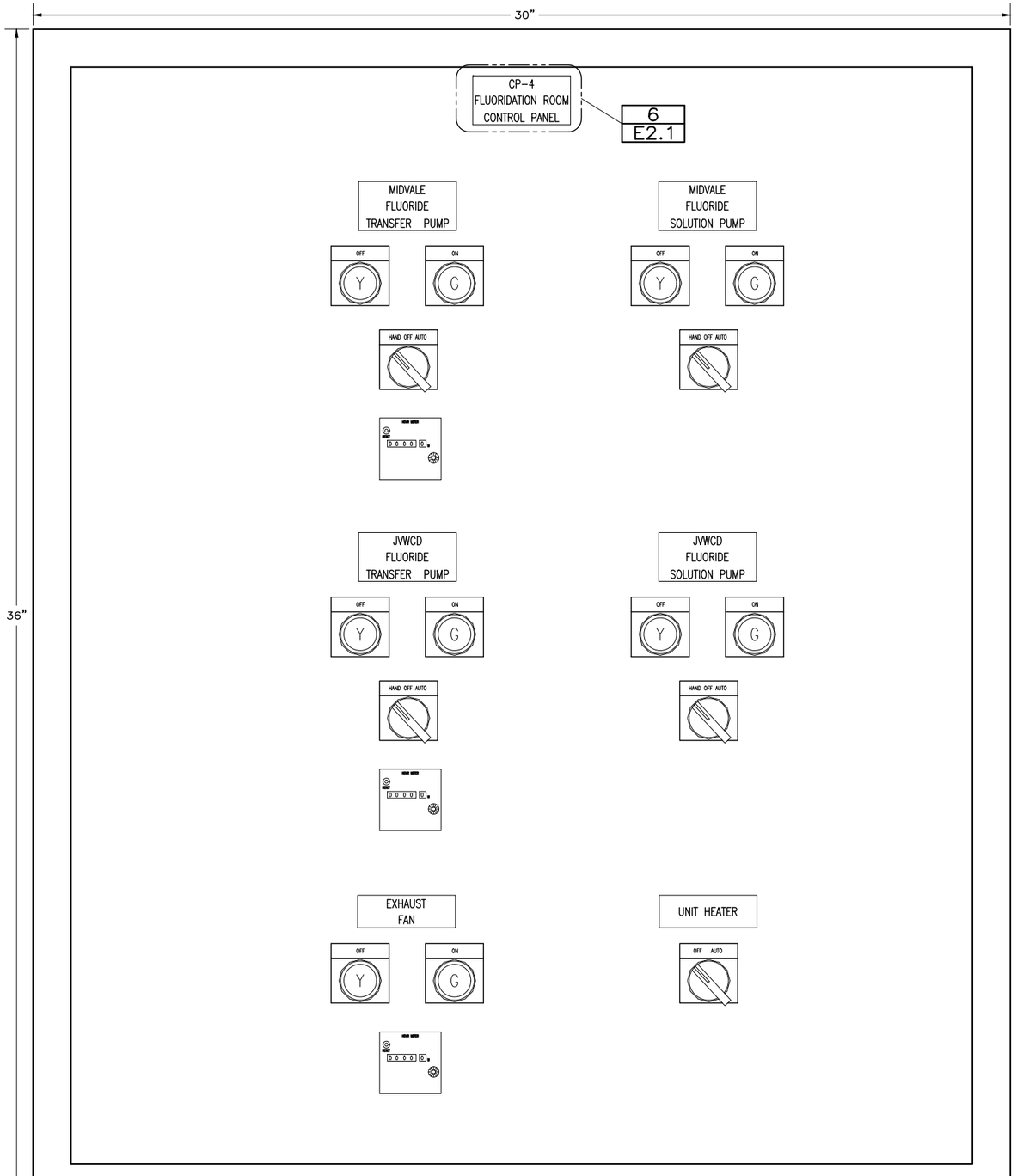
WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
INSTRUMENTATION PANEL

SHEET E4.12
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST



CP-4 FLUORIDATION CONTROL PANEL 1
6" = 1'-0" E4.8

GENERAL NOTES:

1. CONTROL PANEL DIMENSIONS SHOWN ARE ANTICIPATED. CONTRACTOR SHALL MODIFY FOR THE SUPPLIED COMPONENTS.
2. CONTRACTOR SHALL DETERMINE INTERIOR ARRANGEMENT.
3. REFER TO E4.14 AND E4.15 FOR TYPICAL CONTROL DIAGRAM.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS
PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-4 FLUORIDATION RM CONTROL PANEL

SHEET E4.13
127.24.400

7/04

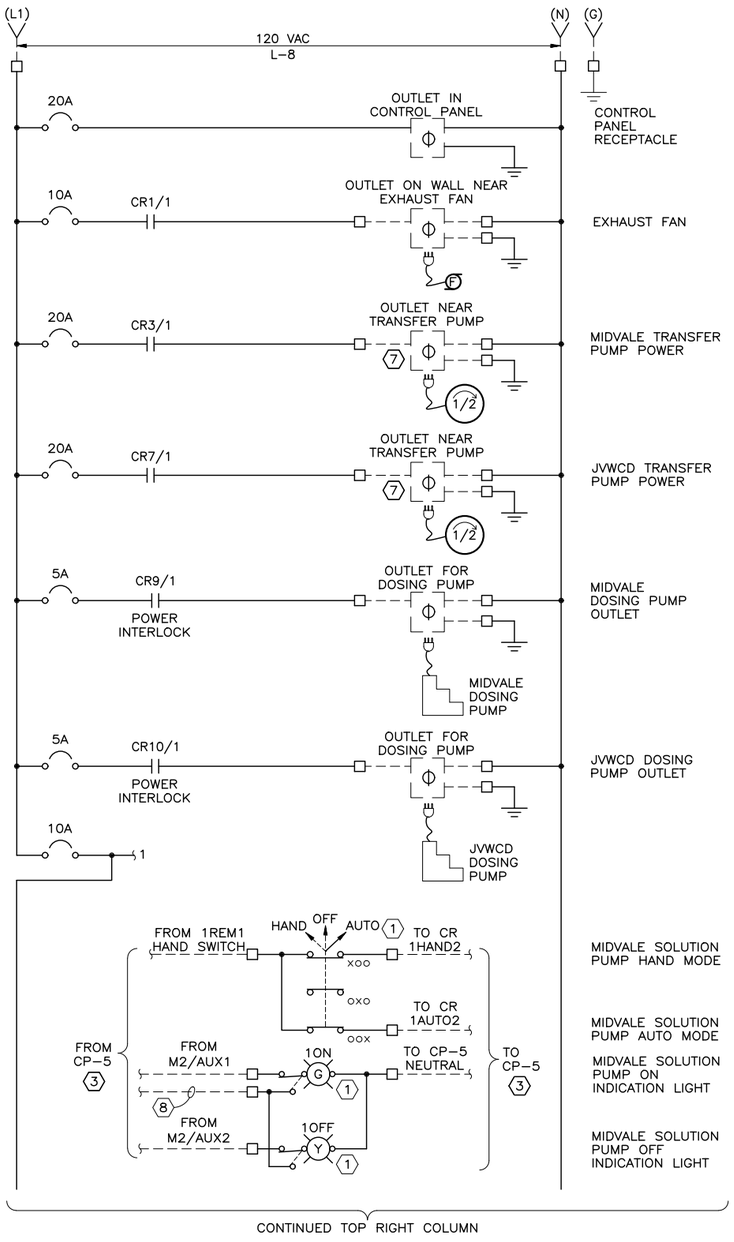


TABLE 4 (CP-1 TO FLUORIDATION RM CP-4)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1-1/2"	1	#16	+24VDC	CONTAINEMNT TRENCH HIGH LEVEL ALARM
	1	#16	+24VDC	EF HOA IN AUTO MODE
	1	#16	+24VDC	EF HOA IN HAND MODE
	1	#16	+24VDC	EXHAUST FAN ON
	1	#16	+24VDC	JVWCD TP HOA IN AUTO MODE
	1	#16	+24VDC	JVWCD TP HOA IN HAND MODE
	1	#16	+24VDC	JVWCD TRANSFER PUYMP ON
	1	#16	+24VDC	MIDVALE TP HOA IN HAND MODE
	1	#16	+24VDC	MIDVALE TRANSFER PUMP ON
	1	#16	+24VDC	MIDVALE TP HOA IN AUTO MODE
	1	#16	+24VDC	SOURCE FROM CP-1
	1	#16	+24VDC	MIDVALE FLUORIDE FIT DC POWER
	1	#16	+24VDC	MIDVALE FLUORIDE FIT DC RETURN
	1	#16	+24VDC	JVWCD FLUORIDE FIT DC POWER
	1	#16	+24VDC	JVWCD FLUORIDE FIT DC RETURN
	1	#16	120 VAC	EXHAUST FAN COMMAND RUN
	1	#16	120 VAC	JVWCD DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	JVWCD TRANSFER PUMP COMMAND RUN
	1	#16	120 VAC	MIDVALE DOSING PUMP POWER INTERLOCK
	1	#16	120 VAC	MIDVALE TRANSFER PUMP COMMAND RUN
	1	#16	120 VAC	SOURCE FROM CP-1
	6	#16	-	SPARE
1-1/2"	1	#18TSP	4-20 mA	JVWCD DAY TANK LEVEL (RADAR)
	1	#18TSP	4-20 mA	JVWCD DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	JVWCD DOSING PUMP DOSE RATE
	1	#18TSP	4-20 mA	MIDVALE DAY TAML LEVEL (RADAR)
	1	#18TSP	4-20 mA	MIDVALE DAY TANK LEVEL (WEIGHT)
	1	#18TSP	4-20 mA	MIDVALE DOSING PUMP DOSE RATE
	1	#18TSP	4-20 mA	ROOM TEMPERATURE
	1	#18TSP	4-20 mA	STORAGE TANK LEVEL (RADAR)
1"C	1	RS-485	MODBUS	MIDVALE FLOW METER
	1	RS-485	MODBUS	JVWCD FLOW METER
1"C	-		-	SPARE

TABLE 5 (CP-4 TO SMALL MOTOR CP-5)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#14	120 N	P1 120V NEUTRAL
	1	#14	120VAC	P1 FUSED 120 VAC
	1	#14	120VAC	P1 HOA AUTO MODE
	1	#14	120VAC	P1 HOA HAND MODE
	1	#14	120VAC	P1 HOR IN REMOTE MODE
	1	#14	120VAC	P1 NOT RUNNING
	1	#14	120VAC	P1 PUMP RUNNING
	1	#14	120 N	P2 120V NEUTRAL
	1	#14	120VAC	P2 FUSED 120 VAC
	1	#14	120VAC	P2 HOA AUTO MODE
	1	#14	120VAC	P2 HOA HAND MODE
	1	#14	120VAC	P2 HOR IN REMOTE MODE
	1	#14	120VAC	P2 NOT RUNNING
	1	#14	120VAC	P2 PUMP RUNNING
	4	#14		SPARES

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL DIAGRAM IS TYPICAL FOR THE FLUORIDATION ROOM CONTROL PANEL. MODIFY AS REQUIRED FOR THE DEVICES SUPPLIED.
2. CONTRACTOR SHALL PROVIDE FUSE, TERMINAL AND WIRE NUMBERS AS REQUIRED.
3. REFER TO E4.13 FOR CONTROL PANEL EXTERIOR ARRANGEMENT.

SHEET KEYNOTES:

1. DEVICE SHALL BE INSTALLED IN ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
2. TWO POSITION, SPRING RETURN TO OFF SELECTOR SWITCH.
3. SOLUTION PUMPS ARE LOCATED IN THE PUMP CONTROL ROOM. CONTROL AND MONITORING OF THE PUMPS SHALL BE HARD WIRED BETWEEN CP-4 AND CP-5.
4. PUMP CONTROL ROOM RTU 24VDC RELAY CONTACT. RELAY PROVIDED AND INSTALLED IN JVWCD RTU BY THE OWNER. COORDINATE TERMINAL NUMBERS FOR CONDUCTORS DURING CONSTRUCTION.
5. PUMP CONTROL ROOM RTU WILL PROVIDE A 24VDC SOURCE TO A DRY CONTACT IN THE FLUORIDATION ROOM CONTROL PANEL, WITH SWITCHED POWER BACK TO CP-1.
6. INSTALL ANALOG SIGNALS THROUGH FLUORIDATION ROOM CONTROL PANEL. NO TERMINATION REQUIRED.
7. LABEL OUTLET AS "PUMP DISCONNECT".
8. FROM CP-5, FUSED CONTROL POWER.
9. DEVICE INSTALLED IN CP-5 SMALL MOTOR CONTROL PANEL, SEE E4.16.
10. HOA SWITCH INSTALLED IN SHOWER AREA.

