

**CONTRACT DOCUMENTS**  
FOR THE CONSTRUCTION OF

**EARL'S PEAK WATER PROJECT**

**Volume 2 of 2**  
**Drawings**

**NOT FOR CONSTRUCTION**  
**FOR REVIEW ONLY**



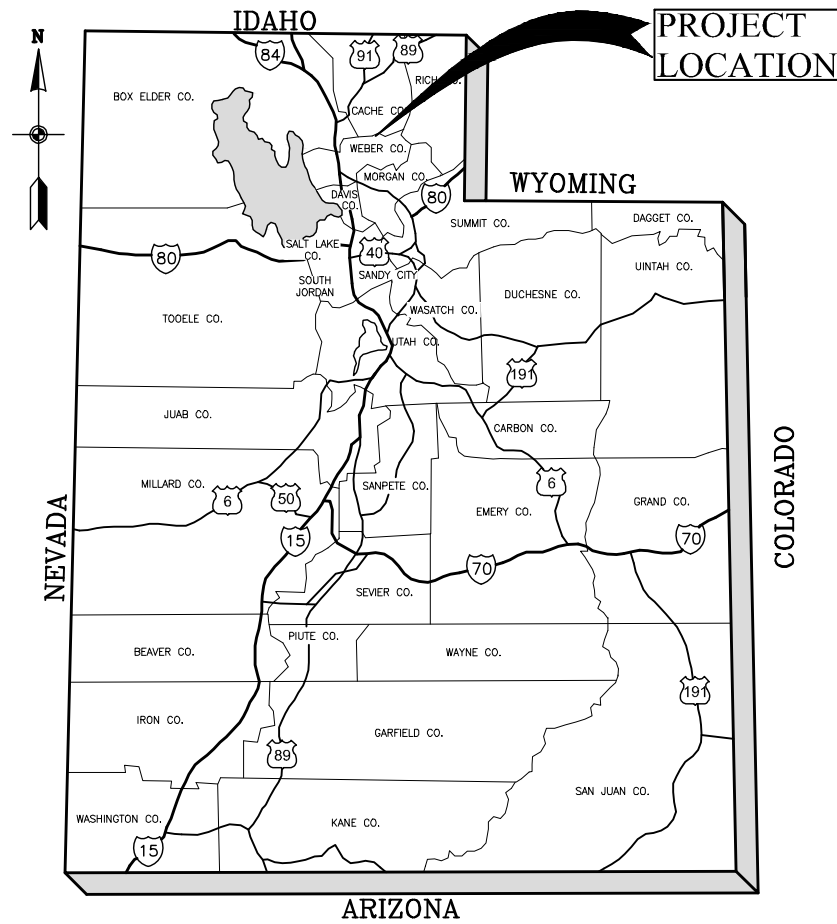
*Summit Mountain Holding Group, LLC*

For Information Regarding this Project Contact:  
Jeff Beckman, P.E.  
154 East 14000 South  
Draper, Utah 84020  
(801) 495-2224



March 2013

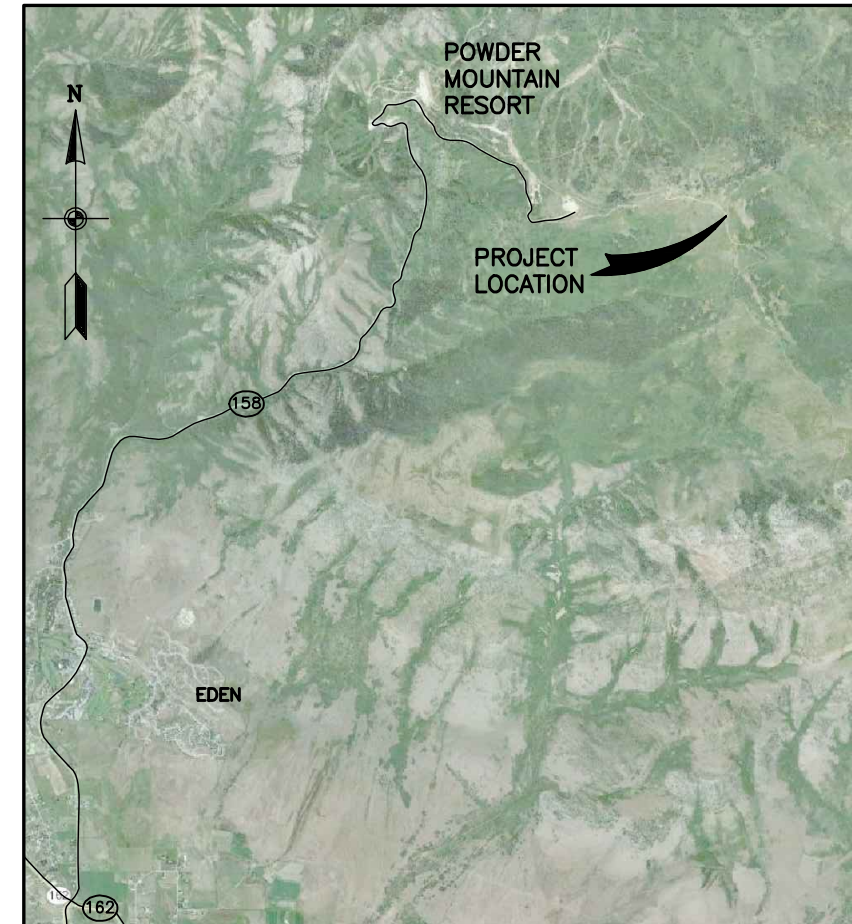
# DRAWINGS FOR CONSTRUCTION OF EARL'S PEAK WATER PROJECT SUMMIT MOUNTAIN HOLDING GROUP, LLC.



PROJECT LOCATION MAP

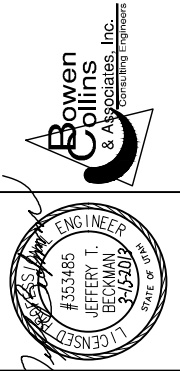
NTS

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PROJECT VICINITY MAP

NTS



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FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN	DESIGN DESIGNER E. NEIL DRAWN R. GARCIA
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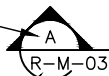
**GENERAL**  
**TITLE, PROJECT LOCATION  
MAP, INDEX OF DRAWINGS  
AND VICINITY MAP**

DATE: MARCH 2013  
PROJECT NUMBER 347-12-01

### SECTION IDENTIFICATION

(1) SECTION CUT SHOWN ON DRAWING AS:

SECTION LETTER

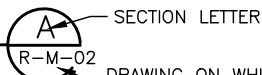


DRAWING NUMBER WHERE THE SECTION IS SHOWN (SEE NOTE)

(2) THIS SECTION IS IDENTIFIED AS:

### SECTION

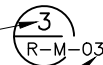
SCALE: AS DESIGNATED.



DRAWING ON WHICH THE SECTION CUT IS SHOWN

(1) DETAIL IDENTIFICATION SHOWN ON DRAWING AS:

DETAIL NUMBER



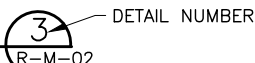
THE DETAIL NAME IS OPTIONAL AND LOCATED HERE, FOLLOWING DETAIL CALLOUT

DRAWING NUMBER WHERE THE DETAIL IS SHOWN (SEE NOTE)

(2) THIS DETAIL IS IDENTIFIED AS:

### DETAIL

SCALE: AS DESIGNATED. SEE NOTE



DRAWING ON WHICH THE DETAIL CALLOUT IS LOCATED

NOTE:  
IF PLAN AND SECTION (OR DETAIL CALLOUT AND DETAIL) ARE SHOWN ON SAME DRAWING, DRAWING NUMBER IS REPLACED BY A HORIZONTAL LINE.

### TYPICAL DETAIL IDENTIFICATION

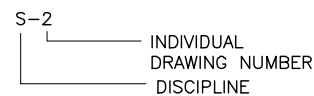
### DETAIL NAME



TYPICAL DETAIL NUMBER ON DRAWINGS WHERE DETAIL IS TAKEN AND SHOWN (SEE INDEX TO DRAWINGS FOR LOCATION OF GENERAL DRAWINGS)

### DRAWING IDENTIFICATION SYSTEM

LETTER	DISCIPLINE
G	GENERAL
C	CIVIL
A	ARCHITECTURAL
S	STRUCTURAL
M	MECHANICAL
E	ELECTRICAL
I	INSTRUMENTATION & CONTROL
D	DETAILS



### NOTES:

- PREFIX LETTER INDICATES THE FOLLOWING: C-CIVIL, L-LANDSCAPING, A-ARCHITECTURAL, S-STRUCTURAL, M-MECHANICAL, E-ELECTRICAL, I-INSTRUMENTATION.
- ELECTRICAL SYMBOLS SHOWN ON ELECTRICAL SHEETS.
- FOR WELDING SYMBOLS USE AMERICAN WELDING SOCIETY STANDARD SYMBOLS. SEE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
- IF SECTION AND/OR DETAILS ARE THE SAME SCALE AND ON THE SAME DRAWING, SEE TITLE BLOCK AT "SCALE:"; THE SCALE TEXT AT CALLOUT SHALL BE OMITTED.

