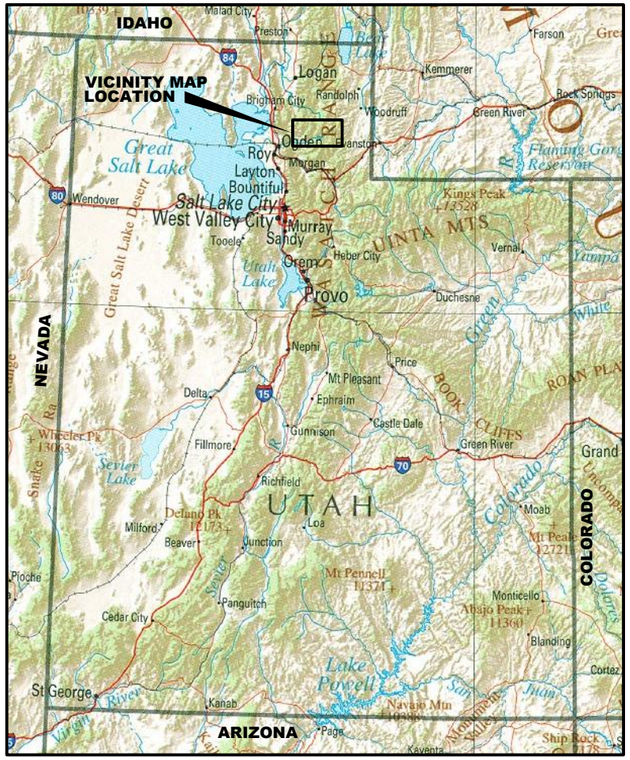
CORPORATION OF THE PRESIDING BISHOP OF THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Construction Drawings for the

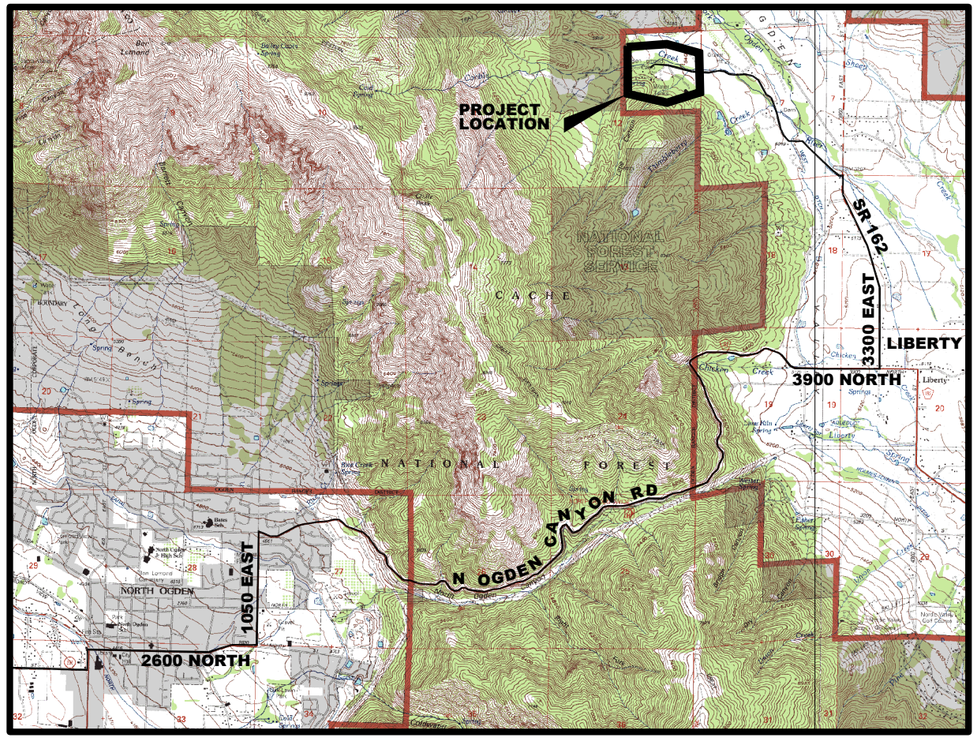
BEN LOMOND AND SHAWNEE RECREATION AREA
PROJECT No. 533-4012/510-4718
WATER SYSTEM IMPROVEMENTS

NOVEMBER 2012

MWH
SALT LAKE CITY, UTAH



LOCATION MAP



VICINITY MAP

LIST OF DRAWINGS

11-06-12

Architect / Engineer:
MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: LOCATION MAP, VICINITY MAP, AND LIST OF DRAWINGS

Designed: L PARRY
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: G-2

MWH JOB NO 10500952

- CENTERLINE
- PROPOSED PROPERTY LINE
- EXISTING PROPERTY LINE
- PROPOSED STRUCTURE OR FACILITY
- EXISTING STRUCTURE OR FACILITY
- FUTURE STRUCTURE OR FACILITY
- PROPOSED FENCE
- EXISTING FENCE
- PROPOSED A.C. PAVING
- EXISTING A.C. PAVING
- CONTOUR LINE, FINISHED GRADE
- CONTOUR LINE, EXISTING GRADE
- FINISHED ELEVATION
- EXISTING ELEVATION
- CUT OR FILL SLOPE TO BE CONSTRUCTED
- EXISTING CUT OR FILL SLOPE
- GRAVEL ROAD
- RAILROAD
- CONCRETE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED UTILITY POLE
- EXISTING UTILITY POLE
- PROPOSED TELEPHONE OR POWER BOX
- EXISTING TELEPHONE OR POWER BOX
- PROPOSED OPEN DITCH
- EXISTING OPEN DITCH
- PROPOSED CANAL
- EXISTING CANAL
- EXISTING BURIED POWER CABLE
- EXISTING OVERHEAD POWER CABLE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING GAS LINE
- EXISTING TELEPHONE CABLE
- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- FIRE HYDRANT
- FIRE HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER METER
- EXISTING WATER METER
- PROPOSED MANHOLE
- EXISTING MANHOLE

- PROPOSPED CLEANOUT BOX
- EXISTING CLEANOUT BOX
- PROPOSED CATCH BASIN
- EXISTING CATCH BASIN
- PROPOSED AIR VALVE
- EXISTING AIR VALVE
- PROPOSED BLOWOFF VALVE
- EXISTING BLOWOFF VALVE
- PROPOSED PRV STATION
- EXISTING PRV STATION
- SECTION CORNER
- SOIL BORING
- SURVEY MONUMENT
- BENCH MARK
- COMPACTED SOIL
- NATURAL GROUND
- PROPOSED CULVERT
- EXISTING CULVERT
- WATER SURFACE
- EASEMENT LINE
- PRESSURE SWITCH
- PRESSURE SWITCH WITH DIAPHRAGM SEAL
- FLANGED FITTING
- WELDED FITTING
- MECHANICAL-TYPE FITTING (GROOVED)
- SCREWED, SOCKET-WELD, BELL AND SPIGOT OR HUBLESS FITTING
- SLEEVE-TYPE COUPLING
- FLANGED ADAPTER COUPLING
- FLANGED ADAPTER - SET SCREW TYPE
- EXPANSION JOINT
- MECHANICAL TYPE COUPLING
- FLEXIBLE COUPLING
- UNION
- FLOOR DRAIN
- PIPE SUPPORT (IN PLAN ONLY)
- PIPE ANCHOR
- CHECK VALVE
- PRESSURE REGULATING VALVE

- BACK-PRESSURE VALVE
- MOTOR OPERATOR FOR VALVES (M = ELECTRIC, P = PNEUMATIC, H = HYDRAULIC)
- STOP GATE
- SLIDE GATE
- SLUICE GATE
- GATE VALVE, BURIED WITH VALVE BOX
- BUTTERFLY VALVE, BURIED WITH VALVE BOX
- NEEDLE VALVE
- PRESSURE RELIEF VALVE
- ANGLE VALVE
- HOSE BIBB (H/B)
- CAPPED END OR PLUGGED END
- BLIND FLANGE
- REDUCER OR INCREASER
- CUT PIPE
- GATE VALVE
- BUTTERFLY VALVE
- AIR VACUUM AND AIR RELEASE ASSEMBLY
- PRESSURE GAUGE

AC	ACRES
ACP	ASPHALTIC CEMENT PIPE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATE
ASA	AMERICAN STANDARDS ASSOCIATION (NOW ANSI)
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL
AVAR	AIR VACUUM AND AIR RELEASE VALVE
BCR	BEGIN CURB RETURN
BFP	BACK FLOW PREVENTER
BK	BACK
BLDG	BUILDING
BLD FLG	BLIND FLANGE
BM	BENCH MARK
BO	BLOW-OFF ASSEMBLY
BOT	BOTTOM
BRG	BEARING
B & S	BELL & SPIGOT
BSMT	BASEMENT
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
CB	CATCH BASIN
CE	CONSTRUCTION EASEMENT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHK V	CHECK VALVE
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CO	CLEANOUT
COB	CLEANOUT BOX
COL	COLUMN
CONC	CONCRETE
CTR	CENTER
CY	CUBIC YARDS
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DN	DOWN
DWG	DRAWING

E	EAST
ESMT	EASEMENT
EO	EDGE OF OIL
ECR	END CURB RETURN
EL	ELEVATION
EQ	EQUAL OR EQUATION
EVC	END VERTICAL CURVE
EXIST	EXISTING
EXPJT	EXPANSION JOINT
EXT	EXTERIOR
FIN	FINISH
FD	FLOOR DRAIN
F TO F	FACE TO FACE
FIN GR	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FLG	FLANGE
FLGD	FLANGED
FLR	FLOOR
FND	FOUND
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET OR FOOT
FTG	FOOTING
GALV	GALVANIZED
GIP	GALVANIZED IRON PIPE
GPD	GALLONS PER DAY
GPH	GALLONS PER MINUTE
GRD	GRADE OR GROUND
GR BRK	GRADE BREAK OR GRADE CHANGE
GV	GATE VALVE
HORIZ	HORIZONTAL
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HPI	HORIZONTAL POINT OF INTERSECTION
ID	INSIDE DIAMETER
IN	INCH
INV	INVERT ELEVATION
IRRG	IRRIGATION
L	LENGTH
LC	LENGTH OF CURVE
LP	LIGHT POLE
LT	LEFT
LWL	LOW WATER LEVEL
MAX	MAXIMUN
ME	MECHANICAL END (COLLARED TYPE)

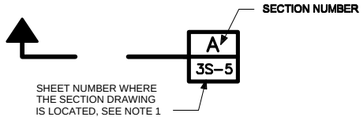
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	MONUMENT LINE
MON	MONUMENT
MSL	MEAN SEA LEVEL
N	NORTH
NTS	NOT TO SCALE
O.D.	OUTSIDE DIAMETER
ORIG	ORIGINAL
P	POLE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PE	PERMANENT EASEMENT
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT OF CURVE
POT	POINT OF TANGENT
PP	POWER POLE
PRESS	PRESURE
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REGULATING, RELIEF OR REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QTY	QUANTITY
R	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWD	REDWOOD
RED	REDUCER OR REDUCING
REF	REFERENCE OR REFER
REINF	REINFORCE OR REINFORCED
REQD	REQUIRED
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE OR REINFORCED PLASTIC MORTOR
RR	RAILROAD
RT	RIGHT
R/W	RIGHT OF WAY

S	SOUTH, SCUM, SINK, SECOND OR SLOPE
SCD	SCREWED
SCHED	SCHEDULE
SD	STORM DRAIN
SHT	SHEET
SL	SLOPE
SL	SURVEY LINE
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	SANITARY SEWER
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STN STL	STAINLESS STEEL
STRUCT	STRUCTURAL OR STRUCTURE
T & B	TOP AND BOTTOM
T & G	TONGUE & GROOVE
TAN	TANGENT
TB	TELEPHONE BOX
TBE	THREAD BOTH ENDS
TBC	TOP BACK CURB
TBM	TEMPORARY BENCH MARK
TM	TELEPHONE MANHOLE
TP	TELEPHONE POLE OR TELEGRAPH POLE
TYP	TYPICAL
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
WM	WATER METER
W	WEST
W/	WITH
WT	WEIGHT
YD	YARD

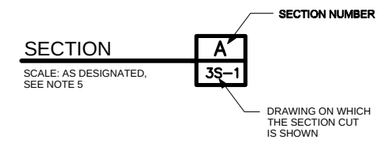
SECTION AND DETAIL IDENTIFICATION

SECTION IDENTIFICATION

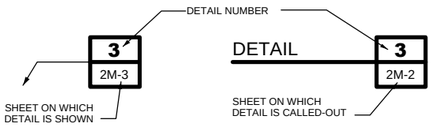
(1) SECTION CUT SHOWN ON DRAWING AS:



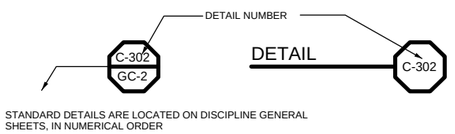
(2) ON SHEET NUMBER G-2 THIS SECTION IS IDENTIFIED AS:



DETAIL IDENTIFICATION



STANDARD DETAIL IDENTIFICATION



11–06–12

Architect / Engineer:

MWH

Scale: NONE

WARNING 0 1/2 1
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BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

Property Number:
510-4718 / 533-4012

Sheet Title:
SYMBOLS AND ABBREVIATIONS

Designed: L PARRY
Drawn: L PARRY
Checked: M CHAMBERS

Sheet:
G-3

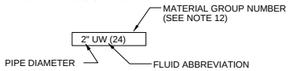
MWH JOB NO 10500952

FLUID ABBREVIATION	FUNCTION THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT (* SEE NOTE 5)	PIPING MATERIALS (SEE SCH AT RIGHT)				FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4)		
		EXPOSED PIPING (SEE NOTE 14)		BURIED PIPING (SEE NOTE 13)				
		4" DIA AND SMALLER	6" DIA AND LARGER	4" DIA AND SMALLER	6" DIA AND LARGER	MINIMUM TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
PD	PLANT DRAIN OR DRAIN	2	8,12	2, 27,35	12,22,26,27	NOTE 6	WATER	2,8(A) 12,28(B) 22(C)
PO	PLANT OVERFLOW	2	8	2	8,28	NOTE 6	WATER	2,8(A) 28(B)
PW	POTABLE WATER	2,11,16,24	8,11,16	11,16,24, 31	8,11,16,19,31	125	WATER	2,8,11,16,24(A) 19,28(B)
RW	RAW WATER	2,11,16,24	8,11,16	11,16,24,31	8,11,16,19,31	125	WATER	2,8,11,16,24(A) 19,28(B)
RWL	RAINWATER LEADER	4,12	12	12	12	NOTE 7	--	--
SA	SAMPLE LINE (SEE LIST AT RIGHT)	16,18,24	--	16,18,24	--	125	WATER	(A)
SD	SANITARY DRAIN AND VENT	4,12	12	12,35	12	NOTE 7	--	--
SDR	STORM DRAIN	--	8	--	22	NOTE 6	WATER	8(A) 28(B) 22(C)
SS	SANITARY SEWER	--	12,22	--	12,22	NOTE 7	--	--
SU	STRUCTURE UNDERDRAIN	--	--	23	23	NO	TEST	REQ'D
SUC	STRUCTURE UNDERDRAIN COLLECTOR	--	--	23	23	NOTE 6	WATER	(C)
UW	UTILITY WATER (NON-POTABLE WATER)	2,11,14,15,16,24	8,11,14,15,16	11,14,15,16,24	8,11,19	125	WATER	2,11,24(A) 19(B)
V	VENT	2	2	2	2	25	AIR	(A)

LIST OF SAMPLE LINES

PIPE DESIGNATION	SAMPLE POINT

TYPICAL PIPE DESIGNATION:



NOTES:

GENERAL NOTE
ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.

NOTE 1
PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.

NOTE 2
LEAKAGE ALLOWANCE IS AS FOLLOWS:

(A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
(B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.02 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
(C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE
(D) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT
(E) PIPE SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OF MORE THAN 4 INCHES MERCURY COLUMN

NOTE 3
FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

NOTE 4
NO SUBSTITUTIONS UNLESS ACCEPTED BY THE ENGINEER PER THE SPECIFICATIONS.

NOTE 5
PIPING GROUP NUMBER SHOWN THUS * SHALL BE INSULATED. SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.

NOTE 6
STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.

NOTE 7
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

NOTE 8
NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.

NOTE 9
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 10
PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 11
FOR VALVES 8" AND LARGER SEE VALVE SCH FOR SPECIAL VALVES SEE SPECIFICATIONS.

NOTE 12
CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS: ——◆——

NOTE 13
FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

NOTE 14
EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY ENGINEER.

NOTE 15
FOR SHORT PIPE RUNS, LIME SLURRY PIPING MATERIAL SHALL BE NON-ABRASIVE FLEXIBLE RUBBER HOSE AND QUICK CONNECT COUPLINGS WITH GROUP NO 1 AT EQUIPMENT.

NOTE 16
FOR VALVE ENDS, SEE SPECIFICATIONS.

NOTE 17
ALL RECLAIMED WATER PIPING SHALL BE COLOR CODED PURPLE OR AS REQUIRED BY LOCAL CODE.

NOTE 18
FOR OUTDOOR EXPOSED PIPING, GROUP NO. 36 IS HIGHLY RECOMMENDED.

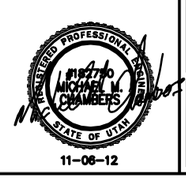
NOTE 19
PROVIDE DOUBLE CONTAINMENT FOR ALL CHEMICAL PIPING PER CODE REQUREMENTS.

NOTE 20
SIMILAR TO GROUP NO. 16 EXCEPT SCH. 40.

NOTE 21
FOR FIRST STAGE MEMBRANE CONCENTRATE TEST PRESSURE AT 250 PSI, FOR ALL OTHER LINES, 150 PSI.

PIPING MATERIAL SCH (SEE NOTE 4 AND GENERAL NOTE AT RIGHT)

GROUP NO	PIPE (SEE NOTE 13)	FITTINGS	VALVES, 6" AND SMALLER (SEE NOTE 1, 11 & 16)
1	STEEL, ASTM A53, SCH 40, BLACK WELDED.	2 1/2" AND SMALLER, MALLEABLE IRON, ASME B16.3, THREADED, BANDED, BLACK, 150 PSI OR STEEL, ASME B16.9, BUTT-WELDED. 3" AND LARGER, CAST IRON, ASME B16.1, 125 PSI FLANGED OR MECHANICAL COUPLING.	BRONZE, THREADED, GATE: CRANE 428 UB OR STOCKHAM B-105. GLOBE: STOCKHAM B-37. CHECK: CRANE 37 OR STOCKHAM B-319Y. IRON PLUG VALVE: NORDSTROM FIG 142 OR 143. ECCENTRIC PLUG: DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: JAMESBURY FIG 351 OR WATTS #B-6080. LUBRICATED PLUG VALVE (FOR CONDENSATE ONLY): NORDSTROM FIG 114 OR 115.
2	STEEL, ASTM A53, SCH 40, BLACK WELDED, GALVANIZED	2 1/2" AND SMALLER, MALLEABLE IRON, ASME B16.3, THREADED, BANDED, GALVANIZED 150 PSI. 3" AND LARGER, CAST IRON, ASME B16.1, 125 PSI FLANGED OR MECHANICAL COUPLING.	2 1/2" AND SMALLER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON, OR MILLIKEN 603E. BALL: JAMESBURY FIG 351 OR WATTS #B-6080. 3" AND LARGER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON, OR MILLIKEN 601. GATE: AWWA C500. BUTTERFLY: AWWA, FLANGED
3	STEEL, ASTM A106 OR A53, SCH 80, SEAMLESS, BLACK.	FORGED STEEL, ASME B16.11, SOCKET WELDED OR THREADED, BLACK, 2000 PSI, OR STEEL, ASME B16.9, BUTT-WELDED, SCH 80.	CAST IRON, LUBRICATED PLUG: NORDSTROM FIG 214 OR 305
4	SAME AS GROUP NO. 1	CAST IRON, ASME B16.12, THREADED, DRAINAGE PATTERN.	--------
5	WELDED STEEL, AWWA C200, UNLINED.	WELDED STEEL, FABRICATED, AWWA C208, UNLINED.	CAST IRON, FLANGED, LUBRICATED PLUG: NORDSTROM FIG 143
6	STEEL, ASTM A106, OR A53, SCH 40, SEAMLESS, BLACK.	STEEL, ASME B16.9, BUTT-WELDED. CAST IRON, ASME B16.1, 125 PSI, FLANGED FORGED STEEL, SOCKET WELDED, ASME B16.11, 2000 PSI OR STEEL, ASME B16.5, 150 PSI FLANGED.	AS INDICATED ON DRAWINGS
7	SAME AS GROUP NO. 2.	MALLEABLE IRON, ASME B16.3, THREADED, BANDED, GALVANIZED, 300 PSI.	BRONZE THREADED, GLOBE: CRANE #212P OR STOCKHAM B-62 OR B-32T. BALL: JAMESBURY FIG 351 OR WATTS #B-6080. CHECK: CRANE #27TF OR STOCKHAM B-322T.
8	WELDED STEEL PIPE (AWWA C200 AND MODIFIED PER SECTION 02570)	WELDED STEEL, AWWA C208, FABRICATED.	AS INDICATED ON DRAWINGS.
9	SAME AS GROUP NO. 1.	2 1/2" AND SMALLER, MALLEABLE IRON, ASME B16.3, THREADED, BANDED, BLACK, 150 PSI. 3" AND LARGER, STEEL, ASME B16.9, BUTT-WELDED	ECCENTRIC PLUG: DEZURIK PEC, CAST IRON, OR MILLIKEN 603E. CHECK: CRANE 336E OR MILWAUKEE #544. BALL: JAMESBURY FIG 351 OR WATTS #B-6080.
10	SAME AS GROUP NO. 3.	1-1/4" AND SMALLER, FORGED STEEL, ASME B16.11, THREADED OR SOCKET WELDED, BLACK, 3000 PSI, WITH FLANGED AMMONIA UNIONS. 1-1/2" AND LARGER, STEEL, ASME B16.9, BUTT-WELDED OR FLANGED, SCEHDULE 80	SEMI-PLUG AND YOKE TYPE OR BALL FOR CHLORINE SERVICE, FORGED CARBON STEEL
11	DUCTILE IRON, ANSI A21.51, (AWWA C151 AND MODIFIED PER SECTION 02565), ENDS BELL AND SPIGOT, MECH. JOINTS OR 125 PSI FLGD. (TYPICAL SERVICE - WATER LINES).	DUCTILE IRON AWWA C110 AND MODIFIED PER SECTION 02565, BELL AND SPIGOT JOINTS (RESTRAINT OR NON-RESTRAINT), MECH CPLNG, FLGD OR MECH JTS, 250 PSI ,(PRESS. RATING) 12" AND SMALLER, 150 PSI, (PRESS. RATING) 14" AND LARGER, WITH 125 PSI ASME B16.1 FLANGES. FOR HIGHER PRESS. RATING, REFER TO MFTR CATALOG.	GATE: AWWA C500, O-RING SEALS, MECHANICAL JOINT ENDS, CLOW F-5065. BUTTERFLY: AWWA, ECCNETRIC PLUG DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: PRATT OR APCO-WILLAMETTE. AS INDICATED ON DRAWINGS.
12	CAST IRON SOIL, ANSI/ASTM A-74, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS. AT THE OPTION OF THE CONTRACTOR, DUCTILE IRON (GROUP NO. 11) MAY BE SUBSTITUTED	CAST IRON SOIL, ANSI/ASTM A-74, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS. AT THE OPTION OF THE CONTRACTOR, DUCTILE IRON (GROUP NO 11) MAY BE SUBSTITUTED.	
13	NOT USE	------	--------
14	STAINLESS STEEL, TYPE 316, ASTM A312, SCHEDULE 40S.	STAINLESS STEEL, TYPE 316, SCREWED, WELDED SLIP-ON FLANGE ASME B16.3, OR SOCKET WELDED FITTINGS SCHEDULE 40S, (SCREWED JTS NOT ALLOWED FOR OZ, OX, LOX SERVICE)	STAINLESS STEEL, BALL, FLANGED: CONTROMATICS SERIES 2801 OR JAMESBURY SERIES 7150. CHECK: LADISH 5275 OR CRANE FIG 377 OR AS SHOWN ON DRAWINGS
15	STAINLESS STEEL, TYPE 316, ASTM A312, SCHEDULE 10S.	STAINLESS STEEL, TYPE 316 WELDED SLIP-ON FLG ASME B16.3, OR SOCKET WELDED FITTINGS SCHEDULE 40S, (NO SCREWED JOINTS ALLOWED)	STAINLESS STEEL, AS INDICATED ON DRAWINGS.
16	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT. ASTM D1785. (SEE NOTE 18).	POLYVINYL CHLORIDE, SCH 80, NORMAL IMPACT, SOCKET SOLVENT WELD JOINTS, ASTM D2467. SOLVENT SHALL BE COMPATIBLE WITH FLUID SERVICE	POLYVINYL CHLORIDE, BALL, DIAPHRAGM, BUTTERFLY, OR LIFT CHECK: NIBCO/CHEMTROL, MCCANNA-MARPAC, OR GEORGE FISCHER SLOANE.
17	POLYPROPYLENE, ASTM D4101, SCHEDULE 40, WITH HEAT FUSED JOINTS.	POLYPROPYLENE, SCH 40, DRAINAGE TYPE WITH HEAT FUSED SOCKET JTS.	--------
18	NOT USED	------	------
19	POLYVINYL CHLORIDE PRESSURE PIPE AWWA C900 (4"-12") OR AWWA C905 (14"-48") WITH BELL AND SPIGOT JOINTS.	DUCTILE IRON FITTINGS, 150 PSI, FOR POLYVINYL CHLORIDE PIPE, AWWA C110 CEMENT MORTAR LINED, AWWA C104.	SAME AS GROUP NO. 11.
20	NOT USED	------	--------
21	NOT USED	------	--------
22	REINFORCED CONCRETE, ASTM C76, O-RING BELL AND SPIGOT JOINTS.	USE MANHOLES.	--------
23	POLYVINYL CHLORIDE, DOUBLE WALL, CORRUGATED, GRAVITY SEWER PIPE, ASTM F794, F949, BELL AND SPIGOT, PERFORATED (FOR STRUCTURE UNDERDRAIN), NON-PERFORATED (FOR STRUCTURE UNDERDRAIN COLLECTOR).	PVC, ASTM F794 AND ASTM F949.	--------
24	LEAD FREE COPPER, ASTM B88, TYPE K, SOFT TEMPERED WHERE BURIED, HARD TEMPERED WHERE EXPOSED.	LEAD FREE WROUGHT COPPER OR CAST BRONZE, ASME B16.22, SILVER SOLDER JOINT, 150 PSI, OR COMPRESSION FITTINGS. (FOR COMPRESSED AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER)	BRONZE, SILVER SOLDER JOINT, GLOBE: CRANE #1310 OR STOCKHAM B-14T. CHECK: CRANE #1342 OR 36, OR STOCKHAM B-309Y OR B-345. GATE: CRANE #426 OR STOCKHAM B-104 OR B-105.
25	NOT USED	------	------
26	SAME AS GROUP NO. 11 (TYPICAL SERVICE - SLUDGE AND SEWAGE LINES)	SAME AS GROUP NO. 11.	ECCENTRIC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON OR MILLIKEN 601. SWING TYPE CHECK: CRANE #383 OR POWELL FIG 559. BALL: PRATT OR APCO-WILLAMETTE.
27	POLYVINYL CHLORIDE GRAVITY SEWER PIPE, ASTM D3034, BELL AND SPIGOT.	POLYVINYL CHLORIDE, ANSI/ASTM D3034, BELL AND/OR SPIGOT.	--------
28	NOT USED	------	------
29	POLYETHYLENE PIPE AND TUBING, ASTM D2513, SDR FOR YARD PIPING PER PLUMBING CODE.	HEAT FUSION FITTINGS, PE 3406, PE 2306, PE 2406, OR PE 3406 COMPRESSION TYPE OR OTHER APPROVED JOINTS PER PLUMBING CODE.	POLYETHYLENE BALL VALVES APPROVED BY PLUMBING CODE.
30	NOT USED	------	------
31	HIGH DENSITY POLYETHYLENE (HDPE) ASTM D3350 - SDR AS SPECIFIED.	HDPE THERMAL BUTT-FUSED FLANGE CONNECTIONS AT ALL VALVES AND TRANSITIONS.	--------
32	NOT USED	------	------
33	NOT USED	------	------
34	NOT USED	------	------
35	ABS AND PVC COMPOSITE PIPING, ASTM D2680	SOLVENT WELDED JOINTS OR ELASTOMERIC GASKET CONFORMING TO ASTM D 2680	------
36	CHLORINATED POLYVINYL CHLORIDE (CPVC) SCH. 80, ASTM DI 784 - CLASS 23447-B.	CPVC, SCHEDULE 80, SOCKET AND SOLVENT WELD JOINTS.	BALL: CHEM-AIRE, GLOBE: CRANE #212P OR STOCKHAM B-62 OR B-32,
37	NOT USED	------	------



11-08-12

Architect / Engineer:
MWH

Scale: NONE
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: PIPE SCHEDULE

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: G-4
MWH JOB NO 10500952

CIVIL GENERAL NOTES

GENERAL

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
3. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
4. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, ROCK RUBBLE ETC... AT AN APPROVED LANDFILL OR, OTHER SUITABLE DISPOSAL SITES AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTIONS.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER.
5. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.

PIPING

1. THE CONTRACTOR SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH SERVICES CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 INCHES OF COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
3. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
4. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR SPECIFIED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
5. ALL PIPE TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAIL C-601 FOR FLEXIBLE PIPE. THE PIPING SHOWN ON THESE PLANS SHALL BE RESTRAINED JOINT DESIGN AT ALL SLEEVE TYPE COUPLINGS.

EROSION CONTROL

1. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR WORK DURING THE CONSTRUCTION, SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER PRIOR TO THE START OF CONSTRUCTION.
   a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER.
   b. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
   c. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS OR AS REQUIRED BY THE CITY, DISTRICT, OR OTHER REGULATORY AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G. HYDROSEEDING, MULCHING OF STRAW, SAND BAGGING, DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS INTO EXISTING PUBLIC STREETS, WATERWAYS, OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS.

CIVIL GENERAL NOTES - CONTINUED

SURVEY AND CONTROL

COORDINATES ARE SHOWN IN UTAH STATE PLANE NAD 83, CENTRAL ZONE, US SURVEY FEET.

ELEVATIONS ARE NAVD 88.

CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION
CP 101	3,655,320.95	1,531,165.36	5576.89
CP 102	3,655,346.38	1,531,145.88	5577.19

DRAINAGE SYMBOLS

- RIPRAP
- HAY BALE
- SILT FENCE

CORROSION CONTROL SYMBOLS

- ETS — ELECTROLYSIS TEST STATION
- T — CATHODIC TEST STATION
  - CTS — CORROSION TEST STATION
  - CATS — CASING TEST STATION
  - IJTS — INSULATING JOINT TEST STATION
  - FPTS — FOREIGN PIPELINE TEST STATION
  - CSTS — CURRENT SPAN TEST STATION

GENERAL CIVIL SYMBOLS

- NEW
- EXISTING
- FUTURE
- EXISTING TO BE REMOVED OR DEMOLISHED
- CENTERLINE
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORZ TO VERT)

TOPOGRAPHY AND MAPPING SYMBOLS

- 125 — MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE
- TOE OF SLOPE
- PL — PROPERTY LINE
- R/W — RIGHT-OF-WAY LINE
- GRADE BREAK
- RIDGE LINE
- ESMT — EASEMENT LINE
- TEMP ESMT — TEMPORARY EASEMENT LINE
- TRAIL OR DIRT ROAD
- FLOW LINE
- FLOOD HAZARD AREA
- EDGE OF WATER (PONDS ETC...)
- EDGE OF WETLANDS
- RAILROAD
- GUARDRAIL (PERMANENT)
- GUARDRAIL (REMOVABLE)
- VEGETATION
- WELL

GEOTECHNICAL SYMBOLS

- B-X — SOIL BORING LOCATION
- TEST PIT LOCATION
- XX — OBSERVATION HOLE
- MW — MONITORING WELL

PIPING AND UTILITIES

UTILITIES (SINGLE LINE) SEE PIPE SCHEDULE FOR ADDITONAL PIPING INFO

- G — UTILITIES (SIZE WHERE NOTED)
- G — UNDERGROUND

G	NATURAL GAS LINE
HPG	HIGH PRESSURE GAS LINE
LPG	LIQUID PETROLIUM GAS LINE
W	WATER
PW	POTABLE WATER
FIRE	FIRE SUPPLY WATER LINE
REW	RECLAIMED WATER
UW	UTILITY / NON-POTABLE WATER
IRRG	IRRIGATION LINE
SDR	STORM DRAIN
SS	SANITARY SEWER
STM	STEAM LINE
TEL	TELEPHONE
COMM	COMMUNICATIONS LINE
FOC	FIBER OPTIC CABLE
CATV	CABLE TV
ELEC	POWER
UNID	UNIDENTIFIED
ABND	ABANDONED UTILITY

- BUMPED HEAD
- PP — POWER POLE
- BURIED ACCESS MANOLE (IN PLAN) LOCATE ON SIDE SHOWN
- BURIED ACCESS MANHOLE (IN PROFILE)
- AV/AR VALVE (IN PLAN)
- AV/AR VALVE (IN PROFILE)
- A/R VALVE (IN PLAN) LOCATE ON SIDE SHOWN
- A/R VALVE (IN PROFILE)
- BLOWOFF (IN PLAN) LOCATE ON SIDE SHOWN
- BLOWOFF (IN PROFILE)
- FH — FIRE HYDRANT (IN PLAN)
- FH — FIRE HYDRANT (IN PROFILE)
- MH — MANHOLE (IN PLAN)
- MH — MANHOLE (IN PROFILE)
- COTG / PCOTG — CLEANOUT TO GRADE OR PRESSURE
- COTG / PCOTG — CLEANOUT TO GRADE (IN PLAN)
- COTG / PCOTG — CLEANOUT TO GRADE OR PRESSURE
- COTG / PCOTG — CLEANOUT TO GRADE (IN PROFILE)

BURIED VALVES IN VALVE BOX

- GATE VALVE
- BUTTERFLY VALVE
- ECCENTRIC PLUG VALVE
- LUBRICATED PLUG VALVE

ROAD AND PAVING SYMBOLS

- ASPHALT CEMENT PAVING
- CONCRETE PAVING (HEAVY DUTY)
- GRAVEL PAVING
- CONCRETE PAVING (LIGHT DUTY) SIDEWALKS ETC...
- CONCRETE CURB
- CONCRETE CURB AND GUTTER
- DROP INLET CATCH BASIN
- CURBSIDE DROP INLET CATCH BASIN WITH LOCAL DEPRESSION
- SIDE INLET CATCH BASIN WITH LOCAL DEPRESSION
- CONCRETE WALK
- DRIVEWAY/ACCESS RAMP

CONTROL SYMBOLS

- BM-XX — BENCH MARK
- ### — SITE COORDINATES (SEE TABLE ON DRAWINGS)
- N XXXXXXX / E XXXXXXX — SITE COORDINATES
- EL XXXX.XX — MONUMENT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- HORZ AND VERT CONTROL POINT
- XXX.XX — FINISHED ELEVATION
- (XXX.XX) — EXISTING ELEVATION
- DELTA

STRUCTURES

- SITE OR RETAINING WALL
- FENCE (CHAINLINK)
- FENCE (WOOD)
- STRUCTURE
- STRUCTURE (BELOW GRADE)
- CB / CB — CATCH BASIN

REV 032612

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (M-D-Y)	Description
0	11-06-12	ISSUED FOR BID

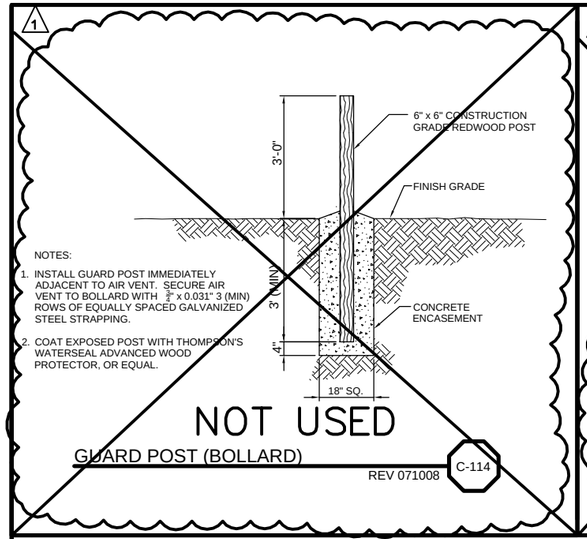
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: GENERAL CIVIL NOTES AND DETAILS - I

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

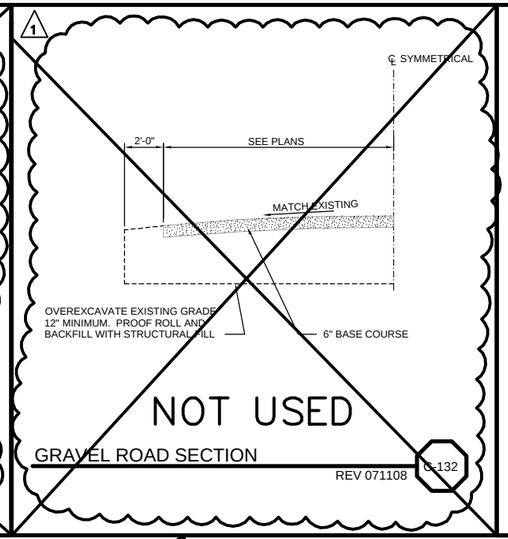
Sheet: GC-1

MWH JOB NO 10500952



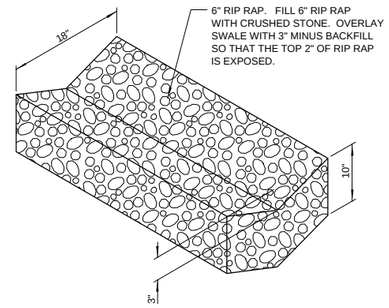
GUARD POST (BOLLARD)

REV 071008 C-114



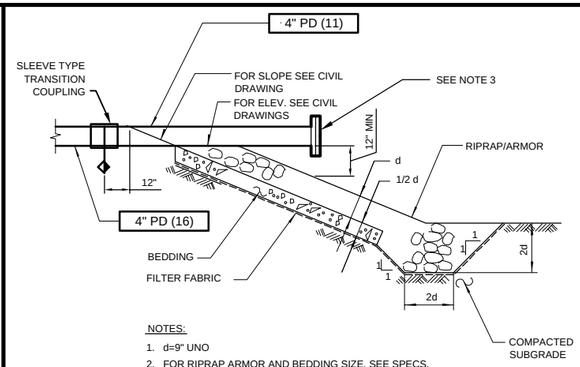
GRAVEL ROAD SECTION

REV 071108 C-132



DRAINAGE SWALE

NOT TO SCALE 051612 C-201



RIPRAP & ARMOR PROTECTION

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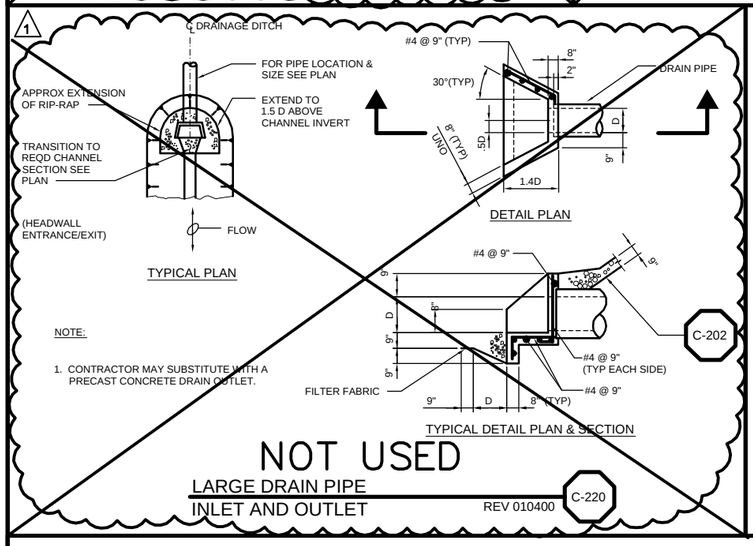
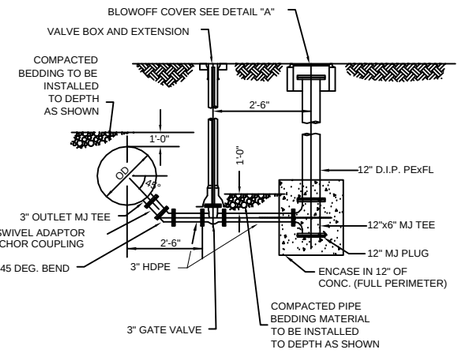
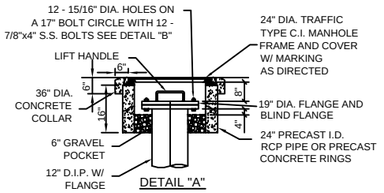


LARGE DRAIN PIPE INLET AND OUTLET

REV 010400 C-220





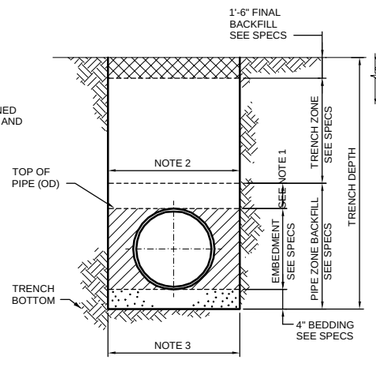
NOTES:
1. FLANGE AND BLIND FLANGE TO BE CLASS 150.
2. ALL EXPOSED FERROUS SURFACES OF BURIED PIPE AND APPURTENANCES TO BE PROVIDED W/ PROTECTIVE COATINGS PER SPECIFICATIONS.
3. ALL JOINTS TO BE RESTRAINED.