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

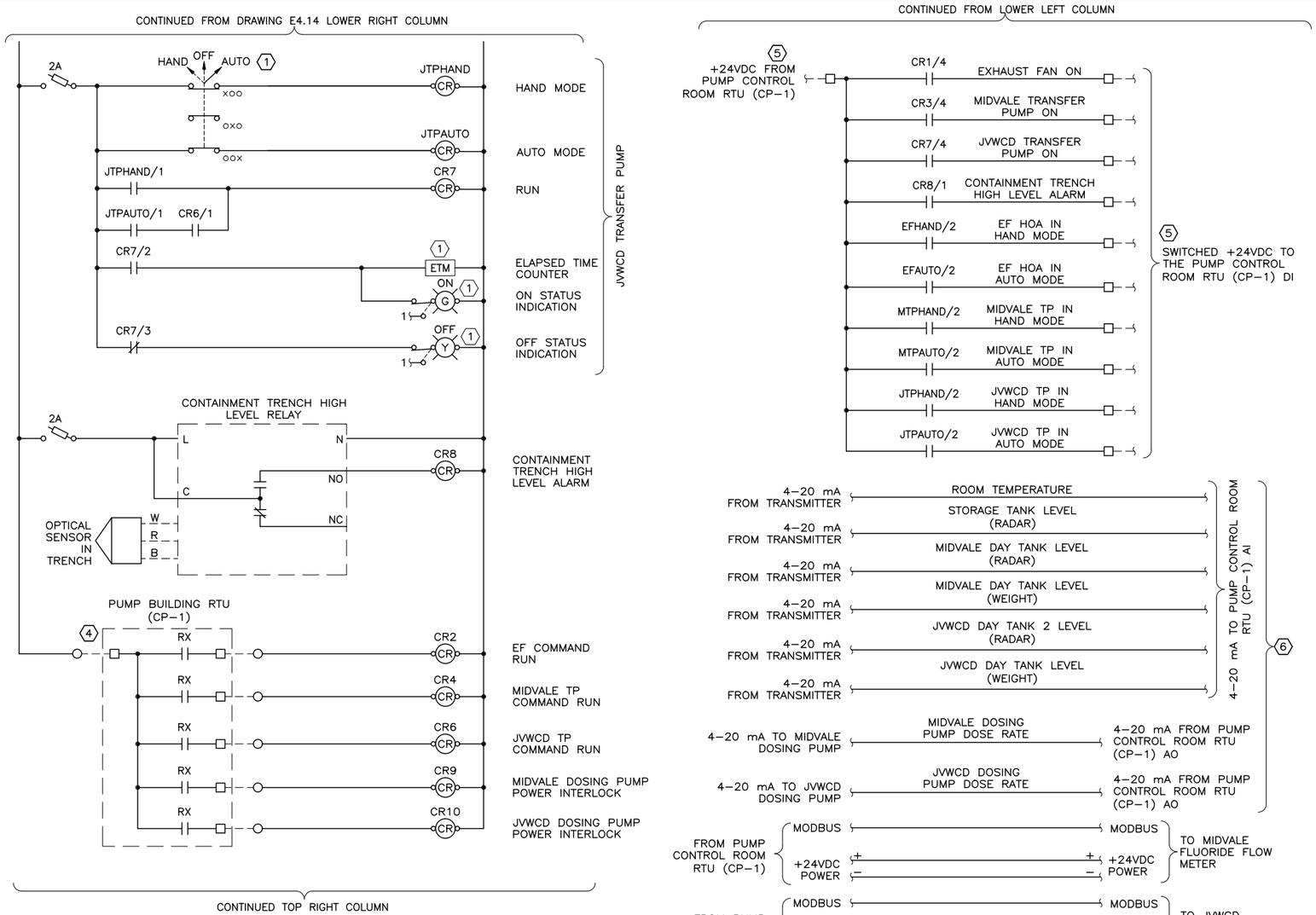
SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-4 WIRING DIAGRAM, SHT. 1

SHEET E4.14
127.24.400

7/04



CP-4 TYPICAL CONTROL WIRING DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. FOR GENERAL AND SHEET KEYNOTES REFER TO E4.14.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE NONE

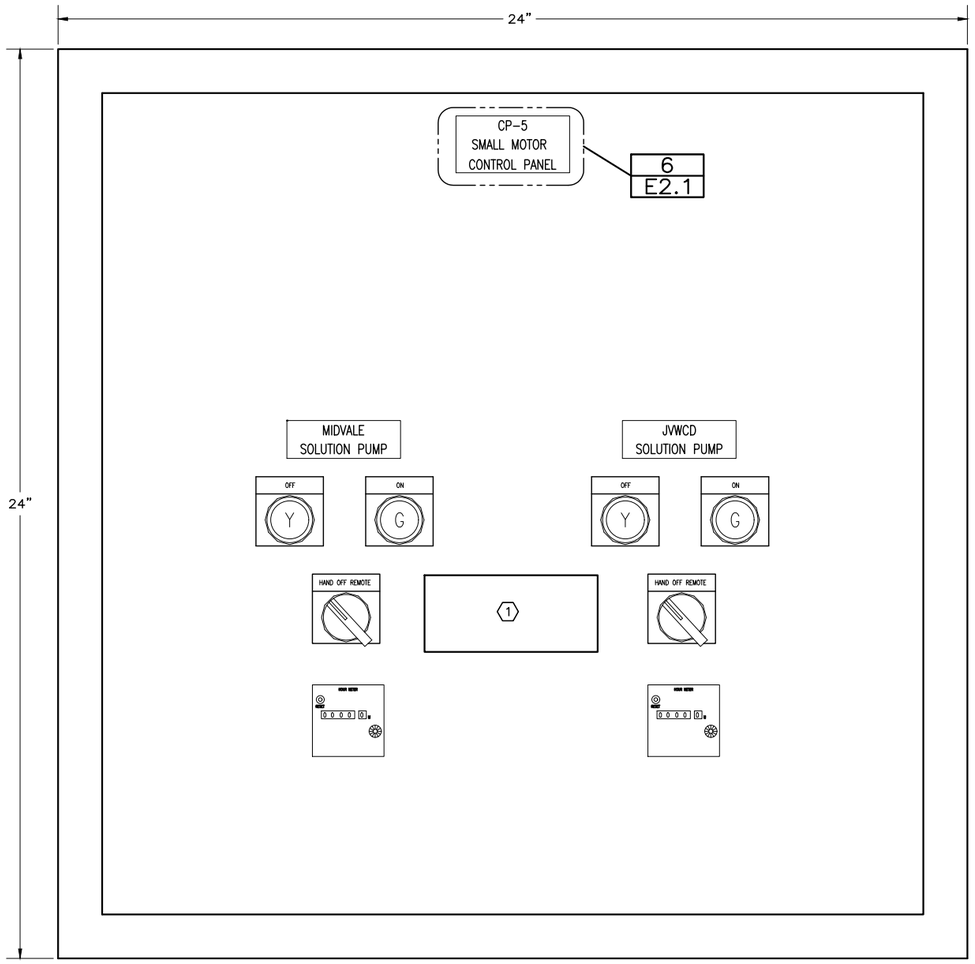
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-4 WIRING DIAGRAM, SHT. 2

SHEET E4.15

127.24.400

7/04



CP-5 SMALL MOTOR CONTROL PANEL | 1
6" = 1'-0" | E4.7

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL PANEL DIMENSIONS SHOWN ARE ANTICIPATED. CONTRACTOR SHALL MODIFY FOR THE SUPPLIED COMPONENTS.
2. CONTRACTOR SHALL DETERMINE INTERIOR ARRANGEMENT. CONTRACTOR SHALL PROVIDE WIRE NUMBERS, TERMINAL NUMBERS AND OVERCURRENT DEVICE NUMBERS.
3. REFER TO E4.17 FOR TYPICAL CONTROL DIAGRAM.
4. CP-5 SHALL INCLUDE THE MOTOR CONTROLLERS, AND SWITCHES AS SHOWN.

SHEET KEYNOTES:

1. PROVIDE A LABEL: "LEAVE SWITCH IN REMOTE TO ENABLE CONTROL FROM THE FLUORIDE ROOM CONTROL PANEL".

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-17214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

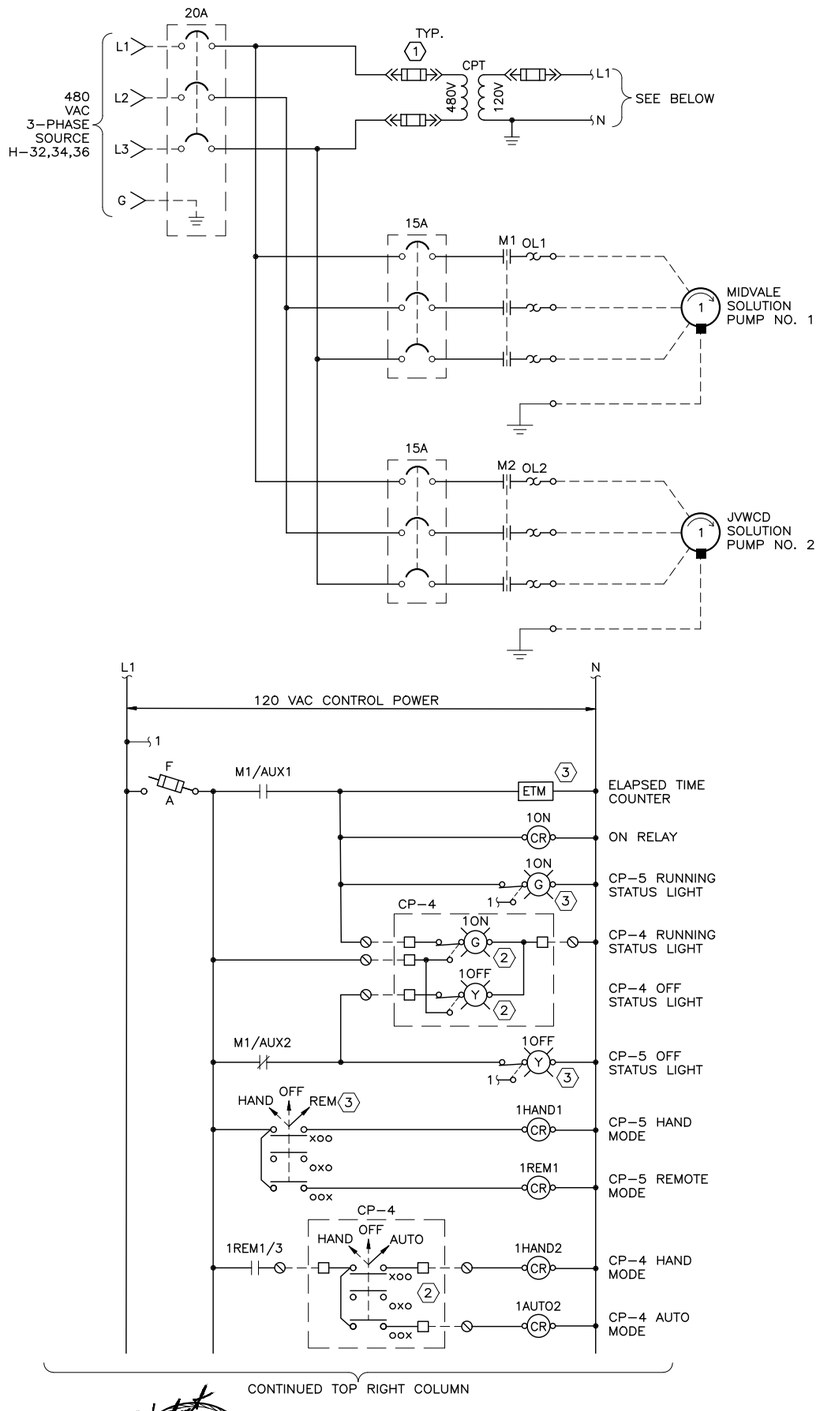
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-5 SMALL MOTOR CONTROL PANEL