	MASONRY
	CAST IRON
	STEEL
	BRONZE
	INSULATION
	GRAVEL
	CONCRETE
	EARTH
	SAND
	ALUMINUM OR METAL DECKING
	CHECKERED PLATE
	GRATING
	PLASTIC, RUBBER OR NEOPRENE
	WOOD (FINISH)
	WOOD (ROUGH FRAMING) OR, OPENING OR DEPRESSION IN SLAB OR WALL
	DUCT (FIRST DIMENSION DUCT SIDE SHOWN, SECOND DIMENSION DUCT SIDE NOT SHOWN)
	SUPPLY OR OUTSIDE AIR DUCT (FIRST DIMENSION, DUCT WIDTH)
	EXHAUST OR RETURN AIR DUCT (FIRST DIMENSION, DUCT WIDTH)
	CEILING SUPPLY DIFFUSER (SIZE IN INCHES)
	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
	EXHAUST OR RETURN AIR GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
	SUPPLY GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
	AIR TURNING VANES IN DUCT
	DEFLECTING DAMPER
	FIRE HOSE CABINET
	FIRE EXTINGUISHER
	UNIT HEATER
	CENTERLINE
	PROPERTY LINE
	NEW STRUCTURE OR FACILITY
	EXISTING STRUCTURE OR FACILITY
	FUTURE STRUCTURE OR FACILITY
	NEW FENCE
	EXISTING FENCE
	NEW PIPELINE (CIVIL SHEETS)
	NEW PIPELINE (CIVIL SHEETS) 10" DIA. AND SMALLER
	EXISTING PIPELINE
	OPEN CHANNEL

	CONTOUR LINE, FINISHED GRADE
	CONTOUR LINE, EXISTING GRADE
	FINISHED ELEVATION
	EXISTING ELEVATION
	CUT OR FILL SLOPE TO BE CONSTRUCTED
	NEW A.C. PAVING
	EXISTING A.C. PAVING
	RAILING
	FIRE HYDRANT
	MANHOLE
	PRESSURE CLEANOUT TO GRADE
	WALL CLEANOUT
	FLOOR CLEANOUT
	CLEANOUT TO GRADE
	BLOW OFF ASSEMBLY
	HUB DRAIN
	FLOOR DRAIN
	FLOOR SINK
	DRAIN TRAP
	ELEVATION INDICATOR
	BENCH MARK
	VAULT OR JUNCTION STRUCTURE
	CHANGE IN PIPING MATERIAL
	ROUND OR DIAMETER
	SQUARE
	AT
	ANGLE
	PIPE SIZE AND TYPE/FLUID ABBREVIATION (USE FOR EXISTING PIPE CALLOUT)
	PIPE CALLOUT (SEE PIPING SCHEDULE)
	EQUIPMENT NUMBER (SEE EQUIPMENT SCHEDULE)
	BACKWATER VALVE
	BACKFLOW PREVENTER
	STOP GATE
	SLIDE GATE
	SLUICE GATE

	GATE VALVE, BURIED WITH VALVE BOX
	MUD VALVE
	BUTTERFLY VALVE, BURIED WITH VALVE BOX
	ECCENTRIC PLUG VALVE, BURIED WITH VALVE BOX
	LUBRICATED PLUG VALVE, BURIED WITH VALVE BOX
	GATE VALVE
	BUTTERFLY VALVE
	ECCENTRIC PLUG VALVE
	LUBRICATED PLUG VALVE
	GLOBE VALVE
	BALL VALVE
	DIAPHRAGM VALVE
	CHECK VALVE
	PRESSURE REGULATING VALVE
	BACK-PRESSURE VALVE
	MOTOR OPERATOR FOR VALVES (M = ELECTRIC, P = PNEUMATIC, H = HYDRAULIC)
	TEMPERATURE CONTROL VALVE
	SOLENOID VALVE
	MULTIPOINT VALVE - 3 WAY
	MULTIPOINT VALVE - 4 WAY
	FLOAT OPERATED VALVE
	NEEDLE VALVE
	PRESSURE RELIEF VALVE
	ANGLE VALVE
	HOSE BIBB (H/B)
	BUBBLER LEVEL CONTROL
	CENTRIFUGAL OR TURBINE PUMP OR FAN
	METERING PUMP
	PROGRESSIVE CAVITY, POSITIVE DISPLACEMENT PUMP
	BLOWER OR COMPRESSOR
	INJECTOR OR EDUCTOR
	FLAME ARRESTER
	AIR VACUUM AND AIR RELEASE ASSEMBLY
	THERMOMETER
	PIPE ANCHOR

	ROOM THERMOSTAT
	PRESSURE GAUGE
	PRESSURE GAUGE WITH DIAPHRAGM SEAL
	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
	QUICK DISCONNECT COUPLER
	CAPPED END OR PLUGGED END
	BLIND FLANGE
	REDUCER OR INCREASER
	CUT PIPE
	STRAINER
	DRAIN
	FLOW TUBE
	MAGNETIC METER
	DENSITY METER
	PROPELLER METER
	ORIFICE PLATE AND FLANGES
	ROTAMETER
	CONDENSATE TRAP
	PIPE SUPPORT (IN PLAN ONLY)
	CATCH BASIN
	PULSATION DAMPENER
	AREA DRAIN
	LIQUID SURFACE

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NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