BLOWOFF ASSEMBLY DETAIL

REV 082712 C-400

NOTES:

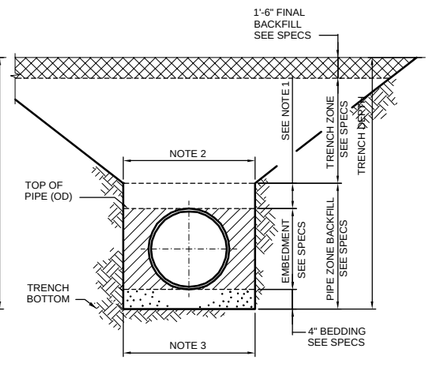
1. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.
2. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.
3. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.
4. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.
5. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.
6. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.
7. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.
8. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."
9. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.



TRENCH SECTION - TYPE I

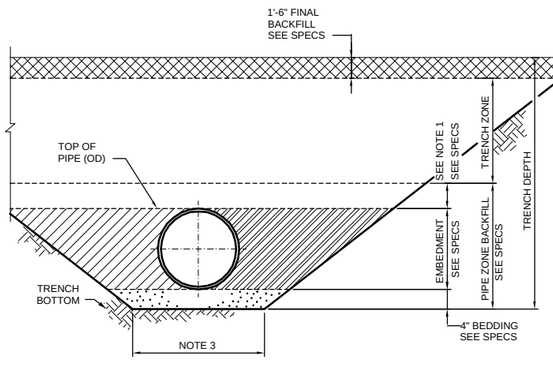
NOTES:

1. 4" MIN FOR PIPE DIAMETER < 24"



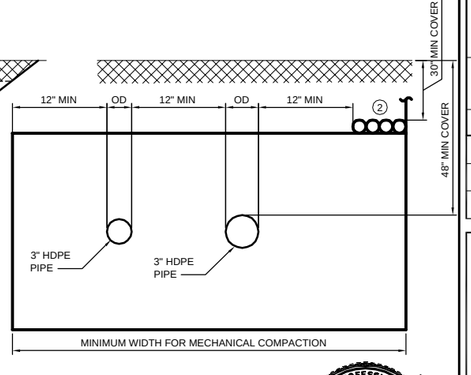
TRENCH SECTION - TYPE II

2. MAX TRENCH WIDTH @ TOP OF PIPE: OD + 12" FOR LESS THAN 18"



TRENCH SECTION - TYPE III

3. MIN TRENCH BOTTOM WIDTH = OD +12" FOR MECHANICAL COMPACTION



NOTES:

1. SEE ELECTRICAL DETAILS FOR DUCTBANK INSTALLATION PROCEDURES.

PARALLEL PIPE TRENCH DETAIL

TRENCH SECTION FLEXIBLE PIPE

REV 071508 C-601

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
1	12-04-12	UDEQ DDW RTCS
0	11-06-12	ISSUED FOR BID

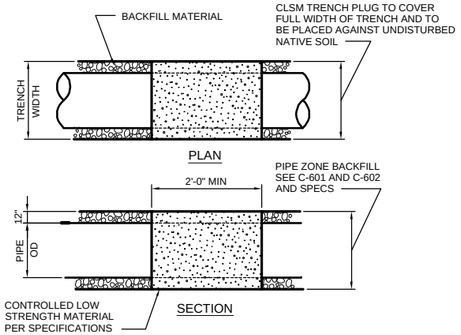
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: GENERAL CIVIL DETAILS - II

Designed: L PARRY
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GC-2

MWH JOB NO 10500952

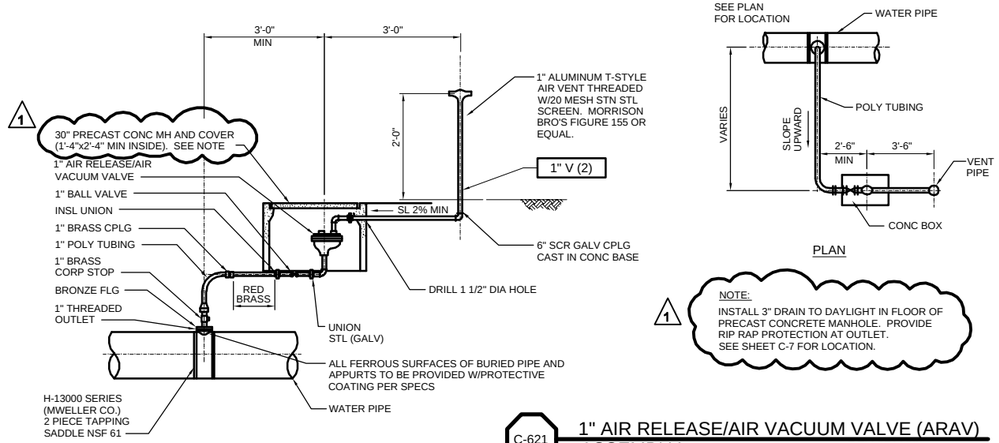


NOTE:

TRENCH PLUGS SHALL BE SPACED AT LEAST EVERY 500'-0", UNLESS INDICATED OTHERWISE

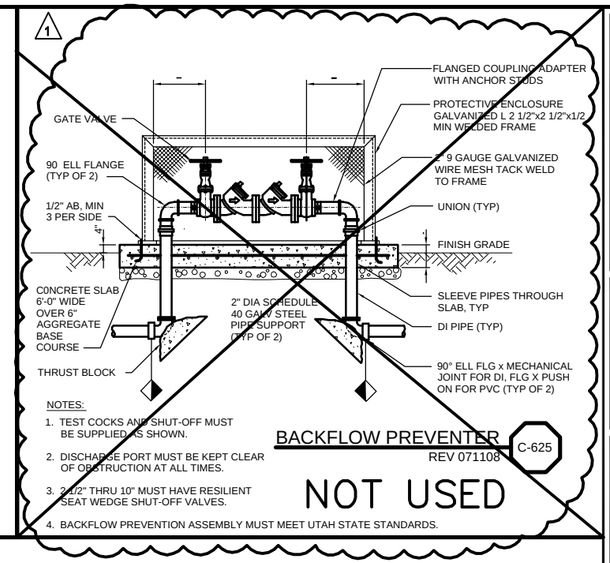
TRENCH PLUG

REV 071508 C-603



C-621 1" AIR RELEASE/AIR VACUUM VALVE (ARAV) ASSEMBLY

REV 071108



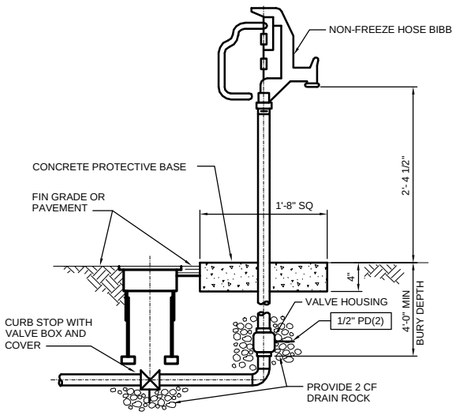
NOTES:

1. TEST COCKS AND SHUT-OFF MUST BE SUPPLIED, AS SHOWN.
2. DISCHARGE PORT MUST BE KEPT CLEAR OF OBSTRUCTION AT ALL TIMES.
3. 2 1/2" THRU 10" MUST HAVE RESILIENT SEAT WEDGE SHUT-OFF VALVES.
4. BACKFLOW PREVENTION ASSEMBLY MUST MEET UTAH STATE STANDARDS.

BACKFLOW PREVENTER

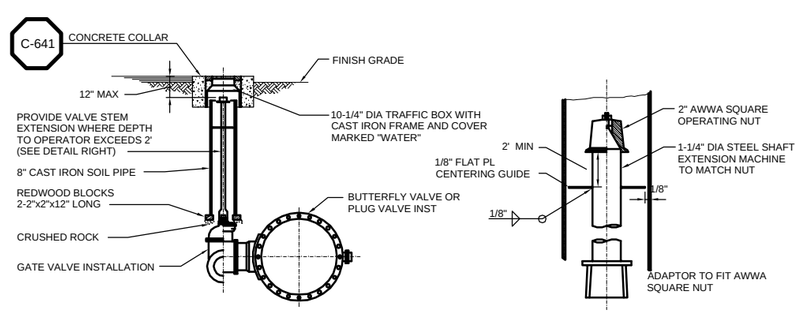
REV 071108 C-625

NOT USED



NON-FREEZE YARD HYDRANT

REV 071008 C-627



NOTES:

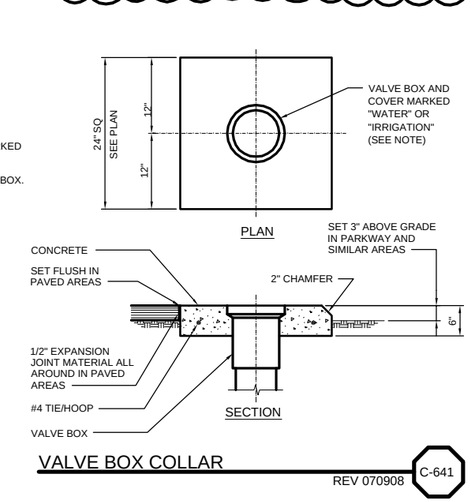
PROVIDE 1 PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY IN ACCORDANCE WITH SPECS.

BURIED VALVE INSTALLATION

REV 071008 C-640

NOTES:

1. VALVE COVERS ON IRRIGATION PIPING SHALL BE MARKED "IRRIGATION" OR "IRR".
2. TERMINATE TRACER WIRE AT TOP AND INSIDE VALVE BOX.



VALVE BOX COLLAR

REV 070908 C-641

Architect / Engineer:
MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (y-m-d)	Description
0	11-06-12	ISSUED FOR BID
1	12-04-12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

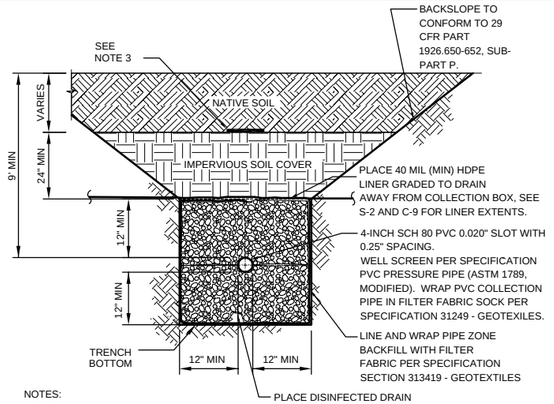
Sheet Title: GENERAL CIVIL DETAILS - III

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GC-3

MWH JOB NO 10500952

11-06-12

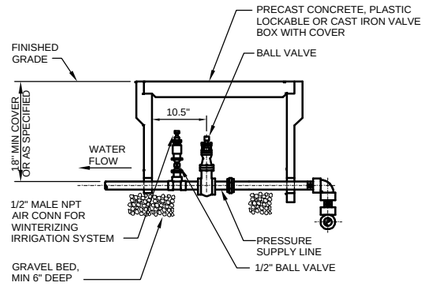


NOTES:

1. TRENCH DEPTH VARIES AND SHALL BE CONSTRUCTED TO ALLOW COLLECTION PIPE TO SLOPE TOWARD THE COLLECTION BOX @ 1' PER 100'.
2. RESTORE SURFACE CONDITION PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
3. PLACE LOCATOR IDENTIFICATION TAPE BETWEEN IMPERVIOUS SOIL COVER AND NATIVE SOIL. LOCATOR WIRE (STRAPPED TO PIPE) TO DAYLIGHT AT SPRING COLLECTION BOX. C-641 (SIMILAR)

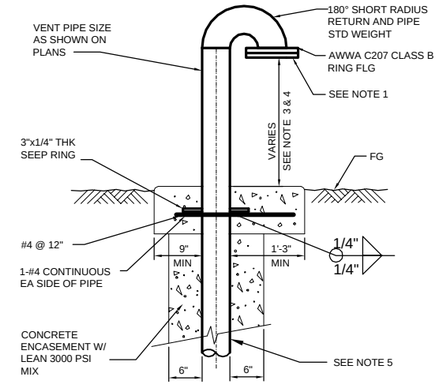
COLLECTION PIPE TRENCH SECTION — C-904

SCALE: NO SCALE



WINTERIZATION CONNECTION — C-905

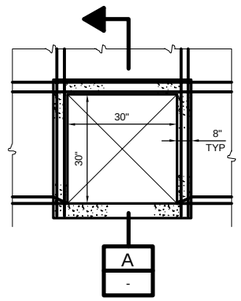
REV 112408



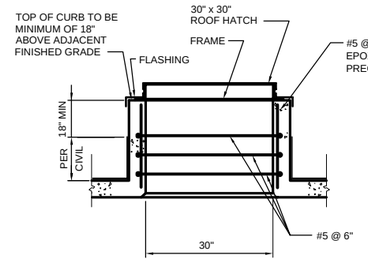
NOTES:

1. TYPE 316 STN STL INSECT SCREEN (#4 MESH) BACKED BY #14 (MESH), BOLTED BETWEEN FLANGES. USE AWWA C207 CLASS B RING FLG BOLTED TO FLG ABOVE FOR RETAINER.
2. GALVANIZE AFTER FABRICATION, EXCEPT SCREEN.
3. MIN HEIGHT OF FLANGE TO FINISH GRADE IS 6 FT.
4. MIN HEIGHT OF FLANGE TO FINISH GRADE FOR AIR VENT ON SPRING COLLECTION BOXES, SEE DETAILS C-918 AND C-919 ON SHEET GC-5.
5. EXTEND GALVANIZED PIPE A MIN 3 FT BELOW GRADE BEFORE TRANSITION TO HDPE PIPE. CONCRETE ENCASE ALL BURIED GALVANIZED PIPE. PVC TAPE WRAP PIPE PRIOR TO ENCASEMENT PER SECTION 099600. END TAPE WRAP AT SEEP RINGS.

AIR VENT ASSEMBLY — C-908

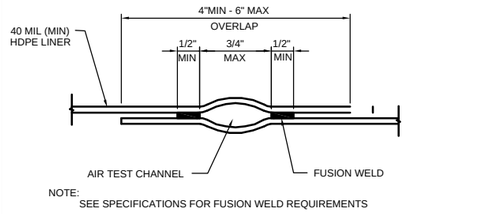


PLAN



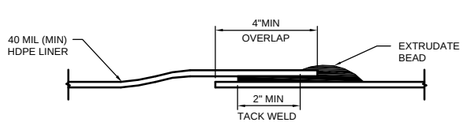
SECTION

ACCESS HATCH DETAIL — C-909



NOTE:
SEE SPECIFICATIONS FOR FUSION WELD REQUIREMENTS

STANDARD FIELD JOINT — C-910

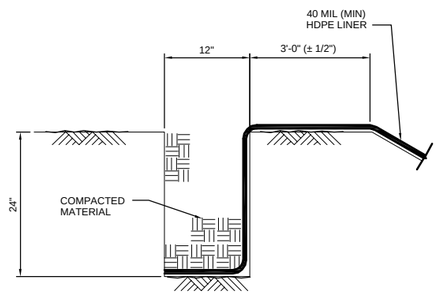


NOTES:

1. LINER SHEETS SHALL BE TACK-WELDED TOGETHER AT OVERLAP PRIOR TO EXTRUSION.
2. USE ONLY FOR REPAIRS, GAS VENTS, LINER ATTACHMENTS TO NEW CONCRETE, AND WHERE APPROVED BY THE ENGINEER
3. SEE SPECIFICATIONS FOR EXTRUSION WELD REQUIREMENTS.

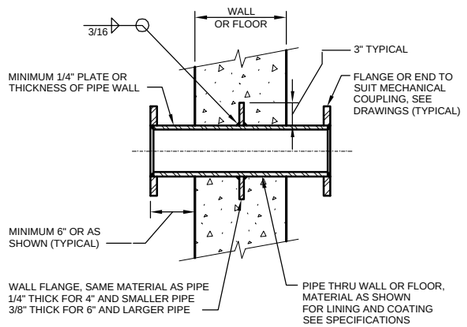
EXTRUSTION WELD JOINT — C-911

REV 051412



ANCHOR TRENCH — C-912

REV 051412

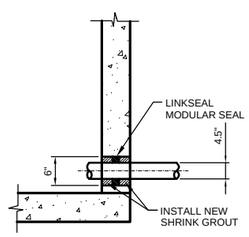


NOTE:

1. THIMBLES SHALL BE STEEL OR DUCTILE IRON.

FABRICATED PIPE THIMBLE — C-913

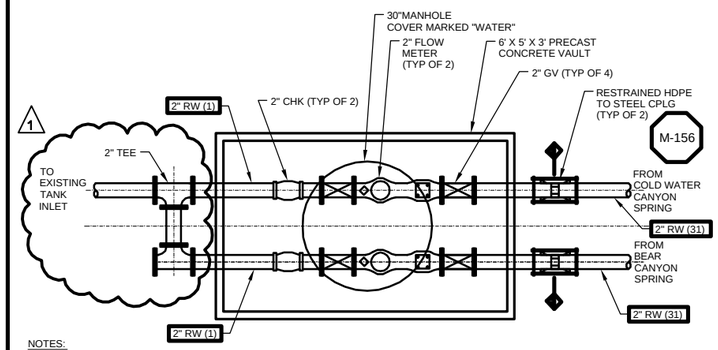
REV 051612



NOTES:

1. FOR 6" PIPE, CORE DIAMETER SHALL BE 10". FOR 4" PIPE, CORE DIAMETER SHALL BE 6". FOR 3" PIPE, CORE DIAMETER SHALL BE 5".

CORE AND SEAL DETAIL — C-914



NOTES:

1. PVC TAPE WRAP BURIED STEEL PIPE PER SECTION09 96 00. COAT PIPING EXPOSED IN THE VAULT PER SECTION 09 96 00.

FLOW METER VAULT DETAIL — C-915

11-06-12

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11-06-12	ISSUED FOR BID
1	12-04-12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: GENERAL CIVIL DETAILS - IV

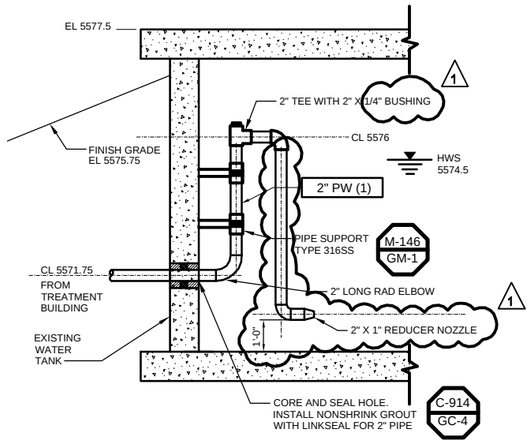
Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GC-4

MWH JOB NO 10500952

NOTE:

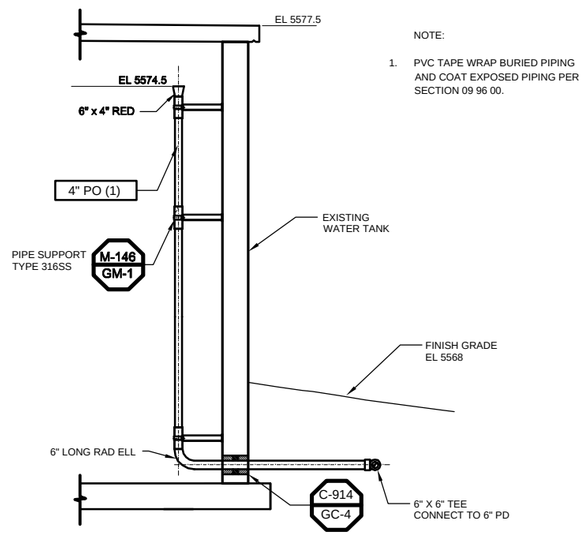
1. PVC TAPE WRAP BURIED PIPING AND COAT EXPOSED PIPING PER SECTION 09 96 00.



NORTHERN TANK INLET DETAIL C-916
SCALE: NO SCALE

NOTE:

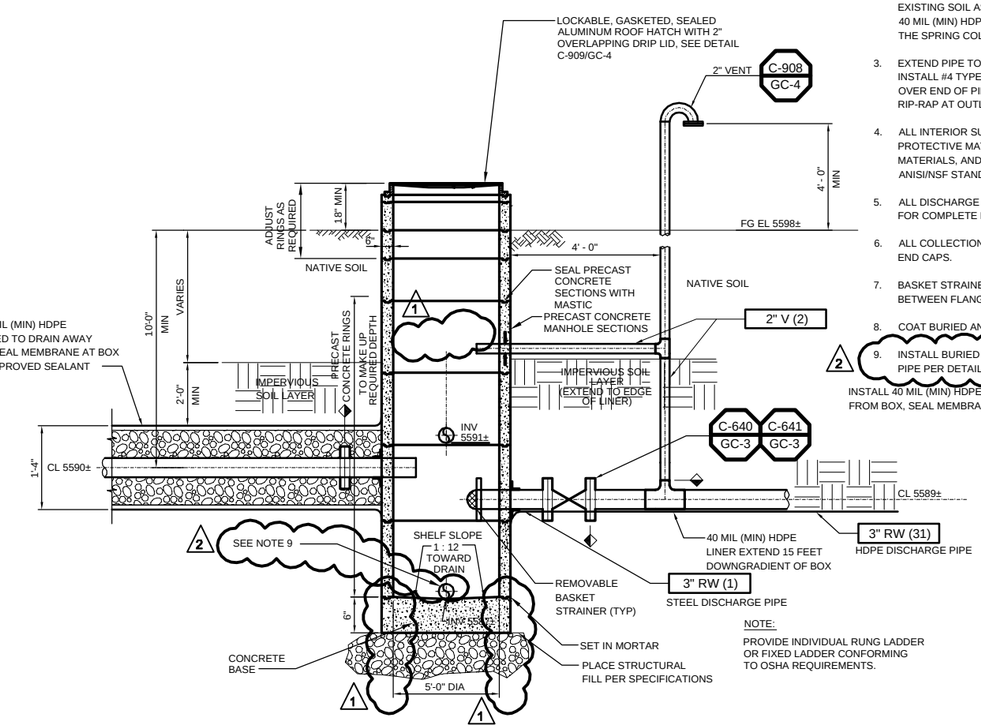
1. PVC TAPE WRAP BURIED PIPING AND COAT EXPOSED PIPING PER SECTION 09 96 00.



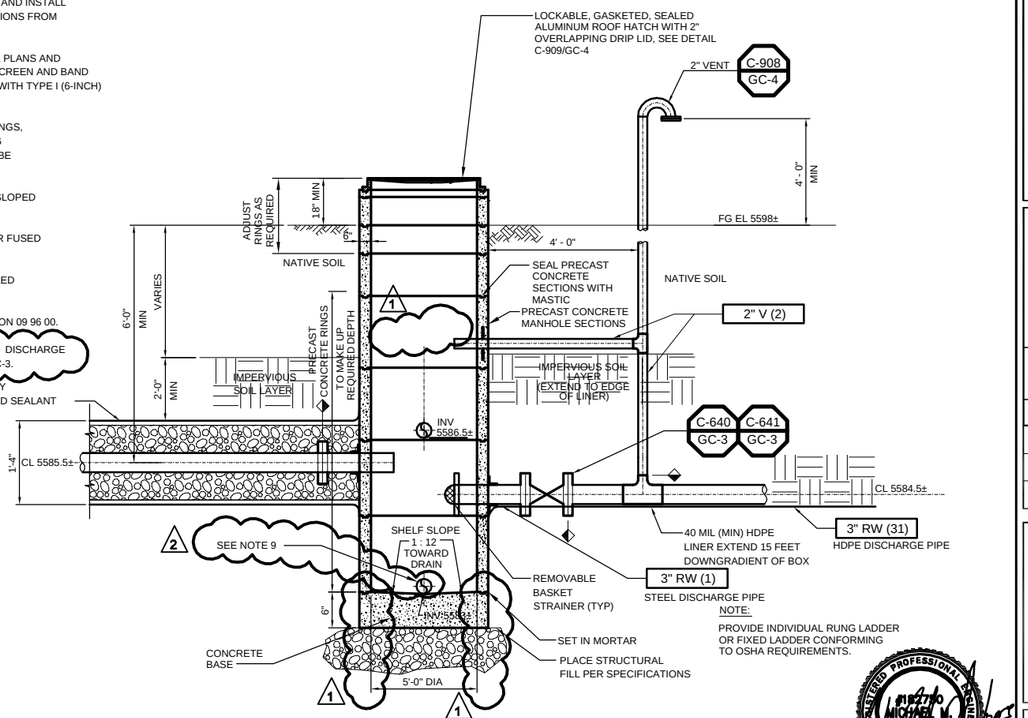
SOUTHERN TANK OVERFLOW DETAIL C-917
SCALE: NO SCALE

NOTES:

1. REMOVE EXISTING SPRING COLLECTION BOX AND PIPING AND DISPOSE OF AT AN APPROVED OFFSITE LANDFILL.
2. REMOVE ALL TREES AND CLEAR ALL VEGETATION WITHIN 50 FEET OF THE COLLECTION PIPING. STRIP AND REMOVE ALL EXISTING SOIL AS DIRECTED BY THE ENGINEER AND INSTALL 40 MIL (MIN) HDPE LINER 15 FEET IN ALL DIRECTIONS FROM THE SPRING COLLECTION DEVICES.
3. EXTEND PIPE TO DAYLIGHT AS SHOWN ON CIVIL PLANS AND INSTALL #4 TYPE 316 STAINLESS STEEL MESH SCREEN AND BAND OVER END OF PIPE. PROVIDE 12" - 24" AIR GAP WITH TYPE I (6-INCH) RIP-RAP AT OUTLET. SEE DETAIL C-202/GC-2.
4. ALL INTERIOR SURFACES OF BOX, PIPING, FITTINGS, PROTECTIVE MATERIALS, JOINING AND SEALING MATERIALS, AND MECHANICAL DEVICES SHALL BE ANISI/NSF STANDARD 61 APPROVED.
5. ALL DISCHARGE AND OUTLET PIPES SHALL BE SLOPED FOR COMPLETE DRAINAGE.
6. ALL COLLECTION PIPING SHALL HAVE GLUED OR FUSED END CAPS.
7. BASKET STRAINER TO BE #4 MESH AND INSTALLED BETWEEN FLANGES.
8. COAT BURIED AND EXPOSED PIPING PER SECTION 09 96 00.
9. INSTALL BURIED 4" GATE VALVE ON DRAIN LINE. DISCHARGE PIPE PER DETAIL C-640 AND C-641 ON SHEET GC-3.



COLD WATER CANYON SPRING COLLECTION BOX DETAIL C-918
SCALE: NO SCALE



BEAR CANYON SPRING COLLECTION BOX DETAIL C-919
SCALE: NO SCALE

11-06-12

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF
JESUS CHRIST
OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
2	12-04-12	UDEQ DDW RTCS
1	11-09-12	ADDENDUM 1
0	11-06-12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

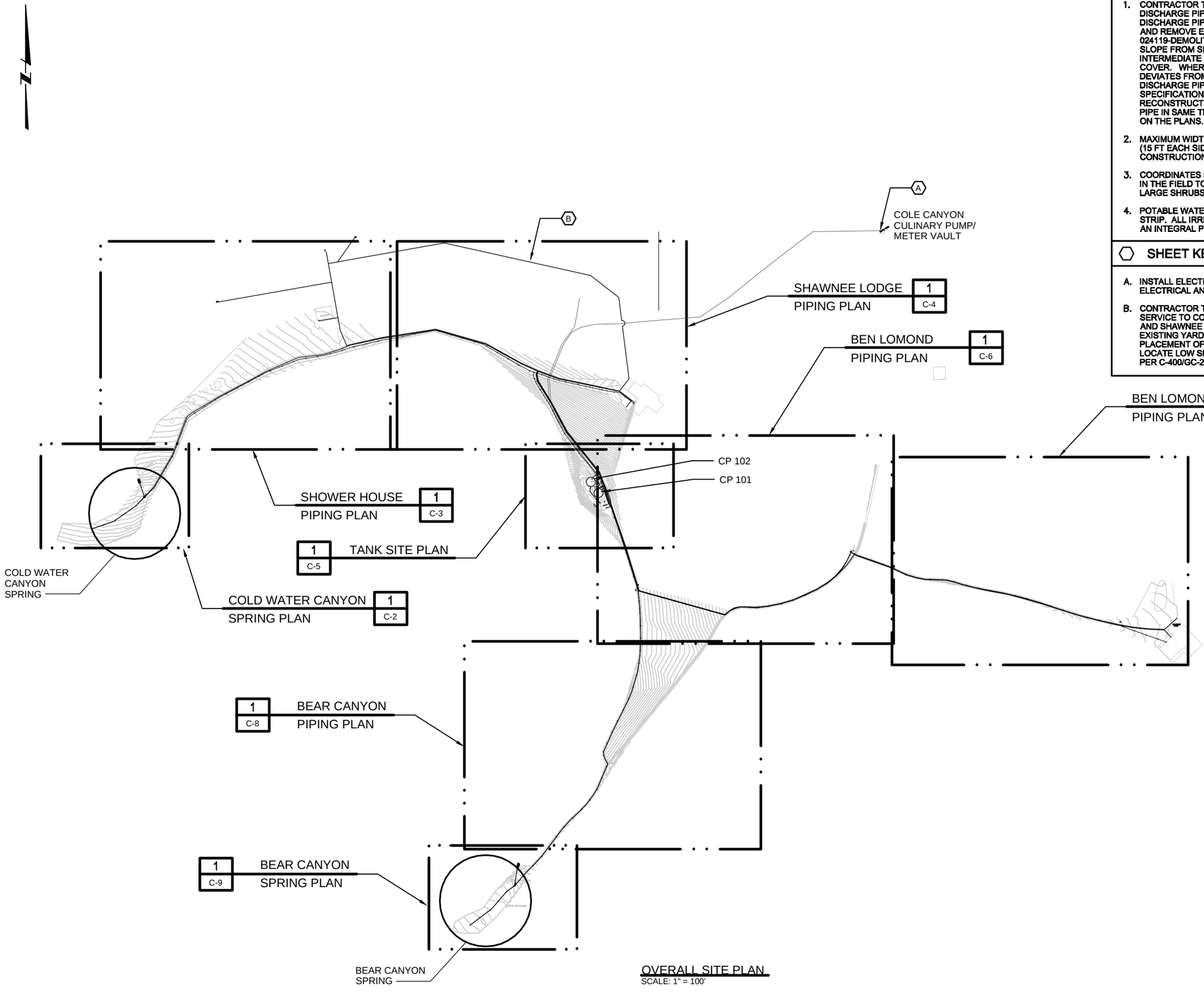
Property Number:
510-4718 / 533-4012

Sheet Title:
GENERAL CIVIL
DETAILS - V

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet:
GC-5

MWH JOB NO 10500952



OVERALL SITE PLAN
SCALE: 1" = 100'

GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE PER DETAIL C-601/GC-2 FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION. INSTALL PARALLEL 3-INCH DR-17 PE4710 HDPE PIPE IN SAME TRENCH PER DETAIL C-601/GC-2 WHERE INDICATED ON THE PLANS.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. INSTALL ELECTRIC UNIT HEATER AND CONTROL UPGRADES PER ELECTRICAL AND INSTRUMENTATION PLANS.

B. CONTRACTOR TO INSTALL NEW 2-INCH DR17 PE 4710 HDPE LATERAL SERVICE TO CONNECT ALL YARD HYDRANTS NEAR SHOWER HOUSE AND SHAWNEE LODGE. CONTRACTOR TO SURVEY LOCATIONS OF EXISTING YARD HYDRANTS AND SUBMIT TO ENGINEER FOR FINAL PLACEMENT OF PIPING LOOP AS SHOWN. CONTRACTOR TO FIELD LOCATE LOW SPOT IN PIPING AND INSTALL BLOWOFF ASSEMBLY PER C-400/GC-2.

Architect / Engineer:
MWH

Scale: 1"=100'
WARNING 1/2 1 0
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DMY)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

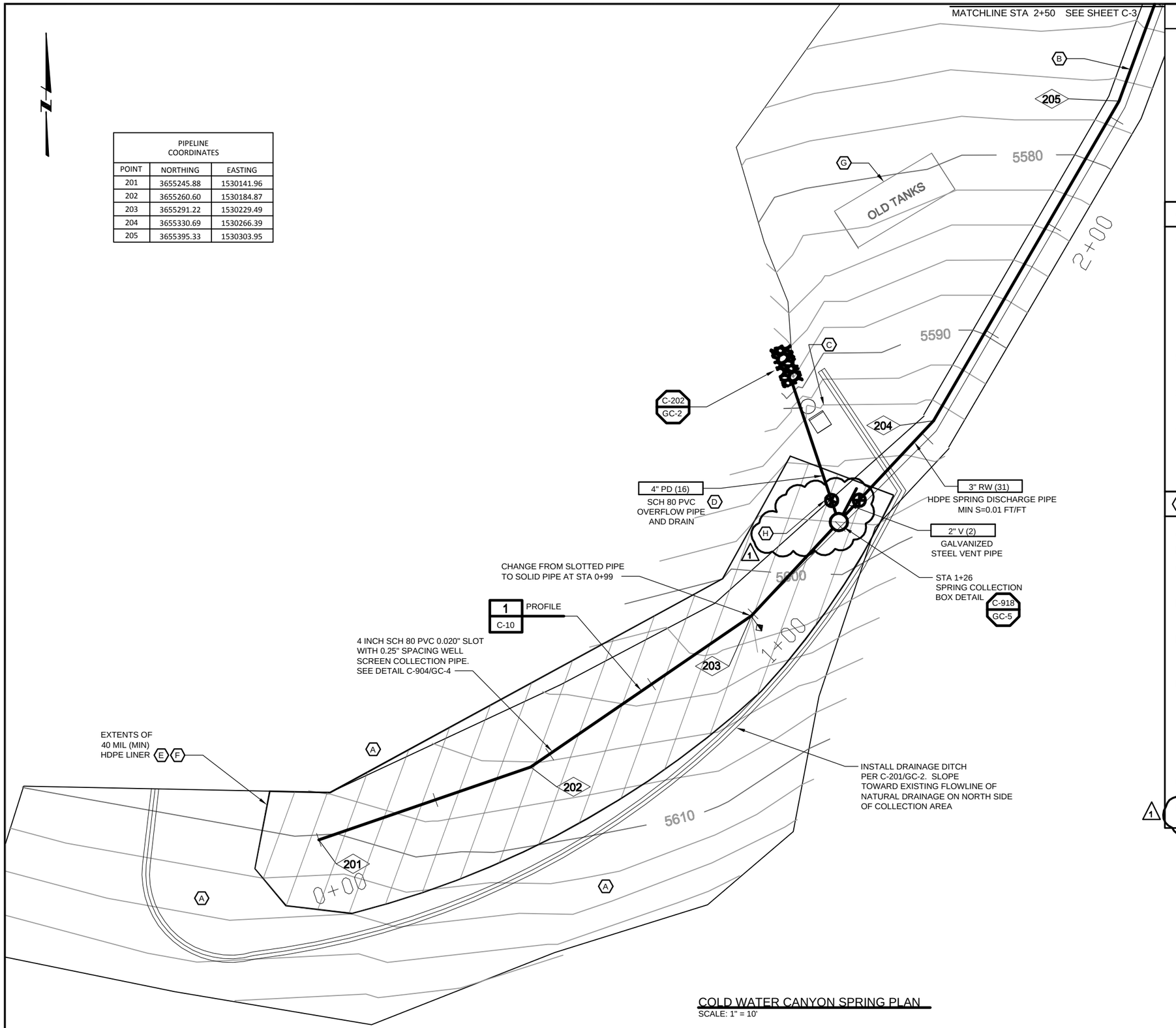
Sheet Title: OVERALL SITE PLAN

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-1
MWH JOB NO 10500952

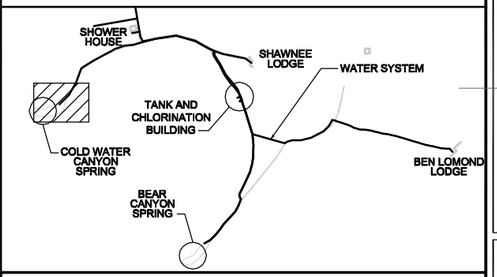
11–06–12

PIPELINE COORDINATES		
POINT	NORTHING	EASTING
201	3655245.88	1530141.96
202	3655260.60	1530184.87
203	3655291.22	1530229.49
204	3655330.69	1530266.39
205	3655395.33	1530303.95



COLD WATER CANYON SPRING PLAN
SCALE: 1" = 10'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. INSTALL BLOWOFF ASSEMBLY AT ALL LOW SPOTS. SEE DETAIL C-400/GC-2. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. PROTECT EXISTING TREES OUTSIDE OF SPRING COLLECTION AREA.
B. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-2.
C. DEMOLISH EXISTING SPRING COLLECTION BOXES AND PIPING AND DISPOSE OFF-SITE AT AN APPROVED LANDFILL. INSTALL NEW PRE-CAST SPRING COLLECTION BOX WHERE INDICATED.
D. INSTALL APPROXIMATELY 30 FT OF DRAIN PIPE TO DAYLIGHT. ADJUST DRAIN PIPE AND OVERFLOW PIPE LOCATION AS REQUIRED TO MAINTAIN 12" AIR GAP AT OUTLET.
E. EXTEND 40 MIL (MIN) HDPE LINER TO A DEPTH OF 24" AT THE CROSS AND DOWNGRADIENT EDGES OF THE LINER WITH RESPECT TO THE SPRING COLLECTION BOX. ANCHOR LINER PER DETAIL C-912/GC-4.
F. STRIP AND REMOVE EXISTING SOIL TO THE EXTENTS OF THE 40 MIL (MIN) HDPE LINER AND IMPERVIOUS SOIL COVER AS INDICATED TO A DEPTH OF AT LEAST 9 FT BELOW GROUND SURFACE OR AS DIRECTED BY THE ENGINEER. PLACE HDPE LINER, IMPERVIOUS SOIL COVER, AND BACK FILL IN A MANNER TO MAINTAIN A LEVEL SURFACE FREE OF DEPRESSIONS AND A 2% SLOPE TOWARD EXISTING DITCH. THE FINAL PLACEMENT OF THE SPRING COLLECTION BOX MAY NEED TO BE MODIFIED TO MAINTAIN A CONSTANT SLOPE OF THE COLLECTION PIPING INTO THE COLLECTION BOX.
G. REMOVE EXISTING FOUR STEEL TANKS AND DISPOSE OFFSITE AT AN APPROVED LANDFILL.
1 H. INSTALL A BURIED 4 INCH GATE VALVE ON DRAIN LINE AND DISCHARGE PIPE AS SHOWN ON DETAIL C-918/GC-5.