SHEET E4.16
127.24.400

7/04



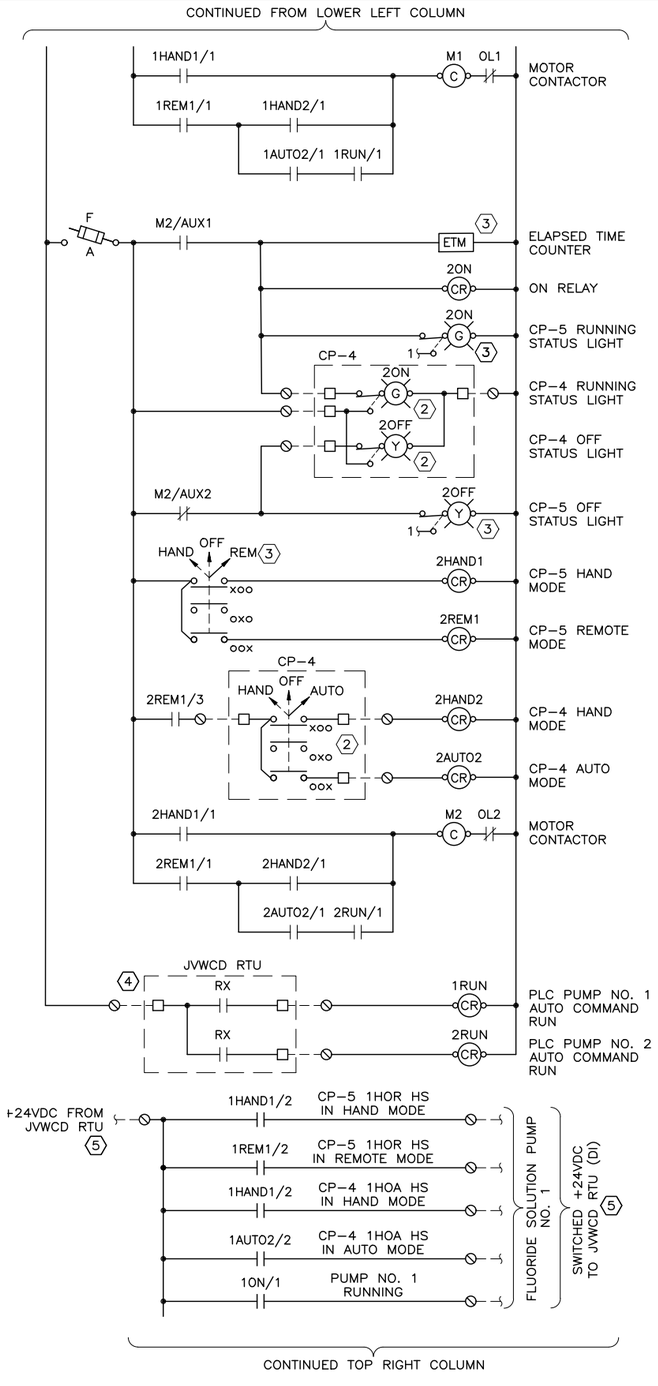
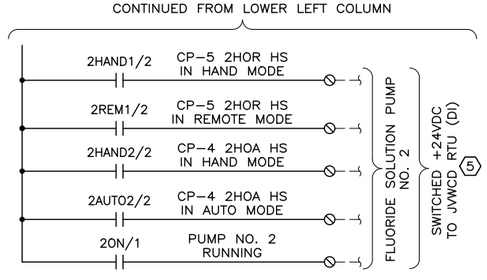


TABLE 5 (CP-1 TO CP-5 SMALL MOTOR CP)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
1"	1	#16	+24VDC	SOURCE FROM CP-1
	1	#16	+24VDC	JVWCD HS IN HAND MODE
	1	#16	+24VDC	JVWCD HS IN REMOTE MODE
	1	#16	+24VDC	JVWCD PUMP RUNNING
	1	#16	+24VDC	MIDVALE HS IN HAND MODE
	1	#16	+24VDC	MIDVALE HS IN REMOTE MODE
	1	#16	+24VDC	MIDVALE PUMP RUNNINT
	1	#16	120 VAC	JVWCD PUMP COMMAND RUN
	1	#16	120 VAC	MIDVALE PUMP COMMEND RUN
	6	#16	-	SPARE
1"C	-		-	SPARE

TABLE 5 (CP-4 TO SMALL MOTOR CP-5)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION
3/4"	1	#14	120 N	P1 120V NEUTRAL
	1	#14	120VAC	P1 FUSED 120 VAC
	1	#14	120VAC	P1 HOA AUTO MODE
	1	#14	120VAC	P1 HOA HAND MODE
	1	#14	120VAC	P1 HOR IN REMOTE MODE
	1	#14	120VAC	P1 NOT RUNNING
	1	#14	120VAC	P1 PUMP RUNNING
	1	#14	120 N	P2 120V NEUTRAL
	1	#14	120VAC	P2 FUSED 120 VAC
	1	#14	120VAC	P2 HOA AUTO MODE
	1	#14	120VAC	P2 HOA HAND MODE
	1	#14	120VAC	P2 HOR IN REMOTE MODE
	1	#14	120VAC	P2 NOT RUNNING
	1	#14	120VAC	P2 PUMP RUNNING
	4	#14		SPARES



CP-5 TYPICAL CONTROL DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. SOLUTION PUMPS AND CP-4 ARE LOCATED IN THE PUMP CONTROL ROOM. ADDITIONAL PUMP CONTROLS ARE LOCATED IN THE FLUORIDE ROOM CONTROL PANEL.
2. ENCLOSURE ARRANGEMENT SHOWN ON E4.16.

SHEET KEYNOTES:

1. FUSES SIZED BY EQUIPMENT SUPPLIER.
2. DEVICE INSTALLED IN CP-4 ENCLOSURE DOOR, SEE E4.13.
3. DEVICE INSTALLED ON ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
4. MAIN CONTROL PANEL/RTU 24VDC RELAY CONTACT. RELAY PROVIDED AND INSTALLED IN JVWCD RTU ENCLOSURE BY THE OWNER. LABEL AND COIL CONDUCTORS FOR TERMINATION BY OWNER.
5. JVWCD RTU WILL PROVIDE A 24VDC SOURCE TO A DRY CONTACT IN CP-5, WITH SWITCHED SIGNAL BACK TO THE MAIN CONTROL PANEL/RTU.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

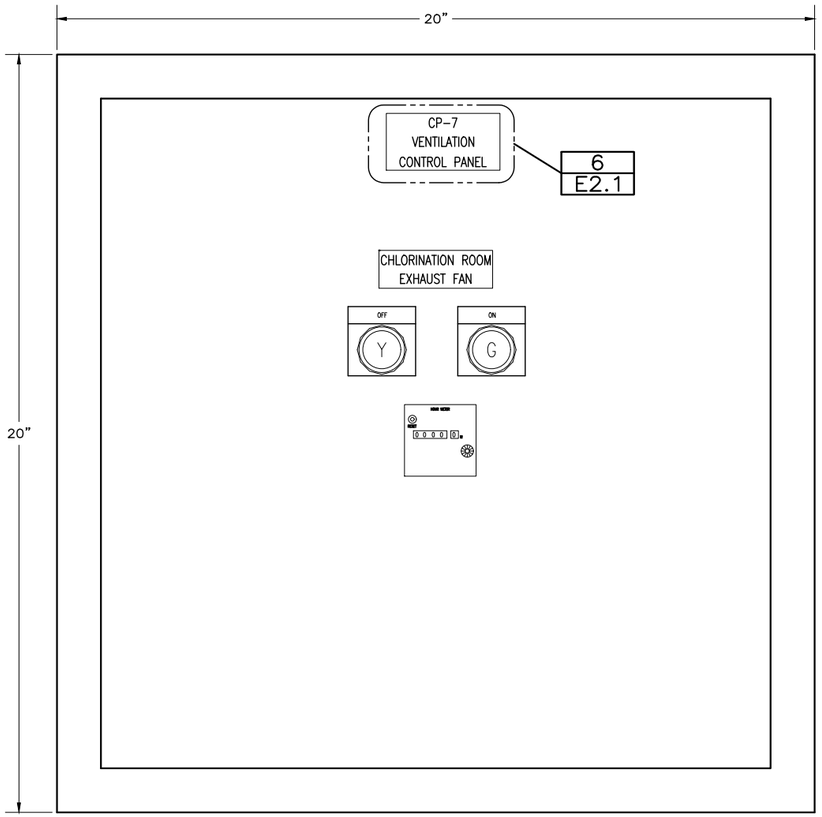
SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

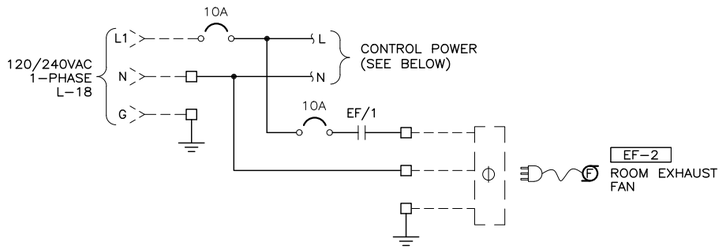
WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-5 TYPICAL CONTROL DIAGRAM

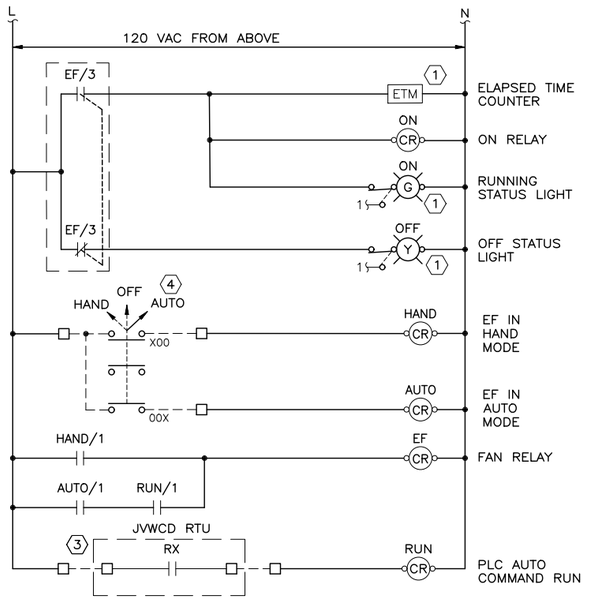
SHEET E4.17
127.24.400

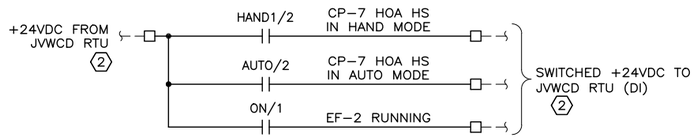
7/04



CP-7 VENTILATION CONTROL PANEL 1
6" = 1'-0" E4.8







CP-7 TYPICAL CONTROL DIAGRAM

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL PANEL DIMENSIONS SHOWN ARE ANTICIPATED. CONTRACTOR SHALL MODIFY FOR THE SUPPLIED COMPONENTS.
2. CONTRACTOR SHALL DETERMINE INTERIOR ARRANGEMENT. CONTRACTOR SHALL PROVIDE WIRE NUMBERS, TERMINAL NUMBERS AND OVERCURRENT DEVICE NUMBERS.

SHEET KEYNOTES:

1. DEVICE INSTALLED ON ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
2. JVWCD RTU WILL PROVIDE A 24VDC SOURCE TO A DRY CONTACT IN CP-7, WITH SWITCHED SIGNAL BACK TO THE RTU.
3. EXHAUST FAN CONTROLLED BY JVWCD MAIN CONTROL PANEL/RTU.
4. SWITCH INSTALLED IN SHOWER AREA.

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
CP-7 VENTILATION CONTROL PANEL

SHEET E4.18
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

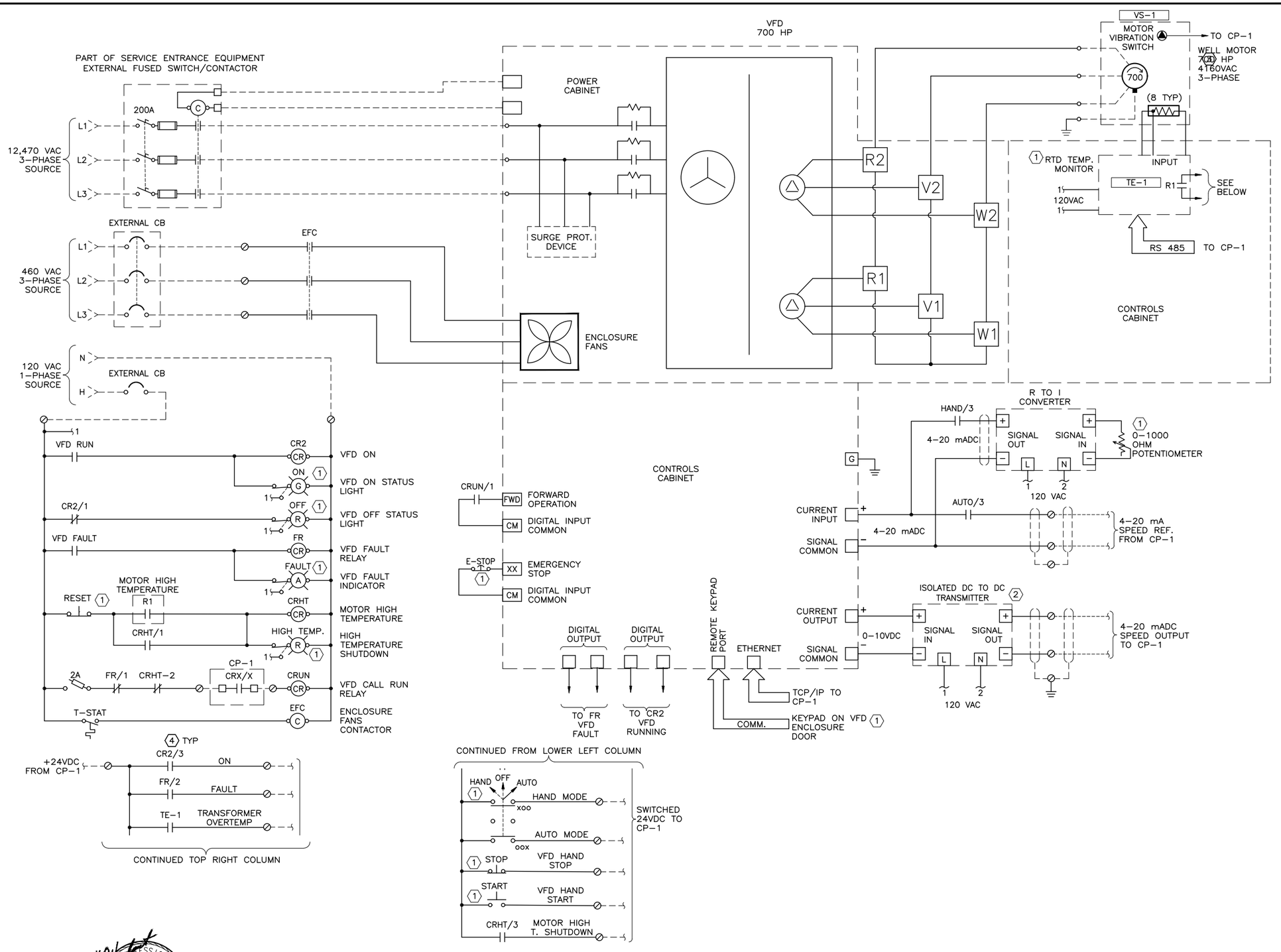
HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. CONTROL WIRING DIAGRAM SHOWN IS BASED ON A TMIEC DRIVE. CONTROL DIAGRAM SHALL BE MODIFIED AS REQUIRED FOR THE SELECTED VFD SUPPLIED.
2. NOT ALL COMPONENTS IN VFD ARE SHOWN.
3. FUSES SIZED BY VFD SUPPLIER.