DESIGN: G. LOSCHER

CHECKED: G. LOSCHER

APPROVED: J. BECKMAN

REVIEW: G. LOSCHER

DESIGN: G. LOSCHER

DRAWN: G. LOSCHER

**SYMBOLS**

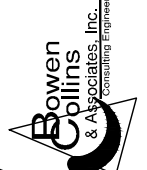
DATE: MARCH 2013

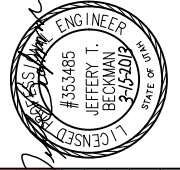
PROJECT NUMBER: 347-12-01

DRAWING NO. **G-2**

SHEET 2 OF 50

<p> <b>AT</b> AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS  <b>AB</b> ANCHOR BOLT  <b>ABBR</b> ABBREVIATION  <b>ABS</b> ACRYLONITRILE-BUTADIENE-STYRENE  <b>AC</b> ASPHALTIC CONCRETE OR ALTERNATING CURRENT OR ACTIVATED CARBON  <b>ACI</b> AMERICAN CONCRETE INSTITUTE  <b>ACP</b> ASPHALTIC CONCRETE PAVEMENT  <b>ADDL</b> ADDITIONAL  <b>ADJ</b> ADJACENT OR ADJUSTABLE  <b>AER</b> AERATION  <b>AFF</b> ABOVE FINISH FLOOR  <b>AGGR</b> AGGREGATE  <b>AH</b> AIR HANDLER  <b>AIR CONT</b> AIR CONDITIONING  <b>AISC</b> AMERICAN INSTITUTE OF STEEL CONSTRUCTION  <b>AL</b> ALUMINUM, ALUM  <b>ALTN</b> ALTERNATIVE, ALTERNATE  <b>ANOD</b> ANODIZED  <b>ANSI</b> AMERICAN NATIONAL STANDARDS INSTITUTE  <b>APVD</b> APPROVED  <b>APPROX</b> APPROXIMATE  <b>ARCH</b> ARCHITECTURAL  <b>ARV</b> AIR RELEASE VALVE  <b>ASME</b> AMERICAN SOCIETY OF MECHANICAL ENGINEERS  <b>ASTM</b> AMERICAN SOCIETY FOR TESTING AND MATERIAL  <b>ASSY</b> ASSEMBLY  <b>AUTO</b> AUTOMATIC  <b>AUX</b> AUXILIARY  <b>AVAR</b> AIR VACUUM AND AIR RELEASE VALVE  <b>AWS</b> AMERICAN WELDING SOCIETY  <b>AWWA</b> AMERICAN WATER WORKS ASSOCIATION    <b>BC</b> BEGIN CURVE, BOLT CIRCLE  <b>BF</b> BLIND FLANGE, BUTTERFLY VALVE  <b>BFP</b> BACK FLOW PREVENTER  <b>BFV</b> BUTTERFLY VALVE  <b>BHD</b> BULKHEAD  <b>BHP</b> BRAKE HORSEPOWER  <b>BLDG</b> BUILDING  <b>BLK</b> BLACK OR BLOCK  <b>BLKG</b> BLOCKING  <b>BLT</b> BOLT  <b>BM</b> BEAM, BENCH MARK  <b>BO</b> BLOW-OFF ASSEMBLY, BLOW-OFF  <b>BOT</b> BOTTOM  <b>BPS</b> BOOSTER PUMPING STATION  <b>BPV</b> BACK PRESSURE VALVE  <b>BRK</b> BRICK  <b>B &amp; S</b> BELL &amp; SPIGOT  <b>BTWN</b> BETWEEN  <b>BTU</b> BRITISH THERMAL UNIT  <b>BUR</b> BUILT-UP ROOFING  <b>BVC</b> BEGIN VERTICAL CURVE  <b>BW</b> BACK WASH, FILTER BACKWASH    <b>C</b> CENTIGRADE OR CELSIUS  <b>CAB</b> CABINET  <b>CAP</b> CAPACITY  <b>CARV</b> COMBINATION AIR RELEASE VALVE  <b>CB</b> CATCH BASIN  <b>CC</b> CENTER TO CENTER  <b>CCP</b> CONCRETE CYLINDER PIPE  <b>CD</b> CEILING DIFFUSER CHEMICAL DRAIN AND VENT    <b>CER</b> CERAMIC  <b>CFH</b> CUBIC FEET PER HOUR  <b>CFM</b> CUBIC FEET PER MINUTE  <b>CFS</b> CUBIC FEET PER SECOND  <b>CG</b> CHLORINE GAS  <b>CHBD</b> CHALKBOARD  <b>CHEM</b> CHEMICAL  <b>CHG</b> CHANGE  <b>CHKD PL</b> CHECKERED PLATE  <b>CI</b> CAST IRON  <b>CIP</b> CAST IRON PIPE  <b>CISP</b> CAST IRON SOIL PIPE  <b>CJ</b> CONSTRUCTION JOINT  <b>CJP</b> COMPLETE JOINT PENETRATION  <b>CL</b> CHLORINATOR, CHAIN LINK, CLEARANCE, CENTERLINE OR CHLORINE    <b>CLR</b> CLEAR  <b>CLST</b> CEMENT LINED STEEL PIPE  <b>CM</b> CENTIMETER  <b>CML &amp; C</b> CEMENT MORTAR LINED AND COATED  <b>CMP</b> CORRUGATED METAL PIPE  <b>CMU</b> CONCRETE MASONRY UNIT  <b>CO</b> CLEANOUT  <b>COL</b> COLUMN  <b>COMM</b> COMMUNICATION  <b>COMB</b> COMBINED </p>	<p> <b>CONC</b> CONCRETE, CONCENTRIC  <b>COND</b> CONDENSER, CONDENSATE  <b>CONN</b> CONNECTION  <b>CONST</b> CONSTRUCTION, CONSTRUCT  <b>CONT</b> CONTINUED, CONTINUOUS, CONTINUATION  <b>COORD</b> COORDINATE  <b>COTG</b> CLEAN-OUT TO GRADE  <b>COP</b> COPPER  <b>CPG</b> COUPLING  <b>CPVC</b> CHLORINATED POLYVINYL CHLORIDE  <b>CS</b> CAST STEEL OR CAUSTIC SODA  <b>CTRD</b> CENTERED  <b>CTR</b> CENTER  <b>CTSK</b> COUNTERSUNK  <b>CU FT</b> CUBIC FOOT  <b>CU IN</b> CUBIC INCH  <b>CU YD</b> CUBIC YARD  <b>CULV</b> CULVERT  <b>CV</b> CHECK VALVE  <b>CW</b> COLD WATER  <b>CWO</b> CHAIN WHEEL OPERATOR  <b>CYL</b> CYLINDER    <b>d</b> PENNY  <b>DBA</b> DEFORMED ANCHOR  <b>DBL</b> DOUBLE  <b>DC</b> DIRECT CURRENT  <b>DET</b> DETAIL  <b>DEG</b> DEGREE  <b>DEMO</b> DEMOLITION, DEMOLISH  <b>DI</b> DUCTILE IRON, DROP INLET  <b>DIA</b> DIAMETER  <b>DIAG</b> DIAGONAL  <b>DIAPH</b> DIAPHRAGM  <b>DIFF</b> DIFFUSER  <b>DIM</b> DIMENSION  <b>DIP</b> DUCTILE IRON PIPE  <b>DISCH</b> DISCHARGE  <b>DIR</b> DIRECTION  <b>DIST</b> DISTANCE  <b>DIV</b> DIVISION  <b>D-LOAD</b> LOADING CONDITION FOR RCP  <b>DMPR</b> DAMPER  <b>DN</b> DOWN, DECANT  <b>DOT</b> DEPARTMENT OF TRANSPORTATION  <b>DP</b> DAMP PROOFING  <b>DR</b> DOOR, DRAIN  <b>DS</b> DRENCH SHOWER &amp; EYE WASH, DOWNSPOUT    <b>DWG</b> DRAWING  <b>DWL</b> DOWEL    <b>E(UG)</b> ELECTRICAL (UNDERGROUND)  <b>E(OH)</b> ELECTRICAL (OVERHEAD POWER)  <b>E</b> EAST  <b>EA</b> EACH  <b>EB</b> EXPANSION BOLT  <b>EC</b> END CURVE  <b>ECC</b> ECCENTRIC  <b>EF</b> EACH FACE, EXHAUST FAN  <b>EFF</b> EFFLUENT  <b>EG</b> EXISTING GRADE  <b>EL</b> ELEVATION, ELBOW  <b>ELEV</b> ELEVATION  <b>ELEC</b> ELECTRICAL, ELECTRONIC  <b>EMB</b> EMBEDMENT  <b>EMER</b> EMERGENCY  <b>ENCL</b> ENCLOSURE  <b>ENG</b> ENGINE  <b>ENGR</b> ENGINEER  <b>EP</b> EDGE OF PAVEMENT  <b>EQ</b> EQUAL  <b>EQL SP</b> EQUALLY SPACED  <b>EQUIP</b> EQUIPMENT  <b>ETC</b> ETCETERA  <b>EVAP</b> EVAPORATOR  <b>EVC</b> END VERTICAL CURVE  <b>EW</b> EACH WAY, EYE WASH  <b>EXH</b> EXHAUST  <b>EXP ANR</b> EXPANSION BOLT, ANCHOR  <b>EXP JT</b> EXPANSION JOINT  <b>EXIST</b> EXISTING  <b>EXT</b> EXTERIOR, EXTENSION, EXTERNAL    <b>F</b> FAHRENHEIT, FACE  <b>FAB</b> FABRICATION, FABRICATE, OR FABRICATED  <b>FB</b> FLAT BAR  <b>FC</b> FLEXIBLE COUPLING  <b>FCA</b> FLANGE COUPLING ADAPTER  <b>FCO</b> FLOOR CLEANOUT  <b>FD</b> FLOOR DRAIN  <b>FDN</b> FOUNDATION  <b>FDR</b> FEEDER </p>	<p> <b>FEXT</b> FIRE EXTINGUISHER  <b>FF</b> FLAT FACE, FAR FACE, FINISH FLOOR  <b>F TO F</b> FACE TO FACE  <b>FG</b> FINISH GRADE, FLOW GLASS  <b>FH</b> FIRE HYDRANT  <b>FLR</b> FLOOR  <b>FL</b> FLOW LINE  <b>FLEX</b> FLEXIBLE  <b>FLG</b> FLANGE  <b>FM</b> FORCE MAIN (SANITARY SEWER)  <b>FND</b> FOUND  <b>FNH</b> FINISH  <b>FO</b> FIBER OPTIC    <b>G</b> GAS  <b>GA</b> GAGE, GAUGE  <b>GAL</b> GALLON  <b>GALV</b> GALVANIZED  <b>GEN</b> GENERATOR  <b>GFI</b> GROUND FAULT INTERRUPTER  <b>GI</b> GALVANIZED IRON  <b>GIS</b> GEOGRAPHIC INFORMATION SYSTEM  <b>GL</b> GLASS  <b>GLAZ</b> GLAZING  <b>GLV</b> GLOBE VALVE  <b>GND</b> GROUND  <b>GPD</b> GALLONS PER DAY  <b>GPH</b> GALLONS PER HOUR  <b>GPM</b> GALLONS PER MINUTE  <b>GR</b> GRADE  <b>GR BRK</b> GRADE BREAK, GRADE CHANGE  <b>GRTG</b> GRATING  <b>GV</b> GATE VALVE  <b>GSP</b> GALVANIZED STEEL PIPE  <b>GYP</b> GYPSUM BOARD    <b>H</b> HEIGHT  <b>HAS</b> HEADED ANCHOR STUD  <b>HB</b> HOSE BIBB  <b>HD</b> HUB DRAIN  <b>HDPE</b> HIGH DENSITY POLYETHYLENE  <b>HDR</b> HEADER  <b>HDW</b> HARDWARE  <b>HEX</b> HEXAGONAL  <b>HGR</b> HANGER  <b>HM</b> HOLLOW METAL  <b>HORIZ</b> HORIZONTAL  <b>HP</b> HORSEPOWER, HIGH PRESSURE, HEAT PUMP    <b>H/P, HPT</b> HIGH POINT  <b>HR</b> HEATING RETURN, HOUR, HOSE RACK  <b>HS</b> HIGH