1"=20' ON 11X17

11-06-12

Architect / Engineer:
MWH

Scale: 1"=10'
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-Y)	Description
0	11-06-12	ISSUED FOR BID
1	12-04-12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

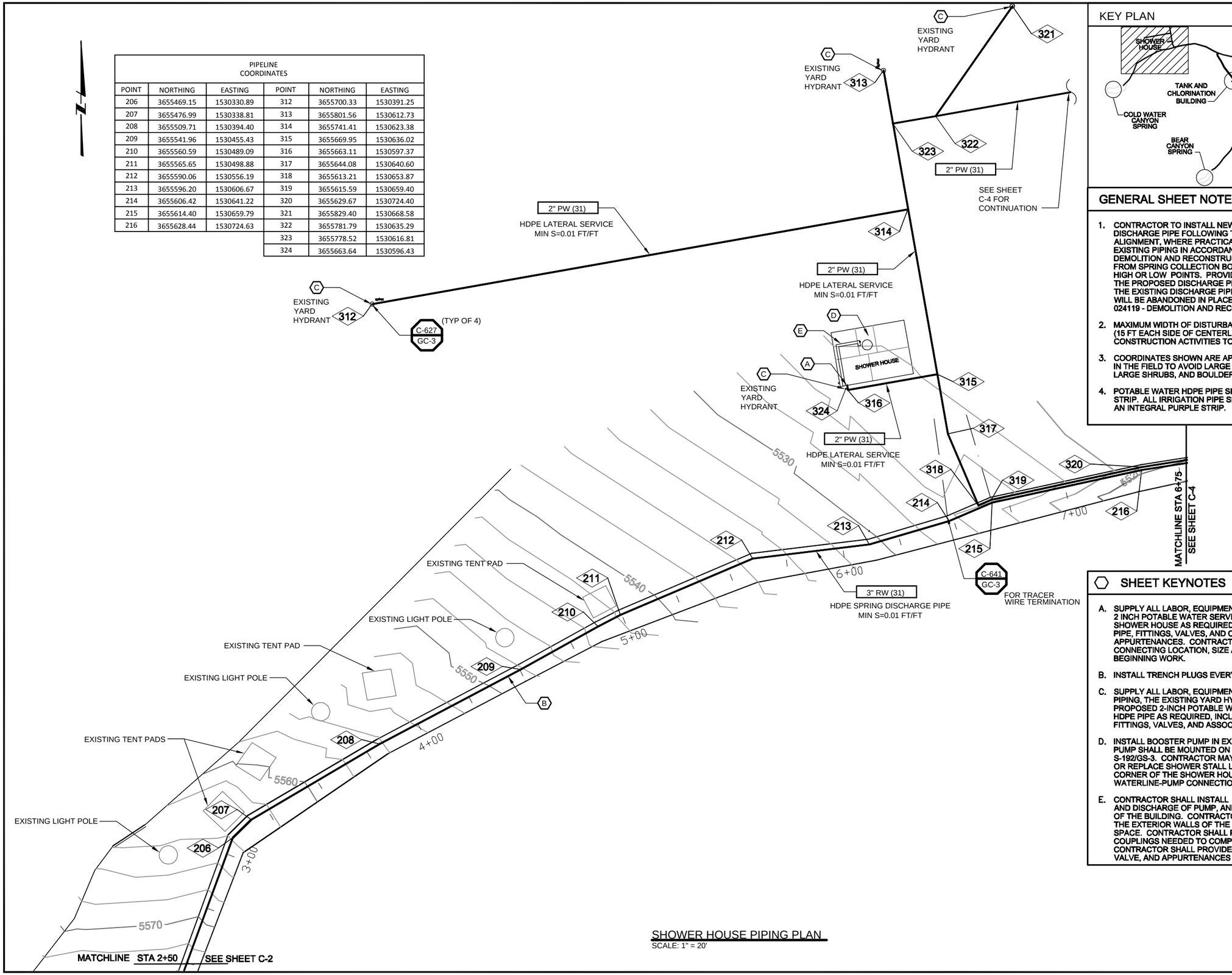
Sheet Title: COLD WATER CANYON SPRING PLAN

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-2
MWH JOB NO 10500952

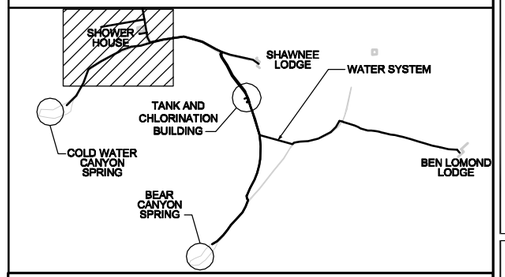
LDS_BenLomond_civil_C02-C05-C09.dwg - 12/03/2012 - 2:46 PM

PIPELINE COORDINATES					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
206	3655469.15	1530330.89	312	3655700.33	1530391.25
207	3655476.99	1530338.81	313	3655801.56	1530612.73
208	3655509.71	1530394.40	314	3655741.41	1530623.38
209	3655541.96	1530455.43	315	3655669.95	1530636.02
210	3655560.59	1530489.09	316	3655663.11	1530597.37
211	3655565.65	1530498.88	317	3655644.08	1530640.60
212	3655590.06	1530556.19	318	3655613.21	1530653.87
213	3655596.20	1530606.67	319	3655615.59	1530659.40
214	3655606.42	1530641.22	320	3655629.67	1530724.40
215	3655614.40	1530659.79	321	3655829.40	1530668.58
216	3655628.44	1530724.63	322	3655781.79	1530635.29
			323	3655778.52	1530616.81
			324	3655663.64	1530596.43



SHOWER HOUSE PIPING PLAN
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICAL. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. SUPPLY ALL LABOR, EQUIPMENT, AND SUPPLIES TO CONNECT 2 INCH POTABLE WATER SERVICE DR17PE 4810 HDPE PIPE TO THE SHOWER HOUSE AS REQUIRED, INCLUDING BUT NOT LIMITED TO, PIPE, FITTINGS, VALVES, AND OTHER ASSOCIATED APPURTENANCES. CONTRACTOR SHALL POTHOLE TO DETERMINE CONNECTING LOCATION, SIZE AND MATERIAL TYPE PRIOR TO BEGINNING WORK.

B. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.

C. SUPPLY ALL LABOR, EQUIPMENT, AND SUPPLIES TO REPLACE THE PIPING, THE EXISTING YARD HYDRANTS AND CONNECT TO THE PROPOSED 2-INCH POTABLE WATER SERVICE DR17 PE 4810 HDPE PIPE AS REQUIRED, INCLUDING BUT NOT LIMITED TO, PIPE, FITTINGS, VALVES, AND ASSOCIATED APPURTENANCES.

D. INSTALL BOOSTER PUMP IN EXISTING UTILITY STORAGE ROOM. PUMP SHALL BE MOUNTED ON CONCRETE PEDESTAL PER DETAIL S-192/GS-3. CONTRACTOR MAY NEED TO REMOVE AND RE-INSTALL OR REPLACE SHOWER STALL LOCATED ON THE SOUTH WEST CORNER OF THE SHOWER HOUSE TO PERFORM THE WATERLINE-PUMP CONNECTIONS.

E. CONTRACTOR SHALL INSTALL 1 1/4" PW (2) PIPELINES AT SUCTION AND DISCHARGE OF PUMP, AND ROUTE TO SOUTHWEST CORNER OF THE BUILDING. CONTRACTOR SHALL INSULATE ALL PIPING ON THE EXTERIOR WALLS OF THE BUILDING AND UNHEATED ATTIC SPACE. CONTRACTOR SHALL PROVIDE FITTINGS, PIPING AND COUPLINGS NEEDED TO COMPLETE THE INSTALLATION. CONTRACTOR SHALL PROVIDE ALL ISOLATION VALVES, CHECK VALVE, AND APPURTENANCES SHOWN IN P&ID's.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. CHAMBERS
STATE OF UTAH
11-06-12

Architect / Engineer:
MWH

Scale: 1"=20'
WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: SHOWER HOUSE PIPING PLAN

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-3

MWH JOB NO 10500952

PIPELINE COORDINATES					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
401	3655646.52	1530832.32	220	3655562.77	1531036.30
402	3655617.94	1530932.61	221	3655556.36	1531033.37
403	3655578.36	1531003.90	222	3655541.94	1531035.92
404	3655563.39	1531037.99	223	3655496.66	1531064.00
405	3655547.73	1531079.99	224	3655440.34	1531094.11
406	3655522.93	1531201.07	415	3655556.19	1531034.66
217	3655645.24	1530832.24	416	3655542.39	1531037.11
218	3655616.78	1530932.12	417	3655497.29	1531065.08
219	3655577.24	1531003.34	418	3655441.04	1531095.16

2" RW (31)
APPROXIMATE LOCATION.
SEE KEYNOTE B ON C-1.

MATCHLINE STA 6+75
SEE SHEET C-3

401 217 402 218 403 219 404 220 405 221 415 222 416 223 417 418 224 406

8+00 9+00 10+00 11+00 12+00 12+71.14

5500 5510 5520 5530 5540 5490 5488

C-202
GC-2

EXISTING TANK
OVERFLOW
TO REMAIN

C-641
GC-3
FOR TRACER
WIRE TERMINATION

EXISTING COLE
CANYON INLET
PIPE TO REMAIN

3" PW (31)
HDPE OUTLET PIPE
MIN S=0.01 FT/FT

3" RW (31)
HDPE IRRIGATION PIPE
MIN S=0.01 FT/FT

3" RW (31)
HDPE SPRING DISCHARGE PIPE
MIN S=0.01 FT/FT

EXISTING TANK
OVERFLOW/DRAIN
TO REMAIN

EXISTING COLE
CANYON INLET
PIPE TO REMAIN

EXISTING
FIRE
HYDRANT

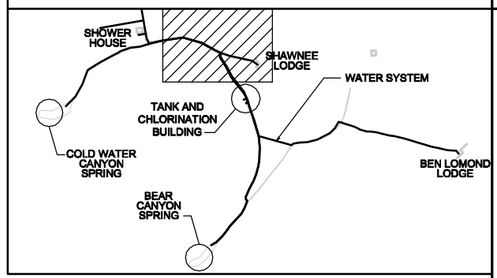
SHAWNEE LODGE

IRRIGATION SYSTEM
CONNECTION

MATCHLINE STA 10+00
SEE SHEET C-5

SHAWNEE LODGE PIPING PLAN
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE PER DETAIL C-601/GC-2 FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION. INSTALL PARALLEL 3-INCH DR-17 PE4710 HDPE PIPE IN SAME TRENCH PER DETAIL C-601/GC-2 WHERE INDICATED ON THE PLANS.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.
5. EXPLORATORY EXCAVATION MAY BE REQUIRED TO LOCATE EXISTING CONNECTIONS TO SHAWNEE LODGE. COORDINATE EXCAVATION WITH OWNER AND ENGINEER FOR EXISTING UTILITIES.

SHEET KEYNOTES

A. SUPPLY ALL LABOR, EQUIPMENT, AND SUPPLIES TO CONNECT 3 INCH POTABLE WATER SERVICE DR17PE 4810 HDPE PIPE TO SHAWNEE LODGE AS REQUIRED INCLUDING BUT NOT LIMITED TO, PIPE FITTINGS, VALVES, AND OTHER ASSOCIATED APPURTENANCES. CONTRACTOR SHALL POTHOLE TO DETERMINE CONNECTION LOCATION, SIZE AND MATERIAL TYPE PRIOR TO BEGINNING WORK.
B. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.
C. POTHOLE EXISTING UTILITIES FAR ENOUGH IN ADVANCE TO ALLOW ADJUSTMENTS IN GRADE OF NEW PIPE IF INTERFERENCE IS POSSIBLE.
D. CONTRACTOR SHALL MAINTAIN VEHICULAR ACCESS TO SHAWNEE LODGE DURING CONSTRUCTION.
E. REMOVE EXISTING FIRE HYDRANT AND CAP LINE 3 FT BELOW GROUND SURFACE.
F. INSTALL A WINTERIZATION CONNECTION PER DETAIL C-905/GC-4.

Architect / Engineer:
MWH

Scale: 1"=20'
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11-06-12	ISSUED FOR BID

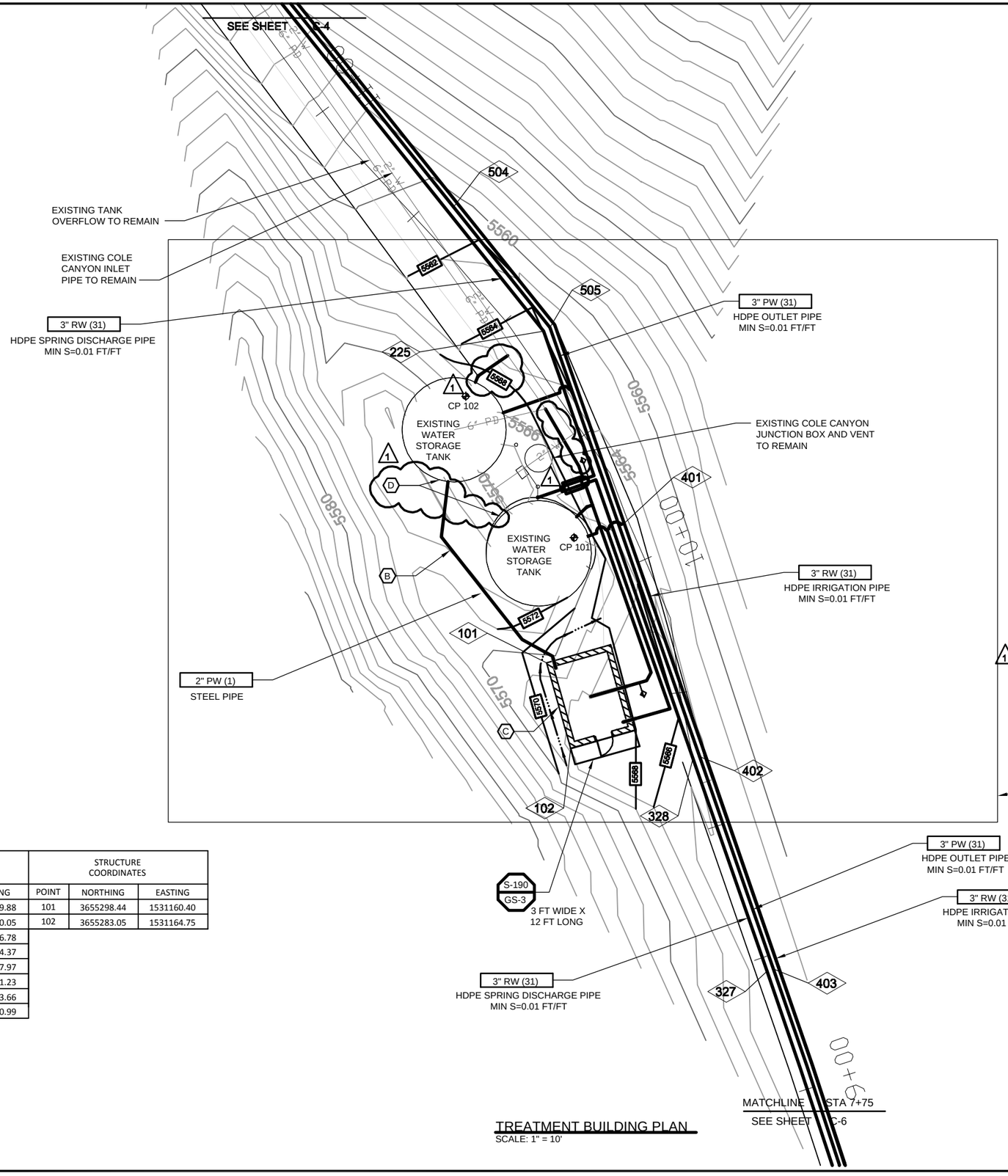
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: SHAWNEE LODGE PIPING PLAN

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-4
MWH JOB NO 10500952

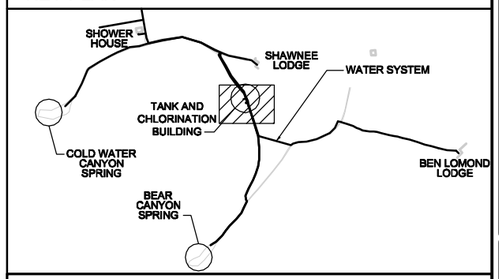
#182780 MICHAEL M. CHAMBERS REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH
11-06-12



TREATMENT BUILDING PLAN
SCALE: 1" = 10'

PIPELINE COORDINATES			STRUCTURE COORDINATES		
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
225	3655358.10	1531159.88	101	3655298.44	1531160.40
327	3655242.98	1531200.05	102	3655283.05	1531164.75
328	3655281.22	1531186.78			
401	3655323.49	1531174.37			
402	3655281.60	1531187.97			
403	3655243.39	1531201.23			
504	3655380.40	1531143.66			
505	3655358.72	1531160.99			

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE PER DETAIL C-601/GC-2 FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION. INSTALL PARALLEL 3-INCH DR-17 PE4710 HDPE PIPE IN SAME TRENCH PER DETAIL C-601/GC-2 WHERE INDICATED ON THE PLANS.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.
B. PVC TAPE WRAP PER SECTION 09 96 00.
C. USE NATIVE MATERIAL FROM TRENCH EXCAVATION TO FILL AREA AROUND NEW TREATMENT BUILDING.
1 D. INSTALL CONTINUOUS GASKET BETWEEN LID AND FRAME ON HATCH AND #4 SCREEN ON AIRVENT ON NORTHERN AND SOUTHERN TANKS.

11-06-12

Architect / Engineer:
MWH

Scale: 1"=10'
WARNING 1/2 0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11- 06 -12	ISSUED FOR BID
1	12- 04 -12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: TREATMENT BUILDING PLAN

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-5

MWH JOB NO 10500952

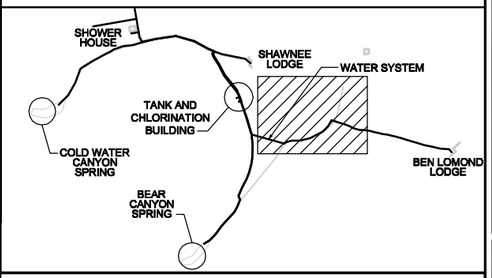
PIPELINE COORDINATES					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
323	3655062.06	1531243.03	409	3655088.85	1531453.55
324	3655121.23	1531237.94	410	3655089.96	1531496.94
325	3655130.08	1531235.99	411	3655103.49	1531551.75
326	3655207.85	1531211.85	412	3655138.00	1531619.94
404	3655208.23	1531213.04	413	3655198.69	1531665.54
405	3655130.44	1531237.19	414	3655193.45	1531675.12
406	3655121.41	1531239.18	415	3655191.81	1531677.79
407	3655072.93	1531412.81	416	3655180.28	1531711.33
408	3655081.36	1531423.18	417	3655169.46	1531742.22

SHEET KEYNOTES

A. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.

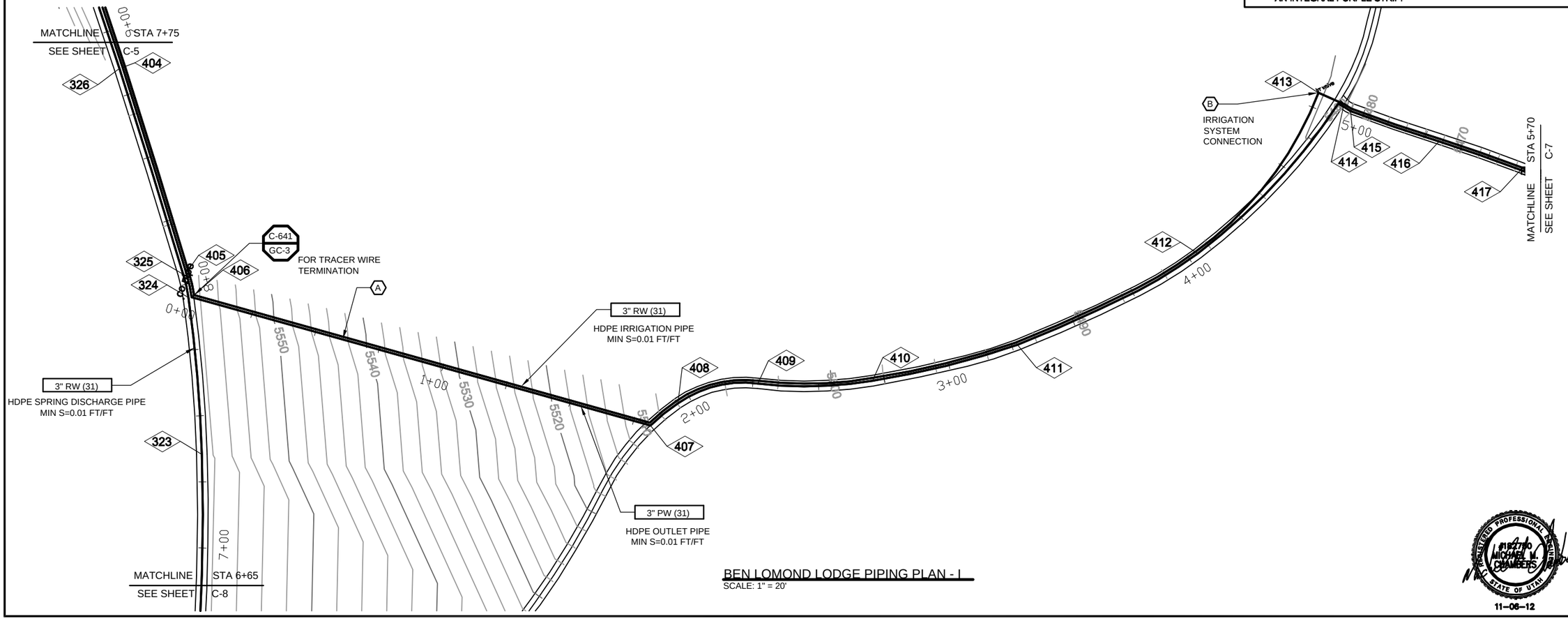
B. INSTALL WINTERIZATION CONNECTION PER DETAIL C-905/GC-4.

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE PER DETAIL C-601/GC-2 FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION. INSTALL PARALLEL 3-INCH DR-17 PE4710 HDPE PIPE IN SAME TRENCH PER DETAIL C-601/GC-2 WHERE INDICATED ON THE PLANS.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.



BEN LOMOND LODGE PIPING PLAN - I
SCALE: 1" = 20'

Architect / Engineer:
MWH

Scale: 1"=20'
WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012
Plan Series:
N/A
Property Number:
510-4718 / 533-4012

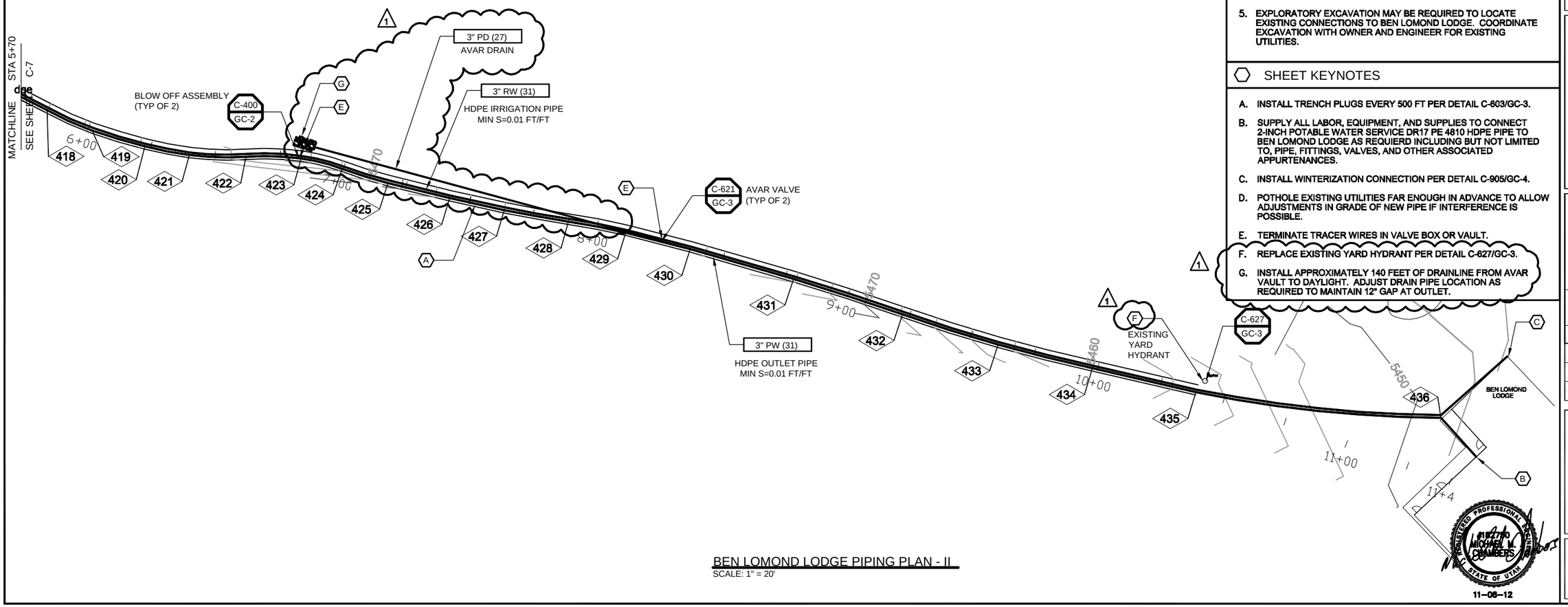
Sheet Title:
BEN LOMOND LODGE
PIPING PLAN - I

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet:
C-6
MWH JOB NO 10500952

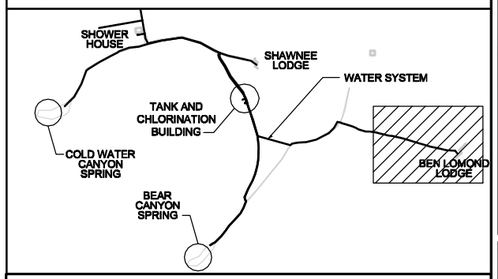
#182760 MICHAEL M. CHAMBERS STATE OF UTAH REGISTERED PROFESSIONAL ENGINEER
11–06–12

PIPELINE COORDINATES					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
418	3655161.19	1531759.83	428	3655118.45	1531960.11
419	3655153.38	1531777.15	429	3655114.19	1531982.15
420	3655147.27	1531797.45	430	3655107.80	1532006.97
421	3655143.99	1531814.54	431	3655096.38	1532046.60
422	3655143.35	1531836.28	432	3655082.75	1532088.57
423	3655142.65	1531857.44	433	3655071.21	1532125.25
424	3655138.67	1531873.25	434	3655062.13	1532161.47
425	3655133.24	1531890.81	435	3655052.95	1532201.25
426	3655127.47	1531914.54	436	3655043.11	1532295.25
427	3655122.85	1531935.49			



BEN LOMOND LODGE PIPING PLAN - II
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE PER DETAIL C-601/GC-2 FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION. INSTALL PARALLEL 3-INCH DR-17 PE4710 HDPE PIPE IN SAME TRENCH PER DETAIL C-601/GC-2 WHERE INDICATED ON THE PLANS.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.
5. EXPLORATORY EXCAVATION MAY BE REQUIRED TO LOCATE EXISTING CONNECTIONS TO BEN LOMOND LODGE. COORDINATE EXCAVATION WITH OWNER AND ENGINEER FOR EXISTING UTILITIES.

SHEET KEYNOTES

A. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.
B. SUPPLY ALL LABOR, EQUIPMENT, AND SUPPLIES TO CONNECT 2-INCH POTABLE WATER SERVICE DR17 PE 4810 HDPE PIPE TO BEN LOMOND LODGE AS REQUIERD INCLUDING BUT NOT LIMITED TO, PIPE, FITTINGS, VALVES, AND OTHER ASSOCIATED APPURTENANCES.
C. INSTALL WINTERIZATION CONNECTION PER DETAIL C-905/GC-4.
D. POTHOLE EXISTING UTILITIES FAR ENOUGH IN ADVANCE TO ALLOW ADJUSTMENTS IN GRADE OF NEW PIPE IF INTERFERENCE IS POSSIBLE.
E. TERMINATE TRACER WIRES IN VALVE BOX OR VAULT.
F. REPLACE EXISTING YARD HYDRANT PER DETAIL C-627/GC-3.
G. INSTALL APPROXIMATELY 140 FEET OF DRAINLINE FROM AVAR VAULT TO DAYLIGHT. ADJUST DRAIN PIPE LOCATION AS REQUIRED TO MAINTAIN 12" GAP AT OUTLET.

Architect / Engineer:
MWH

Scale: 1"=20'
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
-	-	-
-	-	-
1	12-04-12	UDEQ DDW RTCS
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

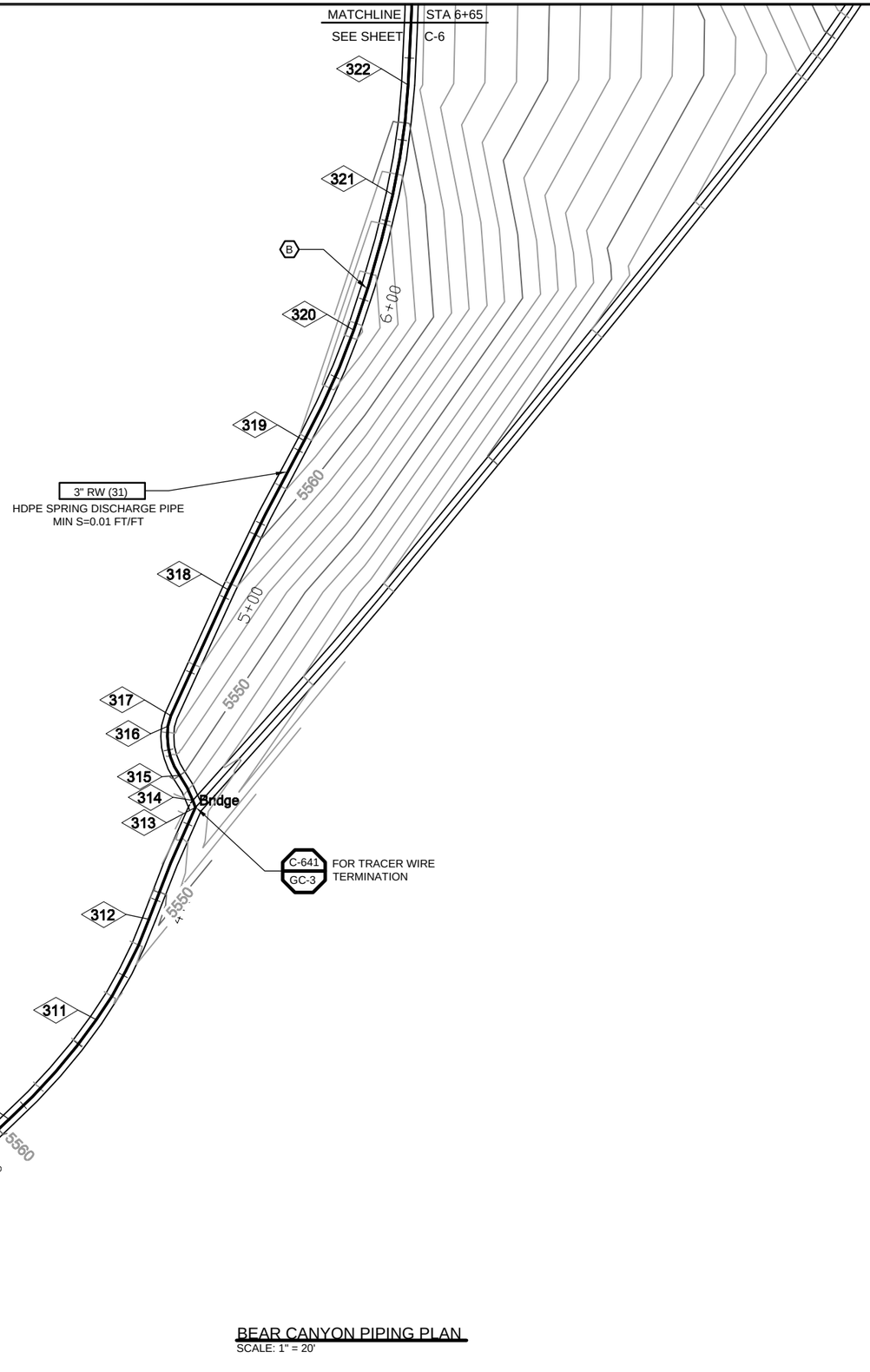
Sheet Title: BEN LOMOND LODGE PIPING PLAN - II

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-7
MWH JOB NO 10500952

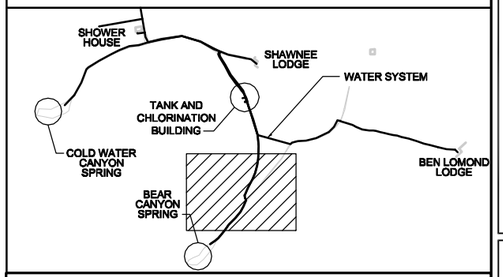
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. CHAMBERS STATE OF UTAH
11-06-12

PIPELINE COORDINATES					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
308	3654616.28	1531065.56	316	3654798.68	1531169.03
309	3654642.96	1531085.72	317	3654801.87	1531169.96
310	3654679.20	1531120.66	318	3654840.06	1531187.38
311	3654709.50	1531147.27	319	3654885.42	1531210.40
312	3654740.04	1531163.24	320	3654919.00	1531225.45
313	3654773.98	1531177.40	321	3654960.19	1531237.30
314	3654776.11	1531176.61	322	3654993.57	1531242.01
315	3654783.72	1531172.50			



BEAR CANYON PIPING PLAN
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119- DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.

Architect / Engineer:
MWH

Scale: 1"=20'
WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: BEAR CANYON PIPING PLAN

Designed: T.MEHRABAN
Drawn: L.PARRY
Checked: M.CHAMBERS

Sheet: C-8
MWH JOB NO 10500952

11–06–12

PIPELINE COORDINATES		
POINT	NORTHING	EASTING
301	3654450.67	1530900.78
302	3654482.92	1530944.01
303	3654518.69	1530975.12
304	3654529.97	1530990.68
305	3654556.03	1531013.19
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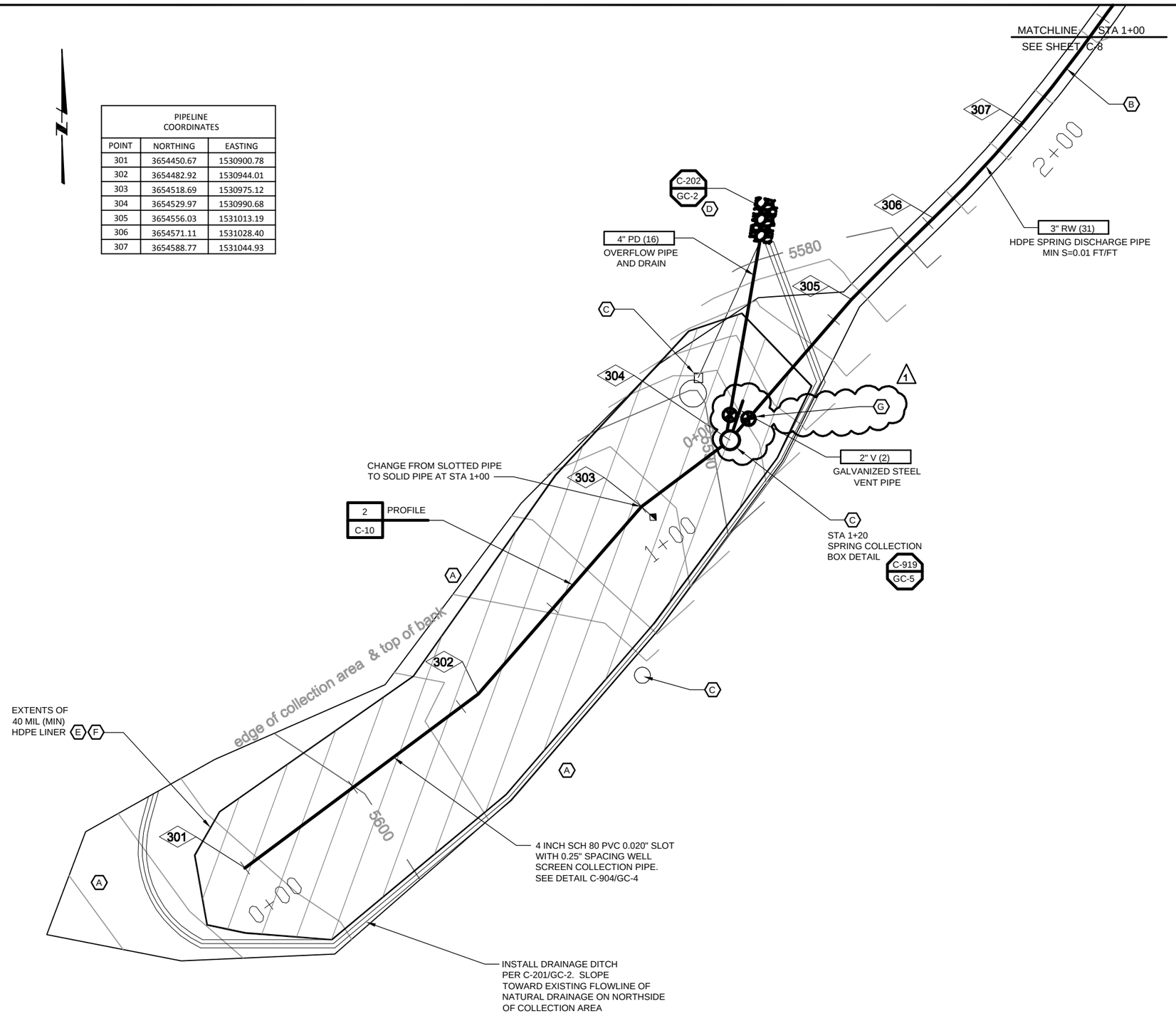
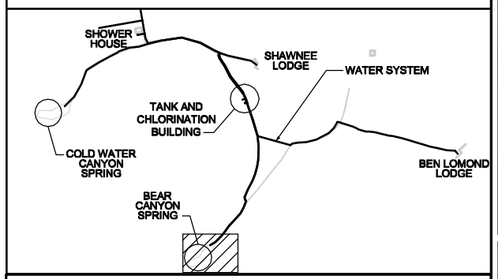
307	3654588.77	1531044.93



BEAR CANYON SPRING PLAN
SCALE: 1" = 10'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICAL. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119-DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. INSTALL BLOWOFF ASSEMBLY AT ALL LOW SPOTS. SEE DETAIL C-400/GC-2. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.

SHEET KEYNOTES

A. PROTECT EXISTING TREES OUTSIDE OF SPRING COLLECTION AREA.
B. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.
C. DEMOLISH EXISTING SPRING COLLECTION BOX, VALVING AND PIPING AND DISPOSE OFF-SITE AT AN APPROVED LANDFILL. CONTRACTOR MAY REUSE SECTIONS OF EXISTING MANHOLE FOR USE WITH NEW MANHOLE. ENGINEER TO APPROVE PRIOR TO PLACEMENT.
D. ADJUST DRAIN PIPE AND OVERFLOW PIPE LOCATION AS REQUIRED TO MAINTAIN 12" AIR GAP AT OUTLET.
E. EXTEND 40 MIL (MIN) HDPE LINER TO A DEPTH OF 6 FEET AT THE CROSS AND DOWNGRADIENT EDGES OF THE LINER WITH RESPECT TO THE SPRING COLLECTION BOX. ANCHOR LINER PER DETAIL C-912/GC-4.
F. STRIP AND REMOVE EXISTING SOIL TO THE EXTENTS OF THE 40 MIL (MIN) HDPE LINER AND IMPERVIOUS SOIL COVER AS INDICATED TO A DEPTH OF AT LEAST 5 FT BELOW GROUND SURFACE OR AS DIRECTED BY THE ENGINEER. PLACE HDPE LINER, IMPERVIOUS SOIL COVER, AND BACK FILL IN A MANNER TO MAINTAIN A LEVEL SURFACE FREE OF DEPRESSIONS AND A 2% SLOPE TOWARD EXISTING DITCH. THE FINAL PLACEMENT OF THE SPRING COLLECTION BOX MAY NEED TO BE MODIFIED TO MAINTAIN A CONSTANT SLOPE OF THE COLLECTION PIPING INTO THE COLLECTION BOX.
1 G. INSTALL A 4-INCH BURIED GATE VALVE ON DRAIN LINE AND DISCHARGE PIPE AS SHOWN ON DETAIL C-919/GC-5.