SHEET KEYNOTES:

1. PROVIDE DEVICE ON VFD ENCLOSURE DOOR.
2. PROVIDE SIGNAL CONVERTER AS REQUIRED.
3. REFER TO THE INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM FOR WIRE AND CONDUIT REQUIREMENTS.
4. PROVIDE A DRY RELAY CONTACT FOR ALL OWNER REMOTE MONITORING POINTS.



TYPICAL VFD CONTROL DIAGRAM

TABLE VFD

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO VFD
1"	1	#14	+24VDC	+24VDC
	1	#14	+24VDC	MOTOR HIGH T. SHUTDOWN
	1	#14	+24VDC	VFD FAULT
	1	#14	+24VDC	VFD HAND START
	1	#14	+24VDC	VFD HAND STOP
	1	#14	+24VDC	VFD HOA IN AUTO
	1	#14	+24VDC	VFD HOA IN HAND
	1	#14	+24VDC	VFD RUNNING
	1	#14	+24VDC	VFD TRANSFORMER HIGH TEMP.
	1	#14	120 VAC	120V RETURN
	1	#14	120 VAC	VFD CALL RUN
	2	#14		SPARE
3/4"	1	#18TSP		VFD RUNNING SPEED
	1	#18TSP		VFD COMMAND SPEED
3/4"	1	RS485		BELDEN 9842 (TEMP. MONITOR)
3/4"	1	CAT6U		ETHERNET
3/4"	-	-		PULL STRING

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, INC. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
TYPICAL VFD CONTROL DIAGRAM

SHEET E4.19
127.24.400

7/04

1000 E WELL RTU I/O LIST
ANALOG INPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
AI	CONDUCTIVITY, WELL WATER	ANALYZER, CONTUCTIVITY
AI	FLOW, FLUORIDATION SYSTEM	FLOW METER
AI	FLOW, WELL	FLOW METER
AI	LEVEL (RADAR), FLUORIDE DAY TANK, JVWCD	TRANSMITTER, LEVEL, RADAR
AI	LEVEL (RADAR), FLUORIDE DAY TANK, MIDVALE	TRANSMITTER, LEVEL, RADAR
AI	LEVEL (RADAR), FLUORIDE STRG TANK	TRANSMITTER, LEVEL, RADAR
AI	LEVEL (WEIGHT), FLUORIDE DAY TANK, JVWCD	TRANSMITTER, TANK WEIGHT SCALE
AI	LEVEL (WEIGHT), FLUORIDE DAY TANK, MIDVALE	TRANSMITTER, TANK WEIGHT SCALE
AI	LEVEL, SURGE TANK WATER	TRANSMITTER, DIFFERENTIAL PRESSURE
AI	LEVEL, WELL WATER	TRANSMITTER, LEVEL, SUBMERSIBLE
AI	pH, WELL WATER	ANALYZER, pH
AI	POSITION, SYSTEM VALVE	POSITION, VALVE ACTUATOR
AI	POSITION, WASTE VALVE	POSITION, VALVE ACTUATOR
AI	PRESSURE, FLUORIDATION SYSTEM	TRANSMITTER, PRESSURE
AI	PRESSURE, SYSTEM DISCHARGE	TRANSMITTER, PRESSURE
AI	RESIDUAL CHLORINE, WELL DISCHARGE	ANALYZER, RESIDUAL CHLORINE
AI	SPEED, PUMP RUNNING	VFD, WELL PUMP
AI	TEMPERATURE, CHLORINE ROOM	TRANSMITTER, TEMPERATURE
AI	TEMPERATURE, FLUORIDATION ROOM	TRANSMITTER, TEMPERATURE
AI	TEMPERATURE, PUMP CONTROL ROOM	TRANSMITTER, TEMPERATURE
AI	TERMPERATURE, SHOWER AREA ROOM	TRANSMITTER, TEMPERATURE
AI	TURBIDITY, WELL WATER	ANALYZER, TURBIDITY

MODBUS SIGNALS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
RS485	MOTOR WINDING/BEARING TEMPERATURES	MOTOR RTD TEMPERATURE MONITOR
RS485	WELL FLOW	FLOW METER
RS485	MIDVALE FLUORIDE FLOW	FLOW METER
RS485	JVWCD FLUORIDE FLOW	FLOW METER
RS485	CHLORINE FLOW	FLOW METER

ANALOG OUTPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
AO	DOSE RATE COMMAND, CHEMICAL, CHLORINE	DOSING PUMP, CHLORINE
AO	DOSE RATE COMMAND, CHEMICAL, FLUORIDE (JVWCD)	DOSING PUMP, CHLORINE
AO	DOSE RATE COMMAND, CHEMICAL, FLUORIDE (MIDVALE)	DOSING PUMP, CHLORINE
AO	SPEED COMMAND, WELL PUMP VFD	MOTOR CONTROLLER
AO	POSITION COMMAND, WASTE VALVE	VALVE ACTUATOR
AO	POSITION COMMAND, SYSTEM VALVE	VALVE ACTUATOR

DISCRETE INPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
DI	ALARM, CHLORIDATION ROOM FLOOR HIGH WATER	SWITCH, LEVEL
DI	ALARM, FLUORIDATE LEAK ALARM	SWITCH, ANALYSIS
DI	ALARM, FLUORIDATION ROOM FLOOR HIGH WATER	SWITCH, LEVEL
DI	ALARM, PUMP ROOM FLOOR HIGH WATER	SWITCH, LEVEL
DI	ALARM, SHOWER AREA FLOOR HIGH WATER	SWITCH, LEVEL
DI	ALARM, SURGE TANK VAULT FLOOR HIGH WATER	SWITCH, LEVEL
DI	ALARM, WELL VFD TROUBLE	MOTOR CONTROLLER
DI	FLOW, EYE WASH SHOWER	SWITCH, FLOW
DI	MODE, CHLORINATION ROOM EF HOA IN AUTO	MOTOR CONTROLLER
DI	MODE, CHLORINATION ROOM EF HOA IN HAND	MOTOR CONTROLLER
DI	MODE, FLUORIDATION ROOM EF HOA IN AUTO	MOTOR CONTROLLER
DI	MODE, FLUORIDATION ROOM EF HOA IN HAND	MOTOR CONTROLLER
DI	MODE, WELL VFD HOA IN AUTO	MOTOR CONTROLLER
DI	MODE, WELL VFD HOA IN HAND	MOTOR CONTROLLER
DI	POSITION, CHLORINATION ROOM DOOR A OPEN	SWITCH, POSITION
DI	POSITION, CHLORINATION ROOM DOOR B OPEN	SWITCH, POSITION
DI	POSITION, FLUORIDATION ROOM DOOR A OPEN	SWITCH, POSITION
DI	POSITION, FLUORIDATION ROOM DOOR B OPEN	SWITCH, POSITION
DI	POSITION, PUMP ROOM VEST. DOOR A OPEN	SWITCH, POSITION
DI	POSITION, PUMP ROOM VEST. DOOR B OPEN	SWITCH, POSITION
DI	POSITION, SHOWER AREA DOOR OPEN	SWITCH, POSITION
DI	POSITION, SURGE TANK HATCH OPEN	SWITCH, POSITION
DI	PRESSURE, WELL DISCHARGE HIGH	SWITCH, PRESSURE
DI	STATUS, JVWCD FLUORIDATION SOLUTION PUMP	MOTOR STARTER
DI	STATUS, MIDVALE FLUORIDATION SOLUTION PUMP	MOTOR STARTER
DI	STATUS, CHLORINATION ROOM EXHAUST FAN ON	MOTOR STARTER
DI	STATUS, FLUORIDATION ROOM EXHAUST FAN ON	MOTOR STARTER
DI	STATUS, SURGE TANK VAULT EF ON	MOTOR STARTER
DI	STATUS, WELL VFD RUNNING	MOTOR CONTROLLER
DI	TEMPERATURE, WELL MOTOR HIGH	RELAY, RTD TEMPERATURE
DI	TEMPERATURE, WELL VFD TRANSFORMER HIGH	MOTOR CONTROLLER
DI	VIBRATION, WELL MOTOR HIGH	SWITCH, VIBRATION
DI	POSITION, VFD START SWITCH CLOSED	SWITCH, START
DI	POSITION, VFD STOP SWITCH OPEN	SWITCH, STOP

DISCRETE OUTPUTS

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT
DO	CALL FOR EXHAUST, CHLORINATION ROOM	MOTOR CONTROLLER
DO	CALL FOR EXHAUST, FLUORIDATION ROOM	MOTOR CONTROLLER
DO	CALL FOR HEAT, CHLORINATION ROOM	UNIT HEATER
DO	CALL FOR HEAT, FLUORIDATION ROOM	UNIT HEATER
DO	CALL FOR HEAT, PUMP CONTROL ROOM	UNIT HEATER
DO	CALL FOR HEAT, SHOWER AREA	UNIT HEATER
DO	COMMAND RUN, CHLORINE SOLUTION PUMP	MOTOR CONTROLLER
DO	COMMAND RUN, CHLORINATION ROOM EXHAUST FAN	MOTOR CONTROLLER
DO	COMMAND RUN, FLUORIDATION ROOM EXHAUST FAN	MOTOR CONTROLLER
DO	COMMAND RUN, FLUORIDE SOLUTION PUMP (JVWCD)	MOTOR CONTROLLER
DO	COMMAND RUN, FLUORIDE SOLUTION PUMP (MIDVALE)	MOTOR CONTROLLER
DO	COMMAND RUN, SURGE TANK VENT FAN	EE-1
DO	COMMAND RUN, WELL VFD	MOTOR CONTROLLER
DO	PUNP INHIBIT, CHLORINE DOSING	MOTOR CONTROLLER
DO	SV COMMAND OPEN, SURGE TANK AIR RELEASE	VALVE, SOLENOID
DO	SV COMMAND OPEN, SURGGE TANK AIR SUPPLY	VALVE, SOLENOID
DO	SV COMMAND OPEN, TURBIDITY SUPPLY	VALVE, SOLENOID
DO	SV COMMAND OPEN, LUBE OIL	VALVE, SOLENOID

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. THIS INPUT_OUTPUT LIST DOES NOT INCLUDE ANY OF THE EXISTING RTU INPUT/OUTPUTS.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED GDS	2					
CHECKED KBH	1					
DATE JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