STRENGTH  <b>HSS</b> HOLLOW STRUCTURAL SECTION  <b>HTG</b> HEATING  <b>HTR</b> HEATER  <b>HV</b> HOSE VALVE  <b>HVAC</b> HEATING, VENTILATING AND AIR CONDITIONING  <b>HWL</b> HIGH WATER LEVEL  <b>HWO</b> HANDWHEEL OPERATED  <b>HYD</b> HYDRANT, HYDRAULIC    <b>ICFM</b> INLET CUBIC FEET PER MINUTE  <b>ID</b> INSIDE DIAMETER  <b>IF</b> INSIDE FACE  <b>IN</b> INCH  <b>IN LB</b> INCH-POUND  <b>INFL</b> INFLUENT  <b>INSUL</b> INSULATING  <b>IE</b> INVERT ELEVATION  <b>INVT</b> INVERT  <b>IPS</b> IRON PIPE SIZE  <b>IRR</b> IRRIGATION    <b>JT</b> JOINT    <b>K</b> KELVIN, KILO OR THOUSAND POUNDS  <b>KG</b> KILOGRAM  <b>KV</b> KILOVOLT  <b>KW</b> KILOWATT  <b>KWH</b> KILOWATT HOUR    <b>L</b> LEFT OR LITER  <b>LAB</b> LABORATORY  <b>LAV</b> LAVATORY  <b>LB</b> POUND  <b>LC</b> LENGTH OF CURVE  <b>LF</b> LINEAR FEET  <b>LG</b> LENGTH OR LONG  <b>LH</b> LEFT HAND  <b>LL</b> LIVE LOAD  <b>LLV</b> LONG LEG VERTICAL  <b>LOL</b> LENGTH OF LINE  <b>LPT</b> LOW POINT  <b>LR</b> LONG RADIUS  <b>LT</b> LIGHT, LEFT  <b>LVL</b> LEVEL </p>	<p> <b>LWL</b> LOW WATER LEVEL  <b>LWR</b> LOWER    <b>M</b> METER, MALE (PIPE THREAD)  <b>MACH</b> MACHINE  <b>MAN</b> MAGNETIC  <b>MAN</b> MANUAL  <b>MATL</b> MATERIAL  <b>MAX</b> MAXIMUM  <b>MB</b> MACHINE BOLT  <b>MCC</b> MOTOR CONTROL CENTER  <b>MECH</b> MECHANICAL, MECHANISM  <b>MEMB</b> MEMBRANE  <b>MET</b> METAL  <b>MFR</b> MANUFACTURER  <b>MG</b> MILLION GALLONS  <b>MGD</b> MILLION GALLONS PER DAY  <b>MH</b> MANHOLE, MONORAIL HOIST  <b>MI</b> MALLEABLE IRON  <b>MID</b> MIDDLE  <b>MIL</b> 1/1,000 INCH  <b>MIN</b> MINIMUM OR MINUTE  <b>MISC</b> MISCELLANEOUS  <b>MJ</b> MECHANICAL JOINT  <b>MTL</b> METAL OR MATERIAL  <b>MTG</b> MOUNTING  <b>MTR</b> MOTOR  <b>MPH</b> MILES PER HOUR  <b>MWS</b> MAXIMUM WATER SURFACE    <b>N</b> NORTH  <b>NAVD</b> NORTH AMERICAN VERTICAL DATUM  <b>NBS</b> NATIONAL BUREAU OF STANDARDS  <b>NC</b> NORMALLY CLOSED  <b>NE</b> NORTHEAST  <b>NEC</b> NATIONAL ELECTRIC CODE  <b>NEMA</b> NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION    <b>NF</b> NEAR FACE  <b>NFPA</b> NATIONAL FIRE PROTECTION ASSOCIATION  <b>NIC</b> NOT IN CONTRACT  <b>NO</b> NUMBER OR NORMALLY OPEN  <b>NOM</b> NOMINAL  <b>NPT</b> NATIONAL PIPE THREAD  <b>NS</b> NEAR SIDE  <b>NTS</b> NOT TO SCALE  <b>NW</b> NORTHWEST    <b>OC</b> ON CENTER, OVER-CROSSING  <b>OD</b> OUTSIDE DIAMETER, OVERALL DIMENSION  <b>OF</b> OUTSIDE FACE  <b>OH</b> OVERHEAD  <b>OPER</b> OPERATOR, OPERATING  <b>OPNG</b> OPENING  <b>OPP</b> OPPOSITE  <b>ORIG</b> ORIGINAL  <b>O TO O</b> OUT TO OUT  <b>OVHD</b> OVERHEAD  <b>OZ</b> OUNCE    <b>PV</b> PAVEMENT  <b>PC</b> PORTLAND CEMENT, POINT OF CURVE OR PRIMARY CLARIFIER  <b>PCC</b> PORTLAND CEMENT CONCRETE  <b>PCF</b> POUNDS PER CUBIC FOOT  <b>PG</b> PRESSURE GAUGE  <b>PE</b> PLAIN END, POLYELECTROLYTE POLYMER, POLYETHYLENE    <b>pH</b> HYDROGEN ION CONCENTRATION  <b>PI</b> PLANT INFLUENT, POINT OF INTERSECTION  <b>PJF</b> PREMOLDED JOINT FILLER  <b>PL</b> PLATE, PROPERTY LINE, PLACE  <b>PLYWD</b> PLYWOOD  <b>PM</b> PUMP, PROPELLER METER  <b>PI</b> POINT OF BEGINNING  <b>PT</b> POINT OF TANGENT  <b>PJF</b> PREMOLDED JOINT FILLER  <b>PL</b> PLATE, PROPERTY LINE, OR PLACE  <b>PP</b> POTASSIUM PERMANGANATE  <b>PPD</b> POUNDS PER DAY  <b>PPH</b> POUNDS PER HOUR  <b>PPM</b> PARTS PER MILLION  <b>PR</b> PAIR  <b>PRC</b> POINT OF REVERSE CURVE  <b>PREFAB</b> PREFABRICATED  <b>PRI</b> PRIMARY  <b>PRV</b> PRESSURE REGULATING/REDUCING VALVE  <b>PS</b> PRESSURE SWITCH, PUMP STATION  <b>PSF</b> POUNDS PER SQUARE FOOT  <b>PSI</b> POUNDS PER SQUARE INCH  <b>PSIG</b> POUNDS PER SQUARE INCH GAUGE  <b>PT</b> POINT OF TANGENT, PRESSURE TREATED  <b>PTDF</b> PRESSURE TREATED DOUGLAS FIR  <b>PVC</b> POLYVINYL CHLORIDE  <b>PVI</b> POINT OF VERTICAL INTERSECTION </p>	<p> <b>PW</b> POTABLE WATER    <b>RAD</b> RADIUS  <b>RC</b> REINFORCED CONCRETE  <b>RCP</b> REINFORCED CONCRETE PIPE  <b>RD</b> ROOF DRAIN OR ROAD  <b>RDCR</b> REDUCER, REDUCING  <b>RECIRC</b> RECIRCULATION  <b>RED</b> REDUCING  <b>REF</b> REFERENCE, REFER  <b>REG</b> REGULATING, REGISTER  <b>REIN</b> REINFORCE, REINFORCED  <b>REQD</b> REQUIRED  <b>REV</b> REVISION  <b>RF</b> ROOF, RAISED FACE  <b>RND</b> ROUND  <b>R.O.</b> ROUGH OPENING  <b>RPM</b> REVOLUTIONS PER MINUTE  <b>RP</b> RADIUS POINT  <b>RS</b> RAW SEWAGE  <b>RST</b> REINFORCING STEEL, RESET  <b>RT</b> REGULATING TANK, RADIOGRAPHIC, RIGHT  <b>RV</b> ROOF VENT  <b>R/W</b> RIGHT OF WAY  <b>RW</b> RAW WATER    <b>S</b> SOUTH, SECOND  <b>SA</b> SAMPLE, SAMPLE LINE  <b>SR</b> SUPPLY AIR REGISTER  <b>SCFM</b> STANDARD CUBIC FEET PER MINUTE  <b>SCH</b> SCHEDULE  <b>SD</b> STORM DRAIN  <b>SECT</b> SECTION  <b>SHT</b> SHEET  <b>SIM</b> SIMILAR  <b>SLP</b> SLOPE  <b>SP</b> SPACING, STATIC PRESSURE  <b>SPEC</b> SPECIFIED, SPECIFICATION  <b>SPECS</b> SPECIFICATIONS  <b>SPG</b> SPACING  <b>SPKR</b> SPEAKER    <b>SPLY</b> SUPPLY  <b>SPRT</b> SUPPORT  <b>SQ</b> SQUARE  <b>SQ FT</b> SQUARE FOOT  <b>SR</b> SUPPLY REGISTER  <b>SS</b> SANITARY SEWER, SERVICE SINK  <b>SST</b> STAINLESS STEEL  <b>STA</b> STATION  <b>STD</b> STANDARD  <b>STIFF</b> STIFFENER  <b>STL</b> STEEL  <b>STRL</b> STRUCTURAL  <b>SYM</b> SYMBOL  <b>SYMM</b> SYMMETRICAL  <b>SYS</b> SYSTEM    <b>T</b> THICKNESS, TOP, TOILET  <b>T&amp;B</b> TOP AND BOTTOM  <b>T&amp;G</b> TONGUE AND GROOVE  <b>TAN</b> TANGENT  <b>TBM</b> TEMPORARY BENCH MARK  <b>TBC</b> TOP OF CATCH BASIN  <b>TC</b> TOP OF CURB, TOP OF CONCRETE  <b>TDH</b> TOTAL DYNAMIC HEAD  <b>TECH</b> TECHNICAL  <b>TEL</b> TELEPHONE  <b>TEMP</b> TEMPERATURE, TEMPORARY  <b>THK</b> THICK  <b>THR'D</b> THREADED  <b>TK</b> TANK  <b>T.O.</b> TOP OF  <b>TOG</b> TOP OF GRADE  <b>TP</b> TELEPHONE POLE, TURNING POINT  <b>TYP</b> TYPICAL    <b>UBC</b> UNIFORM BUILDING CODE  <b>UD</b> UNDERDRAIN  <b>UG</b> UNDERGROUND  <b>UH</b> UNIT HEATER  <b>UL</b> UNDERWRITERS LABORATORIES  <b>UNO</b> UNLESS OTHERWISE NOTED  <b>USBR</b> U.S. BUREAU OF RECLAMATION </p>	<p> <b>V</b> VALVE, VENT, VOLT, VACUUM  <b>VAR</b> VARIES, OR VARIABLE  <b>VC</b> VERTICAL CURVE  <b>VCP</b> VITRIFIED CLAY PIPE  <b>VERT</b> VERTICAL  <b>VOL</b> VOLUME  <b>VTC</b> VENT THROUGH CEILING  <b>VTR</b> VENT THROUGH ROOF  <b>VSS</b> VOLATILE SUSPENDED SOLIDS    <b>W</b> WEST, WASTE, WIDE FLANGE (BEAM)  <b>W/</b> WITH  <b>W/O</b> WITHOUT  <b>WC</b> WATER COLUMN OR WATER CLOSET  <b>WCO</b> WALL CLEANOUT  <b>WD</b> WOOD  <b>WH</b> WATER HEATER  <b>WS</b> WATER STOP, WATER SURFACE  <b>WSP</b> WELDED STEEL PIPE  <b>WSTP</b> WATER STOP  <b>WT</b> WEIGHT  <b>WWM</b> WELDED WIRE MESH    <b>XMTR</b> TRANSMITTER  <b>XS</b> EXTRA STRONG    <b>YD</b> YARD  <b>YR</b> YEAR </p>
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NOT FOR CONSTRUCTION  
FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION	REVISIONS