Architect / Engineer:
MWH

Scale: 1"=10'
WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11-08-12	ISSUED FOR BID
1	12-04-12	UDEQ DDW RTCS

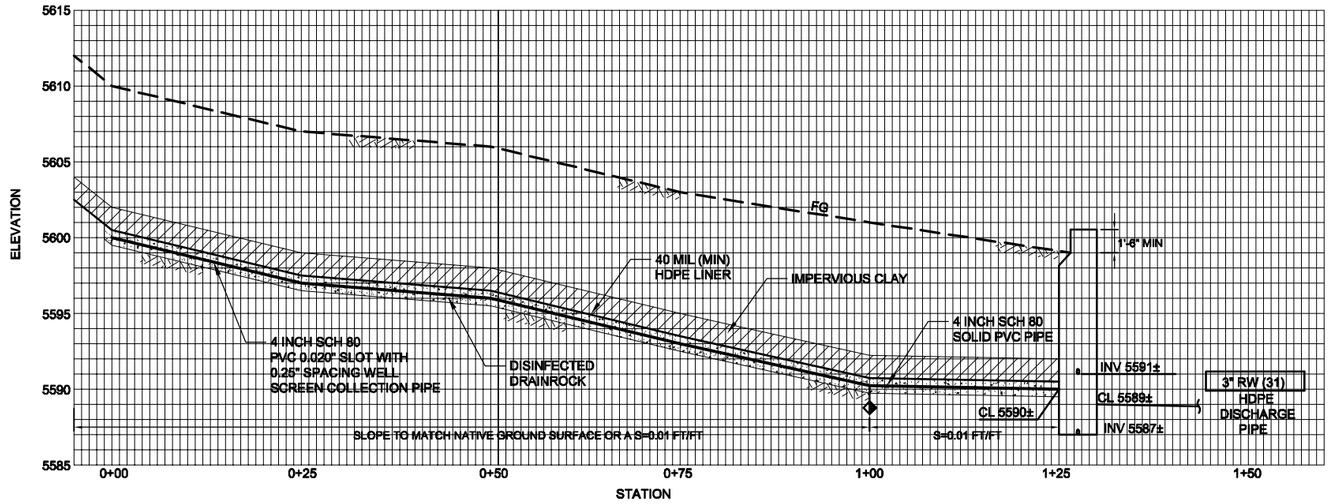
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: BEAR CANYON SPRING PLAN

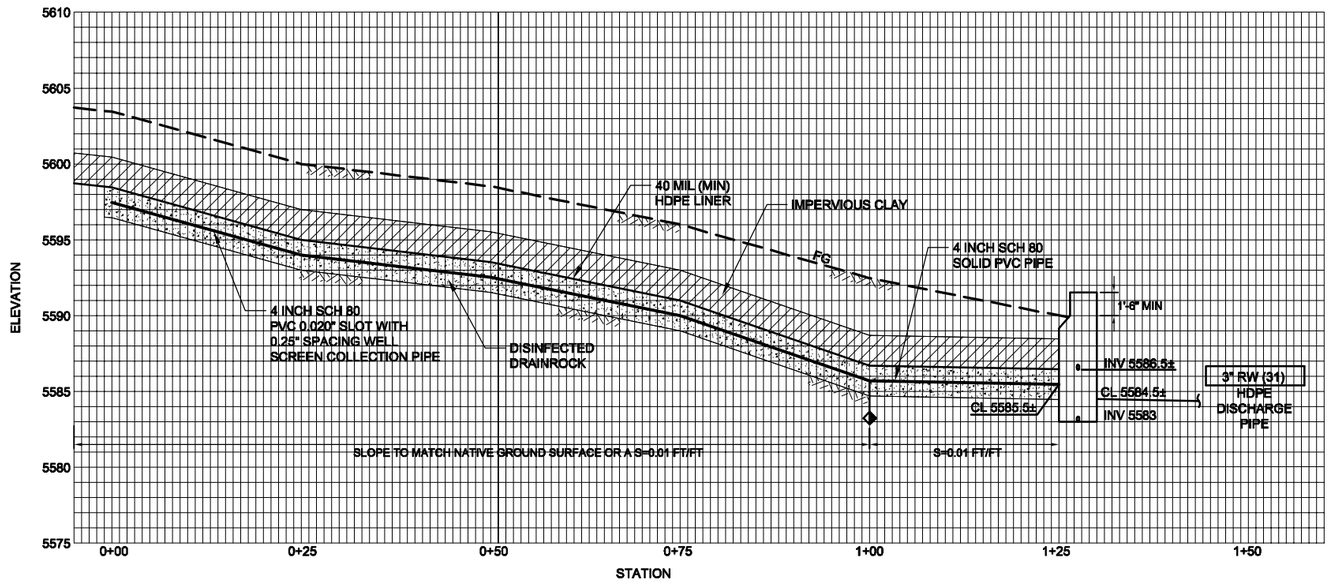
Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-9
MWH JOB NO 10500952

REGISTERED PROFESSIONAL ENGINEER
#176270
MICHAEL M. CHAMBERS
STATE OF UTAH
11-08-12



COLD WATER CANYON SPRING PROFILE | 1 | C-2

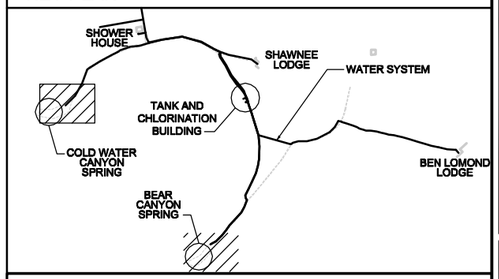


BEAR CANYON SPRING PROFILE | 2 | C-9

SPRING COLLECTION AREAS - PROFILES
SCALE: HORIZ: 1" = 10', VERT: 1"=5'

1"=20' ON 11X17

KEY PLAN



GENERAL SHEET NOTES

1. THE ENGINEER SHALL APPROVE PROPOSED PLACEMENT OF COLLECTION PIPE PRIOR TO INSTALLATION.

Architect / Engineer:
MWH

Scale: 1"=10'
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: SPRING COLLECTION AREAS - PROFILE

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-10
MWH JOB NO 10500952

REGISTERED PROFESSIONAL ENGINEER
#176270
MICHAEL M. CHAMBERS
STATE OF UTAH

11-06-12

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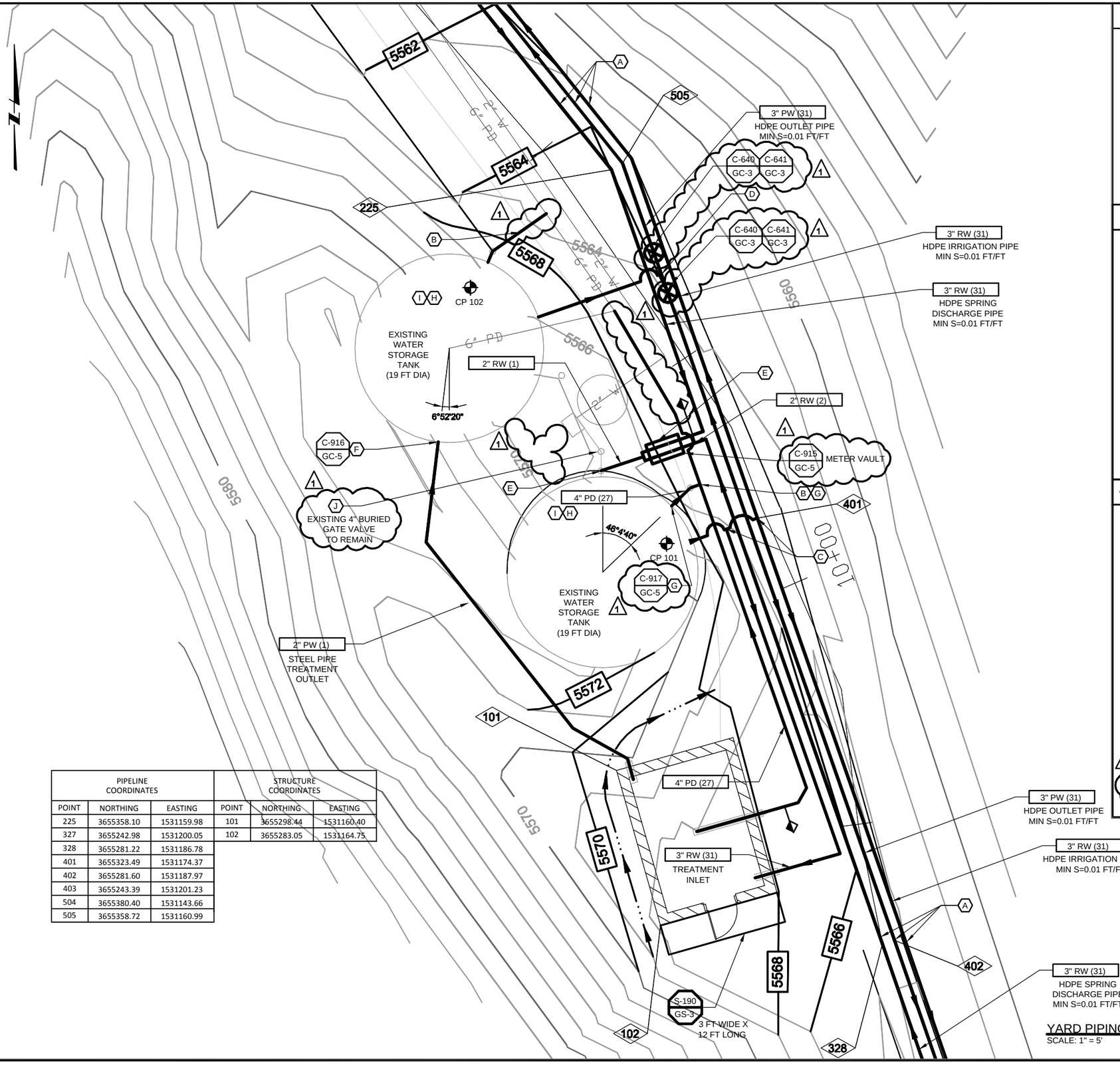
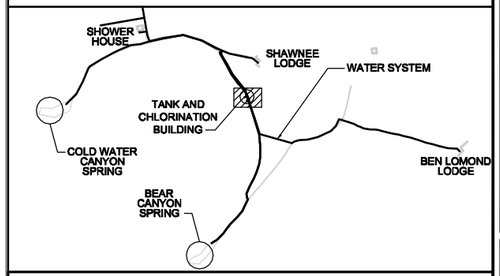


PIPELINE COORDINATES			STRUCTURE COORDINATES		
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
225	3655358.10	1531159.98	101	3655298.44	1531160.40
327	3655242.98	1531200.05	102	3655283.05	1531164.75
328	3655281.22	1531186.78			
401	3655323.49	1531174.37			
402	3655281.60	1531187.97			
403	3655243.39	1531201.23			
504	3655380.40	1531143.66			
505	3655358.72	1531160.99			

YARD PIPING LAYOUT
SCALE: 1" = 5'

KEY PLAN



GENERAL SHEET NOTES

1. CONTRACTOR TO INSTALL NEW 3-INCH DR-17 PE4710 HDPE DISCHARGE PIPE FOLLOWING THE EXISTING DISCHARGE PIPE ALIGNMENT, WHERE PRACTICABLE. DEMOLISH AND REMOVE EXISTING PIPING IN ACCORDANCE WITH SECTION 024119- DEMOLITION AND RECONSTRUCTION. MAINTAIN DOWNWARD SLOPE FROM SPRING COLLECTION BOX TO TANK WITH NO INTERMEDIATE HIGH OR LOW POINTS. PROVIDE 48-INCHES MIN COVER. WHERE THE PROPOSED DISCHARGE PIPING ALIGNMENT DEVIATES FROM THE EXISTING DISCHARGE PIPING, THE EXISTING DISCHARGE PIPING WILL BE ABANDONED IN PLACE PER SPECIFICATION SECTION 024119 - DEMOLITION AND RECONSTRUCTION.
2. MAXIMUM WIDTH OF DISTURBANCE IS 30 FT ALONG THE PIPELINE. (15 FT EACH SIDE OF CENTERLINE). CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO STAY WITHIN THE 30 FEET.
3. COORDINATES SHOWN ARE APPROXIMATE. ADJUST PIPE LOCATION IN THE FIELD TO AVOID LARGE OBSTRUCTIONS SUCH AS TREES, LARGE SHRUBS, AND BOULDERS.
4. POTABLE WATER HDPE PIPE SHALL BE BLACK WITH INTEGRAL BLUE STRIP. ALL IRRIGATION PIPE SHALL BE PURPLE/MAGENTA OR HAVE AN INTEGRAL PURPLE STRIP.
5. PVC TAPE WRAP ALL BURIED STEEL PIPE PER SECTION 09 96 00.

SHEET KEYNOTES

A. INSTALL TRENCH PLUGS EVERY 500 FT PER DETAIL C-603/GC-3.
B. CONNECT EXISTING STORAGE TANK DRAIN PIPES TO THE EXISTING 6" OVERFLOW PIPE AT A POINT TO MAINTAIN A DOWNWARD SLOPE. DECOMMISSION DRAINLINE TO FIRE HYDRANT AT SHAWNEE LODGE.
C. CONNECT EXISTING DISCHARGE OF SOUTHERN WATER TANK TO THE IRRIGATION PIPELINE AND TREATMENT BUILDING INFLUENT PIPELINE.
D. CONNECT EXISTING DISCHARGE OF NORTHERN TANK TO THE OUTLET PIPELINE.
E. CONNECT PROPOSED SPRING DISCHARGE PIPE AFTER FLOW METER VAULT TO EXISTING TANK INLET PIPE. POTHOLE TO FIND EXISTING TANK INLET PIPE.
F. INSTALL INLET PIPE TO NORTHERN TANK FROM TREATMENT BUILDING.
G. INSTALL NEW TANK OVERFLOW PIPE AND CONNECT TO EXISTING 6" DRAIN.
H. COAT INTERIOR WALLS OF EXISTING TANKS PER SECTION 09 96 00.
I. (1) INSTALL NEW TYPE 316 SJ ACCESS LADDERS PER DETAIL S-531/GS-4. REMOVE EXISTING LADDERS AND DISPOSE OFF-SITE AT AN APPROVED LANDFILL.
J. PHYSICALLY DISCONNECT PIPING BETWEEN EXISTING 4" BURIED GATE VALVE TO REMAIN AND SOUTHERN TANK. CUT AND INSTALL BLIND FLANGE ON BOTH ENDS.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL K. CHAMBERS
STATE OF UTAH
11-06-12

Architect / Engineer:
MWH

Scale: 1"=5'
WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST
OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11- 06 -12	ISSUED FOR BID
1	12- 04 -12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: YARD PIPING LAYOUT

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: C-11
MWH JOB NO 10500952

BUILDING CODE SUMMARY

DATE MODIFIED: 10/31/2012 1:08 AM

GOVERNING CODE: 2009 IBC
PROJECT NAME: BEN LOMOND/SHAWNEE CAMPS
PROJECT NUMBER:
AREA/BUILDING: CHLORINATION FACILITY

ABBREVIATIONS:
N NO SEPARATION REQUIRED
NL NOT LIMITED
NP NOT PERMITTED
NS NON-SPRINKLERED
NR NOT REQUIRED
S SPRINKLERED

ACCESSIBILITY (CHAPTER 11) (YES/NO) NO

CHEMICALS: (DATA FROM HAZARDOUS MATERIALS CLASSIFICATION GUIDE UNLESS OTHERWISE NOTED)

CHEMICAL	QUANTITY		NFPA 704 RATINGS HEALTH	FLAMMABILITY	REACTIVITY	SPECIAL	HAZARD PROPERTIES PHYSICAL	HEALTH	CONTROL AREA (YES/NO)	OCCUPANCY
INSIDE BUILDING										
NONE	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
OUTSIDE BUILDING										
NONE	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

OCCUPANCY, CONSTRUCTION TYPE, BUILDING LIMITIONS

OCCUPANCY: (CHAPTER 3)	H-4		AUTOMATIC FIRE-EXTINGUISHING SYSTEMS REQUIRED: (903)	NO
CONSTRUCTION TYPE: (CHAPTER 6)	TYPE II - B		FIRE ALARM AND DETECTION SYSTEMS REQUIRED: (907, 907.2, 907.2.4)	NO
BUILDING AREA:	140	SF	SMOKE AND HEAT VENT REQUIRED: (910.2)	NO
BASEMENT AREA: (BELOW GRADE)	N/A	SF	PORTABLE FIRE EXTINGUISHERS REQUIRED: (906 IFC)	YES
MAXIMUM BUILDING HEIGHT: (ABOVE GRADE)	18	FT		
NO OF STORY: (*)	1			
MEZZANINE (505): (YES/NO)	NO		EQUIPMENT PLATFORM (505.5): (YES/NO)	NO
MEZZANINE AREA: (505.2)		SF	EQUIPMENT PLATFORM AREA: (505.5.1)	SF

ACTUAL AREA PER OCCUPANCY:			MAX ALLOWABLE AREA (NO AREA MODIFICATION): (T503)		MAX ALLOWABLE HEIGHT:		MAX ALLOWABLE STORIES:
H-4	140	SF	23,000	SF	55	FT	3
-	-	SF	-	SF	-	FT	-
-	-	SF	-	SF	-	FT	-

MIXED USE AND OCCUPANCY (508)
ACCESSORY OCCUPANCIES: (508.3.1) (YES/NO) -
ACCESSORY SPACE / ROOM TYPE: -
ACCESSORY SPACE AREA: - SF
SEPARATION NOT REQUIRED (508.3.1.3)

NONSEPARATED USES OCCUPANCIES: (508.3.2): -
ALLOWABLE AREA AND HEIGHT BASED ON OCCUPANCY: (508.3.2.2) -
SEPARATION NOT REQUIRED (508.3.2.3)

SEPARATED OCCUPANCIES: (508.3.3)
REQUIRED SEPARATION OF OCCUPANCIES: (T508.3.3)

OCCUPANCIES:			S	/	NS		OPENING PROTECTIVE FIRE PROTECTION RATING: (T715.4)		ALLOWABLE AREA: (508.3.3.2) OCCUPANCIES:	CALCULATION:
-	/ -	=	-	/	-	HOUR	-	HOUR	-	
-	/ -	=	-	/	-	HOUR	-	HOUR	-	
-	/ -	=	-	/	-	HOUR	-	HOUR	-	
									AREA CHECK:	

FIRE RESISTANCE RATINGS (CHAPTER 7)

TYPE OF ASSEMBLY	REQUIRED ASSEMBLY RATING:		FIRE PROTECTION RATING (T715.4, T715.5)	
EXTERIOR WALLS (T601)	NR	HOUR	-	HOUR
VERT. EXIT ENCLOSURE (1020.1)	-	HOUR	-	HOUR
SHAFT ENCLOSURES (707 EXCEPTION 3, 4, 7)	-	HOUR	-	HOUR
ELECTRICAL ROOM	-	HOUR	-	HOUR
	-	HOUR	-	HOUR

MEANS OF EGRESS (CHAPTER 10)

OCCUPANCY:	H-4	-
FUNCTION OF SPACE FACTOR: (T1004.1.1)	300	-
OCCUPANT LOAD PER OCCUPANCY:	1	-
TOTAL OCCUPANT LOAD:	1	
EXIT AND EXIT ACCESS DOORWAYS REQUIRED: (1015.1)	1-	-
EXIT AND EXIT ACCESS DOORWAYS PROVIDED:	1-	-
EXITS REQUIRED PER ROOM/SPACE: (1019.1 OR 1019.2)	1-	-
EXITS PER ROOM/SPACE PROVIDED:	1-	-

BUILDING WITH ONE EXIT: (T1019.2)

OCCUPANCY	NO OF STORY ALLOWED	MAX OCCUPANTS ALLOWED	MAX TRAVEL DISTANCE	
-	-	-	-	FT
-	-	-	-	FT
-	-	-	-	FT
ACTUAL MAX TRAVEL DISTANCE:			-	FT

KEY NOTES:
x

EXIT ACCESS TRAVEL DISTANCE PER OCCUPANCY: (T1016.1)

OCCUPANCY	S		/	NS	
H-4	-	FT	/	175	FT
-	-	FT	/	-	FT
-	-	FT	/	-	FT
ACTUAL MAX TRAVEL DISTANCE:		FT	/	25	FT

COMMON PATH OF EGRESS TRAVEL ALLOWED PER OCCUPANCY: (1014.3)

OCCUPANCY	ALLOWABLE DISTANCE	
H-4	75	FT
-	-	FT
-	-	FT
ACTUAL MAX COMMON PATH OF TRAVEL:	0	FT

STAIRWAYS (1009)

STAIRWAY WIDTH: (1009.1 EX. 1)	36	IN
MIN TREAD DEPTH: (1009.3)	11	IN
MAX / MIN RISERS HEIGHT: (1009.3)	7 / 4	IN
ALTERNATING TREAD DEVICE ALLOWED: (1009.9)	NOT USED	
OPEN TREAD ALLOWED: (1009.6.1 EXCEPTION)	NOT USED	
OPEN RISER ALLOWED: (1009.3.3 EXCEPTION 1)	NOT USED	

GUARD (1013) / HANDRAIL (1012)

GUARD REQUIRED (1013.1): (>30 IN ABOVE FLOOR/GRADE)	-
GUARD HEIGHT: (1013.2)	42 IN MIN
RAILS OPENINGS: (1013.3 EXCEPTION 3)	21 IN
HANDRAIL HEIGHT: (1012.2)	>= 34 IN, <= 38 IN

HANDICAPPED ACCESSIBILITY:

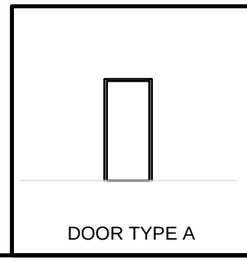
THIS BUILDING IS EXEMPT FROM CHAPTER 11 OF THE 2009 IBC BASED ON THE FOLLOWING STATEMENT, "SPACES FREQUENTED ONLY BY PERSONNEL FOR MAINTENANCE, REPAIR, OR MONITORING OF EQUIPMENT ARE NOT REQUIRED TO BE ACCESSIBLE. SUCH SPACES INCLUDE, BUT ARE NOT LIMITED TO...,MECHANICAL, ELECTRICAL OR COMMUNICATIONS EQUIPMENT ROOMS, PIPING OR EQUIPMENT CATWALKS, WATER OR SEWAGE TREATMENT PUMP ROOMS AND STATIONS, ELECTRICAL SUBSTATIONS AND TRANSFORMER VAULTS, ETC. (1103.2.9).

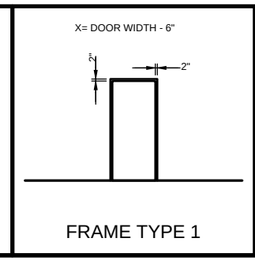
THIS BUILDING IS EXEMPT FROM AMERICANS WITH DISABILITIES ACT (ADA) BASED ON THE FOLLOWING STATEMENT, "GENERAL EXCEPTIONS - EQUIPMENT SPACES: SPACES FREQUENTED ONLY BY PERSONNEL FOR MAINTAINENCE, REPAIR OR MONITORING OF EQUIPMENT ARE NOT REQUIRED TO BE ACCESSIBLE. SUCH SPACES INCLUDE, BUT ARE NOT LIMITED TO..., WATER OR SEWAGE TREATMENT PUMP ROOMS AND STATIONS." (ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES 2002, PART 4.1.1 (5)(b)(ii)).

NOTE:
EXCEPT FOR REGULAR MONITORING AND MAINTENANCE OF EQUIPMENT, THIS BUILDING IS NOT INTENDED FOR HUMAN OCCUPANCY FOR EXTENDED PERIODS OF TIME. THIS BUILDING'S PRIMARY PURPOSE IS TO HOUSE PROCESSING EQUIPMENT FOR WATER CONVEYANCE.

GENERAL ARCHITECTURAL NOTES

1. REFER TO G SHEETS FOR ABBREVIATIONS
2. NOT ALL EQUIPMENT IS SHOWN FOR CLARITY. REFER TO APPROPRIATE DISCIPLINE DRAWINGS FOR SPECIFIC EQUIPMENT LAYOUT AND OTHER REQUIREMENTS.
3. DO NOT SCALE FROM THESE ARCHITECTURAL DRAWINGS. DRAWING CONFLICTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
4. SEE CIVIL DRAWINGS FOR SIDEWALK AND ROAD PAVING. (UNLESS OTHERWISE INDICATED)
5. SEE STRUCTURAL DRAWINGS FOR SIZE AND LOCATION OF CONCRETE PADS, TRENCHES, VAULTS, SUMPS AND ETC.
6. SEE STRUCTURAL DRAWINGS FOR JOINTS IN CONCRETE FLOOR SLAB.
7. SEE STRUCTURAL DRAWINGS FOR FLOOR AND DECK SLOPES (AS APPLICABLE).
8. SEE STRUCTURAL DRAWINGS FOR CONCRETE AND MASONRY REINFORCEMENT AND FOR MASONRY CONTROL JOINT (UNLESS OTHERWISE INDICATED).
9. NOT ALL MASONRY JOINT REINFORCEMENT (MCJ), WALL TIES AND ANCHORS ARE SHOWN ON THESE ARCHITECTURAL DRAWINGS. REFER TO MASONRY SPECIFICATIONS AND STRUCTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
10. SEE SPEC 09 96 00 WHERE GENERAL NOTES REFER TO FIELD PAINTING
11. ALL WOOD USED ON THE PROJECT SHALL BE FIRE-RETARDENT TREATED





ROOM FINISH SCHEDULE

BLDG	ROOM NO	ROOM NAME	FLOOR	WALLS MATERIAL	WALLS FINISH	WAINSCOAT HT	WAINSCOAT MATERIAL	WALLS BASE	CEILING HT	CEILING MATERIAL	REMARKS	ROOM NO
WELL HOUSE	101	CHLORINATION ROOM	CONCRETE	CONCRETE	UNPAINTED	-	-	-	10'-0"	GYPSUM		101
	.	.	.	.	.	.	.	.	.	.	.	.
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	.	.	.	.	.	.	.	.	.	.	.	.

1. SEE SPECIFICATION 09 96 00 PROTECTIVE COATINGS FOR SYSTEM FINISH UNLESS OTHERWISE NOTED

DOOR SCHEDULE

BLDG	DOOR NO	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	DOOR THICK	DOOR MATERIAL	DOOR FINISH	FRAME WIDTH	FRAME HEIGHT	FRAME TYPE	FRAME THICK	FRAME MATERIAL	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS THRESHOLD	HDW SET(2)	FIRE RATING
WELL HOUSE	101A	3'-0"	7'-2"	A	1 3/4"	HM	NOTE 1	3'-4"	7'-4"	1	2"	HM	NOTE 1	A-902	A-903	A-901	1	-
	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

1. SEE SPECIFICATION 09 96 00 PROTECTIVE COATINGS FOR TYPICAL SYSTEM FINISH UNLESS OTHERWISE NOTED
2. SEE SPECIFICATION 08 71 00 FINISH HARDWARE FOR HARDWARE SET SCHEDULE UNLESS OTHERWISE NOTED

11-06-12

Architect / Engineer: MWH

Scale: NO SCALE
WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

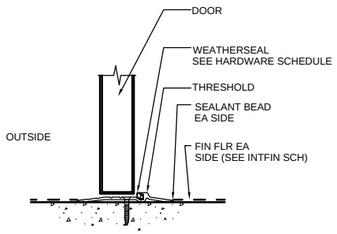
Project for: THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11-06-12	ISSUED FOR BID

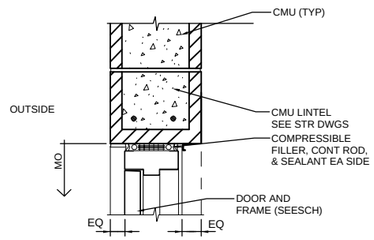
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: TREATMENT BLDG GEN. ARCH. CODE SUMMARY & SCHEDULES
Designed: M CHAMBERS
Drawn: L PARRY
Checked: D MIKLAS

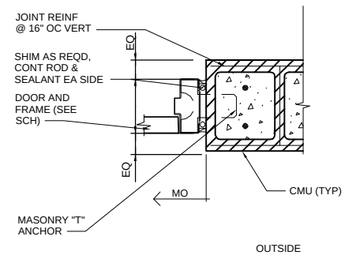
Sheet: GA-1
MWH JOB NO 10500952



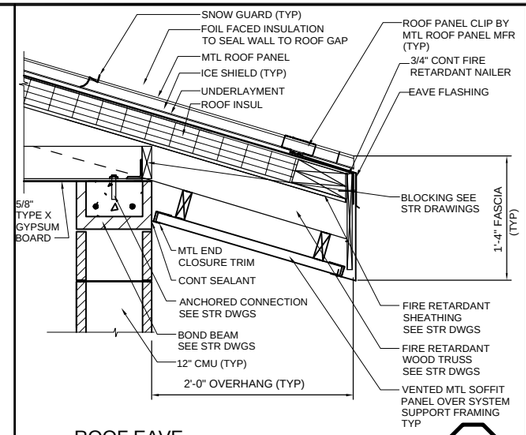
THRESHOLD A-901



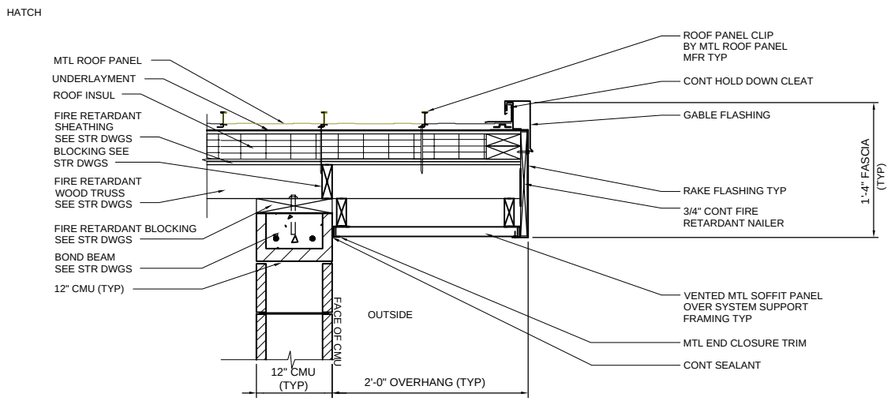
DOOR HEAD A-902



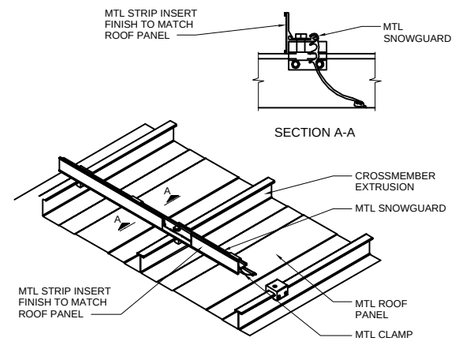
DOOR JAMB A-903



ROOF EAVE A-904



ROOF AT RAKE A-907



ROOF SNOWGUARD A-908

Architect / Engineer:

MWH

Scale:
NO SCALE
WARNING
1/2
0 1
IF THIS BAR DOES NOT
MEASURE 1" THEN
DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP
SHAWNEE WATER
SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF
JESUS CHRIST
OF LATTER-DAY SAINTS

Mark	Date (D-MMY)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

Property Number:
510-4718 / 533-4012

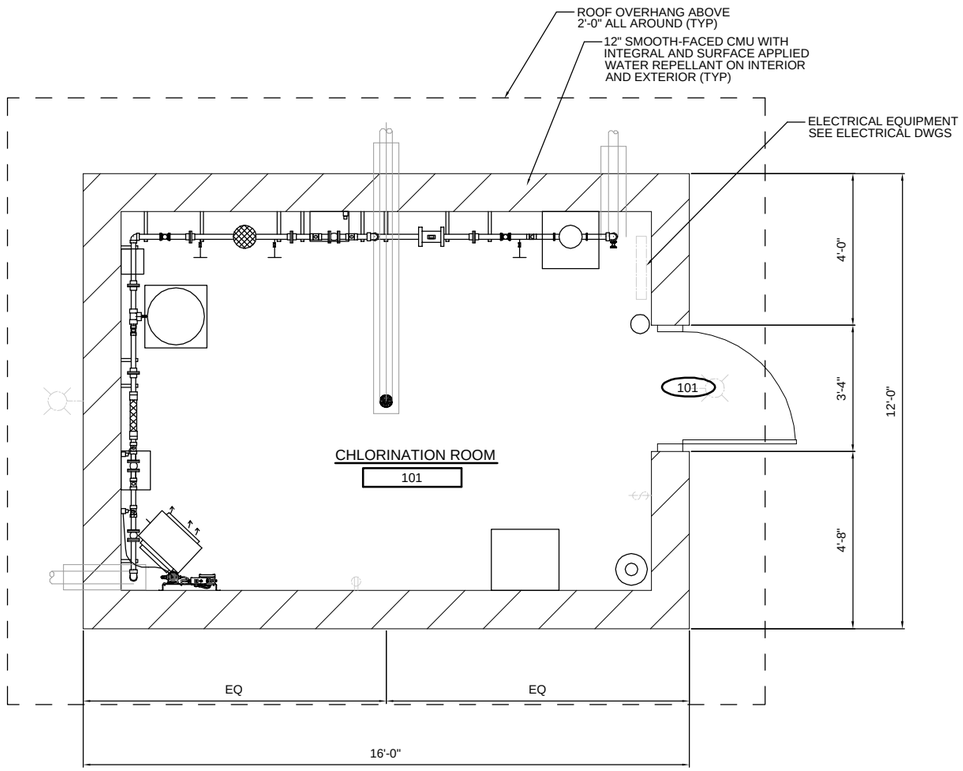
Sheet Title:
TREATMENT
BLDG
GEN. ARCH.
DETAILS

Designed: M CHAMBERS
Drawn: L PARRY
Checked: D MIKLAS

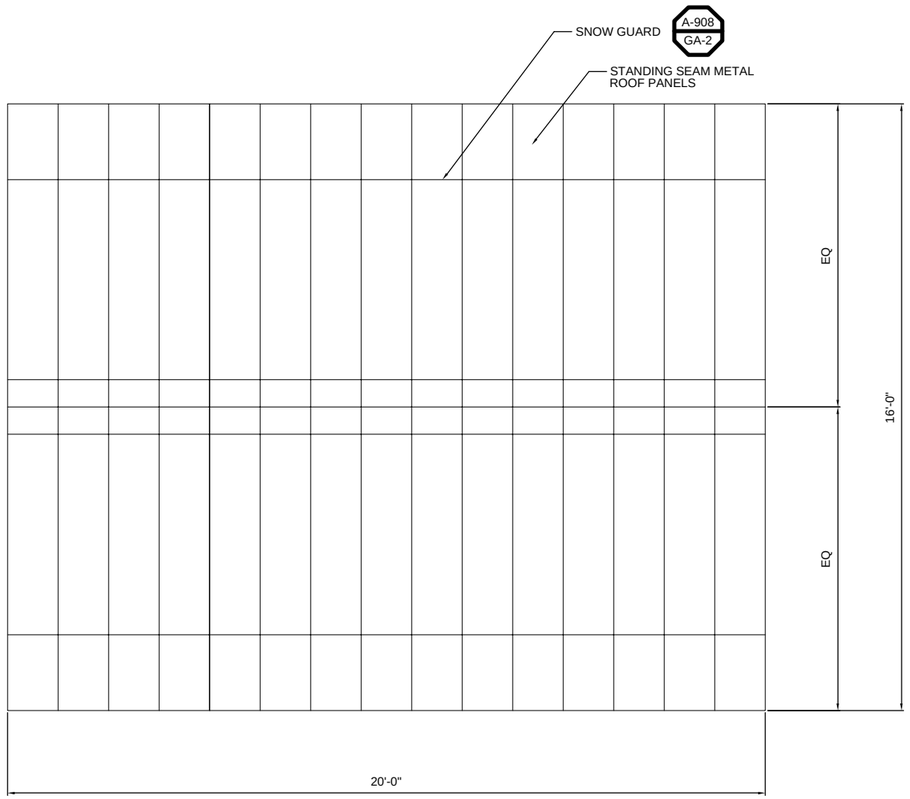
Sheet:
GA-2

MWH JOB NO 10500952

11–06–12



FLOOR PLAN



ROOF PLAN

11-06-12

Architect / Engineer:

MWH

Scale:
1/2" = 1'-0"
WARNING
1/2
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (M-D-Y)	Description
0	11-06-12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

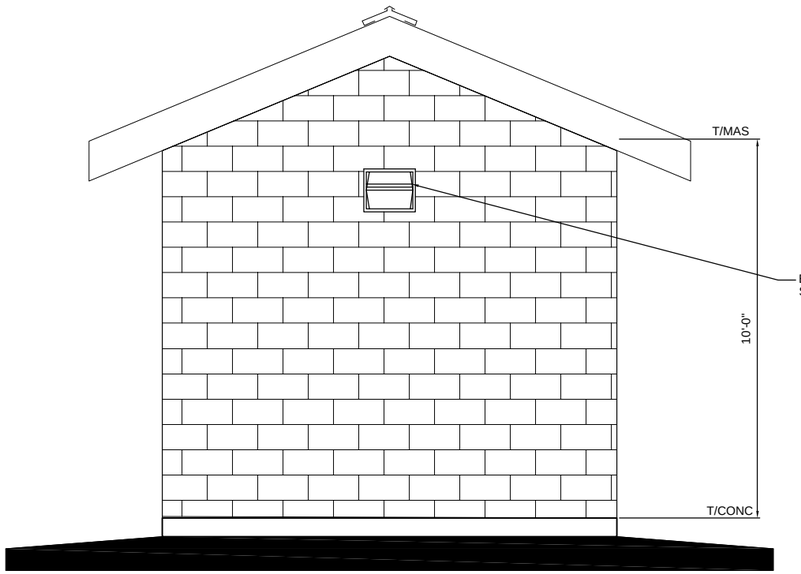
Property Number:
510-4718 / 533-4012

Sheet Title:
TREATMENT BLDG ARCHITECTURAL FLOOR PLAN & ROOF PLAN

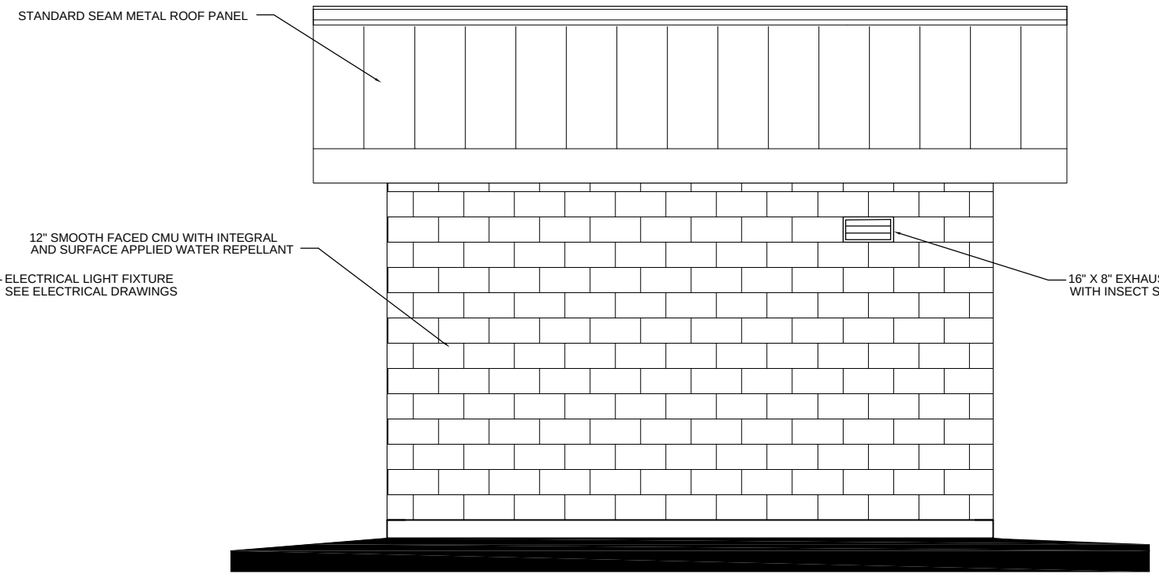
Designed: M CHAMBERS
Drawn: L PARRY
Checked: D MIKLAS

Sheet:
A-1

MWH JOB NO 10500952

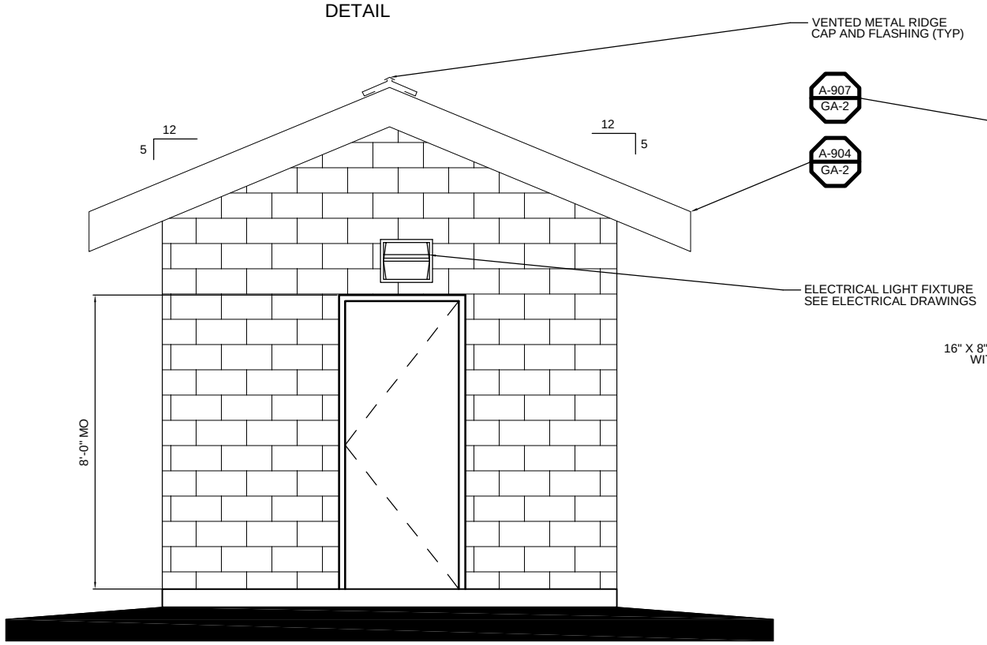


NORTH ELEVATION

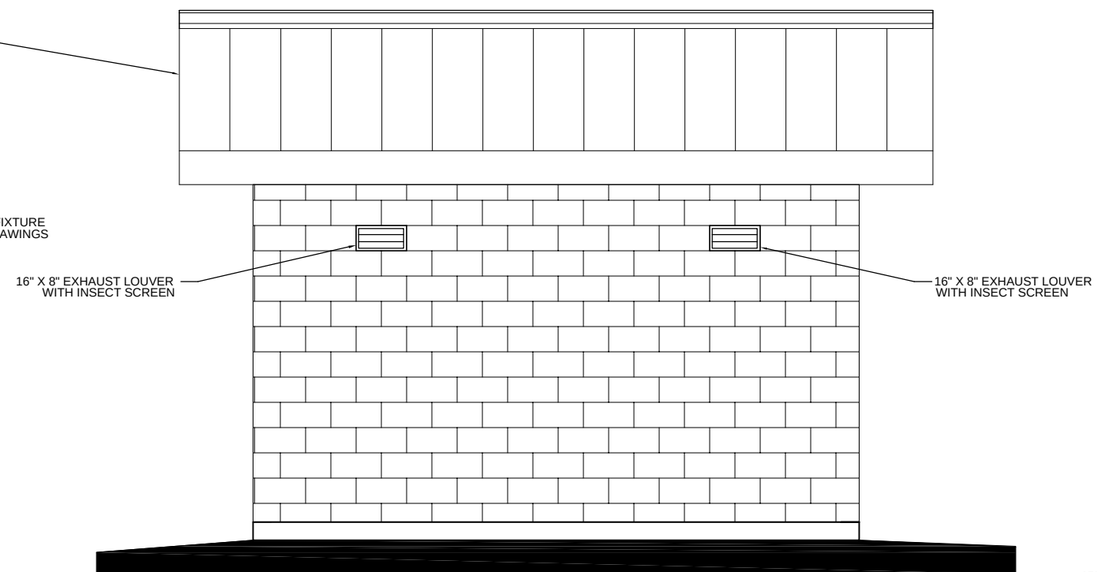


EAST ELEVATION

DETAIL



SOUTH ELEVATION



WEST ELEVATION

11-06-12

Architect / Engineer:

MWH

Scale:
1/2" = 1'-0"
WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (M-D-Y)	Description
0	11-06-12	ISSUED FOR BID

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

Property Number:
510-4718 / 533-4012

Sheet Title:
TREATMENT BLDG ARCHITECTURAL EXTERIOR ELEVATIONS

Designed: M CHAMBERS
Drawn: L PARRY
Checked: D MIKLAS

Sheet:
A-2

MWH JOB NO 10500952

GENERAL NOTES

GENERAL

THESE NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE.