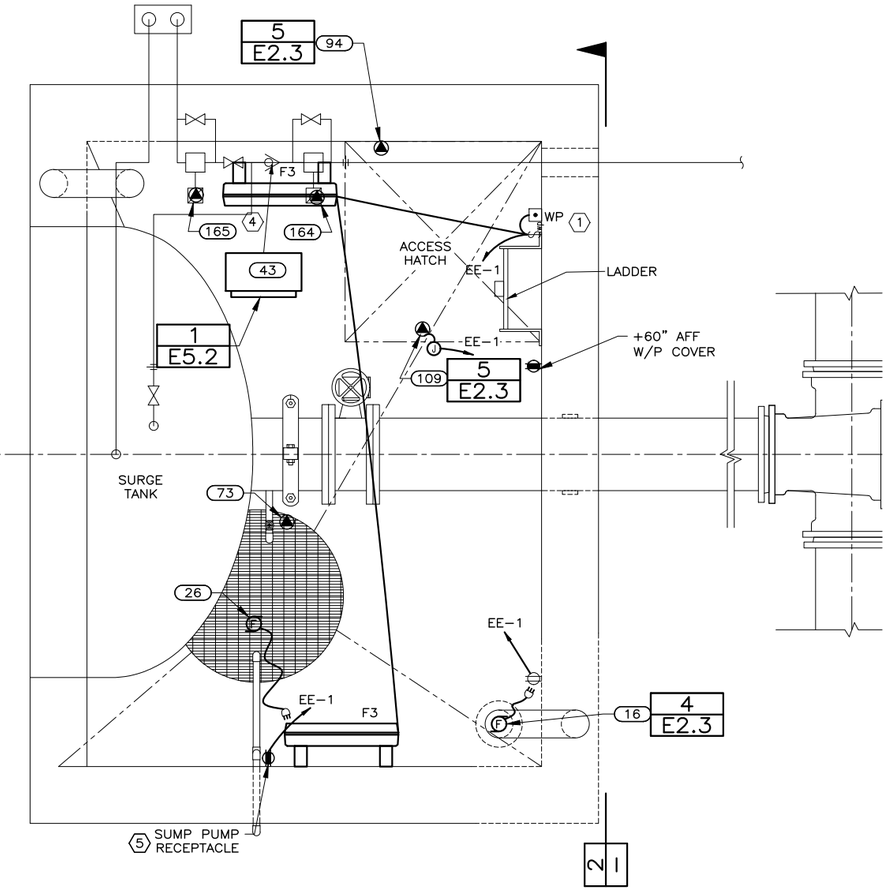
WELL PUMP STATION CONSTRUCTION
ELECTRICAL
RTU PLC INPUT AND OUTPUT LIST

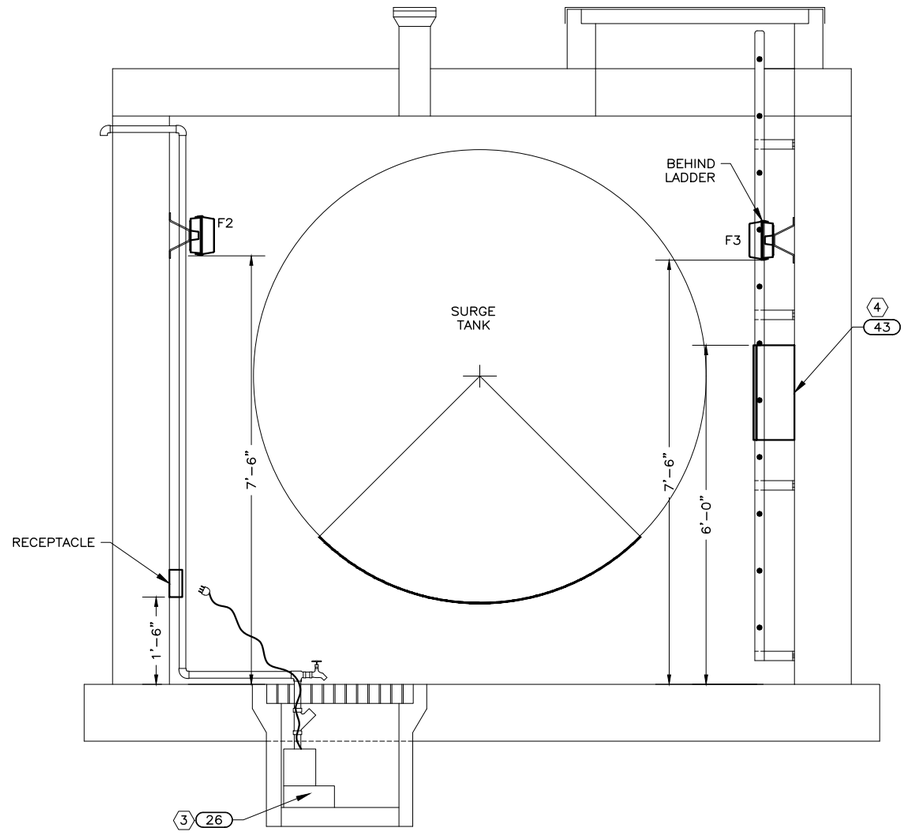
SHEET E4.20
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST





SURGE TANK VAULT ITEM LIST (E5.1)

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
16	EF-3	EXHAUST FAN	EE-1	SURGE VAULT
26	SP-2	SUMP PUMP	EE-1	SURGE VAULT
43	EE-1	ELECTRICAL ENCLOSURE	L-10,12	SURGE VAULT
73	DPT-1	DIFFERENTIAL PRESSURE TRANSMITTER	CP-1	SURGE VAULT
94	LSH-5	FLOOR WATER LEVEL SWITCH	CP-1	SURGE VAULT
109	ZS-8	HATCH POSITION SWITCH	CP-1	SURGE VAULT
164	SV-3	SOLENOID VALVE, SURGE TANK AIR FILL	EE-1	SURGE VAULT
165	SV-4	SOLENOID VALVE, SURGE TANK AIR VENT	EE-1	SURGE VAULT

GENERAL NOTES:

1. ALL WALL MOUNTED EQUIPMENT INSTALLED ON INSULATED WALLS WITHIN 4'-0" OF THE CEILING SHALL BE ANCHORED TO THE CONCRETE WALL. REFER TO TYPICAL DETAIL 2/E9.2.
2. REFER TO ONE-LINE DIAGRAMS ON E2.1 FOR VAULT WIRE AND CONDUIT REQUIREMENTS.
3. REFER TO SITE PLANS FOR GROUNDING REQUIREMENTS.
4. FIXTURE SCHEDULE ON E1.3.

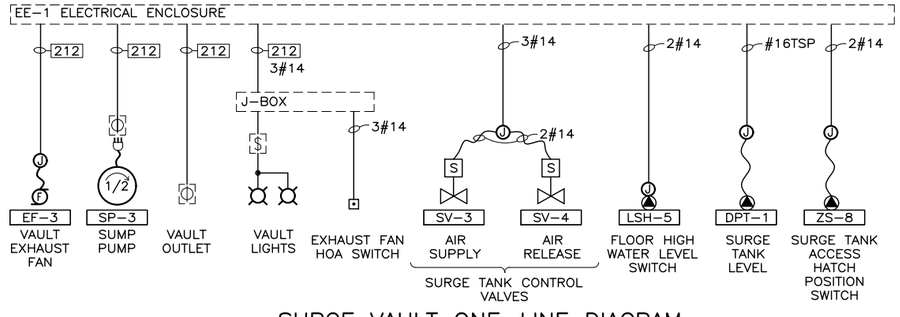
SHEET KEYNOTES:

1. INSTALL WALL LIGHT SWITCH AND EXHAUST FAN H0A SWITCH IN WEATHERPROOF ENCLOSURES. LOCATE NEAR THE ACCESS HATCH OPENING, SUCH THAT THE SWITCHES CAN BE OPERATED WITHOUT ENTERING THE VAULT.
2. INSTALL FLOW SWITCH IN A 1/2" PVC THREADED PVC TEE. ORIENT PARALLEL TO WALL.
3. START/STOP FLOAT SWITCH SUPPLIED WITH SUMP PUMP. INSTALL AS REQUIRED.
4. INSTALL EE-1 ON THE VAULT WALL BELOW THE LIGHT FIXTURE.
5. PROVIDE A GFCI RECEPTACLE FOR THE SUMP PUMP.

PLAN VIEW 1/E3.5 — 1/E4.6
0 1' 2' 4
3/4"=1'-0"

Z — 700 E WELL
N — 1000 E WELL

SECTION 2/— 3/4" = 1'-0"



SURGE VAULT ONE-LINE DIAGRAM

TABLE SV (CP-1

CONDUIT SIZE	CONDUCTOR QTY	SIZE	VOLTAGE
3/4"	1	#14	+24VDC
	1	#14	+24VDC
	1	#14	+24VDC
	1	#14	+24VDC
	1	#14	120 VAC
	1	#14	120 VAC
	1	#14	120 VAC
3/4"	1	#16TSP	#16TSP

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

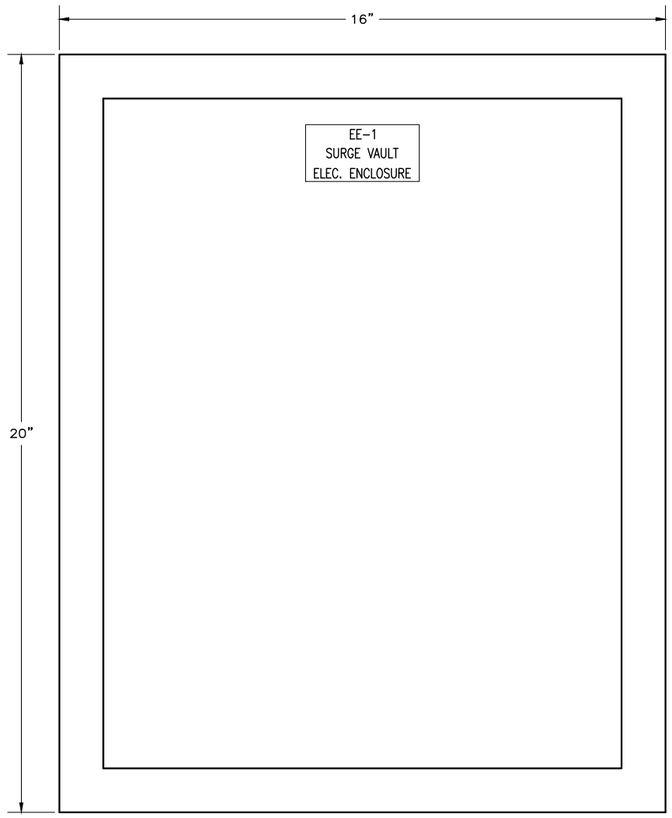
SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
SURGE VAULT

SHEET E5.1
127.24.400

FILE NAME:
FILE DATE:
7/04



CP-XX-04 VAULT ELECTRICAL ENCLOSURE | 1

6" = 1'-0" | E5.1

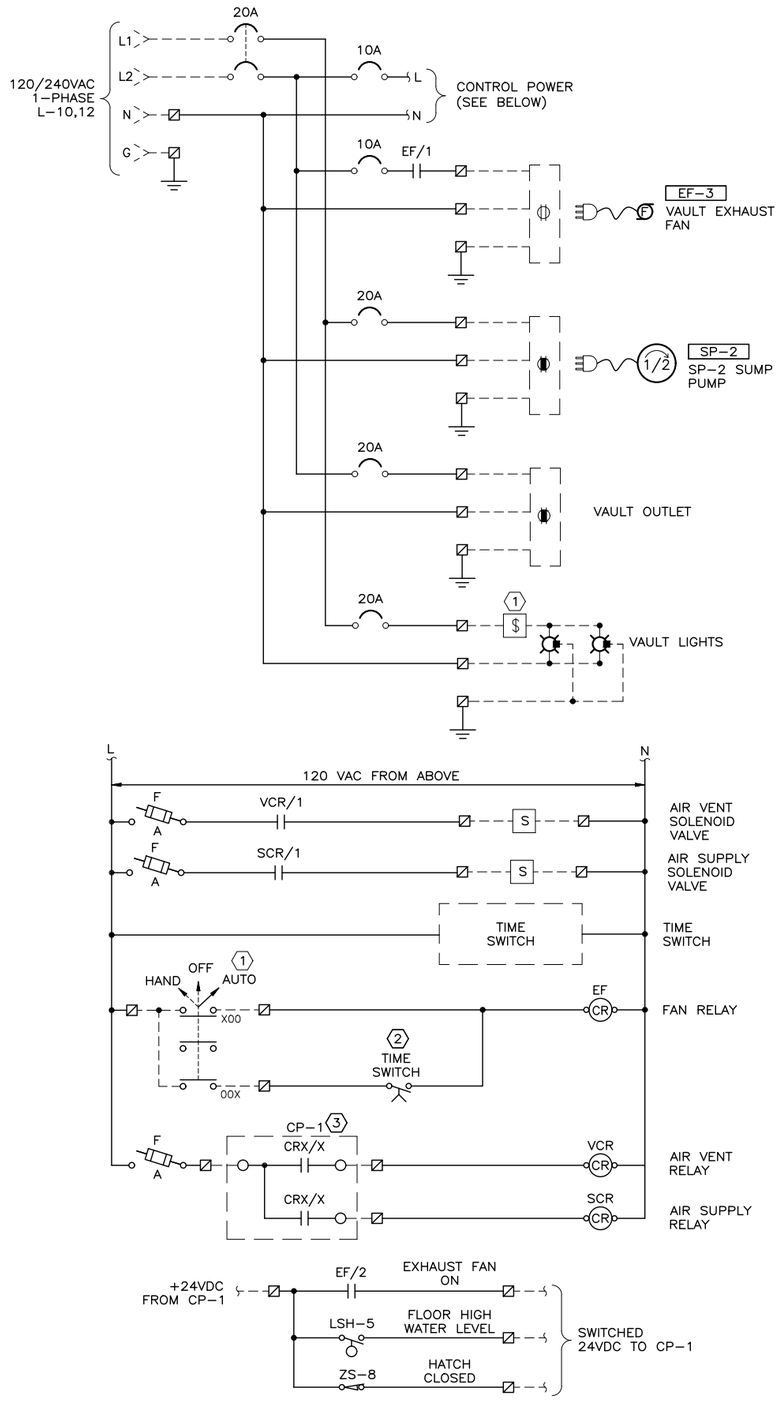


TABLE SV (CP-1 TO SURGE VAULT)

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR VOLTAGE	SIGNAL DESCRIPTION MCP TO SURGE VAULT
3/4"	1	#14	+24VDC	SOURCE FROM CP-1
	1	#14	+24VDC	EF-3 EXHAUST FAN RUN
	1	#14	+24VDC	LSH-5 VAULT FLOOD SWITCH
	1	#14	+24VDC	ZS-8 ACCESS HATCH POSITION SW.
	1	#14	120 VAC	SV-4 AIR RELEASE SOL. VALVE OPEN
	1	#14	120 VAC	SV-3 AIR SUPPLY SOL. VALVE OPEN
	1	#14	120 VAC	120 VAC COMMON
3/4"	1	#16TSP	#16TSP	DPT-1 DIFFERENTIAL PRESSURE TRANS.