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

**DESIGN** DESIGN BCA STANDARDS DRAWN BCA STANDARDS

**REVIEW** CHECKED G. LOSCHER APPROVED J. BECKMAN

**GENERAL**

**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

**ABBREVIATIONS**

PROJECT 347-12-01  
NUMBER

DATE: MARCH 2013

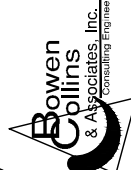
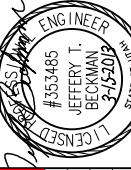
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**G-3**

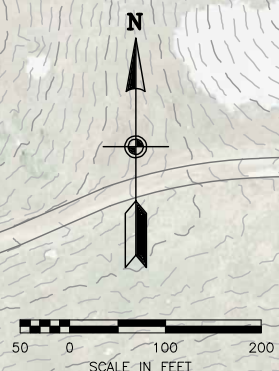
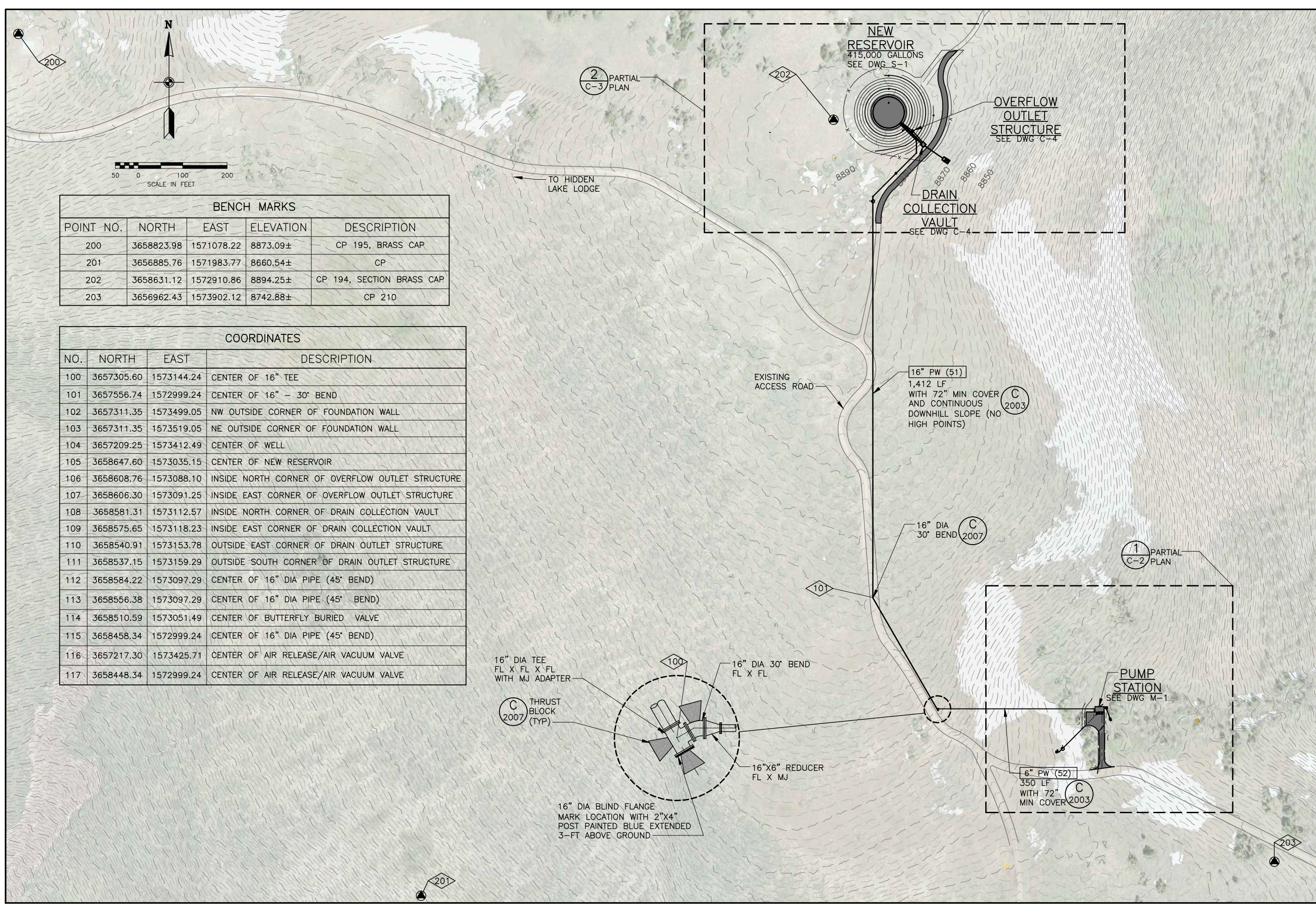
SHEET 3 OF 50