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. BOLT SIZES, TYPES, AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURERS OF EQUIPMENT.

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL, HYDROSTATIC, AND BACKFILL LOADS ON THE COMPLETED STRUCTURES. THE STRUCTURES HAVE NOT BEEN DESIGNED TO RESIST THESE LOADS WHILE ONLY PARTIALLY CONSTRUCTED. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED FROM ALL CONSTRUCTION LOADS BY BRACING AND BALANCING UNTIL ALL STRUCTURAL ELEMENTS ARE IN PLACE, AND ALL CONCRETE HAS REACHED THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH. OVERLOADING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISHED GRADE AROUND STRUCTURES IS SHOWN THUS  INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB, OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL AND ARCHITECTURAL DRAWINGS.

STRUCTURAL STEEL

STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE LATEST EDITION OF THE LRFD MANUAL OF STEEL CONSTRUCTION.

SHAPES, BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM A-36 SPECIFICATIONS.

STEEL JOISTS, BEAMS, AND GIRDERS SHALL NOT BE RELOCATED WITHOUT APPROVAL BY THE ENGINEER.

ALL WELDING SHALL BE BY THE SHIELDED ARC METHOD AND SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.

CONCRETE (EXCEPT PRECAST CONCRETE)

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60

COLUMN SPIRALS SHALL CONFORM TO ASTM A-615, "DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, GRADE 60 OR ASTM A-82 "STEEL WIRE, PLAIN, FOR CONCRETE REINFORCEMENT".

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:
- 3/8 INCH FOR MEMBERS WITH D </= 8 INCHES
- 1/2 INCH FOR MEMBERS WITH D > 8 INCHES

ALL CONSTRUCTION JOINTS, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS OR REQUIRED FOR CONSTRUCTION, BUT NOT SHOWN ON THE DRAWINGS, SHALL HAVE A 6" FLATSTRIP WATERSTOP, IF IN CONTACT WITH WATER. IN ADDITION, JOINTS IN ALL SLABS COVERED WITH WATER, SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.

DOWELS, PIPE, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS #5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

VERTICAL REINFORCEMENT FOR CONCRETE OR MASONRY SHALL BE SPLICED WITH DOWEL BARS OF THE SAME SIZE AND SPACING FROM THE FOUNDATION USING A STANDARD SPLICE LENGTH UNLESS INDICATED OTHERWISE.

SEALANT SHALL BE PLACED AT THE TOP OF ALL JOINTS RECEIVING EXPANSION JOINT FILLER. SEALANT DEPTH SHALL BE THE JOINT FILL THICKNESS OR 1/2", WHICHEVER IS LESS.

ALL GROUT SHALL BE NON-SHRINK GROUT, UNLESS INDICATED OTHERWISE.

UNLESS OTHERWISE SHOWN CONCRETE WALLS AND SLABS SHALL BE REINFORCED AS FOLLOWS: #4@12" EW , CENTER OF 6" SECTIONS; #5@12" EW, CENTER OF 8" SECTIONS; #4 @ 12" EW EF OF 10" SECTIONS; #5@12" EW EF OF 12" AND THICKER SECTIONS.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE AS SHOWN ON DETAIL S-143.

LOCATE TWO 3/4 INCH GALVANIZED RICHMOND ROCKET INSERTS, HOHMANN & BARNARD OR EQUAL, STRADDLING CENTERLINE OF EQUIPMENT OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 LBS, FOR INSERTING LIFTING EYES IF NOT OTHERWISE INDICATED.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE, A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

ALL ITEMS EMBEDDED IN CONCRETE SHALL BE SPACED ON CENTER AT LEAST 4 TIMES THEIR OUTSIDE DIMENSION. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD OF THE MEMBER THICKNESS

ELECTRICAL CONDUIT EMBEDDED IN CONCRETE SHALL NOT BE SPACED CLOSER THAN 3 OUTSIDE DIAMETERS ON CENTER.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH SEE CONSTRUCTION JOINT DETAILS FOR THIN SLABS-ON-GRADE. BOTTOM COVER MAY BE LESS THAN 3" IF SO INDICATED	3"
FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH	2"
FOR CONCRETE NOT EXPOSED TO WEATHER, OR IN CONTACT WITH WATER OR EARTH	1½"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED

SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

TESTING HYDRAULIC STRUCTURES

WHEN FILLING THE STRUCTURES WITH WATER FOR THE TEST REQUIRED IN THE SPECIFICATIONS, ALL VARIOUS BASINS LOCATED IN THE SAME STRUCTURE SHALL BE FILLED SIMULTANEOUSLY AT THE SAME RATE IN ORDER TO KEEP THE SAME LEVEL IN EACH BASIN.

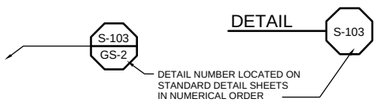
STRUCTURAL STANDARD DETAILS

DETAILS ON GS SHEETS ARE PART OF MWH'S STRUCTURAL STANDARD DETAILS.

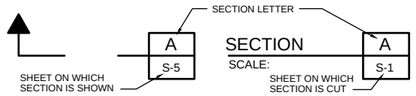
THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE INDICATED ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS — ROOF OVERHANG ABOVE

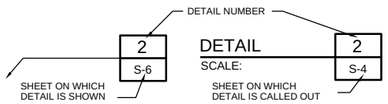
STRUCTURAL STANDARD DETAIL CALLOUT



SECTION CALLOUT



DETAIL CALLOUT



REV 060208

STRUCTURAL DESIGN LOADS AND INFORMATION PER 2009 IBC

FLOOR LIVE LOADS:
CHLORINATION BUILDING = 100 psf

GROUND SNOW LOAD:87 psf

WIND LOAD:
BASIC WIND SPEED V = 90 MPH
WIND IMPORTANCE FACTOR Iw = 1.15
WIND EXPOSURE = C

SEISMIC LOAD:
OCCUPANCY CATEGORY = III
SEISMIC DESIGN CATEGORY = D
SDS = .36
SD1 = .13
SEISMIC IMPORTANCE FACTOR, IE = 1.50
SOIL = NORMAL TRIANGLE = 13 pcf (INCREASE)
SOIL TYPE B
ANALYSIS PROCEDURE
EQUIVALENT LATERAL FORCE PROCEDURE
(EQUIVALENT STATIC LOADS DUE TO HYDRODYNAMIC LOADING CALCULATED IN ACCORDANCE WITH ACI 350.3-01)

SOIL LOAD:
ACTIVE = 35 pcf
AT-REST = 55 pcf
PASSIVE = 300 pcf
FROST DEPTH = 40 INCHES

MASONRY

CONCRETE BLOCK MASONRY SHALL BE NORMAL WEIGHT, HOLLOW UNITS CONFORMING TO ASTM C 90. SIZE OF UNITS, COLOR AND TEXTURE SHALL BE PER THE SPECIFICATIONS.

GROUT ALL CELLS [CONTAINING REINFORCING] OF CONCRETE BLOCK MASONRY UNLESS OTHERWISE NOTED ON DRAWINGS.

UNLESS OTHERWISE INDICATED, LAPS OF REINFORCEMENT IN CMU SHALL BE AS SHOWN ON DETAIL S-415.

MORTAR SHALL BE IN ACCORDANCE WITH ASTM C 270, TYPE [S], AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 1800 PSI.

GROUT SHALL BE IN ACCORDANCE WITH ASTM C 476 , AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.

SPECIAL INSPECTION SHALL BE PROVIDED PER THE SPECIFICATIONS FOR ALL MASONRY WORK

THE COMBINED MASONRY ASSEMBLAGE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE A MINIMUM OF f'm = 1500 PSI.

REINFORCEMENT SHALL BE TIED OR OTHERWISE SECURED IN POSITION PRIOR TO GROUTING.

ALL HORIZONTAL AND VERTICAL REINFORCEMENT SHALL BE CONTINUOUS OVER THE FULL EXTENT OF THE WALL WITH STANDARD SPLICES LOCATED AS NEEDED. WHERE IT IS NECESSARY TO INTERRUPT AN INDIVIDUAL BAR, AN EQUAL SIZED BAR SHALL BE LOCATED AS CLOSE AS POSSIBLE AND SHALL EXTEND A MINIMUM OF ONE SPLICE LENGTH BEYOND EACH SIDE OF THE INTERRUPTION.

WOOD FRAMING

NAILING AND FASTENERS SHALL BE PER IBC TABLE 2304.9.1 UNLESS INDICATED OTHERWISE

PLYWOOD FOR ROOFS SHALL BE 3/4" CD-X STRUCTURAL 1, BLOCKED ON ALL SIDES, NAIL W/ 10d NAILS, 6" OC @ EDGES, 6" OC @ BOUNDARY, 6" OC FIELD.

ALL EDGES OF PLYWOOD SHALL BE BLOCKED

Gregory Allen Clark
PROFESSIONAL ENGINEER
NO. 6573594-2202
GREGORY ALLEN CLARK
11-06-12
STATE OF UTAH

Architect / Engineer:
MWH

Scale: NO SCALE
WARNING 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (m-d-y)	Description
0	11-06-12	ISSUED FOR BID

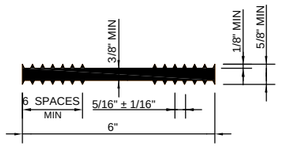
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: GENERAL STRUCTURAL NOTES

Designed: G CLARK
Drawn: L PARRY
Checked: M CHAMBERS

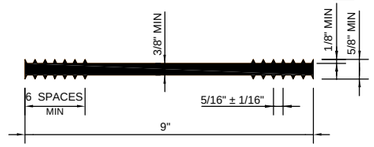
Sheet: GS-1

MWH JOB NO 10500952



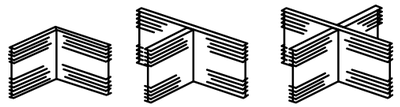
6" FLATSTRIP WATERSTOP

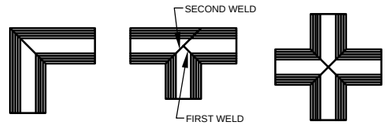
REV 032408 S-105



9" FLATSTRIP WATERSTOP

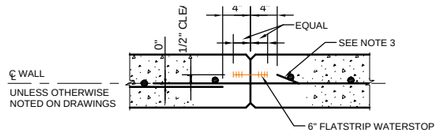
REV 032408 S-106





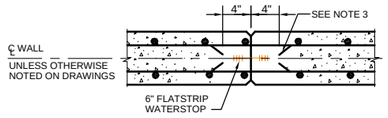
PREFABRICATED WATERSTOP JOINTS

REV 032508 S-108



SINGLE CURTAIN REINF

WITH WATERSTOP S-121 NO WATERSTOP S-122



DOUBLE CURTAIN REINF

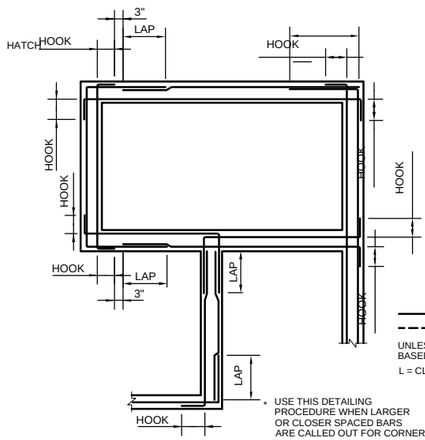
WITH WATERSTOP S-123 NO WATERSTOP S-124

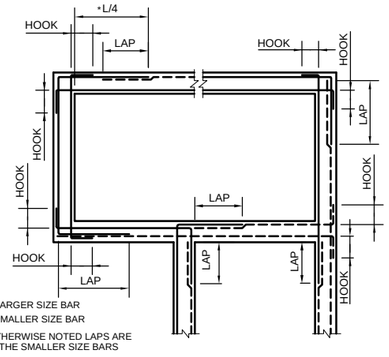
VERTICAL WALL CONSTRUCTION JOINT

REV 032708

NOTES:

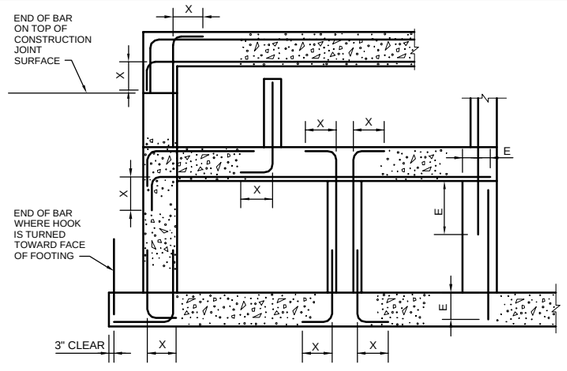
1. WHERE WATERSTOP IS REQUIRED IN SINGLE CURTAIN WALL REINFORCEMENT, PLACE WATERSTOP ON WATER SIDE OF WALL.
2. UNLESS OTHERWISE NOTED 3/4" CHAMFERS SHALL BE OMITTED IN SURFACES TO RECEIVE ARCHITECTURAL TREATMENT.
3. UNLESS SPECIFICALLY NOTED OTHERWISE #5 AND LARGER BARS SHALL BE CONTINUOUS THRU JOINT. #4 AND SMALLER BARS SHALL STOP ALTERNATE BARS AT JOINT.
4. STAGGER SPLICES UNLESS NOTED OTHERWISE.





HORIZONTAL REINFORCEMENT AT WALL INTERSECTIONS

REV 040108 S-141



SECTION

LENGTH (*)			
BAR SIZE	HOOK X	LAP	EMBEDMENT E
#3	6"	16" (21")	12" (16")
#4	8"	16" (21")	12" (16")
#5	10"	20" (26")	15" (20")
#6	12"	28" (37")	22" (28")
#7	14"	48" (62")	37" (48")
#8	16"	62" (81")	48" (62")
#9	19"	79" (102")	61" (79")
#10	22"	100" (130")	77" (100")
#11	24"	123" (160")	95" (123")

* USE LENGTH IN PARENTHESIS FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE OF FRESH CONCRETE UNDERNEATH

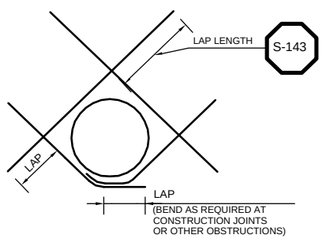
NOTES:

1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE.
2. THE TABLES SHOWN ARE FOR f'c=4000psi, fy=60,000psi, 1.5" MIN CONCRETE COVER AND 3" MIN BAR SPACING.
3. MULTIPLY THE LAP AND E SHOWN IN THESE TABLES BY 1.5 FOR EPOXY COATED REINFORCING.
4. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF:

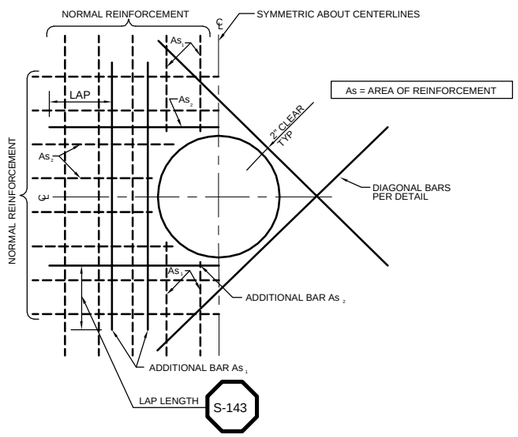
   EMBEDMENT LENGTH OF LARGER BAR
   LAP LENGTH OF SMALLER BAR
5. UNLESS NOTED OTHERWISE USE REBAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS.
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.

STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS

REV 040108 S-143



DIAGONAL BAR DETAILING



NOTES:

1. CUT NORMAL REINFORCEMENT AT OPENINGS: AS$_1$ AND AS$_2$ = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS AS$_1$ AND AS$_2$ TO BE PLACED:
   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL / SLAB THICKNESS FROM OPENING, PROVIDE 2" MIN CLEAR BETWEEN BARS.
4. DIAGONAL BARS TO BE PLACED;
   A) AT CENTERLINE OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B) AT EACH FACE OF WALL OR SLAB WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED. (LOCATE ON INSIDE FACE OF TYPICAL REINFORCEMENT.)
5. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT.
6. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.
7. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENING, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED.

DIAGONAL BAR DETAILING

REV 081709 S-144

Architect / Engineer:

MWH

Scale:
NO SCALE
WARNING
1/2
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (d-m-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

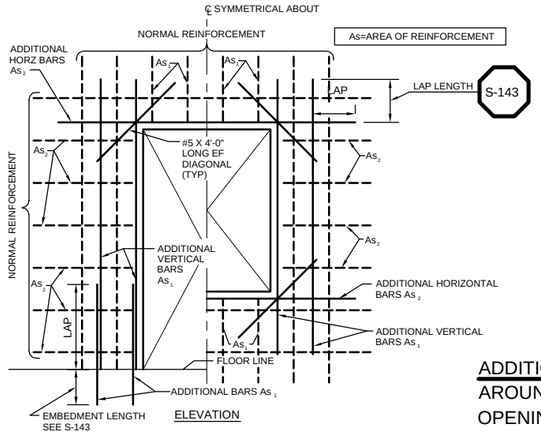
Sheet Title: GENERAL STRUCTURAL DETAILS I

Designed: G CLARK
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GS-2

MWH JOB NO 10500952

REGISTERED PROFESSIONAL ENGINEER
NO. 6573594-2202
GREGORY ALLEN CLARK
11-06-12
STATE OF UTAH

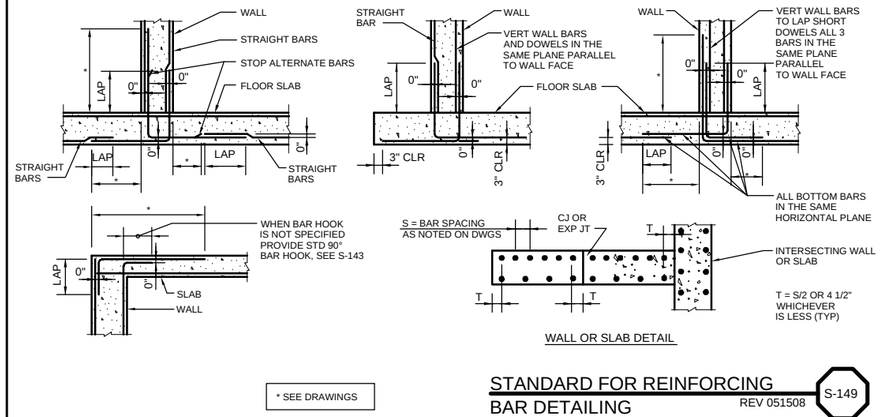


ELEVATION

1. CUT NORMAL REINFORCEMENT AT OPENING: As 1 AND As 2 = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As 1 AND As 2 TO BE PLACED:
   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL / SLAB THICKNESS FROM OPENING. PROVIDE 2" MIN CLEAR BETWEEN BARS.
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENINGS, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED.
6. THIS DETAIL APPLIES TO BELOW GRADE OPENINGS AND WHEN SPECIFICALLY REFERENCED. REFER TO DETAIL S-147 FOR ABOVE GRADE OPENINGS.

ADDITIONAL REINFORCEMENT AROUND RECTANGULAR OPENING

REV 040308 — S-148

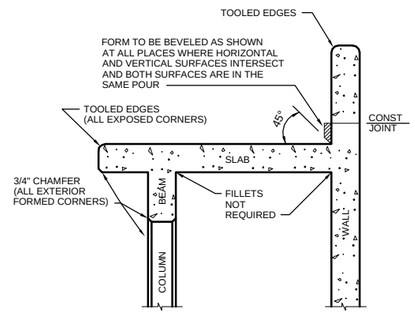


WALL OR SLAB DETAIL

* SEE DRAWINGS

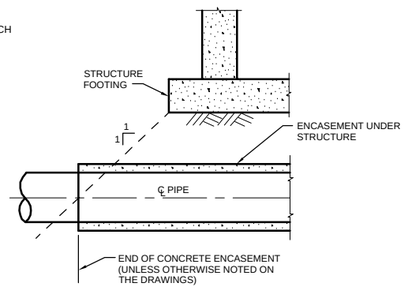
STANDARD FOR REINFORCING BAR DETAILING

REV 051508 — S-149

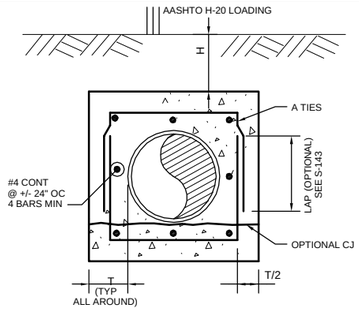


FORMING DETAILS

REV 050808 — S-152



END OF ENCASEMENT BEYOND STRUCTURE

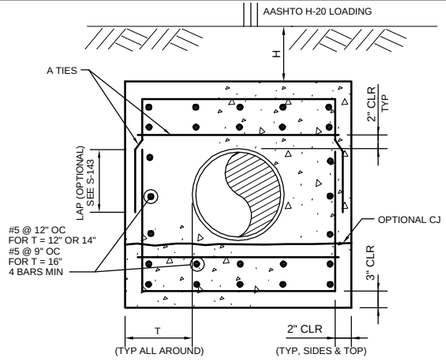


T= 6" OR 8" ENCASEMENT

COVER H	PIPE OUTSIDE DIAMETER 8"-24" A	8"-24" T	30"-32" A	30"-32" T	36" A	36" T	42"-54" A	42"-54" T	60"-72" A	60"-72" T
2' MIN	#4@12"	6"	#4@12"	6"	#4@9"	6"	#5@12"	8"	#4@9"	12"
3'					#4@12"		#4@9"		#5@12"	8"
4'							#4@12"		#5@10"	
5'							#4@12"		#5@10"	
6'							#4@9"		#5@10"	
7'					#4@12"		#4@9"		#6@12"	
8'			#4@12"		#4@9"		#5@12"		#6@10"	8"
9'			#4@9"	6"	#4@9"	6"	#5@10"		#4@9"	12"
10'		6"	#4@12"	8"	#4@9"	8"	#5@10"	8"	#5@12"	
12'		8"		12"	#4@12"	12"	#4@9"	12"	#5@10"	
14'		12"			#4@12"		#4@9"		#6@12"	
16'					#4@12"		#5@12"		#6@10"	12"
18'			#4@12"		#4@9"	12"	#5@10"	12"	#6@10"	14"
20'	#4@12"	12"	#4@9"	12"	#4@9"	14"	#6@12"	14"	#6@10"	16"

NOTES:

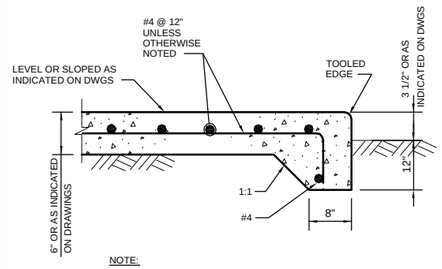
1. WHERE ENCASEMENT PASSES UNDER SPREAD FOOTING OR MAT FOUNDATION, USE H=20' UNO
2. ALL ENCASEMENTS UNDER STRUCTURES SHALL BE SEPARATED FROM THE STRUCTURE FOUNDATIONS BY BACKFILL OR 2 LAYERS OF 40# FELT UNO
3. WHEN ENCASEMENTS TERMINATE @ STRUCTURE, ENCASEMENT REINFORCING SHALL BE DOWELED INTO THE STRUCTURE
4. CONTINUE ENCASEMENT ALONG VERTICAL RUNS OF PIPE, UNO FOR T = 12" TO 16" ENCASEMENTS, PROVIDE 2 MATS OF REINF ON ALL FOUR SIDES OF ENCASEMENT. EXTEND VERT REINF FULL DEPTH INTO HORIZ ENCASEMENT AND TERMINATE BARS WITH STD HOOKS



T= 12" - 16" ENCASEMENT

PIPE ENCASEMENT

REV 060908 — S-171

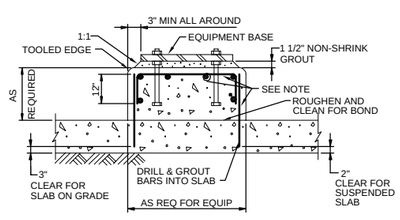


NOTE:

USE 2 MATS OF #5 @ 12" EW EF FOR SLABS 10" AND THICKER

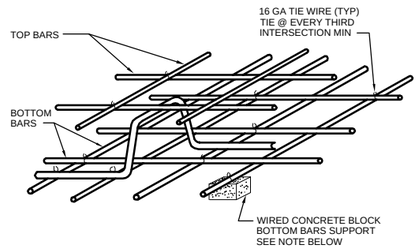
SLAB-ON-GRADE

REV 051408 — S-190



EQUIPMENT BASE

REV 080699 — S-192



NOTE:

METAL BAR SUPPORTS, IF USED IN SLABS NOT ON GROUND, SHALL NOT MAKE CONTACT WITH FORMS

REINFORCEMENT SUPPORT

REV 061208 — S-204

Architect / Engineer:

MWH

Scale: NO SCALE

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

0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (M-D-Y)	Description
0	11- 06 -12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012

Plan Series: N/A

Property Number: 510-4718 / 533-4012

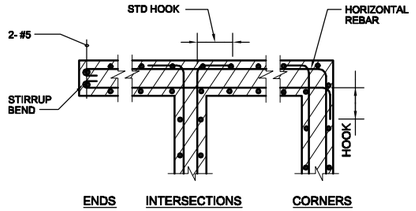
Sheet Title: GENERAL STRUCTURAL DETAILS II

Designed: G CLARK
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GS-3

MWH JOB NO 10500952

REGISTERED PROFESSIONAL ENGINEER — No. 6573594-2202 — GREGORY ALLEN CLARK — 11-06-12 — STATE OF UTAH

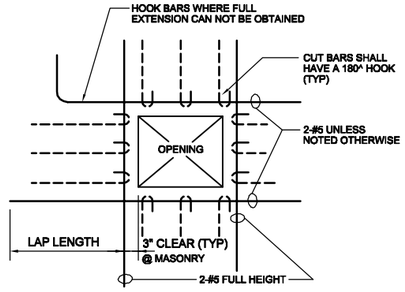


NOTES:

1. DEEP CUT BOND BEAM BLOCKS SHALL BE USED WHERE HORIZONTAL REINFORCING STEEL IS EMBEDDED, AND ABOVE ALL OPENINGS.
2. H-BLOCK BOND BEAMS MAY BE USED AT LOCATIONS OTHER THAN OPENINGS.
3. HOOKS SHALL BE TAKEN TO FAR FACE.

12" BLOCK WALL SECTIONS

REV 052308 — S-402



NOTE:

REINFORCING SHOWN IS IN ADDITION TO NORMAL REINFORCING AND SHALL BE PLACED WITH EACH LAYER OF BARS PROVIDED.

REINFORCEMENT AT MASONRY WALL OPENINGS

REV 052308 — S-410

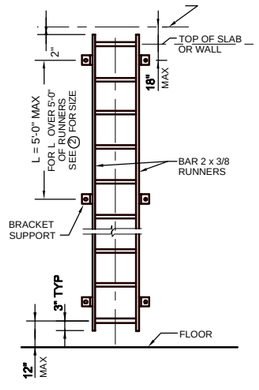
			8" CMU	12" CMU	
BAR SIZE	90° HOOK	ALLOWABLE HOOK EMBEDMENT LENGTH REDUCTION	LAP & EMBEDMENT LENGTHS (CENTERED)	LAP & EMBEDMENT LENGTHS (CENTERED)	LAP & EMBEDMENT LENGTHS (EF) (NOTE 5)
#3	6"	4"	27"	27"	27"
#4	8"	6"	36"	36"	36"
#5	10"	8"	45"	45"	45"
#6	12"	9"	54"	54"	74"
#7	14"	11"	73"	63"	NR
#8	16"	13"	NR	72"	NR

NOTES:

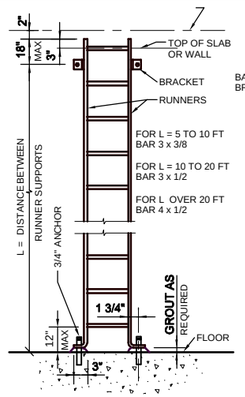
1. THE TABLES SHOWN ARE FOR IBC 2006 AND ACI 530-05 WITH f'm=1500 PSI AND fy=60,000 PSI.
2. USE HOOK, EMBEDMENT AND LAP SPLICE LENGTHS AS DETERMINED FROM THESE TABLES UNLESS INDICATED OTHERWISE.
3. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF THE EMBEDMENT LENGTH OF THE LARGER BAR, OR THE LAP LENGTH OF THE SMALLER BAR.
4. NR DENOTES "NOT RECOMMENDED", BECAUSE LAP LENGTHS ARE IMPRACTICAL.
5. HOOK EMBEDMENT LENGTH EQUALS EMBEDMENT LENGTH MINUS ALLOWABLE HOOK EMBEDMENT LENGTH REDUCTION.
6. MECHANICAL COUPLERS MAY BE SUBSTITUTED FOR LAP SPLICES FOR ANY BAR SIZE. SUBMIT TO ENGINEER FOR APPROVAL.

LAPS, HOOKS AND EMBEDMENTS

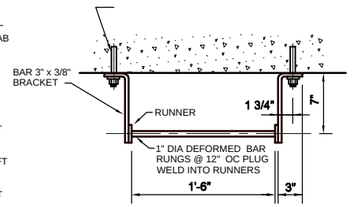
FOR 8", 12" CMU — REV 051408 — S-415



① STANDARD LADDER WITH RUNNER SUPPORTS AT 5'-0" OC MAX



② LADDER WITH RUNNER SUPPORTS OVER 5'-0" OC



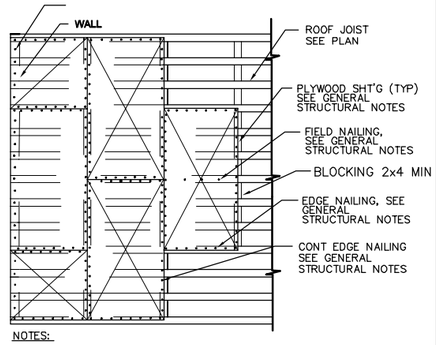
PLAN

NOTES:

1. LADDERS SHALL BE TYPE 316 STN STL UNLESS INDICATED OTHERWISE.
2. ANCHORS & FASTENERS SHALL BE STAINLESS STEEL, EXCEPT FASTENERS FOR GALVANIZED STEEL LADDERS SHALL BE GALVANIZED STEEL.
3. PROVIDE ANCHOR BOLT INSERTS FOR PRESTRESSED TANK WALLS.
4. LADDERS SHALL BE OSHA AND ANSI APPROVED.
5. FRP LADDER MEMBERS SHALL BE SIZED BY THE MANUFACTURER PER THE SPECIFICATIONS.

FIXED LADDER

REV 060308 — S-531

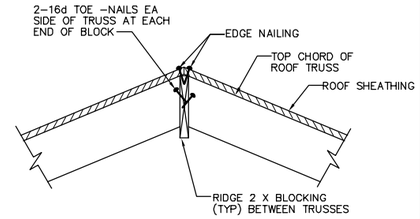


NOTES:

1. EDGE OF PLYWOOD ROOF OPENINGS SHALL BE BOUNDRY NAILING.
2. EACH PLYWOOD SHEET SHALL SPAN THREE BEARINGS MIN.
3. ALL EDGES OF PLYWOOD SHEET SHALL BE BLOCKED.