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POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE APPROXIMATE. FINAL DIMENSIONS DETERMINED BY CONTRACTOR BASED ON THE REQUIRED COMPONENTS.
2. INTERNAL COMPONENT ARRANGEMENT DETERMINED BY CONTRACTOR.
3. CONTROL DIAGRAM IS TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE SELECTED COMPONENTS.

SHEET KEYNOTES:

1. SWITCH INSTALLED NEAR ACCESS HATCH AVAILABLE TO OPERATOR WITHOUT ENTERING THE VAULT.
2. SET TIME SWITCH TO OPERATE FAN FOR 15 MINUTES EVERY 12 HOURS.
3. 24VDC RELAY N CP-1 SWITCHING 120 VAC FROM EE-1. RELAY PROVIDED IN CP-1 BY OWNER.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

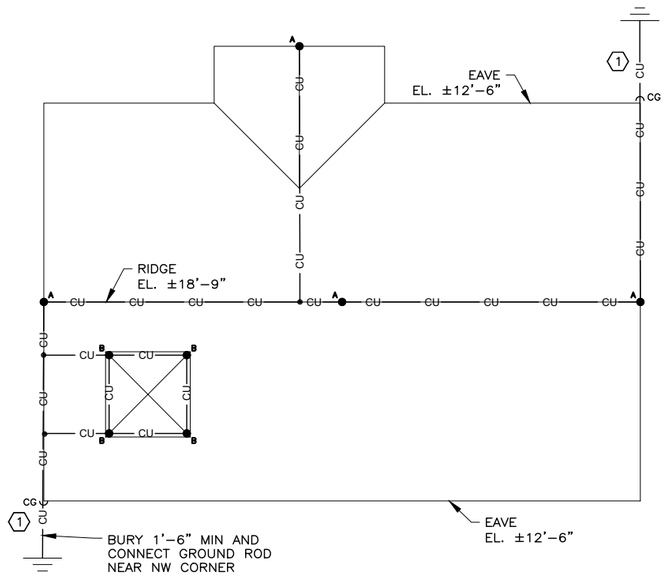
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
EE-1 SURGE VAULT ELECT. ENCLOSURE

SHEET E5.2

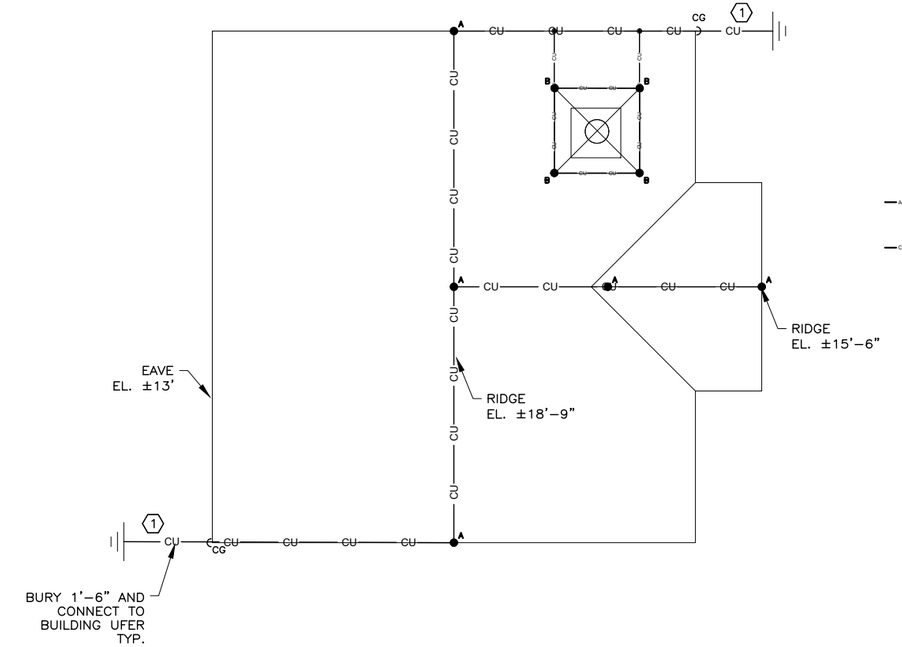
127.24.400

7/04



700 E WELL

0 4' 8' 16'
3/16"=1'-0"



1000 E WELL

0 4' 8' 16'
3/16"=1'-0"

N

LEGEND

- AIR TERMINAL
- MECHANICAL CONNECTION
- MISC. BONDING
- THRU-ROOF CONNECTOR (TR)
- CG — PVC CABLE GUARD
- CLASS I ALUMINUM MAIN CONDUCTOR
- CLASS I COPPER MAIN CONDUCTOR
- G — COPPER CLAD GROUND ROD WITH EXOTHERMIC WELD CONNECTION

H.P.E. INC. ELECTRICAL ENGINEERS
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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ELECTRICAL SITE PLANS AND BUILDING GROUNDING PLANS FOR ADDITIONAL GROUNDING REQUIREMENTS.
2. SYSTEM INSTALLATION DETAILS SHOWN ON E5.5.

SHEET KEYNOTES:

1. INSTALL LIGHTNING DOWN CONDUCTORS IN PVC CONDUCT IN BUILDING WALLS. NO SURFACE MOUNTED CONDUCTORS EITHER INSIDE OR OUTSIDE THE BUILDING SHALL BE PERMITTED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

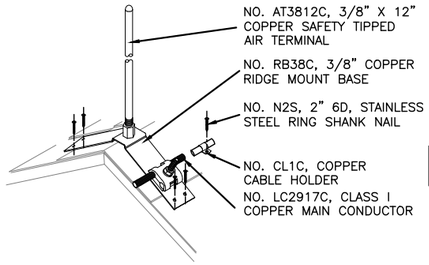
SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

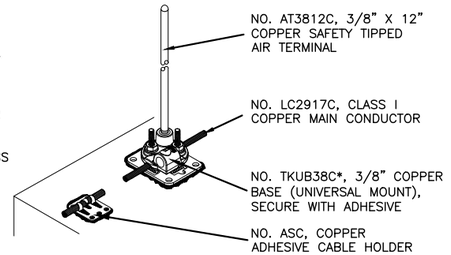
WELL PUMP STATION CONSTRUCTION
ELECTRICAL
ROOF LIGHTNING PROTECTION PLANS

SHEET E5.3
127.24.400

7/04

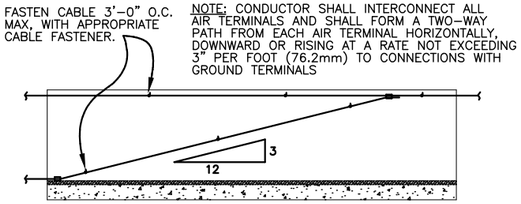


A AIR TERMINAL
— NTS

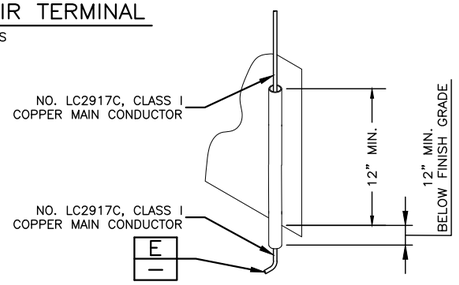


*** This product may be subject to patent rights of VFC. Consult your patent attorney about your rights and responsibilities regarding patented products.**

B AIR TERMINAL
— NTS

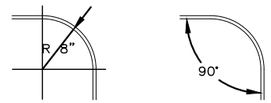


C 4 TO 1 CONDUCTOR DETAIL
— NTS



D CONDUIT DETAIL
— NTS

NOTE:
NO BEND OF A CONDUCTOR SHALL FORM AN INCLUDED ANGLE OF LESS THAN 90 DEGREES, NOR SHALL IT HAVE A RADIUS OF BEND LESS THAN 203mm (8").



E BEND RADIUS DETAIL
— NTS

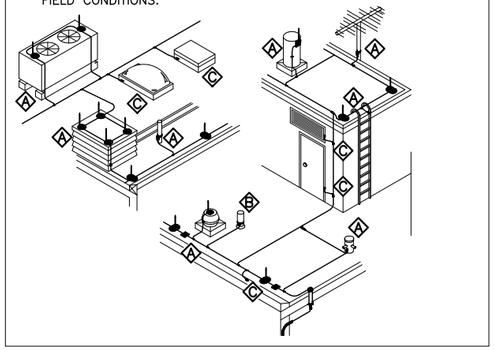
GENERAL BONDING NOTES

Ⓐ TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

Ⓑ (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'–0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.

Ⓒ TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

Ⓓ BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.



GENERAL CONSTRUCTION NOTES

1. THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT VFC, TO CLARIFY ANY DISCREPANCIES.

GENERAL INSTALLATION NOTES

1. LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO ENSURE THAT ALL POINTS ARE WITHIN 2'–0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'–0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'–0" (7,520mm) MAX.
2. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.
3. ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'–0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATION PRIOR TO INSTALLATION.
4. GROUND ROD ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'–0" (304mm) BELOW GRADE AND 2'–0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'–0" (3,048mm).
5. BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.
6. MAIN SIZE LIGHTNING CONDUCTOR BONDED TO MAIN GROUND BUS FIELD VERIFY LOCATION 1 1/4" CONDUIT FOR ACCESS, INSTALLED BY OTHERS. INTERCONNECT LIGHTNING PROTECTION GROUND TO TELEPHONE AND OTHER BUILDING GROUND SYSTEMS LOCATION FIELD DETERMINED OR AS REQUIRED BY CODE.
7. LB'S AND SIMILAR CONDUIT BODIES MAY NOT BE USED IN THE INSTALLATION OF DOWNLEAD CONDUITS, AS THEY DO NOT ADHERE TO THE REQUIRED 8" (203mm) MINIMUM BEND RADIUS.
8. SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.
9. ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH APPROPRIATE UL96 MARKINGS.
10. FINAL SYSTEM INSPECTION AND QUALITY CONTROL

    A) THE CONTRACTOR SHALL FURNISH AN LPI–IP CERTIFICATE OR A UL CERTIFICATE UPON COMPLETION OF THE INSTALLATION.

    B) LPI CERTIFICATION IF REQUIRED, REQUIRES SIGNATURE BY A REPRESENTATIVE OF THE OWNER AT MULTIPLE STAGES OF INSTALLATION & BY THEIR THIRD PARTY FIELD STAFF. UL CERTIFICATION IF REQUIRED, REQUIRES INSPECTION BY THEIR THIRD–PARTY FIELD STAFF AFTER COMPLETION OF THE INSTALLATION.

    C) AS–BUILT DRAWINGS SHALL BE COMPLETED AND STAMPED BY AN LPI CERTIFIED MASTER DESIGNER – INSTALLER OF LIGHTNING PROTECTION SYSTEMS.