# GENERAL NOTES

- SYMBOLS FOR STRUCTURES, PIPE AND ETC. USED FOR IDENTIFICATION ARE SHOWN IN LEGENDS AND SHALL BE FOLLOWED THROUGHOUT THE PLANS WHENEVER APPLICABLE. NOT ALL OF THE VARIOUS COMPONENTS SHOWN IN THESE LEGENDS ARE NECESSARILY USED IN THE PROJECT.
- SCALE OF THE DRAWINGS OR DETAILS ARE SHOWN IN TITLE BLOCK OR DIRECTLY UNDER THE PLAN OR DETAIL. THE SIZE OF THE ORIGINAL PLOTTED DRAWINGS IS 22"x34". CARE SHOULD BE TAKEN TO VERIFY THE SCALE BAR IN THE TITLE BLOCK AREA TO DETERMINE THE SCALE OF REDUCED REPRODUCTIONS.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PERFORM CONSTRUCTION ACTIVITIES PER THE CONTRACT DOCUMENTS. ANY ADDITIONS, DELETIONS, OR MODIFICATIONS SHALL FIRST MEET WITH THE WRITTEN APPROVAL OF THE ENGINEER AND THE OWNER.
- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMIT(S) AND COMPLY WITH ALL REQUIREMENTS OF GOVERNING AGENCIES.
- THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES WITHIN THE ESTABLISHED RIGHTS-OF-WAY. THIS SHALL INCLUDE BUT NOT BE LIMITED TO, VEHICLES AND EQUIPMENT, LIMITS OF TRENCH EXCAVATION, AND EXCAVATED MATERIAL AND BACKFILL STORAGE. IF THE CONTRACTOR REQUIRES ADDITIONAL CONSTRUCTION EASEMENTS, IT SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SUCH EASEMENTS.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE WHICH ARE TO REMAIN IN PLACE. ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED TO ORIGINAL OR BETTER CONDITION TO THE SATISFACTION OF THE OWNER AT THE EXPENSE OF THE CONTRACTOR.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFORMANCE WITH LOCAL AND FEDERAL CODES GOVERNING SHORING AND BRACING OF EXCAVATIONS AND TRENCHES. CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF THE PUBLIC AND PROTECTION OF PERSONNEL AND WORKERS.
- CONTRACTOR SHALL NOT DESTROY, REMOVE, OR DISTURB ANY EXISTING SURVEY MONUMENTS WITHOUT AUTHORIZATION OF CONTROLLING AGENCY. ALL SURVEY MONUMENTS OR POINTS DISTURBED BY THE CONTRACTOR SHALL BE ACCURATELY RESET BY A REGISTERED LAND SURVEYOR AFTER ALL RESTORATION AND RESURFACING HAS BEEN COMPLETED.
- TRENCH SUPPORTS AND DEWATERING (NOTE 10) SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. MAXIMUM OPEN TRENCH DURING WORKING HOURS SHALL BE 300 FEET.
- DEWATERING: GROUND WATER AND SURFACE WATER CONTROL SHALL BE PERFORMED AND RESPONSIBLY HANDLED BY THE CONTRACTOR ACCORDING TO, AND IN COMPLIANCE WITH, ALL LOCAL GOVERNING AUTHORITIES. HEAVY GROUND WATER AND/OR SURFACE WATER PUMPING MAY BE REQUIRED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE POTENTIAL PUMPING NEEDS. THE CONTRACTOR SHALL NOT RELY ON OWNER SUPPLIED PROCTOR, GROUND WATER AND/OR SURFACE WATER DATA. CONTRACTOR SHALL OBTAIN DEWATERING PERMIT AS NECESSARY.
- AERIAL PHOTOS IN DRAWINGS: THE AERIAL PHOTOS PROVIDED AS BACKGROUND IN THESE DRAWINGS ARE PROVIDED TO HELP CLARIFY THE WORK SITE. HOWEVER, PRESENT DAY CONDITIONS MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. BID SHALL INCLUDE ALL WORK REQUIRED TO COMPLETE THE PROJECT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY SETTLEMENT OF EXCAVATIONS, AND ANY DAMAGE OF UTILITIES RESULTING FROM SETTLEMENT.
- CONTRACTOR SHALL PREVENT ANY GROUND WATER OR DEBRIS FROM ENTERING NEW PIPES DURING CONSTRUCTION. THE ENDS OF THE PIPES SHALL BE SEALED AT THE END OF EACH WORKDAY.
- PROFILE DRAWINGS ARE HORIZONTAL PROJECTIONS OF THE PIPELINE CENTERLINE, UNLESS OTHERWISE NOTED.
- LAY PIPE TO DEPTH AND ALONG HORIZONTAL ALIGNMENT AS DEFINED IN THESE DRAWINGS. CONTRACTOR SHALL NOT DEVIATE FROM PROPOSED ALIGNMENT OR GRADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. AVOID HIGH AND LOW POINTS EXCEPT WHERE DESIGNED.
- ALL BURIED REBAR, FITTINGS, COUPLINGS, VALVES, AND MECHANICAL JOINT NUTS AND BOLTS ARE TO BE COATED WITH NON OXIDE GREASE CHEVRON FM 1 OR APPROVED EQUAL, COVERED WITH 8 MIL POLYETHYLENE SHEETING, AND TAPE WRAPPED PER AWWA C105. SEE SPECIFICATION 05500 FOR ADDITIONAL BOLT AND NUT COATING REQUIREMENTS.
- UNLESS NOTED OTHERWISE, ALL WATER MAIN SHALL BE 6-INCH PVC C900 CLASS 165 DR25 PIPE, AND 16-INCH PVC C905 CLASS 165 DR25 PIPE, 4-INCH DUCTILE IRON CLASS 250 AND 6-INCH DUCTILE IRON CLASS 250. SIZE OF FITTINGS SHOWN ON THE PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, AND SHALL BE DUCTILE IRON FITTINGS.
- ALL FITTINGS REQUIRED FOR THE COMPLETION OF THE WORK ARE NOT SHOWN IN THE DRAWINGS. MAXIMUM PIPE JOINT DEFLECTION SHALL BE 1-DEGREE. ADDITIONAL FITTINGS REQUIRED TO MAINTAIN THE ALIGNMENT SHOWN IN THE PLANS SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- MINIMUM DEPTH OF NEW PIPE: 6 FEET TO TOP OF PIPE, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PERFORM CHLORINATION TEST, PRESSURE TEST, AND BACTERIA TEST. ALL WATERLINES INSTALLED SHALL BE DISINFECTED IN ACCORDANCE WITH THE "AMERICAN WATER WORKS ASSOCIATION STANDARD FOR DISINFECTING WATER MAINS" (AWWA C651). ALL CHLORINATED WATER SHALL BE DISPOSED OF IN ACCORDANCE WITH THE UTAH DEPT OF ENVIRONMENTAL QUALITY RULES AND REQUIREMENTS FOR SURFACE DISCHARGE AND COORDINATED WITH WEBER COUNTY.
- ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN A WORKMANLIKE AND SAFE MANNER AND IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND JOB-SITE RELATED CONSTRUCTION CONDITIONS AND REQUIREMENTS. OBTAIN PERMITS, INSPECTIONS AND APPROVALS AS REQUIRED BY JURISDICTIONAL AGENCIES AND PAY ALL ASSOCIATED FEES. CONTRACTOR AND INSTALLERS SHALL BE LICENSED AS REQUIRED BY STATE AND LOCAL JURISDICTIONS, AND BONDED AS DETERMINED BY PROJECT REQUIREMENTS.
- PRESSURE TEST ALL PIPELINES TO 150 PSI MINIMUM FOR TWO HOURS WITH ZERO LEAKAGE. IN THE CASE OF PIPELINES THAT FAIL TO PASS THE LEAKAGE TEST, THE CONTRACTOR SHALL DETERMINE THE CAUSE OF THE EXCESSIVE LEAKAGE, SHALL TAKE CORRECTIVE MEASURES NECESSARY TO REPAIR THE LEAKS, AND SHALL AGAIN TEST THE PIPELINES, ALL AT NO COST TO THE OWNER.
- WORKING PRESSURE FOR THE SYSTEM IS 70 PSI WITH TEST PRESSURE OF 150 PSI. ALL FLANGES, VALVES, FITTINGS, THRUST BLOCKS, ETC. SHALL BE RATED APPROPRIATELY.
- ALL PIPE, FITTINGS, AND VALVES SHALL BE NSF 61 COMPLIANT FOR CULINARY WATER USE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTROL OF DRAINAGE AND EROSION DURING CONSTRUCTION AT CONSTRUCTION SITE, STAGING, AND SPOILS AREA. CONTRACTOR SHALL SUBMIT STORM RUNOFF CONTROL PLAN FOR APPROVAL BY ENGINEER AND OBTAIN A UPDES PERMIT FROM THE UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY.
- INSTALL ALL MATERIALS ACCORDING TO MANUFACTURER RECOMMENDATIONS AND STATE AND LOCAL REQUIREMENTS. USE ONLY NEW AND UNUSED MATERIALS. ALL MATERIALS SHALL BE PROVIDED BY MANUFACTURERS REGULARLY ENGAGED IN PRODUCING SAID ITEMS, AND WHICH SHALL BE FIRST QUALITY, HEAVY DUTY, COMMERCIAL/INDUSTRIAL GRADE, SUITABLE FOR THE INTENDED USE.
- EXCAVATION LIMITS SHOWN IN THE DRAWINGS ARE GRAPHICAL REPRESENTATIONS ONLY, AND DO NOT REPRESENT ACTUAL EXCAVATION LIMITS OR SAFE TRENCH CONDITIONS REQUIRED TO COMPLETE THE WORK.
- ALL DUCTILE IRON FITTINGS SHALL BE MADE IN THE U.S.A. AND HAVE MEGALUGS ON ALL MECHANICAL JOINTS.
- ALL MATERIALS WHICH MAY CONTACT DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, AND O-RINGS, SHALL BE ANSI-CERTIFIED AS MEETING THE REQUIREMENTS OF NSF STANDARD 61. TO PERMIT FIELD VERIFICATION, COMPONENTS SHALL BE STAMPED WITH THE APPROPRIATE NSF LOGO.
- TRACER WIRE: METALLIC TRACER WIRE AND WARNING TAPE SHALL BE PROVIDE ON ALL UTILITIES.
- UTILITY CROSSING: CONTRACTOR SHALL BACKFILL TRENCH AREAS WHERE NEW WATERLINES CROSS UNDER EXISTING BURIED UTILITIES WITH FLOWABLE FILL (CLSM) IN ACCORDANCE WITH SPECIFICATIONS SECTION 02200 IF STANDARD MECHANICAL COMPACTION EQUIPMENT CAN NOT ADEQUATELY COMPACT BACKFILL.
- RESERVOIR AND VAULT CONSTRUCTION: NO CHANGE IN DESIGN LOCATION OR GRADE SHALL BE MADE BY THE CONTRACTOR WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- FINAL RIM ELEVATIONS: CONTRACTOR SHALL ADJUST GRADE OF NEW MANHOLE RIMS, VALVE BOXES, AND INLET GRATES TO MATCH FINAL GRADES.

- CONSTRUCTION SURVEYING: CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION SURVEYING AND FOR LAYING OUT WORK.
- AS-BUILT SURVEY: CONTRACTOR SHALL PERFORM SURVEY OF ALL IMPROVEMENTS AS INSTALLED, INCLUDING LOCATIONS AND DEPTHS OF BURIED FITTINGS AND VALVES, AND LOCATIONS OF ALL STRUCTURES, SURFACE IMPROVEMENTS, AND FACILITIES ASSOCIATED WITH THIS PROJECT. THIS SURVEY INFORMATION SHALL BE INCORPORATED INTO THE RECORD DRAWINGS AND PROVIDED IN AUTOCAD FORMAT TO THE OWNER. COORDINATES SHALL BE SURVEY GRADE ( $\pm 1$  CM) IN THE PROJECT DATUM.
- EROSION AND SEDIMENTATION CONTROL AND PERMIT: CONTRACTOR SHALL CONSTRUCT BERMS AND/OR DRAINAGE DITCHES AS NEEDED TO KEEP STORM RUNOFF FROM ENTERING CONSTRUCTION EXCAVATIONS OR INTERFERING WITH CONSTRUCTION EFFORTS. CONTRACTOR SHALL INSTALL EXCELSIOR EROSION CONTROL MATTING ON ALL DISTURBED AREAS WITH SLOPES OF 3H:1V OR STEEPER. EROSION CONTROL MATS SHALL BE CURLEX TYPE I AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY, OR EQUAL. INSTALL AND ANCHOR PER MANUFACTURER'S RECOMMENDATIONS.
- VEGETATION: CONTRACTOR SHALL REMOVE AND DISPOSE OF TREES AND VEGETATION AS REQUIRED TO INSTALL IMPROVEMENTS.
- UNLESS NOTED OTHERWISE, FITTINGS WITH A CONNECTION TO ANOTHER FITTING OR VALVE SHALL HAVE FLANGED CONNECTIONS. ALL FITTINGS WITH A CONNECTION TO A STRAIGHT RUN OF PIPE SHALL HAVE MECHANICAL JOINTS. ALL FITTINGS TO BE PRESSURE CLASS 250 DUCTILE IRON PER SPECIFICATION SECTIONS 02509, 15000. ALL COUPLINGS SHALL BE SLEEVE TYPE AND SHALL BE 12-INCH MINIMUM LENGTH.
- ALL VALVES SHALL BE GATE VALVES LESS THAN 12-INCHES, AND BUTTERFLY VALVES 12-INCHES AND LARGER PER SPECIFICATION SECTION 15202, 15206, WITH SLIP TYPE VALVE BOX AND COVER, SEE **C** 2002
- ALL FITTINGS AND APPURTENANCES SHALL BE EQUIPPED WITH THRUST BLOCKS PER THE SPECIFICATIONS AND STANDARD DRAWINGS. CONTRACTOR SHALL PROVIDE TEMPORARY THRUST RESTRAINT AS NECESSARY DURING CONSTRUCTION AND GIVING SPECIAL ATTENTION TO THE TEES, VALVES, AND THRUST BLOCKS ON EXISTING WATERLINES.
- FOR GEOTECHNICAL INFORMATION, SEE REPORT PREPARED BY IGES ENTITLED "DESIGN GEOTECHNICAL INVESTIGATION", POWDER MOUNTAIN RESORT, WEBER COUNTY, UTAH, NOVEMBER 9, 2012, PREPARED FOR SUMMIT, LLC,
- EXISTING UTILITIES SHOWN ON PLANS ARE BASED ON A RECORD SEARCH BY LOCAL CONTROLLING AGENCIES ARE APPROXIMATELY LOCATED. EXISTING UTILITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF, AND PRESERVING, ALL UTILITIES INCLUDING THOSE NOT SHOWN OR INCORRECTLY SHOWN ON THE PLANS. CONTRACTOR SHALL NOTIFY UTILITY COMPANIES TWO (2) WEEKS IN ADVANCE OF UTILITY CONFLICTS REQUIRING RELOCATION OF MAIN LINES, AND ONE (1) WEEK IN ADVANCE OF CONFLICTS REQUIRING RELOCATION OF SERVICE LATERALS. NOTIFY BLUE STAKES AT LEAST 48 HOURS PRIOR TO EXCAVATION IN THE VICINITY OF UNDERGROUND UTILITIES.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESEDED AND LANDSCAPED AS SPECIFIED. SEE **C** 2004