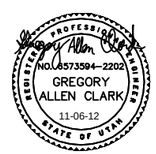
TYPICAL ROOF DIAPHRAGM

S-901



ROOF VALLEY AND RIDGE DETAIL

S-902



Architect / Engineer:

MWH

Scale: NO SCALE

WARNING 1/2 0 1

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (mm-dd-yy)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012

Plan Series: N/A

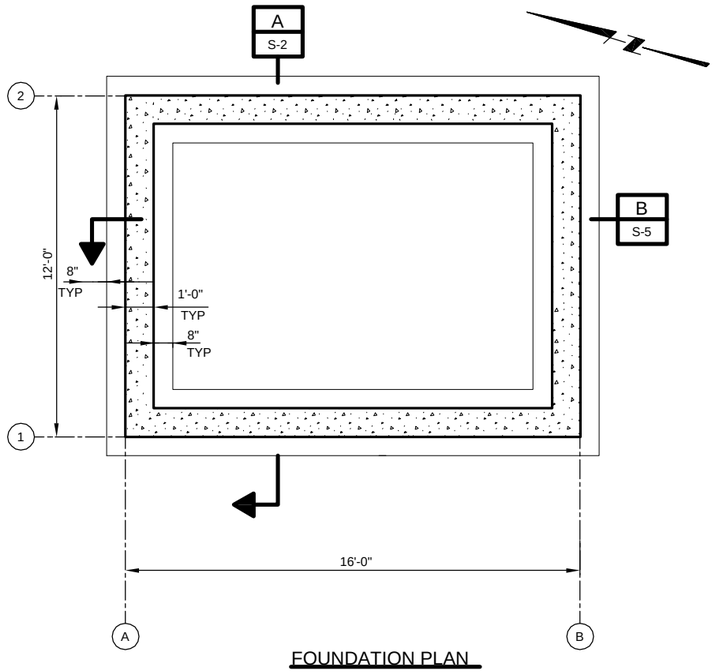
Property Number: 510-4718 / 533-4012

Sheet Title: GENERAL STRUCTURAL DETAILS III

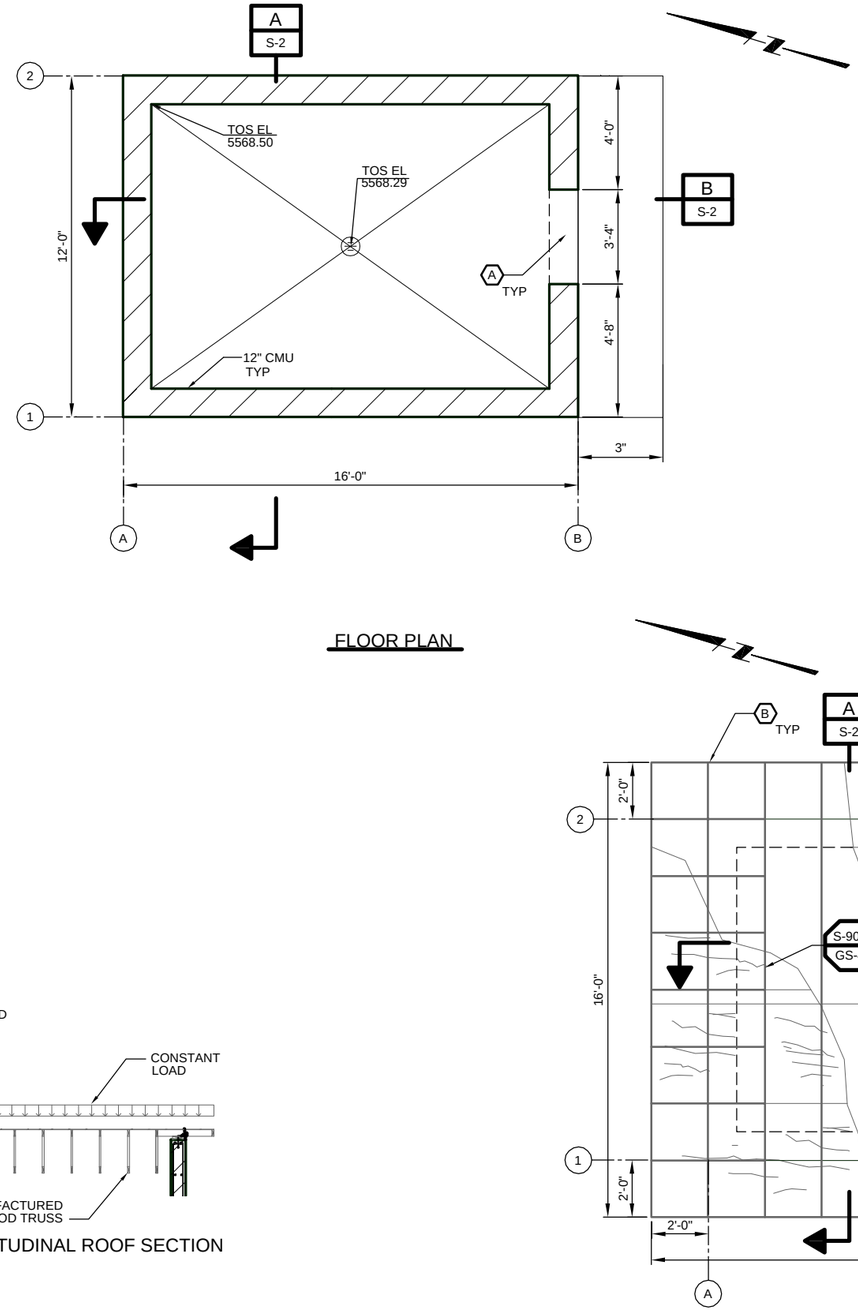
Designed: G CLARK
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GS-4

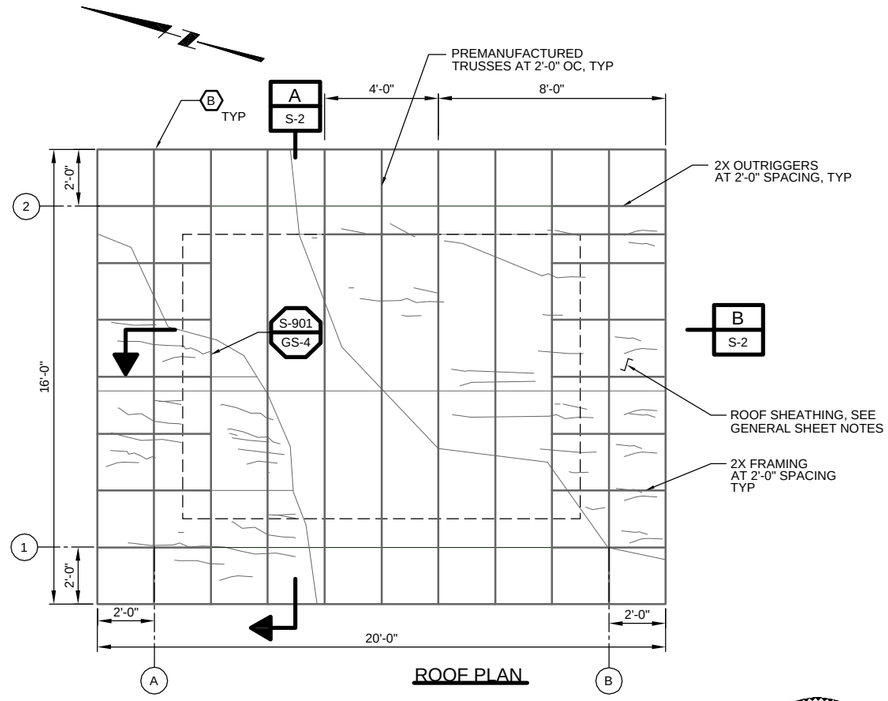
MWH JOB NO 10500952



FOUNDATION PLAN

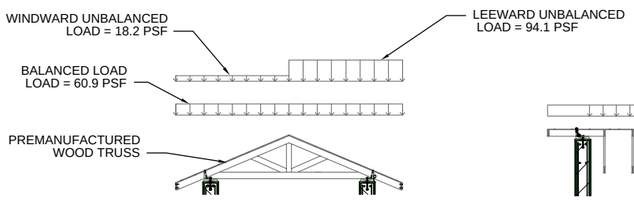


FLOOR PLAN

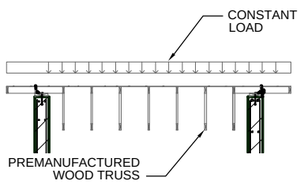


ROOF PLAN

SNOW LOAD SUMMARY FIGURES



TRANSVERSE ROOF SECTION



LONGITUDINAL ROOF SECTION

GENERAL SHEET NOTES

1. COORDINATE ALL WALL AND FLOOR PENETRATIONS WITH MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS.
2. GRIDLINES SHOWN ARE TO OUTSIDE FACE OF EXTERIOR WALLS.
3. SEE S-901 AND GENERAL STRUCTURAL NOTES FOR ROOF SHEATHING ATTACHMENT REQUIREMENTS.
4. SEE MECHANICAL DRAWINGS FOR PIPE ENCASEMENT LOCATIONS. PIPE ENCASEMENT SHALL BE IN ACCORDANCE W/ S-171. PIPE ENCASEMENT NOT SHOWN ON STRUCTURAL SHEETS FOR CLARITY.

SHEET KEYNOTES

A. PROVIDE STEMWALL BLOCKDOWN AND EXTEND FLOOR SLAB OVER TOP OF STEMWALL AT DOORWAY LOCATIONS.

B. PROVIDE CONTINIOUS 2X RIM JOIST. MEMBER DEPTH SHALL MATCH TOP CHORD OF TRUSS.

Architect / Engineer:
MWH

Scale: 3/8" = 1'-0"
WARNING 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: BUILDING STRUCTURAL FOUNDATION, FLOOR, AND ROOF PLANS

Designed: G CLARK
Drawn: L PARRY
Checked: M CHAMBERS

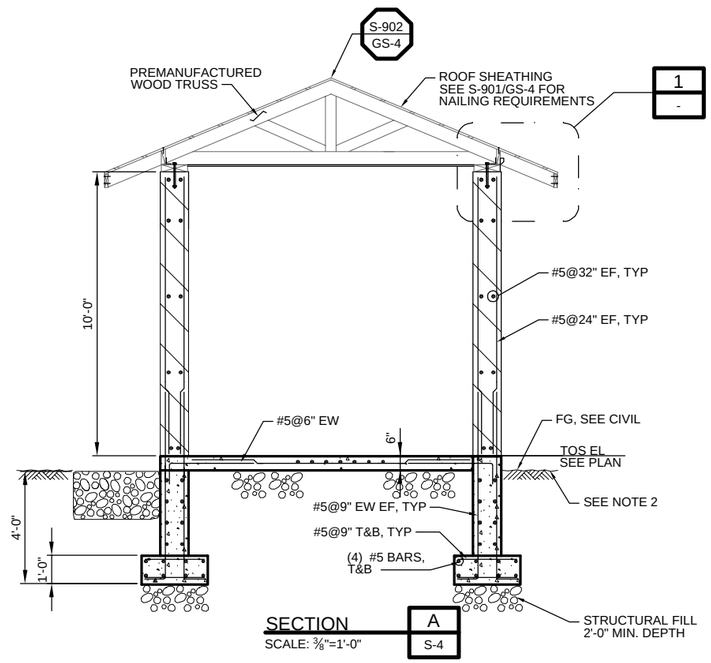
Sheet: S-1

MWH JOB NO 10500952

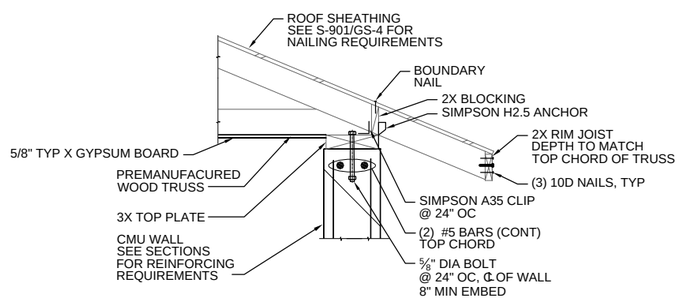
REGISTERED PROFESSIONAL ENGINEER
No. 5573594-2202
GREGORY ALLEN CLARK
11-06-12
STATE OF UTAH

GENERAL SHEET NOTES

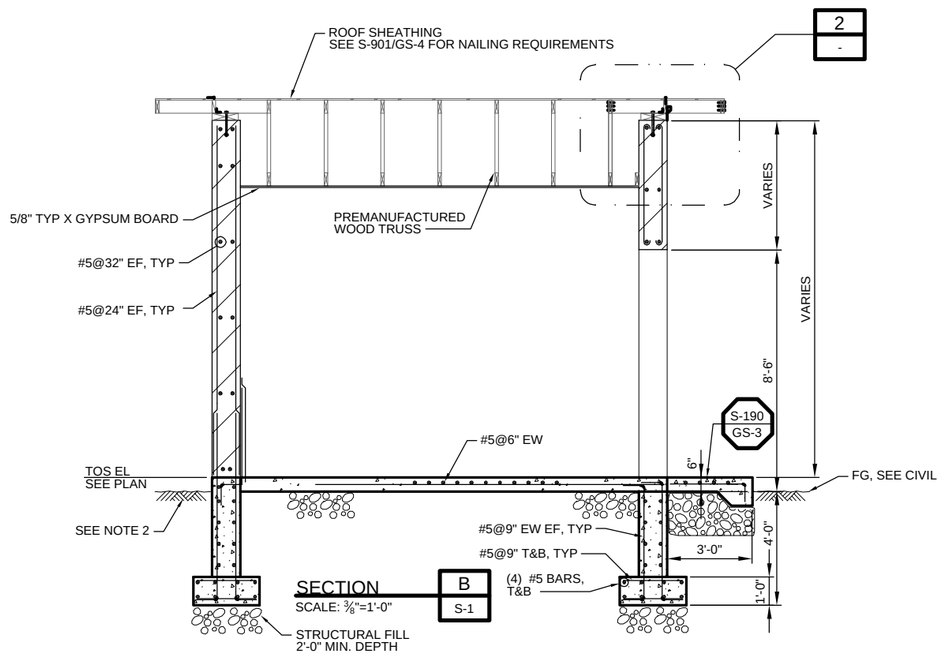
1. COORDINATE ALL WALL PENETRATIONS WITH MECHANICAL DRAWINGS.
2. SEE CIVIL DRAWINGS FOR DRAINROCK REQUIREMENTS AT LOCATIONS WITHOUT SIDEWALK.



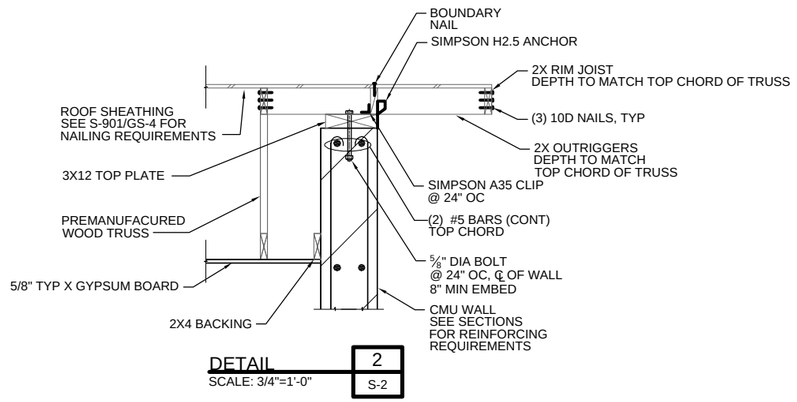
SECTION A
SCALE: ⅜"=1'-0"
S-4



DETAIL 1
SCALE: 3/4"=1'-0"
S-2



SECTION B
SCALE: ⅜"=1'-0"
S-1



DETAIL 2
SCALE: 3/4"=1'-0"
S-2

Architect / Engineer:
MWH

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
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Mark	Date (M-D-Y)	Description
0	11-06-12	ISSUED FOR BID

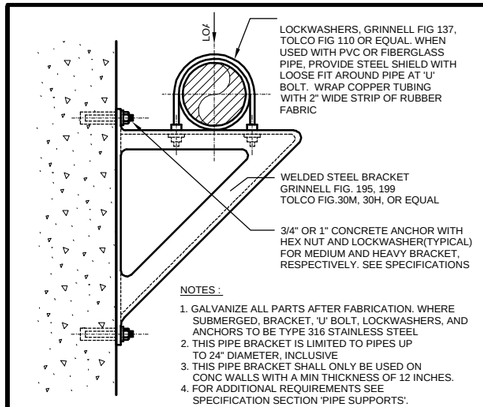
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: BUILDING STRUCTURAL SECTIONS

Designed: G CLARK
Drawn: L PARRY
Checked: M.CHAMBERS

Sheet: S-2

MWH JOB NO 10500952



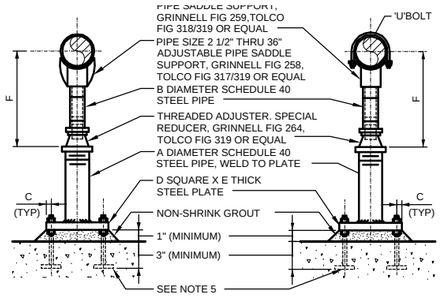
NOTES :

1. GALVANIZE ALL PARTS AFTER FABRICATION. WHERE SUBMERGED, BRACKET, 'U' BOLT, LOCKWASHERS, AND ANCHORS TO BE TYPE 316 STAINLESS STEEL
2. THIS PIPE BRACKET IS LIMITED TO PIPES UP TO 24" DIAMETER, INCLUSIVE
3. THIS PIPE BRACKET SHALL ONLY BE USED ON CONC WALLS WITH A MIN THICKNESS OF 12 INCHES.
4. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.

PIPE BRACKET

(FOR PIPE 24" DIAMETER AND SMALLER)

REV 032608 M-104



NOTES:

1. FOR ADDITIONAL REQUIREMENTS SEE SPEC SECTION 'PIPE SUPPORT'.
2. GALVANIZE ALL PARTS AFTER FABRICATION.
3. WHERE PIPE SUPPORT OCCURS ON GRADE REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
4. THIS PIPE SUPPORT IS LIMITED TO PIPE FROM 2 1/2" DIAMETER TO 36" DIAMETER INCLUSIVE.
5. GALVANIZED ANCHOR BOLT OR CONCRETE ANCHOR WITH TWO NUTS AND ONE LOCKWASHER. PROVIDE BAR 4 x 1/2" x 4" WELDED TO BOLT (TYP OF 4) SEE SPECIFICATIONS.

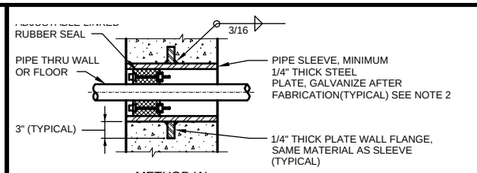
DIMENSIONS IN INCHES							
NOMINAL PIPE SIZE	A	B	C	D	E	F (APPROX) (MINIMUM)	F (APPROX) (MAXIMUM)
2 1/2	2	1 1/2	1	6	3/8	7	11 1/2
3	2	1 1/2	1	6	3/8	7 5/16	11 13/16
3 1/2	2	1 1/2	1	6	3/8	7 9/16	12 1/16
4	3	* 2 1/2 / 3	1 1/8	7 1/2	1/2	10 1/4	14 3/4
6	3	* 2 1/2 / 3	1 1/8	7 1/2	1/2	11 9/16	16 1/16
8	3	* 2 1/2 / 3	1 1/8	7 1/2	1/2	13 9/16	18 1/16
10	3	* 2 1/2 / 3	1 1/8	7 1/2	1/2	14 5/8	19 1/8
12	3	* 2 1/2 / 3	1 1/8	7 1/2	1/2	15 5/8	20 1/8
14	4	3	1 1/4	9	5/8	18 7/8	23 3/8
16	4	3	1 1/4	9	5/8	19 7/8	24 3/8
18	6	4	1 1/2	11	3/4	22 1/4	26 3/4
20	6	4	1 1/2	11	3/4	23 1/4	27 3/4
24	6	4	1 1/2	11	3/4	26 1/2	31
30	6	4	1 1/2	11	3/4	29 5/8	34 1/8
32	6	4	1 1/2	11	3/4	30 5/8	35 1/8
36	6	4	1 1/2	11	3/4	32 5/8	37 1/8

* SEE MANUFACTURER

ADJUSTABLE PIPE SUPPORT WITH OR WITHOUT 'U' BOLT

(FOR PIPE 36" DIAMETER AND SMALLER)

REV 040208 M-108

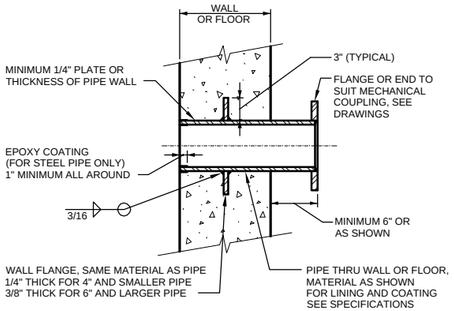


NOTES:

1. THESE SLEEVED PIPE OPENING DETAILS ARE TO BE USED IN DRY WALLS ONLY AND SHALL NOT BE USED FOR WALLS WITH WATER ON ONE OR BOTH SIDES.
2. SLEEVES ARE NOT REQUIRED IN CORE DRILLED WALLS, PENETRATIONS THROUGH EXISTING WALLS, OR FLOORS.

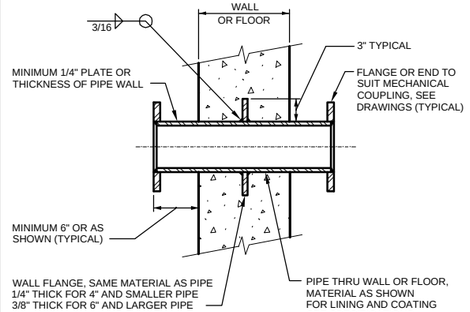
SLEEVED PIPE OPENING

REV 030408 M-111



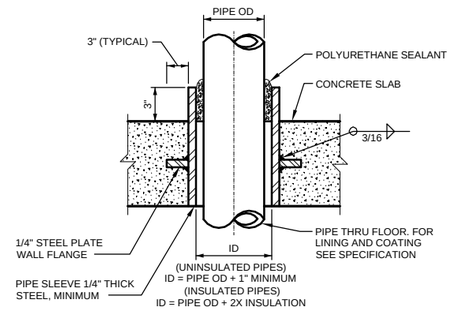
FABRICATED PIPE THIMBLE

REV 032408 M-112



FABRICATED PIPE THIMBLE

REV 032408 M-113

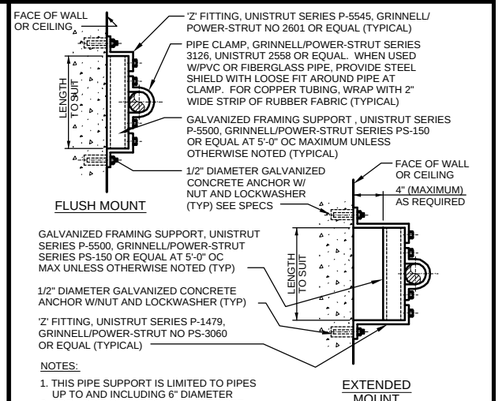


NOTES:

1. THIS SLEEVE IS TO BE USED BETWEEN DRY SPACES ONLY.
2. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.
3. GALVANIZE ALL PARTS AFTER FABRICATION

FLOOR PIPE SLEEVE

REV 070609 M-130



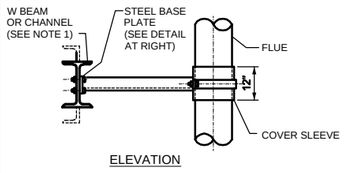
NOTES:

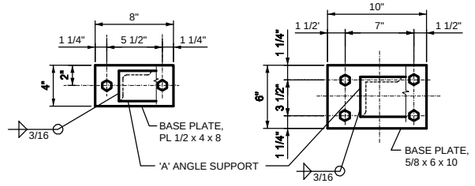
1. THIS PIPE SUPPORT IS LIMITED TO PIPES UP TO AND INCLUDING 6" DIAMETER
2. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.

PIPE SUPPORT FOR INDIVIDUAL PIPES

(FOR PIPE 6" DIAMETER AND SMALLER)

REV 032808 M-139





DIMENSIONS IN INCHES		
FLUE DIAMETER	'A'	'B'
6 TO 12	L 3 X 3 X 3/8	5/8
14 TO 20	L 3 X 3 X 3/8	3/4

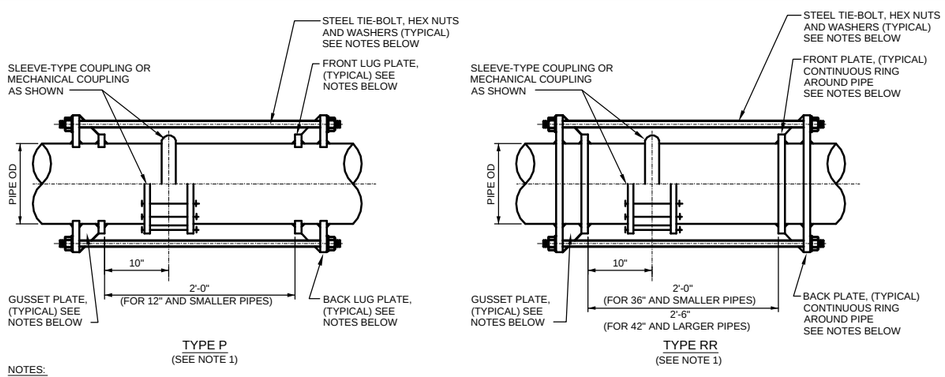
NOTES :

1. IF SWAY BRACKET IS ATTACHED TO CONCRETE WALL, USE 5/8" GALVANIZED CONCRETE ANCHORS WITH NUTS AND LOCK WASHERS, SEE SPECIFICATIONS.
2. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'

FLUE SWAY BRACKET

(FOR FLUE 20" DIAMETER AND SMALLER)

REV 062008 M-146



NOTES:

1. SEE AWWA MANUAL M-11 FOR HARNESS SET SIZE, TYPE AND DESIGN REQUIREMENTS.
2. WHERE BURIED TIE-BOLTS, HEX NUTS AND WASHERS SHALL BE TYPE 316 STAINLESS STEEL.

HARNESSED JOINT

REV 062008 M-156

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (y-m-d)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

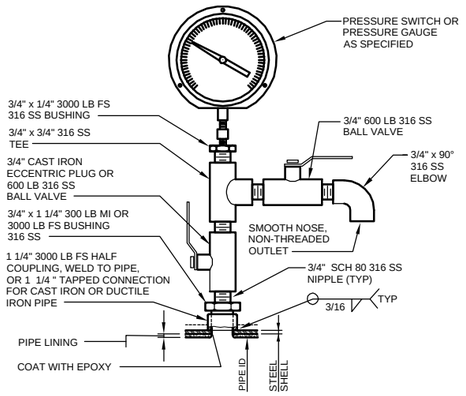
Sheet Title: GENERAL MECHANICAL STD DETAILS I

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

Sheet: GM-1

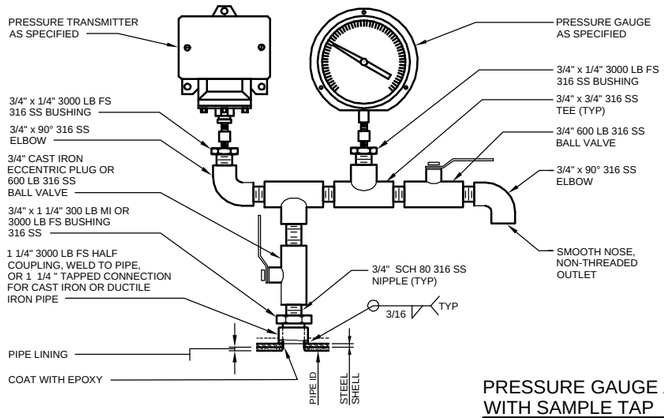
MWH JOB NO 10500952

11-06-12



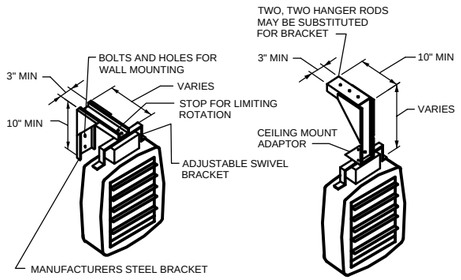
PRESSURE GAUGE WITH SAMPLE TAP

M-902



PRESSURE GAUGE AND TRANSMITTER WITH SAMPLE TAP

M-903



WALL MOUNTING POSITION

CEILING MOUNTING POSITION

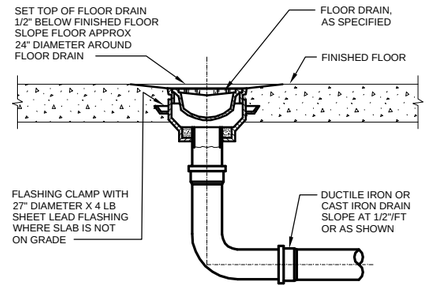
NOTES:

1. HEATER TO BE CONTROLLED FROM WALL-MOUNTED THERMOSTAT, UNLESS OTHERWISE SHOWN.
2. ELECTRIC UNIT HEATER AS SPECIFIED.

ELECTRIC UNIT HEATER

REV 062309

H-302



NOTE:

1. WHERE NOTED, INSTALL FLOAT TYPE FLOOD GUARD MODEL 4F BY GENERAL WIRE SPRING CO., OR EQUAL, IN FLOOR DRAIN.

FLOOR DRAIN W/OUT P-TRAP

REV 062309

P-304

Architect / Engineer:

MWH

Scale: NONE

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (y-m-y)	Description
0	11-06-12	ISSUED FOR BID

Project Number: 510-4718 / 533-4012

Plan Series: N/A

Property Number: 510-4718 / 533-4012

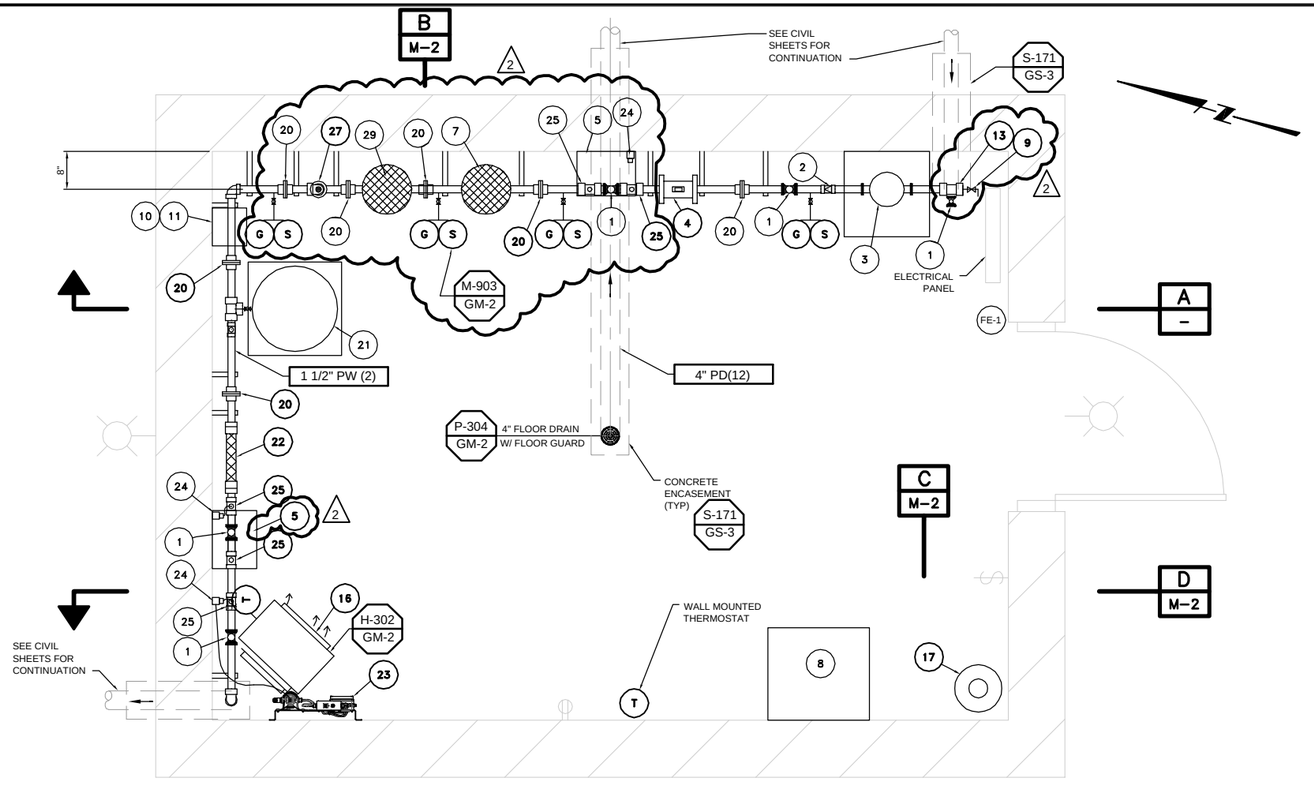
Sheet Title: GENERAL MECHANICAL STD DETAILS II

Designed: T MEHRABAN
Drawn: L PARRY
Checked: M CHAMBERS

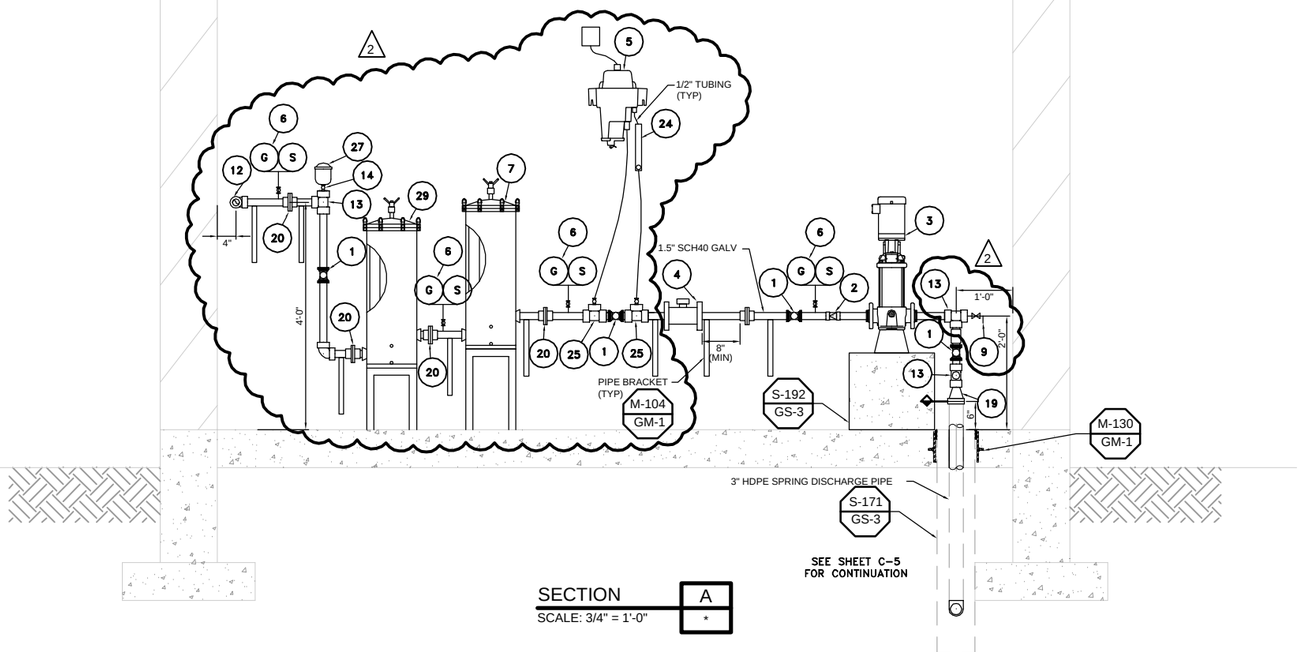
Sheet: GM-2

MWH JOB NO 10500952

11-06-12



PLAN



SECTION A
SCALE: 3/4" = 1'-0"

GENERAL SHEET NOTES

1. ALL PIPING INSTALLED BELOW STRUCTURE SHALL BE CONCRETE ENCASED PER DETAIL S-171/GS-3.
2. MINIMUM SLOPE ON ALL DRAINS SHALL BE 1/4" PER FOOT.

VALVE AND EQUIPMENT SCHEDULE

NO	DESCRIPTION	SIZE	JOINT TYPE	REMARKS
1	FULL PORT BALL VALVE	1.5"	THRD	APOLLO, MODEL 94A10701 OR EQUAL
2	CHECK VALVE	1.5"	THRD	APOLLO, MODEL 161T, SWING CHECK VALVE
3	VERTICAL IN-LINE CENTRIFUGAL PUMP		FLANGED	CONTRACTOR SHALL PROVIDE PIPE INCREASER/REDUCER AS NEEDED TO CONECT PIPING TO VERTICAL IN-LINE PUMP
4	ELECTROMAGNETIC FLOW METER	1.5"	FLANGED	ABB WATERMASTER V
5	TURBIDITY METER		THRD	HACH 1720E SENSOR
6	PRESSURE GAUGE AND PRESSURE SWITCH			0-100 psi
7	PRE-FILTER 2	1.5"	THRD	PROVIDE 4MC2 SB, 304L PRE-FILTER WITH 24-UNITS OF MODEL STC3 CARTRIDGES, MANUFACTURED BY GRAVER, OR EQUAL (2)
8	PORTABLE EYE WASH			HAWS, MODEL 7500 PORTABLE EYE WASH WITH J-SHAPED SS WALL BRACKET
9	SAMPLE TAP	3/4"	SMOOTH NOSE WITH BALL VALVE	
10	CHLORINATION PUMP			45 MHP 2 STENNER PUMP, 120V, 3/8" WHITE CONNECTIONS AND TUBING
11	WALL MOUNT BRACKET ASSEMBLY-SS	3/4"		PULSAFEEDER, WALL MOUNT BRACKET STAINLESS STEEL WITH MOUNTING HARDWARE
12	90° BEND	1.5"	THRD	
13	TEE	1.5"	THRD	
14	BALL VALVE	1/2"	THRD	ISOLATION VALVE, FULL PORT APOLLO
15	REDUCING TEE WITH ISOLATION VALVE	1.5"X3/8"	THRD	3/8" FULL PORT BALL VALVE
16	ELECTRIC UNIT HEATER (240V)	1/15 HP		CHROMALOX MODEL HD3D-300 HOSE DOWN CORROSION RESISTANT UNIT HEATER WITH TYPE 304 STN STL USB UNIVERSAL SWIVEL WALL AND CEILING BRACKET AND WALL MOUNTED THERMOSTAT
17	EXHAUST FAN	4"		FANTECH FG4XL, OR EQUAL 134 CFM @ 0.4" WC
18	EXHAUST LOUVER	15 1/2" X 7 1/2"		HART AND COOLEY BV318 OR EQUAL WITH INSECT SCREEN
19	REDUCER	3" X 1.5"	FLANGED	SCH 40 GALVANIZED STEEL REDUCER
20	UNION	1.5"	THRD	
21	CHLORINATION TANK	35 GAL		POLY TANK (18" DIAMETER, 32" HIGH
22	STATIC MIXER	1.5"	THRD	SCH 40 TRANSPARENT 6-ELEMENT STATIC MIXER
23	CHLORINE ANALYZER			HACH CHLORINE ANALYZER 2982100 CLF10SC WITH ANALOG CARD 9012800
24	FLOWMETER			DWYER INSTRUMENTS VA10422 VARIABLE AREA GLASS FLOW METER 20 GPH
25	REDUCING TEE	1.5" X 1/2"		1/2" FULL PORT BALL VALVE
26	SCALE WITH WEIGHT INDICATOR			CARBOY-SCALE 4-20 MA OUTPUT, XT400
27	AIR RELEASE VALVE	1/2"	THRD	AIR RELEASE VALVE VAL-MATIC MODEL 15A WITH LOW DUROMETER SEAT OR EQUAL
28	REDUCER	2" X 1.5"	THRD	
29	FINAL FILTER	1.5"	THRD	PROVIDE 4MC2 SB, 304L FILTER WITH 8 UNITS OF MODEL QCRI CARTRIDGES, MANUFACTURED BY GRAVER, OR EQUAL. (2)

2

REGISTERED PROFESSIONAL ENGINEER
MICHAEL W. CHAMBERS
STATE OF UTAH
11-06-12

Architect / Engineer:
MWH

Scale: 3/4"=1'
WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE
0 1/2 1

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (p-a-y)	Description
0	11-06-12	ISSUED FOR BID
1	11-09-12	ADDENDUM 1
2	12-04-12	UDEQ DOW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title:
TREATMENT BUILDING MECHANICAL PLAN

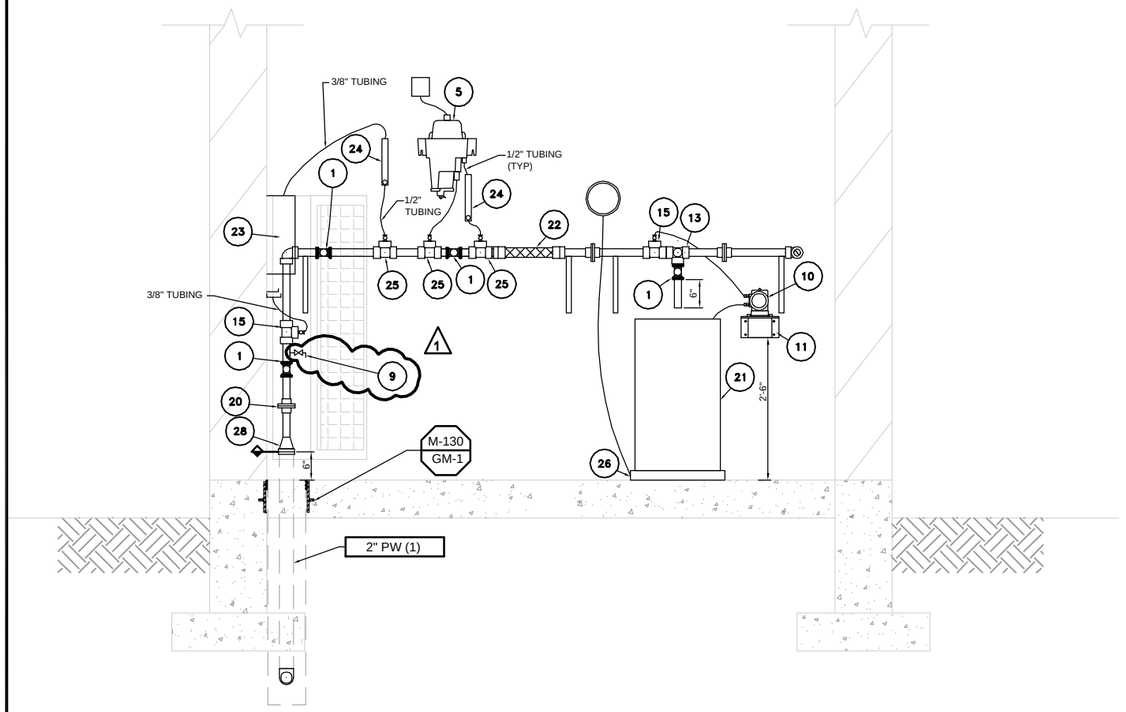
Designed: R DIAZ
Drawn: L PARRY
Checked: M CHAMBERS

Sheet:
M-1

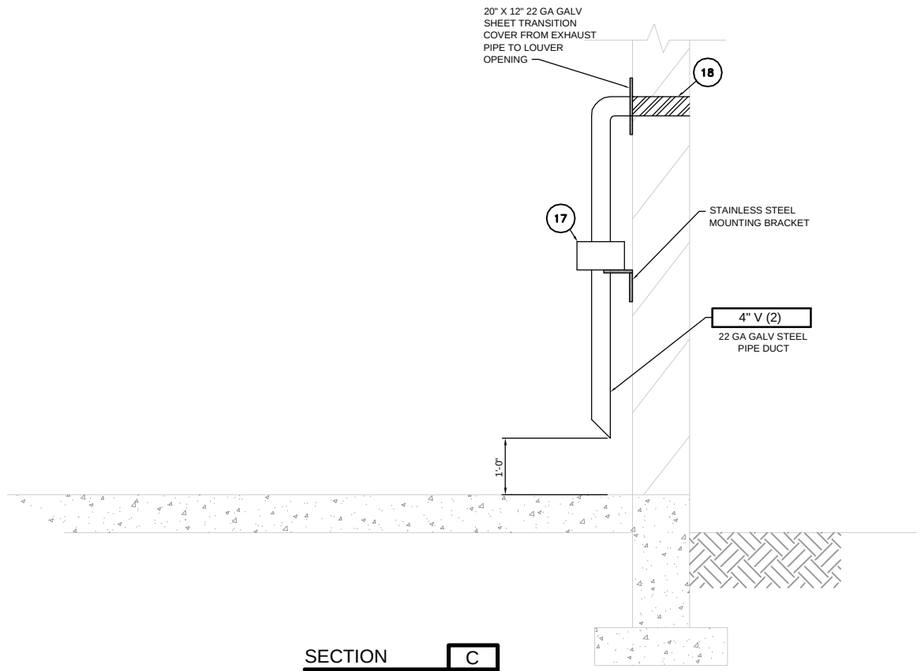
MWH JOB NO 10500952

GENERAL SHEET NOTES

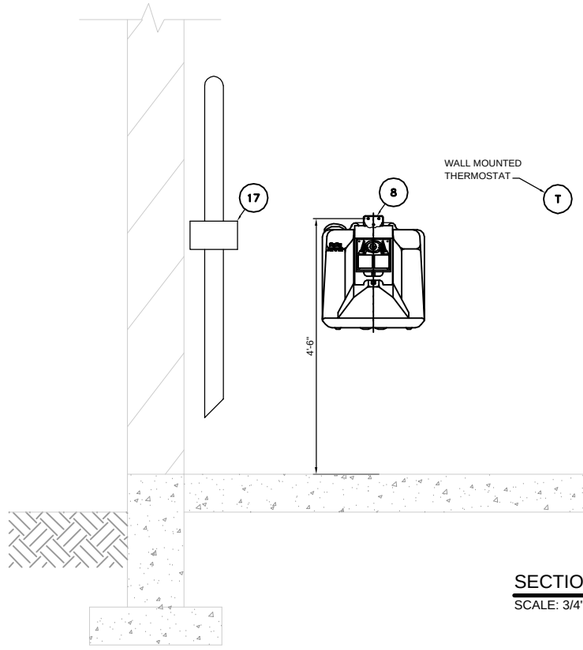
1. ALL PIPING INSTALLED BELOW STRUCTURE SHALL BE CONCRETE ENCASED PER DETAIL S-171/GS-3.
2. MINIMUM SLOPE ON ALL DRAINS SHALL BE 1/4" PER FOOT.
3. CONTRACTOR SHALL PROVIDE POLYETHYLENE TUBING FOR CONNECTION OF TURBIDITY EQUIPMENT AND CHLORINE ANALYZER TO THE 1 1/2" MAIN DISTRIBUTION LINE. PROVIDE FITTINGS AS NEEDED.
4. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF FILL LINE WITH CHLORINE TANK.