    D) FINAL INSPECTION REPORT – A FINAL INSPECTION AND INSPECTION REPORT SHALL BE COMPLETED BASED ON ANSI/TIA/EIA 607, NEC, NFPA 780, AND UL96A INDUSTRY STANDARDS AS APPLICABLE. THE SCOPE OF THE INSPECTION AND REPORT SHALL INCLUDE;

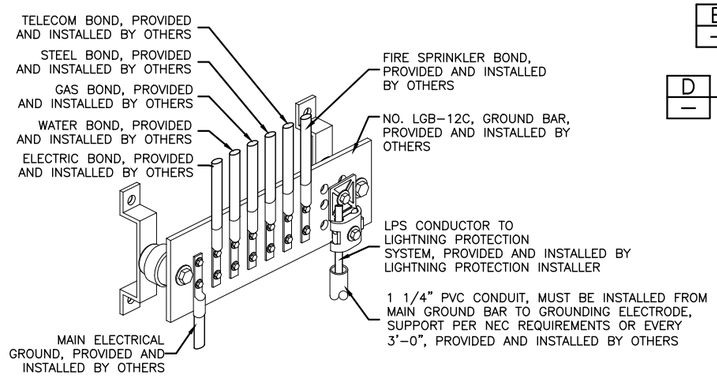
    a. TEST AND EVALUATION THE OF GROUNDING SYSTEM. RECORD FINAL SYSTEMS TO GROUND RESISTANCE LEVEL.
    b. EVALUATION AND TESTING OF THE INTERNAL BONDING AND GROUNDING SYSTEMS.
    c. EVALUATION AND TESTING OF EQUIPMENT GROUNDING.
    d. EVALUATION OF AC SURGE SUPPRESSION INSTALLATION.
    e. EVALUATION OF TELCO SURGE SUPPRESSION INSTALLATION.
    f. COPY OF THE LPI–IP OR UL LIGHTNING PROTECTION CERTIFICATION.
    g. FINAL AS–BUILT REVIEW AND SUBMISSION.

    E) REPORT SHALL INCLUDE DETAILED REPORTING AND TEST RESULTS WITH CORRESPONDING PHOTOS OF EACH EVALUATION CATEGORY.

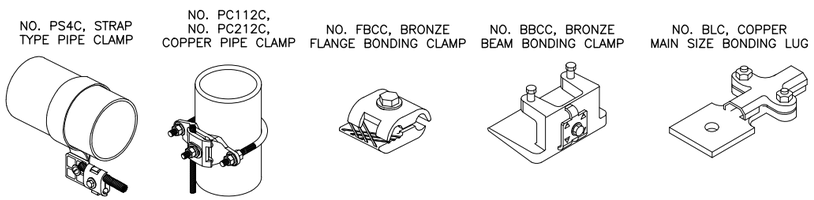
11. SYSTEM TO BE DESIGNED AND INSTALLED BY:

    VFC LIGHTNING PROTECTION
    90 NORTH CUTLER DRIVE * NORTH SALT LAKE, UT 84054
    PHONE: (801) 292–2956 * FAX: (801) 292–4164
    EMAIL: cad@vfcinc.com * INTERNET: www.vfcinc.com

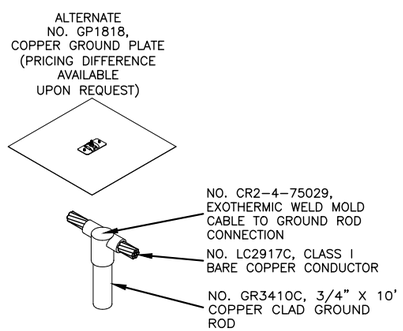
12. SYSTEM DESIGNED UTILIZING UL LISTED VFC MATERIALS.



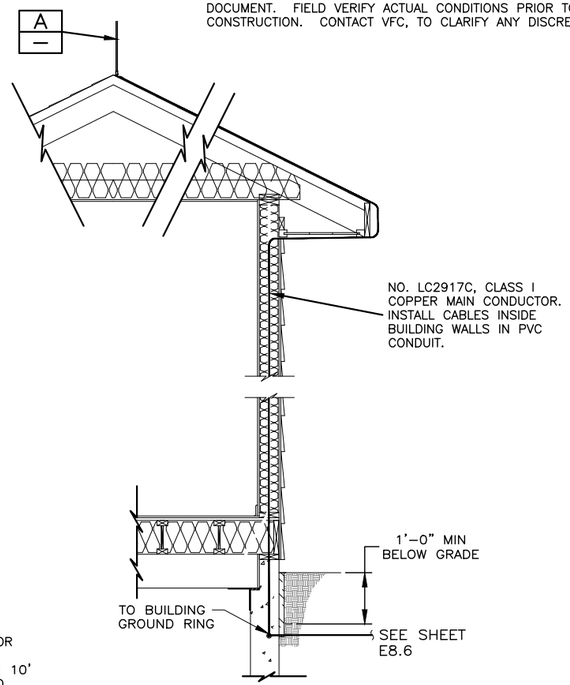
F COMMON BONDING GROUND BUS
— NTS



G MISCELLANEOUS
— NTS



H FurseWELD EXOTHERMIC WELD MOLD – CR2
— NTS



I TYPICAL DOWNLEAD DETAIL
— NTS

H.P.E., INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642–2051
708 EAST 50 SOUTH FAX (801) 642–2154
AMERICAN FORK, UT 84003

HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86–171214–2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
LIGHTNING SYSTEM DETAILS

SHEET E5.4
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

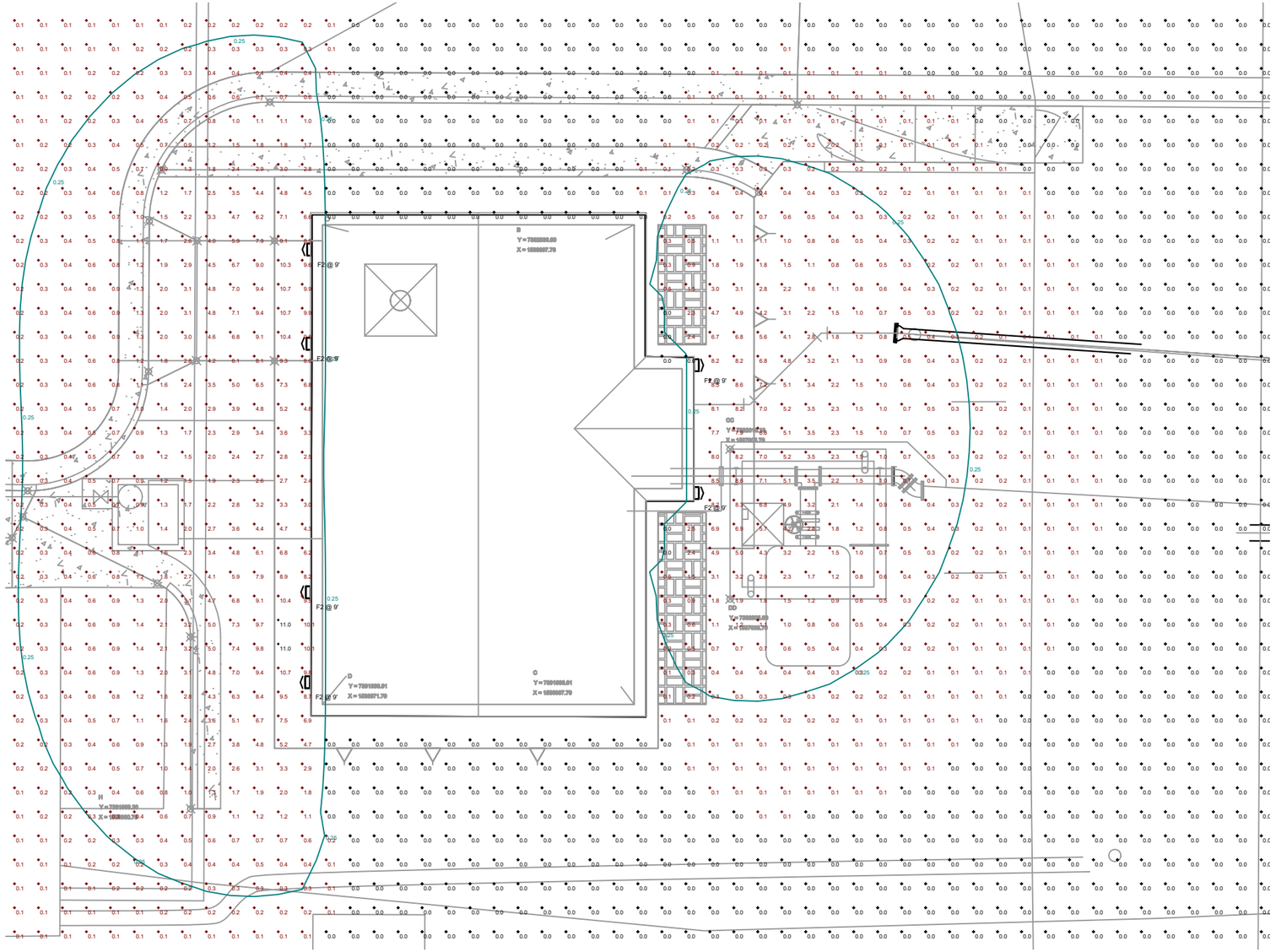
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.



Luminaire Locations

		Location						Aim		
No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z
5	F2	281.27	156.45	9.00	9.00	88.57	0.00	281.27	156.45	0.00
6	F2	281.27	145.80	9.00	9.00	90.00	0.00	281.27	145.80	0.00
9	F2	248.89	137.53	9.00	9.00	270.54	0.00	248.89	137.53	0.00
10	F2	248.95	158.26	9.00	9.00	270.54	0.00	248.95	158.26	0.00
11	F2	249.00	166.11	9.00	9.00	270.54	0.00	249.00	166.11	0.00
4	F2	248.84	130.01	9.00	9.00	270.54	0.00	248.84	130.01	0.00

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	0.8 fc	11.0 fc	0.0 fc	N/A	N/A

700 E. SITE PHOTOMETRICS 1
0 4' 8' 16'
3/16"=1'-0"

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power
⌂	F2		6	COOPER LIGHTING SOLUTIONS - LUMARK (FORMERLY EATON)	AXCS1A-GRF-W	1A AXCENT SMALL LED WALLPACK WITH 3000K CCT AND 80 CRI LEDS	1	1443	0.98	13.5

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

HANSEN ALLEN & LUCE inc ENGINEERS

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
SITE PHOTOMETRICS

SHEET E6.1
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

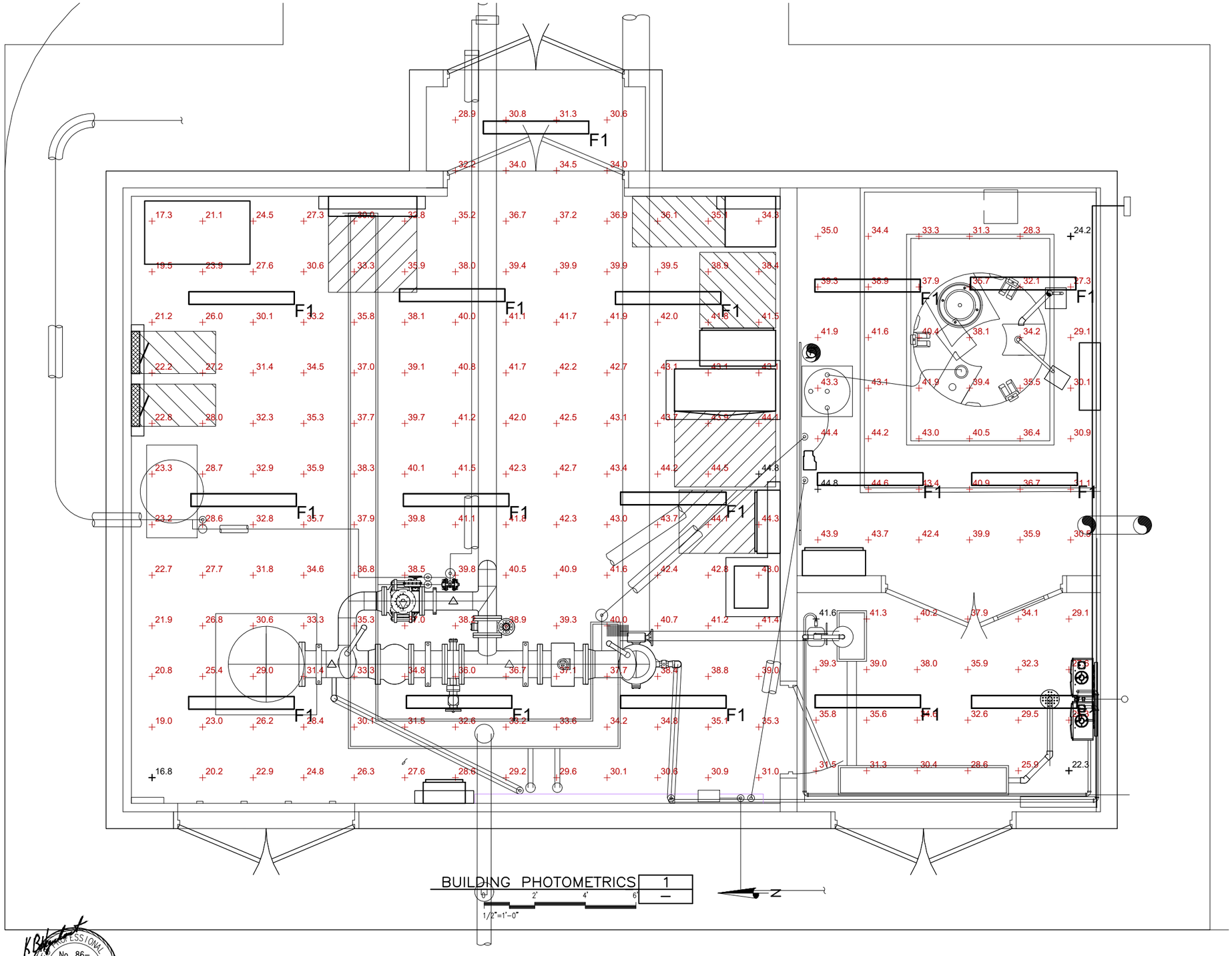
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.



FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	GDS	2				
CHECKED	KBH	1				
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL
BUILDING PHOTOMETRICS

SHEET E6.2
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

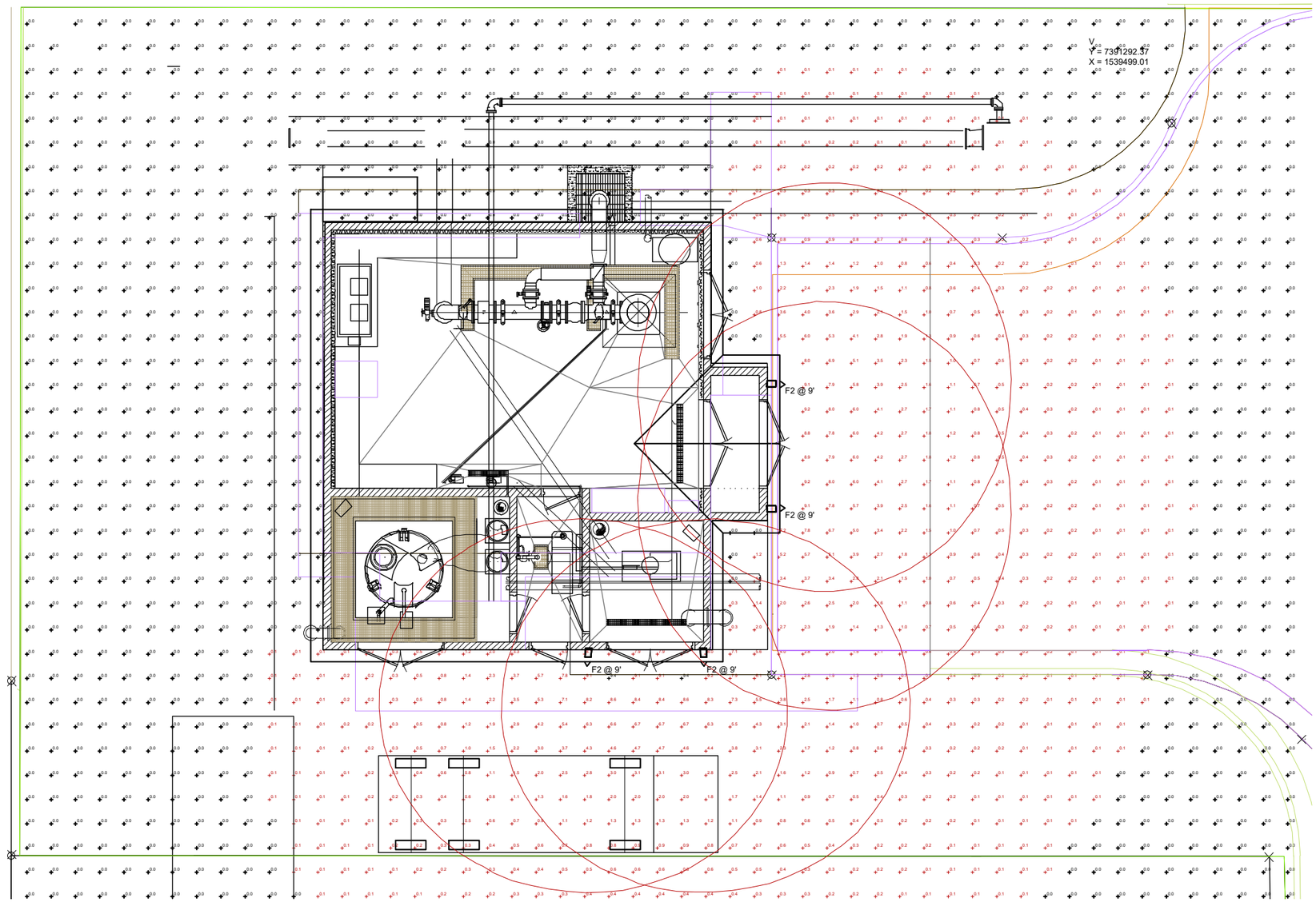
HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.



SITE PHOTOMETRICS 1
0 30' 60' 120' 180'
1"=60'

N

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

PROJECT ENGINEER

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DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
SITE PHOTOMETRICS

SHEET E6.3
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

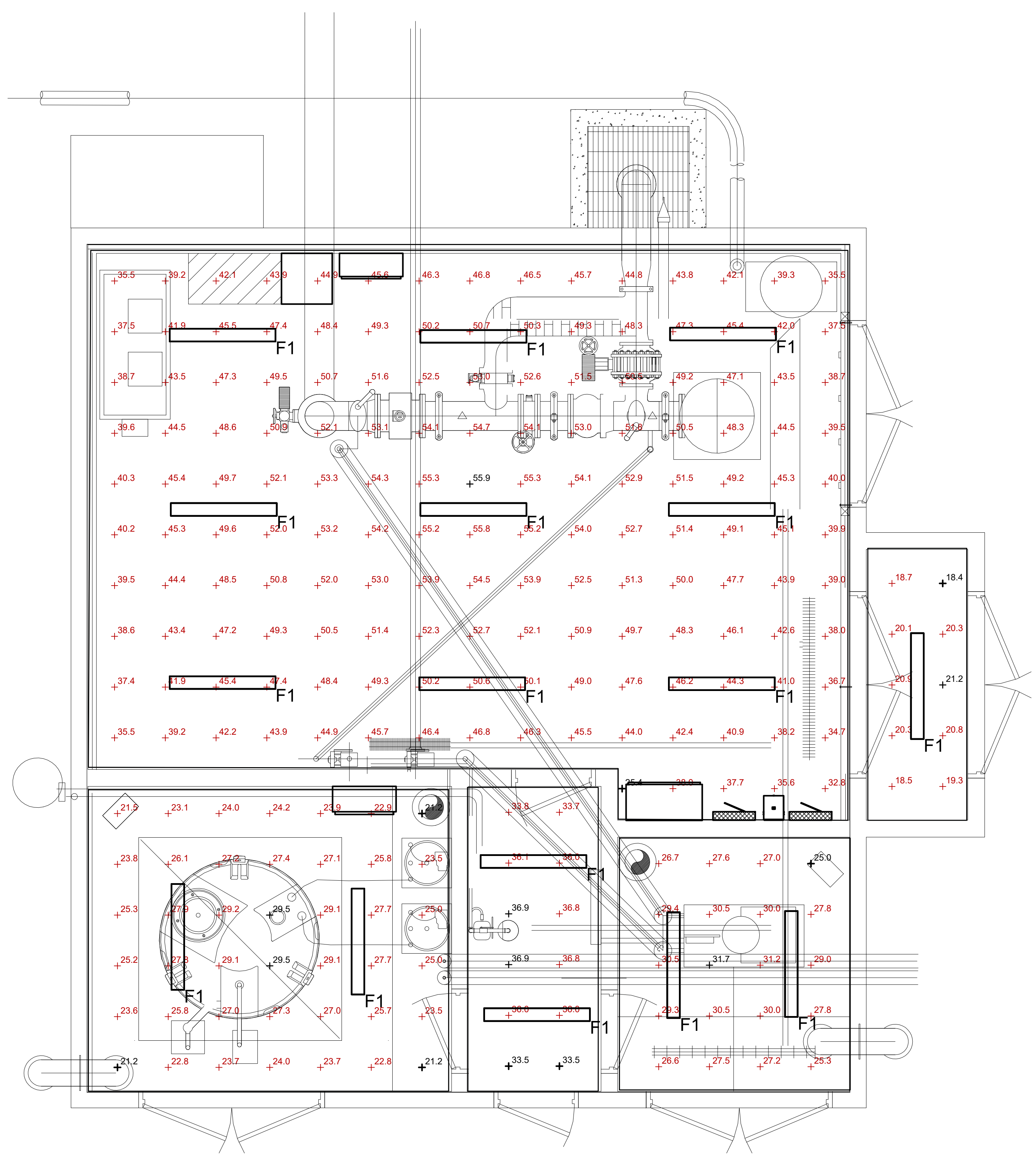
HPE PROJECT: 22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.



BUILDING PHOTOMETRICS | 1
0 2' 4' 8'
3/8"=1'-0"

N

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3		
DRAFTED	GDS	2		
CHECKED	KBH	1		
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
BUILDING PHOTOMETRICS

SHEET E6.4
127.24.400

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 700 East Well Pump Station
Project Type: New Construction

Construction Site:
7618 South 700 East
Sandy, Utah

Owner/Agent:
Utah

Designer/Contractor:
Hegerhorst Power Engineering INC
708 east 50 south
American Fork, Utah 84003
8016422051

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Workshop	988	0.91	899
		Total Allowed Watts =	899

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Workshop				
LED: LED Panel 44W:	1	16	51	810
			Total Proposed Watts =	810

Interior Lighting PASSES: Design 10% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer Ben Eliot Sorenson 11/1/2023
Name - Title Signature Date

COMcheck Software Version COMcheckWeb

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 700 East Well Pump Station
Project Type: New Construction
Exterior Lighting Zone 2 (Neighborhood business district (LZ2))

Construction Site:
7618 South 700 East
Sandy, Utah

Owner/Agent:
Utah

Designer/Contractor:
Hegerhorst Power Engineering INC
708 east 50 south
American Fork, Utah 84003
8016422051

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Walkway < 10 feet wide	80 ft of	0.5	Yes	40
			Total Tradable Watts (a) =	40
			Total Allowed Watts =	40
			Total Allowed Supplemental Watts (b) =	400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Walkway < 10 feet wide (80 ft of walkway length): Tradable Wattage				
LED: LED PAR 13W:	1	6	14	81
			Total Tradable Proposed Watts =	81

Exterior Lighting PASSES: Design 82% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer Ben Eliot Sorenson 11/1/2023
Name - Title Signature Date

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
MODEL ENERGY CODE, SHT. 1

SHEET E7.1
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2, C405.2.2.1 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.4, C405.2.4.1, C405.2.4.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces. C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.7 [EL28][1]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.1.1 [FI57][3]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	GDS	2			
CHECKED	KBH	1			
DATE	JUNE 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE AS SHOWN

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 700 EAST
MODEL ENERGY CODE, SHT. 2

SHEET E7.2
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 1000 East Well
Project Type: New Construction

Construction Site:
7750 South 1000 East
Midvale, Utah

Owner/Agent:
Utah

Designer/Contractor:
Hegerhorst Power Engineering INC
708 east 50 south
American Fork, Utah 84003
8016422051

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Workshop	1050	0.91	956
		Total Allowed Watts =	956

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Workshop				
LED: F1: DAMP LOCATION: LED Panel 44W:	1	16	51	810
		Total Proposed Watts =		810

Interior Lighting PASSES: Design 15% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer Ben Eliot Sorenson 11/2/2023
Name - Title Signature Date

COMcheck Software Version COMcheckWeb

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 1000 East Well
Project Type: New Construction
Exterior Lighting Zone 2 (Neighborhood business district (LZ2))

Construction Site:
7750 South 1000 East
Midvale, Utah

Owner/Agent:
Utah

Designer/Contractor:
Hegerhorst Power Engineering INC
708 east 50 south
American Fork, Utah 84003
8016422051

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Walkway < 10 feet wide	66 ft of	0.5	Yes	33
		Total Tradable Watts (a) =		33
		Total Allowed Watts =		33
		Total Allowed Supplemental Watts (b) =		400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Walkway < 10 feet wide (66 ft of walkway length): Tradable Wattage				
LED: F2: EGRESS: LED PAR 13W:	1	4	14	54
		Total Tradable Proposed Watts =		54

Exterior Lighting PASSES: Design 88% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ben Eliot Sorenson Engineer Ben Eliot Sorenson 11/2/2023
Name - Title Signature Date

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

FILE NAME:
FILE DATE:

KBH

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
9/27/24
STATE OF UTAH

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE
NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
MODEL ENERGY CODE, SHT. 1

SHEET
E7.3
127.24.400

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT:22.013
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multpurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2, C405.2.2.1 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.4, C405.2.4.1, C405.2.4.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.7 [EL28][1]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 9/27/24 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	GDS	2					
CHECKED	KBH	1					
DATE	JUNE 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE NONE

JORDAN VALLEY WATER CONSERVANCY DISTRICT

WELL PUMP STATION CONSTRUCTION
ELECTRICAL – 1000 EAST
MODEL ENERGY CODE, SHT. 2

SHEET E7.4

127.24.400

7/04