	
	
<b>NOT FOR CONSTRUCTION FOR REVIEW ONLY</b>	
<b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING	
<b>EARL'S PEAK WATER PROJECT</b> WEBER COUNTY, UTAH	
DESIGN E. NEIL	REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN
<b>GENERAL NOTES</b>	
DATE: MARCH 2013	
PROJECT NUMBER 347-12-01	
DRAWING NO. <b>G-4</b>	
SHEET 4 OF 50	

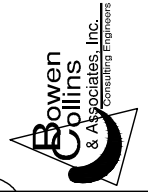
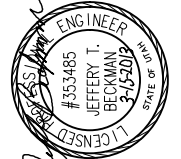


**BENCH MARKS**

POINT NO.	NORTH	EAST	ELEVATION	DESCRIPTION
200	3658823.98	1571078.22	8873.09±	CP 195, BRASS CAP
201	3656885.76	1571983.77	8660.54±	CP
202	3658631.12	1572910.86	8894.25±	CP 194, SECTION BRASS CAP
203	3656962.43	1573902.12	8742.88±	CP 210

**COORDINATES**

NO.	NORTH	EAST	DESCRIPTION
100	3657305.60	1573144.24	CENTER OF 16" TEE
101	3657556.74	1572999.24	CENTER OF 16" - 30° BEND
102	3657311.35	1573499.05	NW OUTSIDE CORNER OF FOUNDATION WALL
103	3657311.35	1573519.05	NE OUTSIDE CORNER OF FOUNDATION WALL
104	3657209.25	1573412.49	CENTER OF WELL
105	3658647.60	1573035.15	CENTER OF NEW RESERVOIR
106	3658608.76	1573088.10	INSIDE NORTH CORNER OF OVERFLOW OUTLET STRUCTURE
107	3658606.30	1573091.25	INSIDE EAST CORNER OF OVERFLOW OUTLET STRUCTURE
108	3658581.31	1573112.57	INSIDE NORTH CORNER OF DRAIN COLLECTION VAULT
109	3658575.65	1573118.23	INSIDE EAST CORNER OF DRAIN COLLECTION VAULT
110	3658540.91	1573153.78	OUTSIDE EAST CORNER OF DRAIN OUTLET STRUCTURE
111	3658537.15	1573159.29	OUTSIDE SOUTH CORNER OF DRAIN OUTLET STRUCTURE
112	3658584.22	1573097.29	CENTER OF 16" DIA PIPE (45° BEND)
113	3658556.38	1573097.29	CENTER OF 16" DIA PIPE (45° BEND)
114	3658510.59	1573051.49	CENTER OF BUTTERFLY BURIED VALVE
115	3658458.34	1572999.24	CENTER OF 16" DIA PIPE (45° BEND)
116	3657217.30	1573425.71	CENTER OF AIR RELEASE/AIR VACUUM VALVE
117	3658448.34	1572999.24	CENTER OF AIR RELEASE/AIR VACUUM VALVE

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**NOT FOR CONSTRUCTION  
FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

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**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN	E.N./R.G.	R. GARCIA	DRAWN
REVIEW	CHECKED G. LOSCHER	APPROVED J. BECKMAN	

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**OVERALL SITE PLAN**

CIVIL PROJECT 347-12-01  
DRAWING NO. C-1  
DATE: MARCH 2013  
SHEET 5 OF 50



SCALE IN FEET  
0 10 20

NOTES:  
1. FOR COORDINATES SEE DRAWING C-1.

PRESERVE AND PROTECT EXISTING TREES (TYP)

PRESERVE AND PROTECT EXISTING TREES (TYP)

6" PW (52)  
72" MIN COVER SEE DRAWING C-1 FOR CONTINUATION

C 2003

6" PW (52)  
120 LF WITH 72" MIN COVER

WELL HEAD WITH FITLESS ADAPTER SEE DRAWING M-1

AIR RELEASE/AIR VACUUM VALVE MANHOLE

6" DIA 45° BEND FL X MJ WITH MJ SLEEVE

5' LF 6" DI CLASS 250

EXISTING ACCESS ROAD

PRESERVE AND PROTECT EXISTING TREES (TYP)

PUMP STA  
FF 8764.00

TOP OF BOX  
EL 8760.0

12" DR (27)  
24 LF @ S=2% MIN (12" MIN COVER)

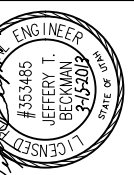
12" END SECTION  
IE 8756.00  
4'X6' RIP-RAP CHANNEL

EXISTING DRAINAGE CHANNEL

NEW ROAD BASE ACCESS ROAD

PARTIAL PLAN - DETAIL  
1' = 10'

C-1



NOT FOR CONSTRUCTION FOR REVIEW ONLY

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

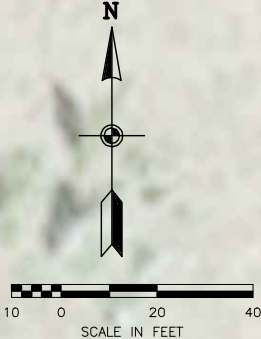
REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN

DESIGN E. NEIL DRAWN R. GARCIA

CIVIL  
WELL PUMP STATION  
SITE PLAN  
DATE: MARCH 2013  
PROJECT NUMBER 347-12-01

DRAWING NO. C-2

SHEET 6 OF 50



**NOTES:**

1. RESERVOIR CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL. THE TOP 6 INCHES OF THE SOIL FROM THE AREA SHALL BE STOCKPILED. TOPSOIL SHALL BE PLACED ON AREAS DISTURBED DURING CONSTRUCTION AS PART OF SURFACE RESTORATION. ALL WASTE GENERATED FROM CLEARING AND GRUBBING SHALL BE HAULED AND DISPOSED OF OFF-SITE.
2. ALL NON-ROAD AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESEEDDED PER DETAIL C 2004
3. SEE DRAWING C-5 FOR RESERVOIR UNDERDRAIN PIPING.
4. FOR TYPICAL TRENCH SECTION SEE C 2003
5. PROVIDE THRUST RESTRAINT AS NECESSARY SEE C 2007
6. INSTALL 16 HARNES SET DOUBLE SLEEVE COUPLINGS OUTSIDE OF WATERLINE CONCRETE ENCASEMENT. M 3015
7. SEE DRAWING M-4 FOR EQUIPMENT SCHEDULE.
8. TRANSITION FROM DUCTILE IRON TO PVC PIPE WITH MJ SLEEVE OR TRANSITION COUPLING.

C 2007 16" DIA 45° BEND MJ X MJ  
SEE DRAWING C-1 FOR CONTINUATION

C 2014 C 2015 INSTALL SILT FENCE AND STRAWBALES AS NECESSARY

C 2016 INSTALL EROSION CONTROL BLANKET ON SLOPE

C 2006 REALIGN DIRT ROAD

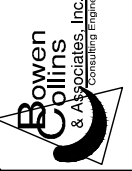
EXISTING DIRT ROAD

NOTES:  
1. FOR COORDINATES/ SEE C-1

**CONCRETE WATER STORAGE RESERVOIR**  
SEE DRAWING S-1

HIGH POINT  
FG 8906.16  
CENTER OF RESERVOIR

**PARTIAL PLAN - DETAIL** 2  
SCALE: 1"=20'



**ENGINEER**  
JEFFERY T. BECKMAN  
2-15-2013  
STATE OF UTAH

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**NOT FOR CONSTRUCTION  
FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

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**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

<b>DESIGN</b>	<b>REVIEW</b>	<b>APPROVED</b>
DESIGN E. NEIL	CHECKED G. LOSCHER	APPROVED J. BECKMAN
DRAWN R. GARCIA		

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**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

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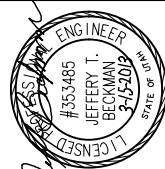
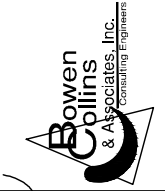
**RESERVOIR, SITE AND YARD PIPING, SCHEDULE AND GRADING PLAN**

CIVIL PROJECT NUMBER 347-12-01  
DATE: MARCH 2013

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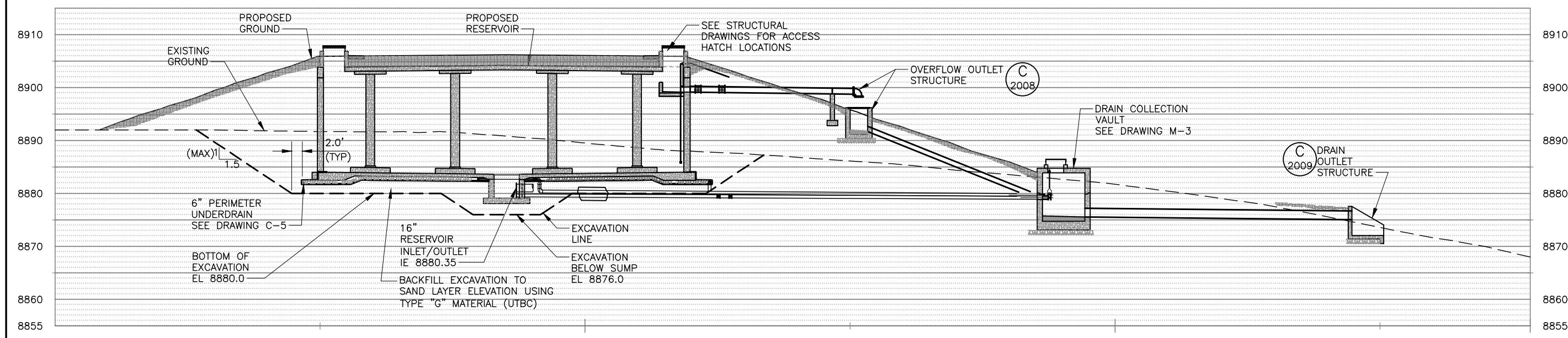
DRAWING NO. **C-3**  
SHEET **7** OF **50**