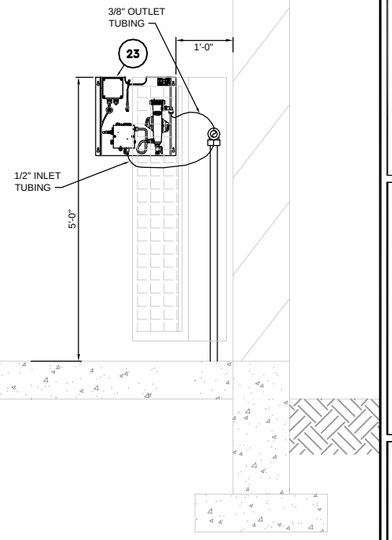


SECTION B
SCALE: 3/4" = 1'-0"
M-1



SECTION C
SCALE: 3/4" = 1'-0"
M-1





SECTION D
SCALE: 3/4" = 1'-0"
M-1

REGISTERED PROFESSIONAL ENGINEER
MICHAEL W. CHAMBERS
STATE OF UTAH
11-06-12

Architect / Engineer:
MWH

Scale: 3/4"=1"
WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date	Description
0	11- 06 -12	ISSUED FOR BID
1	12- 04 -12	UDEQ DDW RTCS

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: TREATMENT BUILDING SECTIONS

Designed: R DIAZ
Drawn: L PARRY
Checked: M CHAMBERS

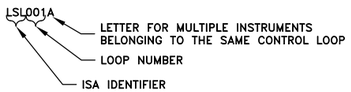
Sheet: M-2
MWH JOB NO 10500952

ISA INSTRUMENT IDENTIFICATION TABLE

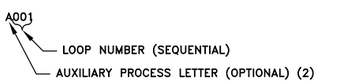
PRECEDING LETTERS			SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE		MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		EMERGENCY	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	
D	DENSITY OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY	MOISTURE		MIDDLE
N	VIDEO		USER'S CHOICE	USER'S CHOICE	NORMAL
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT CONNECTION		STOP
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD, OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z-AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

EQUIPMENT TAG

INSTRUMENT/SCADA TAG



LOOP NUMBER CRITERIA



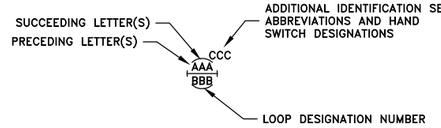
(1) DEVICE IDENTIFIERS

H	HVAC
M	MECHANICAL
P	PUMP
V	VALVE

(2) AUXILIARY PROCESS LETTERS

A	ACCESS CONTROL SYSTEMS
C	COLLECTIONS SYSTEM
F	FIRE SYSTEMS
H	HVAC SYSTEMS
P	POWER SYSTEMS

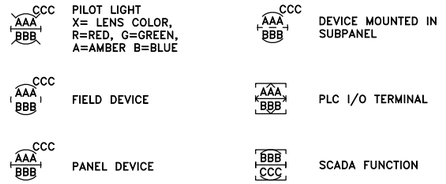
TAG NUMBERS AND ADDITIONAL DESIGNATIONS



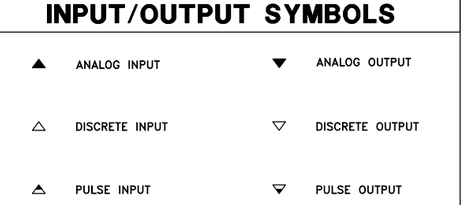
P&ID INTERFACE SYMBOLS

NOTE:

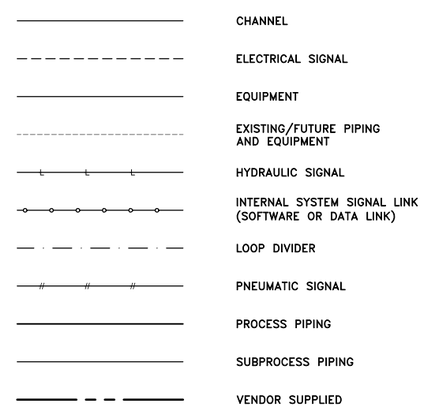
REFER TO ISA INSTRUMENT IDENTIFICATION TABLE FOR DEFINITION OF LETTERS AAA INSIDE THE BUBBLES. BBB REPRESENTS LOOP ID (IF USED). SEE ABBREVIATIONS LIST FOR SUPERSCRIPT CCC.



INPUT/OUTPUT SYMBOLS



P&ID LINETYPES



P&ID ABBREVIATIONS

AI	ANALOG INPUT
AO	ANALOG OUTPUT
ARV	AIR RELIEF VALVE
AS	AIR SUPPLY
BWL	BOTTOM WATER LEVEL
CL2	CHLORINE
CV	CONTROL VALVE/CONTROL VARIABLE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISSOLVED OXYGEN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
ETM	ELAPSED TIME METER
ETMf	ELAPSED TIME METER (FAST SPEED)
ETMs	ELAPSED TIME METER (SLOW SPEED)
ES	EMERGENCY STOP
FA	FOUL AIR
FC	FAIL CLOSED
FE	FLOW ELEMENT
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GA	GALLONS
GCP	GENERATOR CONTROL PANEL
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
IO	INPUT/OUTPUT
ISB	INTRINSICALLY SAFE BARRIER
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
M	MOTOR
MA	MILLIAMP
MCC	MOTOR CONTROL CENTER
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MLR	MIXED LIQUOR RETURN
MO	MOISTURE
MOD	MODULATING
MTU	MASTER TELEMETRY UNIT
NTU	TURBIDITY
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
PER	PERMISSIVE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
POS	POSITION
POT	POTENTIOMETER
PPM	PARTS PER MILLION
PR	PAIR
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RF	RADIO FREQUENCY
RIO	REMOTE INPUT OUTPUT
RST	RESET
RTU	REMOTE TELEMETRY UNIT
RVSS	REVERSE VOLTAGE SOFT START
SB	SLUDGE BLANKET
SD	SMOKE DETECTOR
SLC	SINGLE LOOP CONTROLLER
SO2	SULFUR DIOXIDE
SP	SET POINT/SPARE
SPD	SPEED
SV	SOLENOID OPERATED VALVE
T/M	TEMPERATURE AND/OR MOISTURE
TSS	TOTAL SUSPENDED SOLIDS
TWL	TOP WATER LEVEL
UG	UNDERGROUND
VFD	VARIABLE FREQUENCY DRIVE
VTP	VERTICAL TURBINE PUMP

HAND SWITCH DESIGNATIONS

ES	EMERGENCY STOP
FOR	FORWARD-OFF-REVERSE
FR	FORWARD-REVERSE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORA	HAND-OFF-REMOTE-AUTO
IOE	INTERNAL-OFF-EXTERNAL
JOA	JOG-OFF-AUTO
LOAR	LOWER-OFF-AUTO-RAISE
LOR	LOCAL-OFF-REMOTE
LR	LOCAL-REMOTE
MA	MANUAL-AUTO
MOA	MANUAL-OFF-AUTO
MOR	MOMENTARY-OFF-RUN
OC	OPEN-CLOSE
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OO	ON-OFF
OOA	ON-OFF-AUTO
OOC	ON-OFF-CLOSE
OOR	ON-OFF-REMOTE
OSC	OPEN-STOP-CLOSE
POT	POTENTIOMETER
ROO	RESET-OFF-ON
RST	RESET PUSHBUTTON
SS	START-STOP

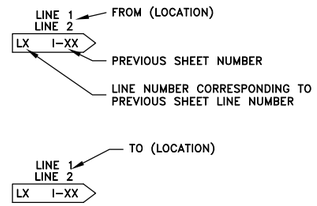
PROCESS IDENTIFIERS

A	AERATION
AIR	COMPRESSED AIR
AS	AIR SUPPLY
BD	BOTTOM DRAIN
BS	BENDED SLUDGE
C	CONDENSATE
CD	CHEMICAL DRAIN AND VENT
CL	CHLORINE (GAS OR LIQUID STATE)
CLS	CHLORINE SOLUTION
CLV	CHLORINE GAS UNDER VACUUM
CSL	CIRCULATED SLUDGE
CV	CHLORINATOR VENT AND DETECTION LINE
DN	DECANT
DSL	DIGESTED SLUDGE
DW	DEMINERALIZED WATER
EE	ENGINE EXHAUST
EV	EVAPORATIVE COOLING
EWR	ENGINE COOLING WATER RETURN
EWS	ENGINE COOLING WATER SUPPLY
EX	AIR EXHAUST
FA	FOUL AIR
FE	FINAL EFFLUENT
FM	FORCE MAIN
FOR	FUEL RETURN
FOS	FUEL SUPPLY
FS	FROTH SPRAY
FSP	FIRE PROTECTION SPRINKLER SYSTEM
FW	FINISHED WATER
G	GRIT
H	HYPOCHLORITE
HR	HEATING WATER RETURN
HS	HEATING WATER SUPPLY
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HY	HYDRAULIC
IA	INSTRUMENT AIR
LO	LUBE OIL
LSP	LANDSCAPING SPRINKLER SYSTEM
ML	MIXED LIQUOR
NG	NOT USED NATURAL GAS
NPW	NON-POTABLE WATER
OF	OVERFLOW
PA	PLANT AIR
PD	PLANT DRAIN
PEA	POLYMER-ANIONIC
PEC	POLYMER-CATIONIC
PEF	PRIMARY EFFLUENT
PEN	POLYMER-NONIONIC
PI	PLANT INFLUENT
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RSL	RAW SLUDGE
RW	RAW WATER
RWL	RAINWATER LEADER
S	SCUM
SA	SAMPLE LINE (SEE LIST AT RIGHT)
SB	SODIUM BISULFITE
SD	SANITARY DRAIN AND VENT
SDR	STORM DRAIN
SE	SECONDARY EFFLUENT
SF	SLUDGE FILTRATE
SG	SLUDGE GAS
SN	SUBNATANT
SPD	SUMP PUMP DISCHARGE
SS	SANITARY SEWER
ST	STEAM
SU	STRUCTURE UNDERDRAIN
SUC	STRUCTURE UNDERDRAIN COLLECTOR
TSL	THICKENED SLUDGE
UW	UTILITY WATER
WAS	WASTE ACTIVATED SLUDGE
WLO	WASTE LUBE OIL
WW	WASTEWATER

GENERAL NOTES

1. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARD S-5.1.
2. SEE ASSOCIATED ELECTRICAL SYMBOL SHEETS FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS.

PROCESS/SIGNAL LINE TO/FROM A PRECEDING SHEET



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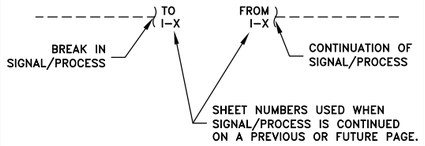

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WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (mm/dd/yy)	Description
	10-16-12	Description

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: P&ID'S LEGEND

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: GI-1

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VALVES

- 3 WAY VALVE
- 4 WAY VALVE
- ANGLE VALVE
- PRESSURE REGULATOR
- BALANCING VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DIAPHRAGM VALVE
- ECCENTRIC PLUG VALVE
- GATE VALVE
- GLOBE VALVE
- KNIFE VALVE
- LUBRICATED PLUG VALVE
- MIX VALVE
- MUD VALVE
- NEEDLE VALVE
- PINCH VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- SLEEVE VALVE

PUMPS

- CENTRIFUGAL PUMP
- MECHANICAL DIAPHRAGM PUMP
- METERING PUMP
- PERISTALTIC PUMP
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE PUMP
- SUBMERSIBLE PUMP
- VERTICAL TURBINE PUMP

GATES

- SLIDE GATE
- SLUICE GATE
- STOP GATE

ACTUATORS

- ACTUATOR: H=HYDRAULIC, M=MOTOR, P=PNEUMATIC, S=SOLENOID
- MANUAL
- PNEUMATIC DIAPHRAGM
- PNEUMATIC DIAPHRAGM WITH POSITIONER

PIPING

- BLIND FLANGE
- CAPPED OR PLUGGED END
- DRAIN
- QUICK CONNECT/ DISCONNECT
- REDUCER
- Y-STRAINER
- FLEXIBLE CONNECTION

HVAC

- AIR COMPRESSOR
- COALESCING FILTER
- DAMPER
- FILTER
- GUIDE VANES
- HEAT EXCHANGER
- LOUVER WITH HOOD
- SILENCER
- UNIT HEATER

FLOW ELEMENTS

- MAGNETIC FLOW ELEMENT
- MASS FLOW ELEMENT ANNUBAR (INSERTION)
- MASS FLOW ELEMENT ANNUBAR (SPOOL)
- PROPELLER FLOW ELEMENT (INSERTION)
- PROPELLER FLOW ELEMENT (SPOOL)
- ROTAMETER
- THERMAL MASS FLOW ELEMENT (INSERTION)
- THERMAL MASS FLOW ELEMENT (SPOOL)
- ULTRASONIC FLOW ELEMENT (INSERTION)
- ULTRASONIC FLOW ELEMENT (SPOOL)

MISCELLANEOUS

- FILTER
- STATIC MIXER
- EYEWASH SHOWER

PRIMARY ELEMENT SYMBOLS

- ANALYZER ELEMENT
- ORP SENSOR
- DO ANALYZER
- pH ANALYZER
- DO SENSOR
- pH SENSOR
- FLOAT SWITCH
- ULTRASONIC OR RADAR LEVEL TRANSDUCER
- ORP ANALYZER

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Sheet Title:
P&ID'S SYMBOLS

Designed: MPJ
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GI-2

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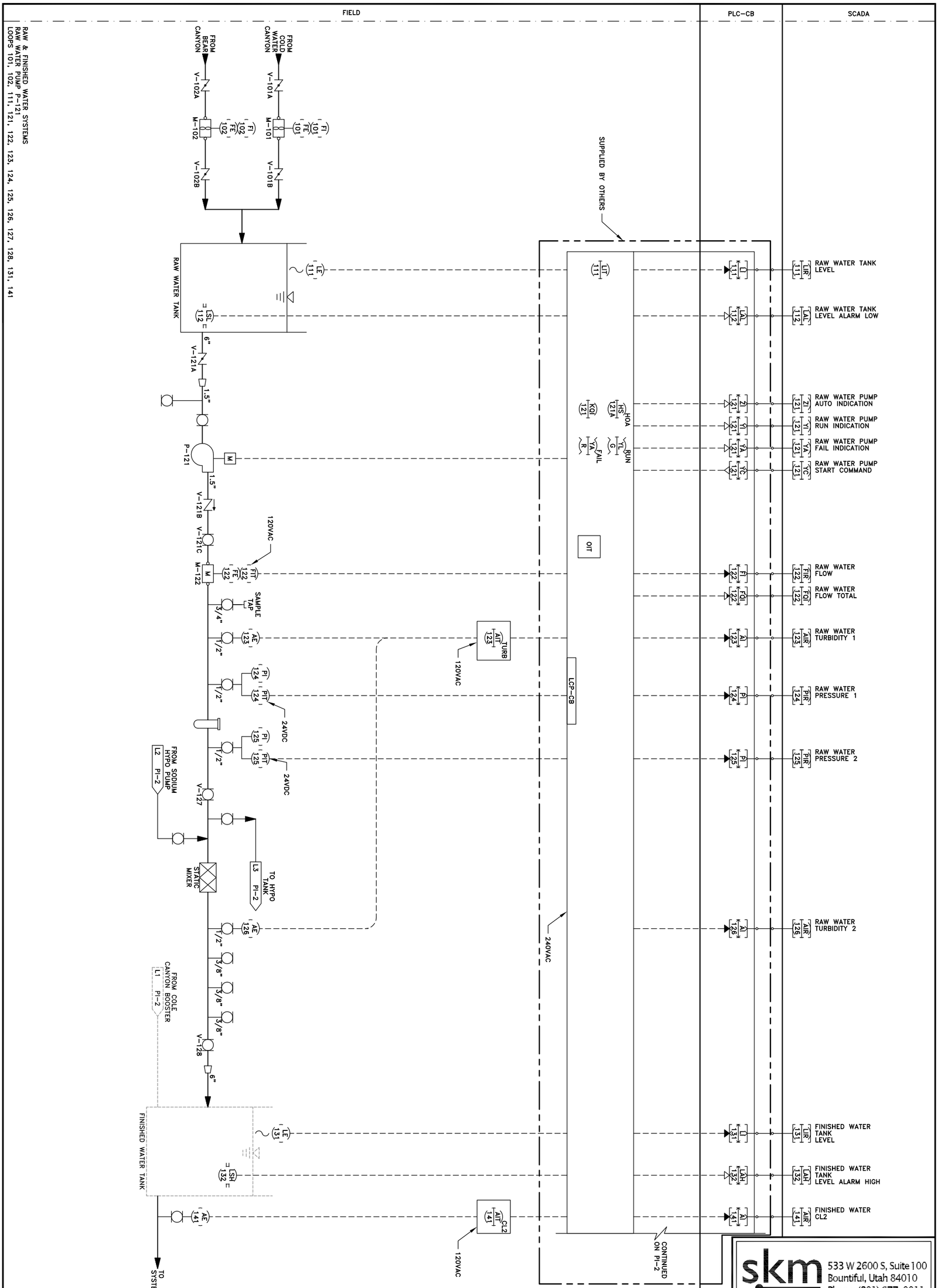

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Mark	Date (D-M-Y)	Description
Mark	10-16-12	Description

Project for:
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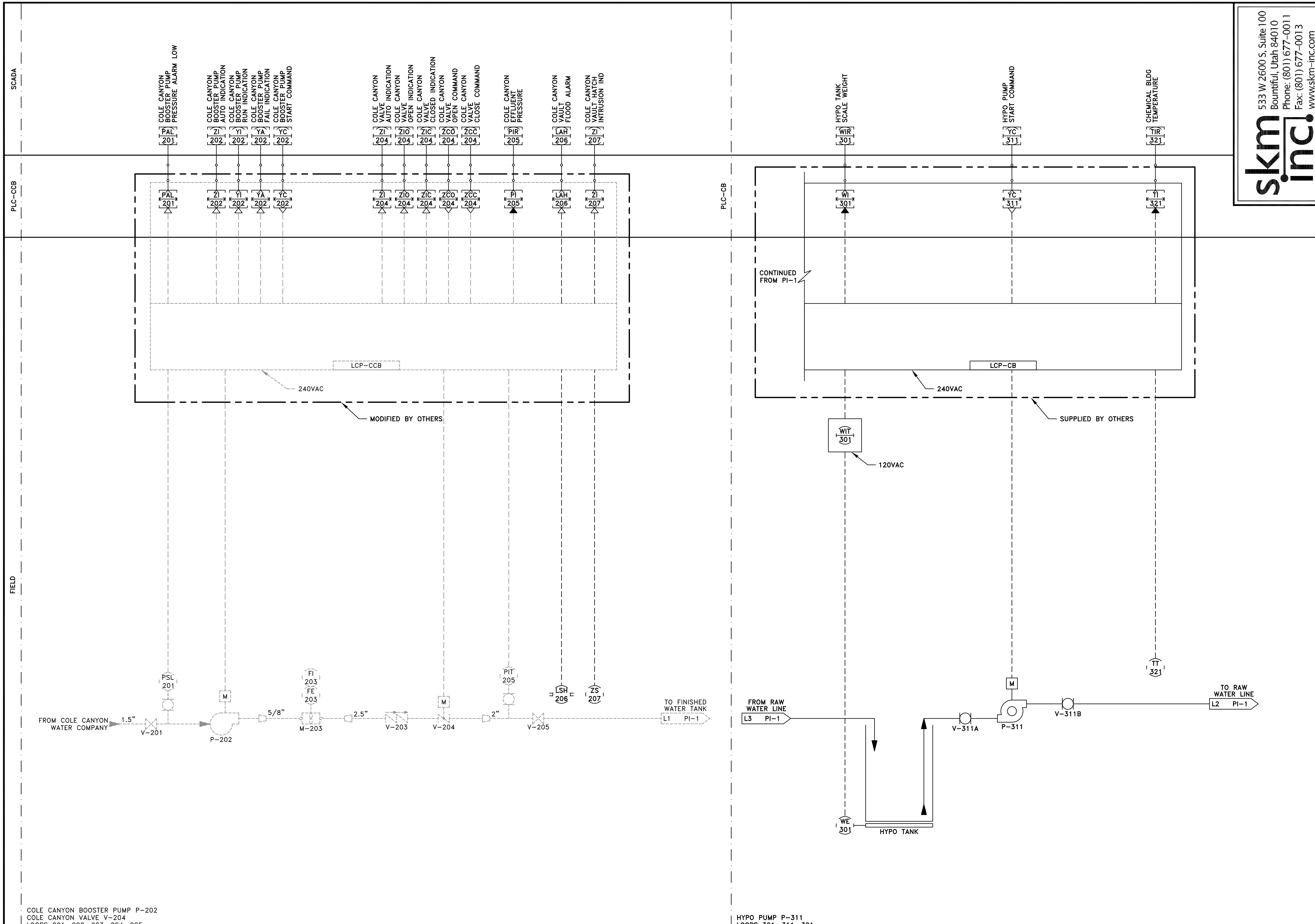

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Project Number: 510-4718 / 533-4012
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Sheet Title: P&ID'S

Designed: MPJ
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Sheet: PI-2

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FIELD

SHOWER HOUSE BOOSTER PUMP P-411
LOOPS 401, 411, 421

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LIBERTY, UTAH

Project for:
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Mark	Date (mm-dd-yy)	Description
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Project Number:
510-4718 / 533-4012
Plan Series:
N/A
Property Number:
510-4718 / 533-4012

Sheet Title:
P&ID'S

Designed: MPJ
Drawn: DCL
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Sheet:
PI-3

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SCHEMATIC LINETYPES

- ELECTRICAL BUS
- EXISTING OR FUTURE ELECTRICAL BUS
- MANUFACTURER/SHOP WIRE TYPICALLY INSTALLED OFF-SITE
- EXISTING OR FUTURE MANUFACTURER/SHOP WIRE
- FIELD/CONTRACTOR INSTALLED WIRE
- EXISTING OR FUTURE FIELD/CONTRACTOR INSTALLED WIRE

SCHEMATIC SYMBOLS

- DEVICE CONNECTION LUG OR TERMINAL
- SCHEMATIC POINT OF CONNECTION
- POWER STABS BUS CONNECTION
- POWER STABS LOAD CONNECTION

CIRCUIT BREAKER
100AF ← FRAME SIZE
50AT ← TRIP RATING
MCP ← BREAKER TYPE

DISCONNECT
30A ← AMPERE RATING
4X ← NEMA RATING

FUSE
30A ← AMPERE RATING
R ← FUSE TYPE

FUSED DISCONNECT
30A ← AMPERE RATING
4X ← NEMA RATING
30A ← AMPERE RATING
R ← FUSE TYPE

- TRANSFORMER

CURRENT TRANSFORMER
100:5 ← CT TURNS RATIO
3 ← NUMBER OF CT'S

POTENTIAL TRANSFORMER
480:120 ← PT VOLTAGE RATIO
3 ← NUMBER OF PT'S

METERING EQUIPMENT
UM ← METER TYPE DESIGNATION
AM = AMMETER
SSM = SOLID STATE METER
UM = UTILITY METER
VM = VOLTMETER
WHM = WATT HOUR METER
WM = WATT METER

- GENERATOR

MANUAL OR AUTOMATIC TRANSFER SWITCH
600A ← AMPERE RATING
3R ← NEMA RATING

TRANSIENT VOLTAGE SURGE SUPRESSOR
TVSS
CLASS C ← TVSS CLASSIFICATION

- MOTOR OVERLOAD RELAY

FULL VOLTAGE NON-REVERSING STARTER (FVNR)
NEMA SIZE 1 ← STARTER TYPE AND SIZE

FULL VOLTAGE REVERSING STARTER (FVR)
NEMA SIZE 1 ← STARTER TYPE AND SIZE

TWO-SPEED STARTER
NEMA SIZE 1 ← STARTER TYPE AND SIZE

- HF — HARMONIC FILTER
- LR — LOAD REACTOR
- VFD — VARIABLE FREQUENCY DRIVE
- RVSS — REDUCED VOLTAGE SOFT STARTER
- GROUND CONNECTION
- 5 — MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE
- M — MOTOR STARTER, CONTACTOR, RELAY OR TIMER COIL
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- SOLENOID VALVE
- TERMINAL BLOCK
- EQUIPMENT PROGRAMMING CONSOLE
- OFF ON / XO — 2 POSITION SELECTOR SWITCH POSITION LEGEND: X=CLOSED O=OPEN
- O H A / XOO — 3 POSITION SELECTOR SWITCH HAND – OFF – AUTO POSITION LEGEND: X=CLOSED O=OPEN
- O C A / XOO — 3 POSITION SELECTOR SWITCH OPEN – CLOSE – AUTO POSITION LEGEND: X=CLOSED O=OPEN
- O F R / XOO — 3 POSITION SELECTOR SWITCH FORWARD – OFF – REVERSE POSITION LEGEND: X=CLOSED O=OPEN
- STOP — NORMALLY CLOSED PUSH BUTTON
- START — NORMALLY OPEN PUSH BUTTON

TYPICAL SWITCH CONFIGURATION
- FLOAT SWITCH – MAKE ON FALL
- FLOAT SWITCH – MAKE ON RISE
- FLOAT SWITCH – BREAK ON FALL
- FLOAT SWITCH – BREAK ON RISE
- SWITCH TYPE SYMBOL (SEE BELOW)
  - LEVEL SWITCH
  - PRESSURE SWITCH
  - FLOW OR TORQUE SWITCH
  - TEMPERATURE SWITCH
  - LIMIT SWITCH
- NOTC — TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE
- ETM — ELAPSED TIME METER
- CR — CONTROL RELAY
- TD — TIME DELAY RELAY
- AR — ALARM RELAY
- R — PILOT LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN
- 50 — INSTANTANEOUS SHORT-CIRCUIT TRIP DEVICE
- 51 — TIME OVERCURRENT TRIP DEVICE
- 51G — GROUND FAULT TRIP DEVICE

ELECTRICAL PLAN LINETYPES

- EXPOSED CONDUIT
- EXISTING OR FUTURE EXPOSED CONDUIT
- UNDERGROUND CONDUIT
- EXISTING OR FUTURE UNDERGROUND CONDUIT
- BARE COPPER GROUND CONDUCTOR
- ELECTRICAL EQUIPMENT
- EXISTING OR FUTURE ELECTRICAL EQUIPMENT
- DEMOLITION
- CAPPED UNDERGROUND CONDUIT

ELEC. PLAN SYMBOLS

SITE PLAN DEVICES

X ← X= (SEE BELOW)

- AE – ANALYZER ELEMENT
- AIT – ALALYZING INDICATING TRANSMITTER
- FE – FLOW ELEMENT
- FIT – FLOW INDICATING TRANSMITTER
- FS – FLOW SWITCH
- J – JUNCTION BOX
- JS – TORQUE SWITCH
- LE – LEVEL ELEMENT
- LIT – LEVEL INDICATING TRANSMITTER
- LS – LEVEL SWITCH
- M – MOTOR
- MH – MANHOLE
- MV – MOTOR OPERATED VALVE
- PB – PULLBOX
- PIT – PRESSURE INDICATING TRANSMITTER
- PS – PRESSURE SWITCH
- PT – PRESSURE TRANSMITTER
- SV – SOLENOID VALVE
- TS – TEMPERATURE SWITCH
- WE – WEIGHT ELEMENT
- WIT – WEIGHT INDICATING TRANSMITTER
- ZS – LIMIT SWITCH

- GROUND ROD
- WP — DUPLEX RECEPTACLE — DENOTES RECEPTACLE TYPE (BLANK) = STANDARD INDOORS GFCI = GND FLT CURRENT INT. WP = WEATHER PROOF & GFCI
- QUADRAPLEX RECEPTACLE
- WP — DUPLEX RECEPTACLE MOUNTED AT 44" AFF
- DATA JACK
- $ — SINGLE POLE SWITCH
- $3 — 3-WAY SWITCH
- $4 — 4-WAY SWITCH
- CONDUIT SEALOFF
- LTC CONNECTION
- MC CONNECTION
- DISCONNECT SWITCH
- T — THERMOSTAT
- 3 — CONDUIT HOME RUN NUMBER INDICATES QUANTITY OF CONDUCTORS INCLUDING GROUND

PLC SYMBOLS

LOCAL PANEL OR DEVICE TERMINAL BLOCK
X — TERMINAL LABEL (SECONDARY)
X — TERMINAL LABEL (SIZE PERMITTING)

PLC PANEL TERMINAL BLOCK
TERMINAL LABEL
X

MCC TERMINAL BLOCK
TERMINAL LABEL
X

PLC DISCRETE INPUT
DISCRETE INPUT LABEL
DIXX

PLC DISCRETE OUTPUT (NORMALLY OPEN)
DISCRETE OUTPUT LABEL
DOXX

PLC DISCRETE OUTPUT (NORMALLY CLOSED)
DISCRETE OUTPUT LABEL
DOXX

PLC ANALOG INPUT
ANALOG INPUT LABEL
AIXX

PLC ANALOG OUTPUT
ANALOG OUTPUT LABEL
AOXX

PLC RTD
RTD LABEL
RTD00
(4WIRE)

CONDUIT CALLOUT

CXXX
PXXX
FXXX
SPXXX

GROUPED CONDUIT AND CIRCUIT IDENTIFICATION TAGS. REFER TO THE POWER ONE-LINE AND CONTROL ONE-LINE DIAGRAMS OR CONDUIT SCHEDULES FOR CONDUIT SIZES AND CONTENTS.
C-CONTROL/INSTRUMENTATION
P-POWER
F-FIBER OPTIC/NETWORK
SP-SPARE CONDUITS

EQUIPMENT CALLOUT

EQUIP. TAG ← EQUIPMENT CALLOUT
DESCRIPTOR #1
DESCRIPTOR #2
DESCRIPTOR #3

100 / TYP — DETAIL CALLOUT

FE / 101 — FIELD INSTRUMENT CALLOUT

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CAPACITY
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CL2	CHLORINE
CPT	CONTROL POWER TRANSFORMER
CU	COPPER, BARE
CV	CONTROL VALVE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
DP	DISTRIBUTION PANEL
DS	DISCONNECT SWITCH
DV/DT	DIFFERENTIAL VOLTAGE/TIME
DWG	DRAWING
ETM	ELAPSED TIME METER
EOL	ELECTRONIC OVERLOAD
FE	FLOW ELEMENT
FLA	FULL LOAD AMPS
FOC	FIBER OPTIC CABLE
FOR	FORWARD-OFF-REVERSE
FS	FLOW SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GPM	GALLONS PER MINUTE
GRS	GALVANIZED RIGID STEEL
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
I	CURRENT
IC	INSTRUMENTATION CABLE
IO	INPUT/OUTPUT
ISC	SHORT CIRCUIT CURRENT
J	JUNCTION BOX
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
LOS	LOCK-OUT-STOP
LP	LIGHTING PANEL
LR	LOCAL/REMOTE
LS	LEVEL SWITCH
LTC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
M	MOTOR
MA	MANUAL/AUTO, MILLIAMP
MC	MANUFACTURER'S CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MOV	MOTOR OPERATED VALVE
MTU	MASTER TELEMETRY UNIT
NEC	NATIONAL ELECTRICAL CODE
NOTC	NORMALLY OPEN TIMED CLOSED
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
NTU	TURBIDITY
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
OO	ON/OFF (MAINTAINED)
OR	OFF-REMOTE
PB	PULL BOX
PC	PERSONAL COMPUTER
PFR	PHASE/POWER FAILURE RELAY
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PPM	PARTS PER MILLION
PR	PAIR
P	PRESSURE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RCP	REMOTE CONTROL PANEL
RF	RADIO FREQUENCY
RIO	REMOTE INPUT OUTPUT
RST	RESET
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
RVSS	REDUCED VOLTAGE SOFT STARTER
SEQ	SERVICE ENTRANCE EQUIPMENT
SES	SERVICE ENTRANCE SECTION
SLOS	START-LOCK-OFF-STOP
SMC	SUBMERSIBLE MANUFACTURER CABLE
SO2	SULFUR DIOXIDE
SP	SET POINT/SPARE
SPD	SURGE PROTECTION DEVICE
SS	START/STOP
ST	SHUNT TRIP
TC	TELEPHONE CABLE
TS	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
V	VOLT
VA	VOLTAMP
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
ZS	POSITION SWITCH

NOTES

1. THE COMPLETED INSTALLATION SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE COMPLETED IN A NEAT, WORKMANLIKE MANNER IN ACCORDANCE WITH THE LATEST NEC STANDARDS OF INSTALLATION UNDER COMPETENT SUPERVISION. INSTALL GROUNDING PER NEC.
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND OTHER FACTORS, WHICH MAY AFFECT THE EXECUTION OF THE WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. THE CONTRACTOR SHALL COORDINATE WORK WITH THE UTILITIES PROVIDING SERVICES ON THIS PROJECT, AND SHALL COMPLY WITH ALL THEIR INSTALLATION REQUIREMENTS.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, UL, OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURERS' NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS, AND BID PRICE.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS, OR ANY OTHER PREVENTABLE CAUSES. EQUIPMENT DAMAGED DURING SHIPPING OR CONSTRUCTION, PRIOR TO ACCEPTANCE BY THE ENGINEER OR THE OWNER, WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN. REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK. DAMAGED PAINT AND FINISHES SHALL BE TOUCHED UP OR REPAINTED WITH MATCHING COLOR PAINT AND FINISH.
7. CIRCUIT CONDUCTORS #6 AWG OR SMALLER SHALL BE THWN STRANDED COPPER. #4 AWG THROUGH #2 AWG SHALL BE XHHW STRANDED COPPER. #1 AWG OR LARGER SHALL BE XHHW-2 STRANDED COPPER. MINIMUM POWER CONDUCTOR SIZE SHALL BE #12 AWG WITH #12 AWG GROUND. ALL WIRE TO BE SIZED PER NEC TABLE 316-10, 75° C BASED ON A 30° C AMBIENT.
8. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. MINIMUM CONDUIT DEPTH SHALL BE 24 INCHES. MINIMUM UNDERGROUND CONDUIT SIZE SHALL BE 1 INCH. MINIMUM CONDUIT DEPTH UNDER SLAB SHALL BE 1 INCH.
9. CONDUITS SHALL BE MARKED AT EACH END WITH MATCHING NUMBERED BRASS OR NYLON TAGS. SPARE CONDUITS SHALL HAVE A PULL STRING INSTALLED AND SECURED.
10. EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL (GRS). MINIMUM SIZE 3/4 INCH, UNLESS OTHERWISE NOTED ON THE PLANS.
11. SAFETY SWITCHES, ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, AND OTHER ELECTRICAL DEVICES SHALL BE UL LISTED, AND RATED FOR HEAVY DUTY SERVICE.
12. WIRING DEVICES SHALL BE SPECIFICATION GRADE.
13. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING, SCHEDULING, DOCUMENTING, AND PERFORMING THE WORK SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION AND CONTROL SYSTEM FOR THE FACILITY IS PROVIDED. ACCURATE SHOP AND RECORD DRAWINGS, AND OEM MANUALS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK.
14. TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.

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Scale: SCALE
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WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DAY)	Description
	10-16-12	Description

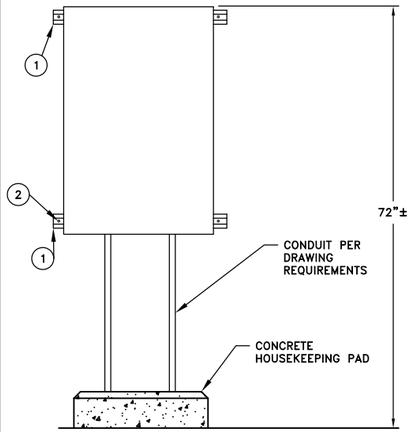
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: ELECTRICAL NOTES & SYMBOLS

Designed: MPJ
Drawn: DCL
Checked: MPJ

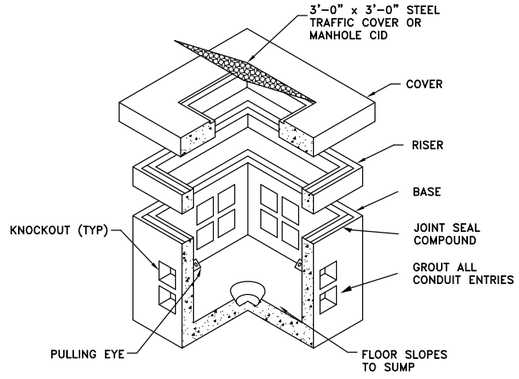
Sheet: GE-1

10 GE-1 Notes & Symbols.dwg - 11/6/2012 - 3:54 PM



(1) STAINLESS STEEL 1-5/8 X 1-5/8 UNISTRUT CHANNEL
(2) 1/2"x3" SS ANCHOR BOLT OR LAG BOLT WITH WASHER ANCHORED TO WALL (EVERY 18" 2 MINIMUM)

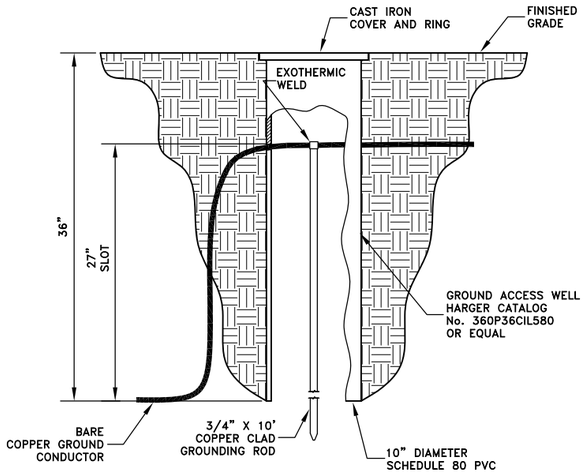
002 TYP **WALL MOUNTED PANEL**
SCALE: NONE



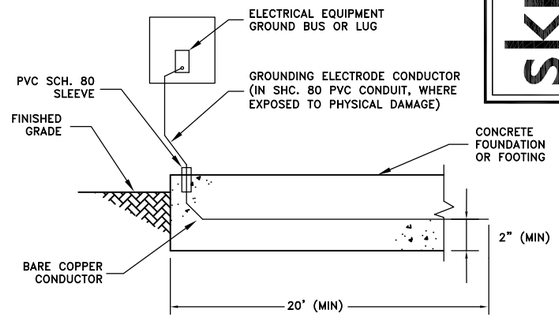
NOTE:

3'-11" x 3'-11" x 4'-1" MINIMUM INSIDE DIMENSIONS. INSTALL A GROUND ROD AND CONNECT TO DUCT BANK GROUND. TRAIN CABLES AROUND INTERIOR PERIMETER ON CABLE RACKS.

021 TYP **UNDERGROUND CONCRETE PULLBOX**
SCALE: NONE



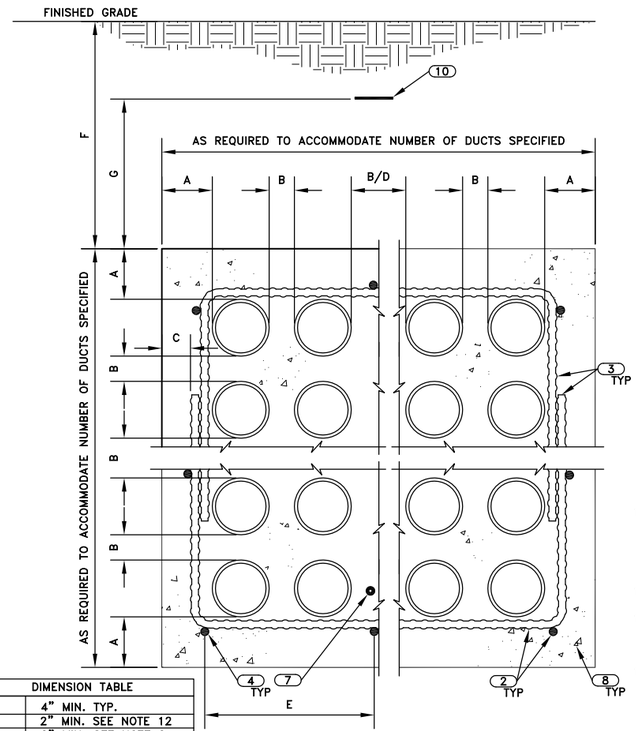
100 TYP **GROUND ROD WITH ACCESS WELL**
SCALE: NONE



NOTE:

ALL WORK SHALL BE PER NATIONAL ELECTRICAL CODE AND LOCAL GOVERNING AUTHORITY.

140 TYP **GROUNDING DETAIL ("UFER")**
SCALE: NONE

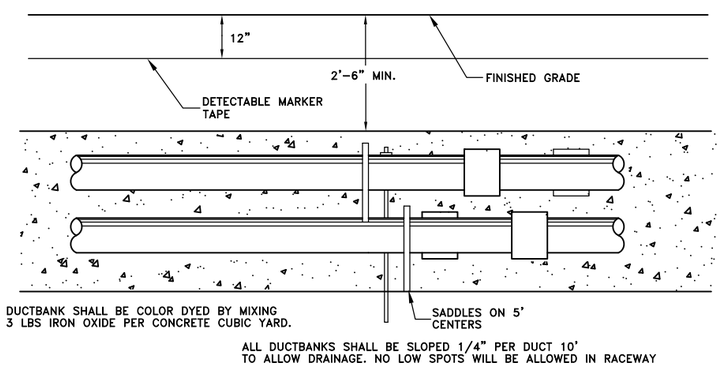


DIMENSION TABLE	
A	4" MIN. TYP.
B	2" MIN. SEE NOTE 12
C	2" MIN. SEE NOTE 2
D	12" MIN. SEE NOTE 13
E	18" MAX. SEE NOTE 4
F	18" MIN. 30" MAX.
G	12"

NOTES:

1. ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS. UNLESS NOTED OTHERWISE ON THE DRAWINGS.
2. ALL REBAR SHALL BE #4 BAR AND HAVE A MINIMUM CONCRETE EMBEDMENT OF 2" (EDGE OF REBAR TO OUTSIDE SURFACE OF CONCRETE).
3. REBAR HOOPS SHALL OVERLAP 9" MINIMUM AND SHALL BE PROVIDED EVERY 4 FEET HORIZONTALLY. HOOPS SHALL NOT BE REQUIRED ON SINGLE ROW DUCTBANKS.
4. HORIZONTAL REBAR SHALL BE PLACED @ A MAXIMUM OF 18" ON CENTER ALL AROUND THE DUCTBANK ENVELOPE AND SHALL BE SUPPORTED EVERY 4 FEET LONGITUDINALLY. SINGLE ROW DUCTBANKS LESS THAN 24" WIDE SHALL HAVE A MIN. OF 2 HORIZONTAL BARS.
5. DUCT SPACERS (SADDLES) SHALL BE PROVIDED FOR PROPER SUPPORT OF CONDUIT DUCTS. SPACERS SHALL BE PROVIDED HORIZONTALLY AS RECOMMENDED BY THE MANUFACTURER AND TO PREVENT ANY SAGGING OF THE DUCTS (LOW SPOTS WILL NOT BE ALLOWED).
6. DUCTS SHALL BE SECURED TO PREVENT FLOATING DURING THE CONCRETE ENCASEMENT.
7. PROVIDE A 4/0 BARE CONTINUOUS COPPER GROUND. SEE GROUNDING SPECIFICATION SECTION 16170.
8. DUCTBANK CONCRETE SHALL BE COLOR DYED RED BY MIXING 3 LBS. IRON OXIDE PER CUBIC YARD OF CONCRETE.
9. ALL DUCTBANKS SHALL BE SLOPED @ 1/4" PER 10 FEET TO ALLOW DRAINAGE.
10. A 3" WIDE DETECTABLE PLASTIC MARKER TAPE WITH INSCRIPTION "CAUTION ELECTRICAL LINES BURIED BELOW" (BLACK LETTERS ON RED BACKGROUND) SHALL BE INSTALLED 12" ABOVE THE TOP OF ALL CONCRETE ENCASED DUCTBANKS.
11. REFER TO CONDUIT SCHEDULE FOR WIRE FILL OF ALL DUCTS.
12. ALL DUCTS OF THE SAME DUTY (480V POWER, 120V POWER, 120V CONTROLS, AND SIGNAL) SHALL BE SEPARATED BY A MINIMUM OF 2".
13. SIGNAL DUCTS SHALL BE SEPARATED FROM 480V POWER BY A MIN. OF 12". SIGNAL DUCTS SHALL BE SEPARATED FROM 120V POWER DUCTS BY 6" MIN. AND FROM 120V CONTROL BY MIN. OF 4" UNLESS NOTED OTHERWISE ON THE DRAWINGS.

202 TYP **MULTIPLE DUCT DUCTBANK DETAIL**
SCALE: N.T.S.



203 TYP **DUCTBANK DETAIL**
SCALE: NONE

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Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (M-D-Y)	Description
	10-16-12	Description

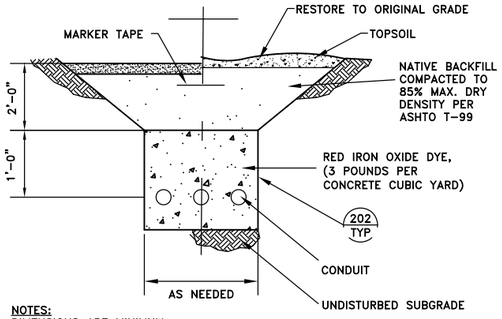
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: ELECTRICAL DETAILS

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: GE-2

10 GE-2 Details.dwg - 11/6/2012 - 3:54 PM

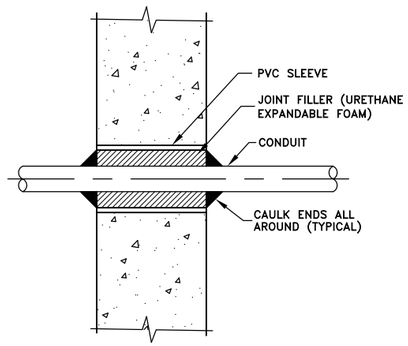


NOTES:
DIMENSIONS ARE MINIMUM.

THE GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND PULL BOXES AND SHALL CONTINUE FROM THE DUCTBANK INTO THE ELECTRICAL EQUIPMENT OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIDGID METAL CONDUIT. BOND CONDUCTORS TO BE SOILD COPPER #10 AWG OR LARGER AS REQUIRED BY THE NEC, AND ELSEWHERE IN THESE PLANS.

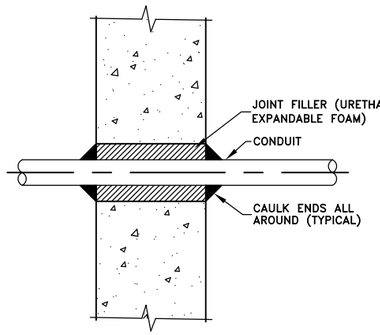
TYPICAL TRENCH DETAIL FOR ABOVE 600 VOLTS

205 TYP SCALE: NONE



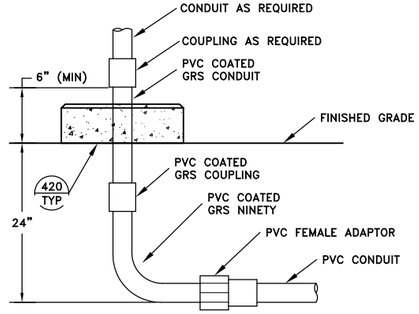
CONDUIT PENETRATION AT NEW WALL OR SLAB

300 TYP SCALE: NONE



CONDUIT PENETRATION AT EXISTING WALL OR SLAB

301 TYP SCALE: NONE

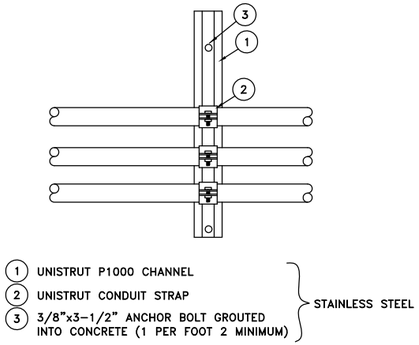


NOTES:

1. WHERE CONDUITS ARE INSTALLED IN OR UNDER A CONCRETE SLAB, THE 24" DIMENSION DOES NOT APPLY. CONDUITS SHALL BE INSTALLED BETWEEN REBAR MATS OR UNDER A SINGLE REBAR MAT.
2. IN CORROSIVE AREAS, PVC COATED GRS SHALL BE USED.
3. SCOTCHWRAP PER SPECIFICATIONS, MAY BE SUBSTITUTED FOR PVC COATING.

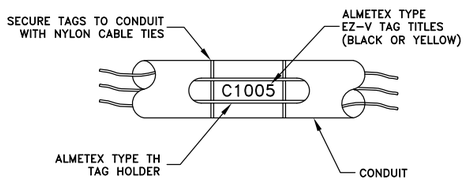
STUB UP DETAIL

321 TYP SCALE: NONE



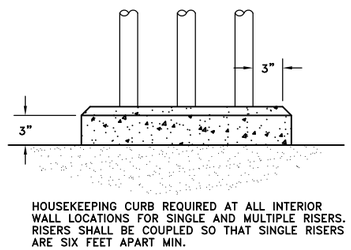
EXPOSED SURFACE CONDUIT

351 TYP SCALE: NONE



CONDUIT MARKING SYSTEM

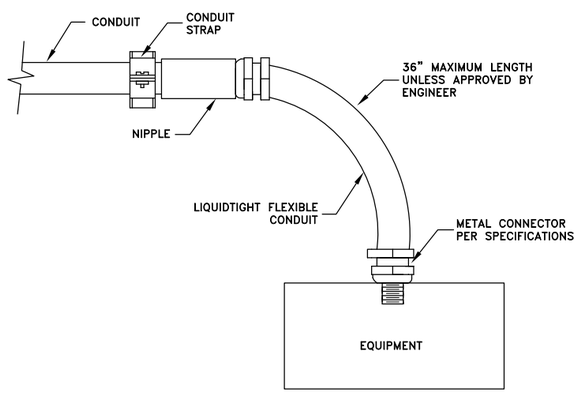
360 TYP SCALE: NONE



HOUSEKEEPING CURB REQUIRED AT ALL INTERIOR WALL LOCATIONS FOR SINGLE AND MULTIPLE RISERS. RISERS SHALL BE COUPLED SO THAT SINGLE RISERS ARE SIX FEET APART MIN.

CONCRETE HOUSEKEEPING CURB DETAIL

420 TYP SCALE: NONE



FLEXIBLE CONDUIT DETAIL

365 TYP SCALE: NONE

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Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DAA+)	Description
	10-16-12	Description

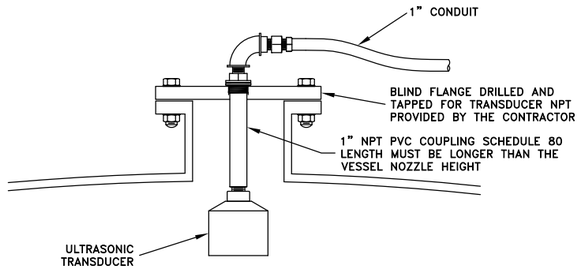
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: ELECTRICAL DETAILS

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: GE-3

10 GE-3 Details.dwg - 11/6/2012 - 3:54 PM

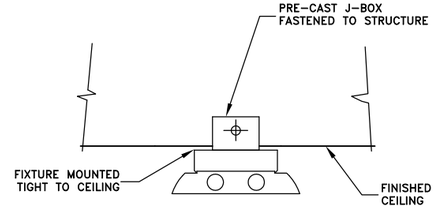


NOTES:

1. FOLLOW ALL MANUFACTURERS REQUIREMENTS FOR PROPER INSTALLATION.
2. ALL CONDUIT FITTINGS TO BE LIQUID TIGHT.

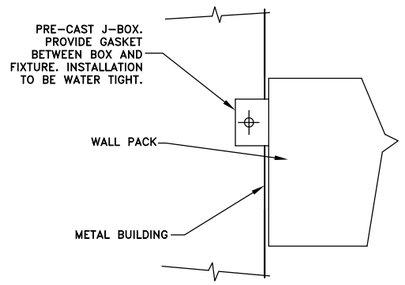
(504 TYP) ULTRASONIC TANK MOUNTING DETAIL

SCALE: NONE



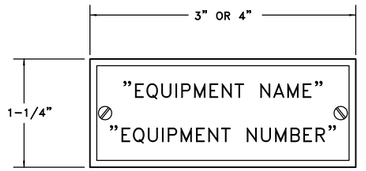
(800 TYP) CEILING HUNG FIXTURE DETAIL

SCALE: NONE



(810 TYP) WALL HUNG FIXTURE MOUNTING DETAIL

SCALE: NONE



NOTES:

1. ALL LETTERS TO BE 1/4" UNLESS NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTERLINE OF THE CUBICAL OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND FUTURE DEVICES.

(900 TYP) NAMEPLATE DETAIL

SCALE: NONE

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Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DD-MM-YY)	Description
Mark	10-16-12	Description

Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: ELECTRICAL DETAILS

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: GE-4

10 GE-4 Details.dwg - 11/6/2012 - 3:53 PM

SITE PLAN

0 50 100

Scale In Feet

NOTES:

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE PVC COATED. PANELS SHALL BE STAINLESS STEEL NEMA 4X.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.

   LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. EXISTING COLE CANYON BOOSTER VAULT. INSTALL FLOOD SWITCH LSH-206 AT FLOOR LEVEL. INSTALL HATCH SWITCH ZS-207 ON EXISTING HATCH. INSTALL UNIT HEATER CHROMALOX HD3D-200.
5. LCP-CCB TO BE RETROFITTED BY OTHERS. RUN CONDUIT AND WIRE FOR LSH-206 AND ZS-207.

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Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DA+)	Description
	10-16-12	Description

Project Number:
510-4718 / 533-4012

Plan Series:
N/A

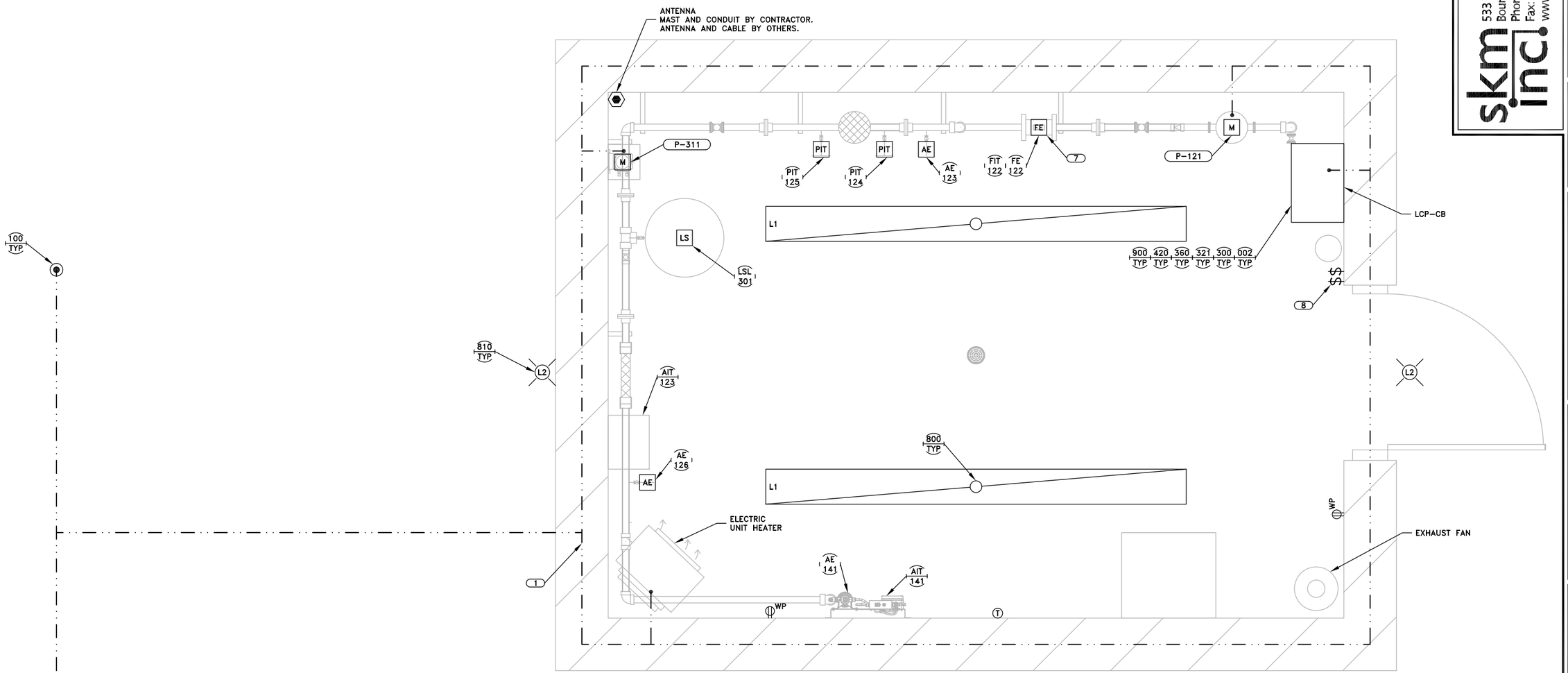
Property Number:
510-4718 / 533-4012

Sheet Title:
ELECTRICAL SITE PLAN

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet:
SE-1

12 SE-1 Site Plan.dwg - 11/6/2012 - 3:36 PM



NOTES:

1. CONTRACTOR SHALL PROVIDE 2 CONCRETE ENCASED ELECTRODES IN FOOTINGS PER SPECIFICATIONS 60' PER CONDUCTOR.
2. CONTRACTOR SHALL INSTALL (2) 10'X3/4"ø COPPER GROUND RODS 10' MINIMUM SPACING AND 10' MINIMUM FROM BUILDING.
3. BOND ALL BUILDING STEEL TO GROUND PER NEC.
4. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT SHALL BE PVC COATED. PANELS SHALL BE STAINLESS STEEL NEMA 4X.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
6. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
7. GROUND PER MANUFACTURER'S RECOMMENDATIONS.
8. OUTDOOR LIGHTS SHALL TURN ON BY SWITCH.

CHLORINE BUILDING PLAN

0 1 2
Scale in Feet

L1 — DAY-BRITE WET LOCATION VAPORLUME FLUORESCENT FIXTURE. MODEL V2WAE286HO-120-E7W. (96" DUAL ELEMENT SURFACE MOUNT WET LOCATION FLUORESCENT FIXTURE WITH EMERGENCY BALLAST).

L2 — DAY-BRITE MEDIUM WALL LIGHT (WALL PACK) MODEL WLM150M12. 150W METAL HALLIDE BULBS.

WP — WEATHER-PROOF OUTLET GFCI PROTECTED.

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MWH

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WARNING
0 1/2 1
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Mark	Date (M-d-y)	Description
	10-16-12	Description

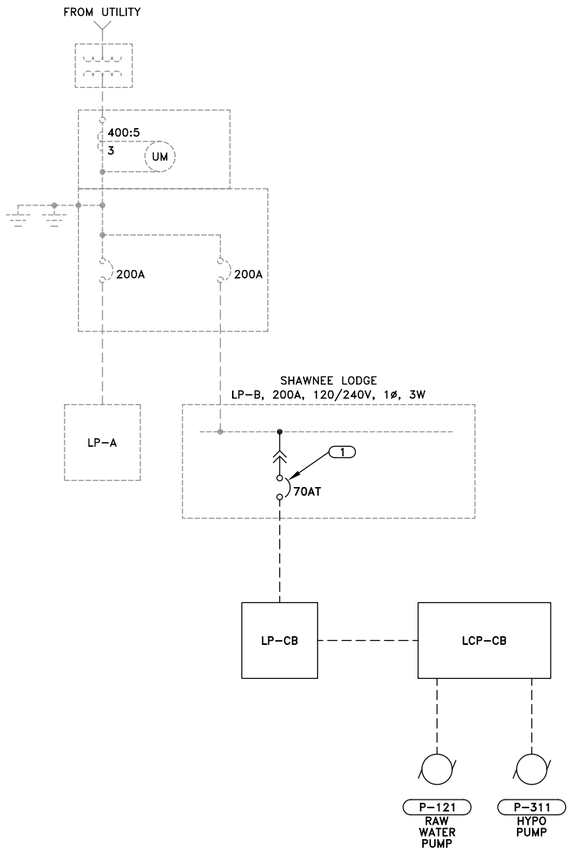
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

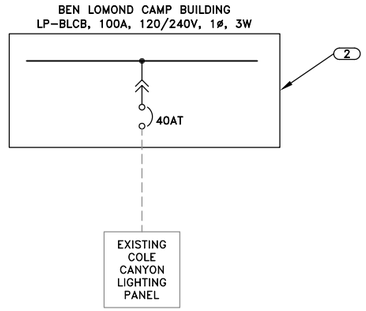
Sheet Title: ELECTRICAL CHLORINE BUILDING PLAN

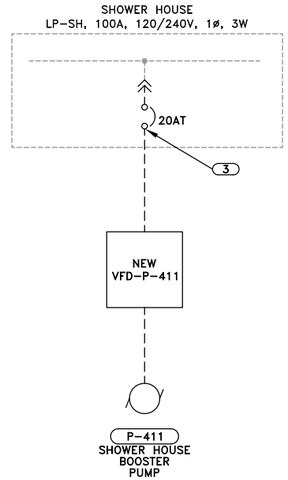
Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: LE-1

13 LE-1 Chlorine Building Plan.dwg - 11/6/2012 - 4:01 PM







PANEL: LP-CB		VOLTAGE: 120/240		MAIN CB: 70 AMP		BUS AMPS: 100 AMP	
CB TYPE: BOLT-ON		MOUNTING: MCC		BUS BRACING: 10KA		BKR AIC: 10KA	
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LINE 1	LINE 2	CIRCUIT	BKR	CIRCUIT DESCRIPTION
LIGHTS (2)	20/1	1	344				
			360		2	20/1	RECEPTACLES (2)
OUTDOOR LIGHTS (2)	20/1	3		300			
				100	4	20/1	WIT-301
CONTROL PANEL	30/2	5	1500				
					6	20/1	SPARE
		7		1500			
				100	8	20/1	FE/FIT-122
LIT-111	20/1	9	100				
					10	20/1	SPARE
AIT-123	20/1	11		100			
				100	12	20/1	AIT-141
UNIT HEATER	20/2	13	1500				
					14	20/1	SPARE
		15		1500			
				71	16	20/1	EXHAUST FAN
SPARE	20/1	17					
					18	20/1	SPARE
SPARE	20/1	19					
					20	20/1	SPARE
SPARE	20/1	21					
					22	20/1	SPARE
SPARE	20/1	23					
					24	20/1	SPARE
SPACE		25					
					26		SPACE
SPACE		27					
					28		SPACE
SPACE		29					
					30		SPACE
CONNECTED VA PER PHASE			3804.0	3771.0	NOTES:		
CONNECTED AMPS PER PHASE			31.7	31.4			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			111.0	175.0			
LARGEST MOTOR (25%)			375.0	375.0			
CODE VA PER PHASE			4290.0	4321.0			
CODE AMPS PER PHASE			35.8	36.0			

LP-CB SCHEDULE

PANEL: LP-CC		VOLTAGE: 120/240		MAIN CB: 40 AMP		BUS AMPS: 100 AMP	
CB TYPE: BOLT-ON		MOUNTING: MCC		BUS BRACING: 10KA		BKR AIC: 10KA	
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LINE 1	LINE 2	CIRCUIT	BKR	CIRCUIT DESCRIPTION
GFI PLUG	20/1	1	180				
			200		5	20/1	CONTROL PANEL
LIGHT/FAN	20/2	2		300			
					6	20/1	
PUMP	20/2	3	920				
			996		7	20/2	HEATER
		4		920			
				996	8		
CONNECTED VA PER PHASE			2296.0	2216.0	NOTES:		
CONNECTED AMPS PER PHASE			19.1	18.5			
25% OF CONTINUOUS & LIGHTING LOAD (VA)			50.0	0.0			
LARGEST MOTOR (25%)			230.0	230.0			
CODE VA PER PHASE			2576.0	2446.0			
CODE AMPS PER PHASE			21.5	20.4			

LP-CC SCHEDULE

NOTES:

1. INSTALL NEW 70A BREAKER AND SALVAGE EXISTING 50A BREAKER TO OWNER.
2. REPLACE EXISTING LIGHTING PANEL AT BEN LOMAND CAMP BUILDING. MATCH EXISTING BREAKER SIZES WITH THE EXCEPTION OF FEED TO COLE CANYON BOOSTER. UPSIZE COLE CANYON BOOSTER FEEDER BREAKER FROM 30A TO 40A. RECONNECT ALL EXISTING WIRE.
3. INSTALL NEW 20A BREAKER IN SHOWER HOUSE LIGHTING PANEL TO FEED NEW SHOWER HOUSE BOOSTER VFD.

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Bountiful, Utah 84010
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Architect / Engineer:
MWH

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

BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS
WEBER COUNTY
LIBERTY, UTAH

Project for:
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mark	Date (DAA+)	Description
	10-16-12	Description

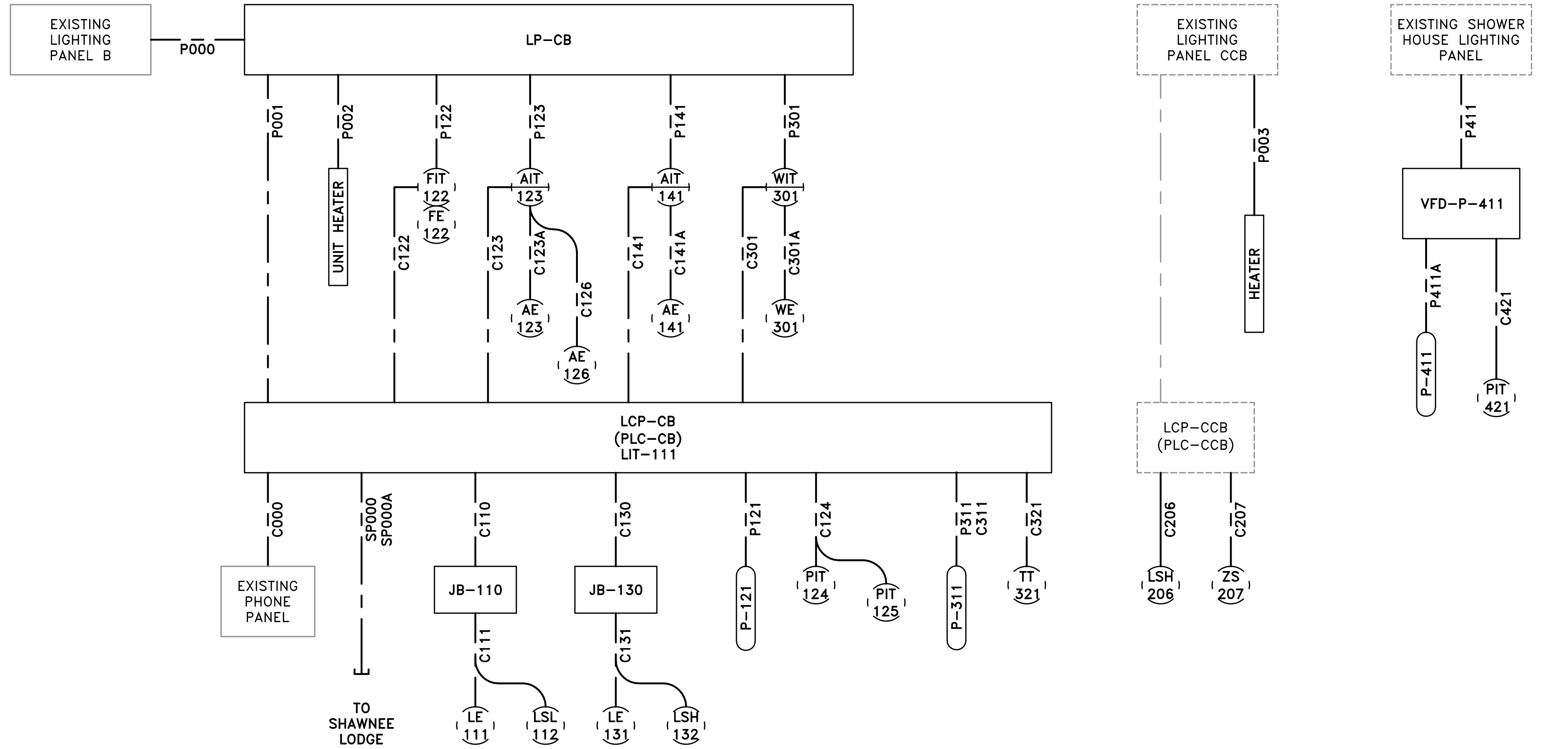
Project Number: 510-4718 / 533-4012
Plan Series: N/A
Property Number: 510-4718 / 533-4012

Sheet Title: ELECTRICAL ONELINE

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet: E-1

14 E-1 Oneline.dwg - 11/6/2012 - 4:18 PM



LINETYPE LEGEND

- ABOVE GROUND CONDUIT
- BELOW GROUND CONDUIT
- EXISTING ABOVE GROUND CONDUIT
- EXISTING BELOW GROUND CONDUIT

NOTE:

(1) CONDUIT DEVELOPMENT AND SCHEDULE ARE NOT ALL INCLUSIVE. CONTRACTOR SHALL PROVIDE CONDUIT AND WIRE TO PROVIDE A FULLY FUNCTIONAL FACILITY. INTERCONNECTION OF LOW VOLTAGE DEVICES MAY NOT BE SHOWN. CONDUIT AND CONDUCTORS TO LIGHTS AND RECEPTACLES ARE NOT INCLUDED IN THE CONDUIT DEVELOPMENT.

CONDUIT DEVELOPMENT

CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	NOTES
P000	3"	2 3/0 W/ #8 GND	240VAC	EXISTING LP-B (SHAWNEE LODGE)	LP-CB	PASSES THROUGH PULLBOX
P001	2"	3 #10 W/ #10 GND	240VAC	LP-CB	LCP-CB	
P002	1"	3 #12 W/ #12 GND	240VAC	LP-CB	CB HEATER	
P003	1"	2 #12 W/ #12 GND	120VAC	LP-CB	CB EXHAUST FAN T-STAT	
P003A	1"	2 #12 W/ #12 GND	120VAC	CB EXHAUST FAN T-STAT	CB EXHAUST FAN	
P004	1"	3 #12 W/ #12 GND	240VAC	LP-CCB	CCB HEATER	
P121	1"	2 #12 W/ #12 GND	240VAC	LCP-CB	P-121	
P122	1"	2 #12 W/ #12 GND	120VAC	LP-CB	FE/FIT-122	
P123	1"	2 #12 W/ #12 GND	120VAC	LP-CB	AIT-123	
P141	1"	2 #12 W/ #12 GND	120VAC	LP-CB	AIT-141	
P301	1"	2 #12 W/ #12 GND	120VAC	LP-CB	WIT-301	
P311	1"	2 #12 W/ #12 GND	240VAC	LCP-CB	P-311	
P411	1"	2 #12 W/ #12 GND	240VAC	EXISTING SHOWER HOUSE LP	VFD-P-411	
P411A	1"	3 #12 W/ #12 GND	240VAC	VFD-P-411	P-411	
C000	2"	2 CAT 6 WITH SHIELD	COMMUNICATIONS	LCP-CB	EXISTING PHONE PANEL	PASSES THROUGH PULLBOX
C002	1"	2 #14	SIGNAL	CB HEATER	T-STAT	
C004	1"	2 #14	SIGNAL	CCB HEATER	T-STAT	
C110	1"	2 PAIR TW/SHD #18, 2 MANUFACTURER'S CABLES	SIGNAL	LCP-CB	JB-110	
C111	1"	2 MANUFACTURER'S CABLES	SIGNAL	JB-110	LE-111, LSL-112	
C122	1"	1 PAIR TW/SHD #18, 2 #14	SIGNAL	LCP-CB	FE/FIT-122	
C123	1"	2 PAIR TW/SHD #18	SIGNAL	LCP-CB	AIT-123	
C123A	1"	MANUFACTURER'S CABLE	SIGNAL	AIT-123	AE-123	
C124	1"	2 PAIR TW/SHD #18	SIGNAL	LCP-CB	PIT-124, PIT-125	
C126	1"	MANUFACTURER'S CABLE	SIGNAL	AIT-123	AE-126	
C131	1"	2 MANUFACTURER'S CABLES	SIGNAL	JB-110	LE-131, LSL-132	
C141	1"	1 PAIR TW/SHD #18	SIGNAL	LCP-CB	AIT-141	
C141A	1"	MANUFACTURER'S CABLE	SIGNAL	AIT-141	AE-141	
C206	1"	MANUFACTURER'S CABLE	SIGNAL	LCP-CCB	LSH-206	
C207	1"	2 #14	SIGNAL	LCP-CCB	ZS-207	
C301	1"	1 PAIR TW/SHD #18	SIGNAL	LCP-CB	WIT-301	
C301A	1"	MANUFACTURER'S CABLE	SIGNAL	WIT-301	WE-301	
C311	1"	3 #14	CONTROL	LCP-CB	P-311	
C321	1"	1 PAIR TW/SHD #18	SIGNAL	LCP-CB	TT-321	
C421	1"	1 PAIR TW/SHD #18	SIGNAL	VFD-P-411	PIT-421	
SP000	3"	PULLSTRING, WIRE FUTURE	SPARE	SHAWNEE LODGE	LCP-CB	PASSES THROUGH PULLBOX, STUB UP AT BUILDING
SP000A	2"	PULLSTRING, WIRE FUTURE	SPARE	SHAWNEE LODGE	LCP-CB	PASSES THROUGH PULLBOX, STUB UP AT BUILDING

CONDUIT SCHEDULE

TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
FE/FI-101	COLD WATER CANYON PROPELLER FLOWMETER					
FE/FI-102	BEAR CANYON PROPELLER FLOWMETER					
LIT-111	RWT & FWT ULTRASONIC LEVEL TRANSMITTER	SIEMENS	HYDRORANGER 200	120VAC		HYDRORANGER SHALL HAVE TWO INPUT CHANNELS, OR APPROVED EQUAL
LE-111	RAW WATER TANK ULTRASONIC LEVEL SENSOR	SIEMENS	ECHOMAX XPS-5	LIT		PROVIDE WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
FE/FIT-122	RAW WATER PUMP FLOWMETER	ABB	WATERMASTER V	120VAC		OR APPROVED EQUAL
AIT-123	RAW WATER TURBIDITY TRANSMITTER	HACH	SC200	120VAC		SC200 SHALL HAVE TWO INPUT CHANNELS, OR APPROVED EQUAL
AE-123	RAW WATER TURBIDITY ANALYZER 1	HACH	1720E	AIT		PROVIDE TURBIDITY SENSOR WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
PI-124	RAW WATER PRESSURE GAUGE 1	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PIT-124	RAW WATER PRESSURE TRANSMITTER 1	ROSEMOUNT	3051 SERIES	24VDC		OR APPROVED EQUAL
PI-125	RAW WATER PRESSURE GAUGE 2	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PIT-125	RAW WATER PRESSURE TRANSMITTER 2	ROSEMOUNT	3051 SERIES	24VDC		OR APPROVED EQUAL
AE-126	RAW WATER TURBIDITY ANALYZER 2	HACH	1720E	AIT		PROVIDE TURBIDITY SENSOR WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
LE-131	FINISHED WATER TANK ULTRASONIC LEVEL SENSOR	SIEMENS	ECHOMAX XPS-5	LIT		PROVIDE WITH APPROPRIATE CABLE LENGTH, OR APPROVED EQUAL
AE/AIT-141	FINISHED WATER CHLORINE TRANSMITTER & ANALYZER	HACH	2982100	120VAC		PROVIDE WITH 4-20mA INPUT MODULE MODEL 9012800, OR APPROVED EQUAL
LSH-206	COLE CANYON VAULT FLOOD SWITCH	GEMS	LS-74780	NO CONTACT		OR APPROVED EQUAL
WIT301	HYPO TANK WEIGHT ANALYZER	FORCE FLOW	SOLO G2	120VAC		OR APPROVED EQUAL
WE-301	HYPO TANK WEIGHT SCALE	FORCE FLOW	DRUMM-SCALE	WIT-301		PROVIDE WITH LOAD CELL CABLE, OR APPROVED EQUAL
TT-321	CHEMICAL ROOM TEMPERATURE TRANSMITTER	BAPI	BA/T1K	24VDC		OR APPROVED EQUAL
PI-401	SHOWER HOUSE BOOSTER PUMP PRESSURE GAUGE 1	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PI-421	SHOWER HOUSE BOOSTER PUMP PRESSURE GAUGE 2	ASHCROFT	1279 SERIES			OR APPROVED EQUAL
PIT-421	SHOWER HOUSE BOOSTER PUMP DISCHARGE PRESSURE	ROSEMOUNT	3051 SERIES	24VDC		OR APPROVED EQUAL

INSTRUMENT SCHEDULE

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BEN LOMOND/ CAMP SHAWNEE WATER SYS. IMPROVEMENTS

WEBER COUNTY
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Project for:
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Project Number: 510-4718 / 533-4012
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Sheet Title:
ELECTRICAL CONDUIT DEVELOPMENT & SCHEDULES

Designed: MPJ
Drawn: DCL
Checked: MPJ

Sheet:
E-2