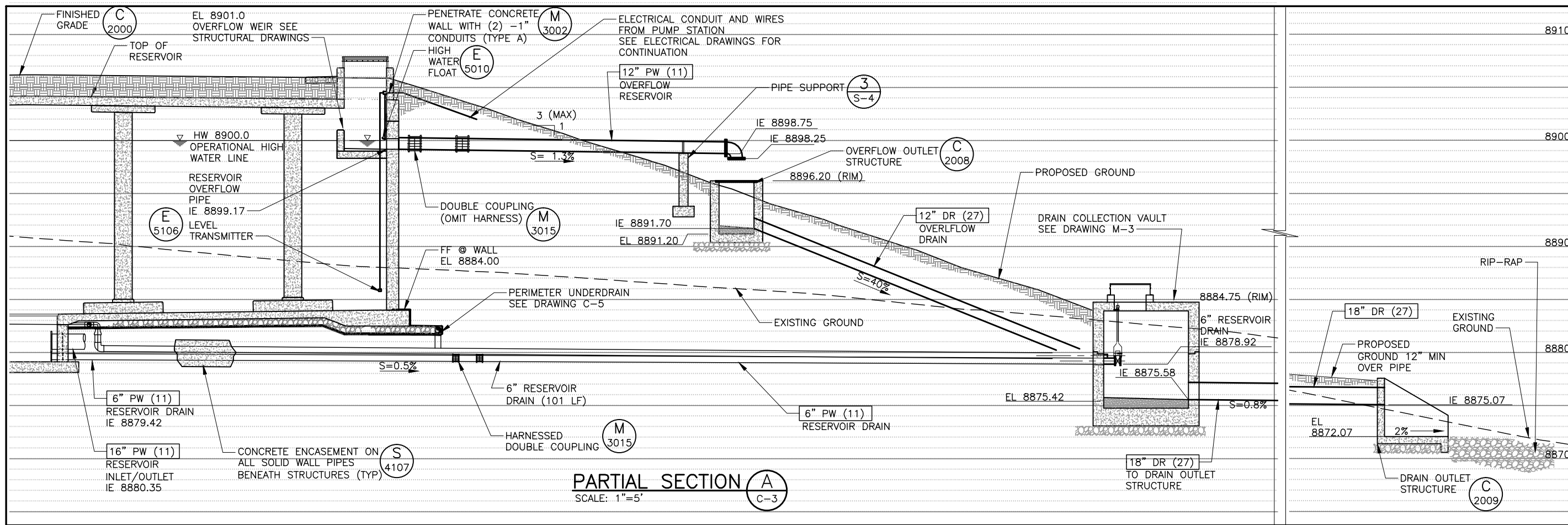


**NOT FOR CONSTRUCTION  
FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION



**SECTION A**  
SCALE: 1"=10'  
C-3



**PARTIAL SECTION A**  
SCALE: 1"=5'  
C-3

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

**REVIEW**  
CHECKED G. LOSCHER  
APPROVED J. BECKMAN

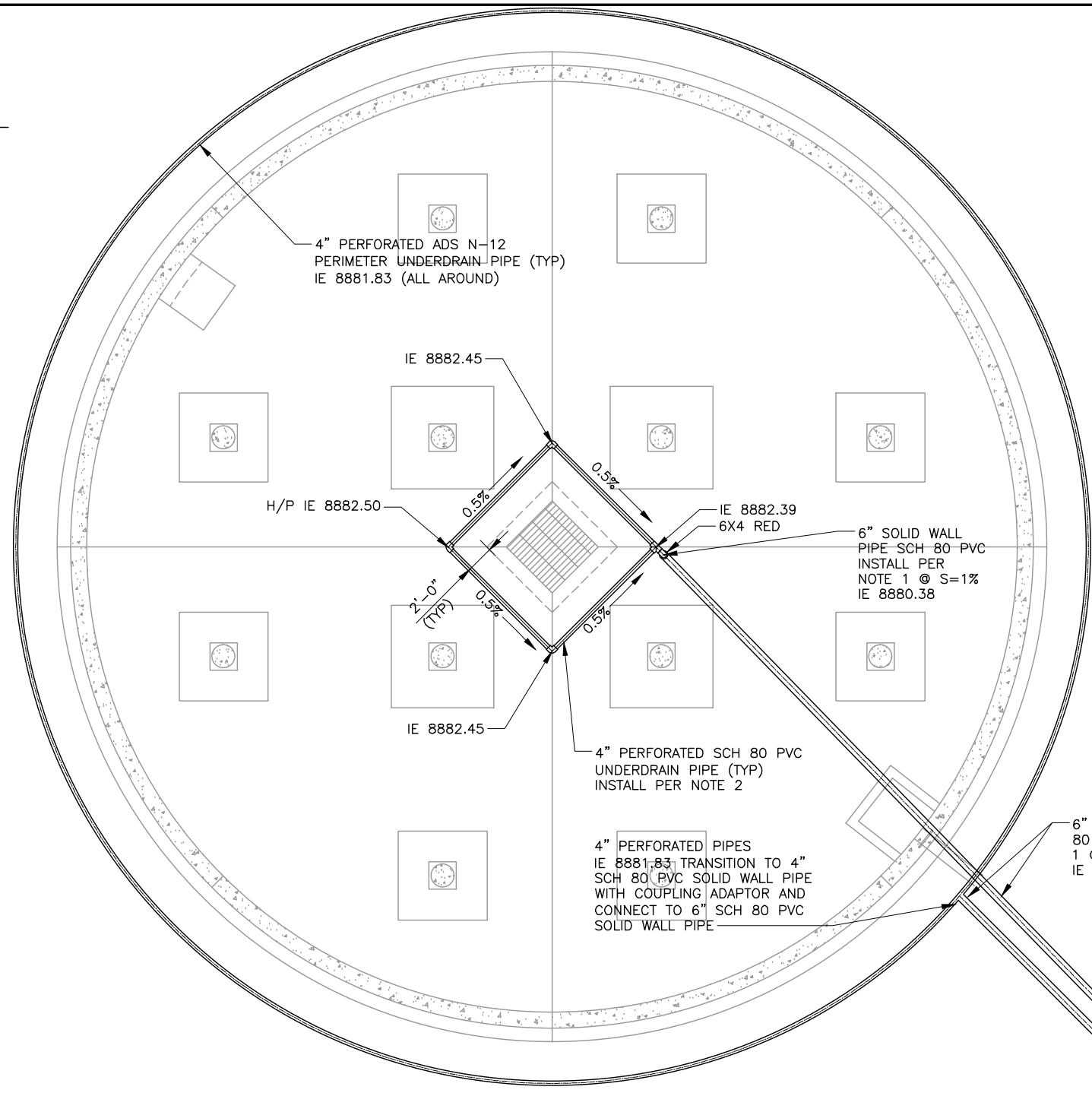
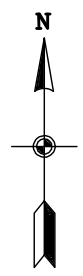
**DESIGN**  
DESIGN E. NEIL  
DRAWN R. GARCIA

**RESERVOIR YARD PIPING SECTIONS**  
PROJECT 347-12-01  
NUMBER

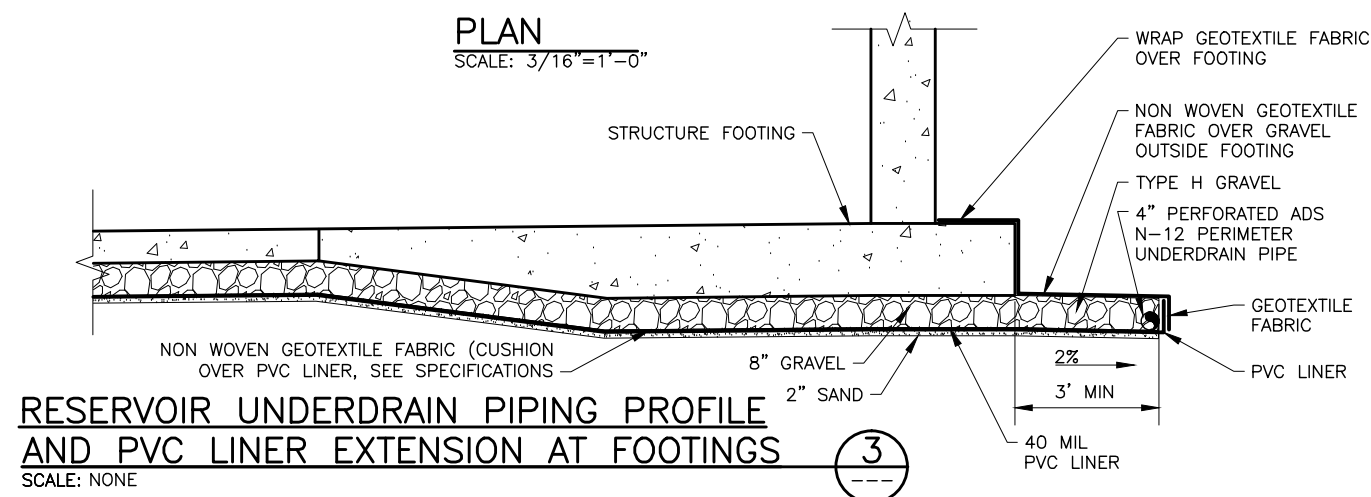
DATE: MARCH 2013

DRAWING NO.  
**C-4**

SHEET 8 OF 50

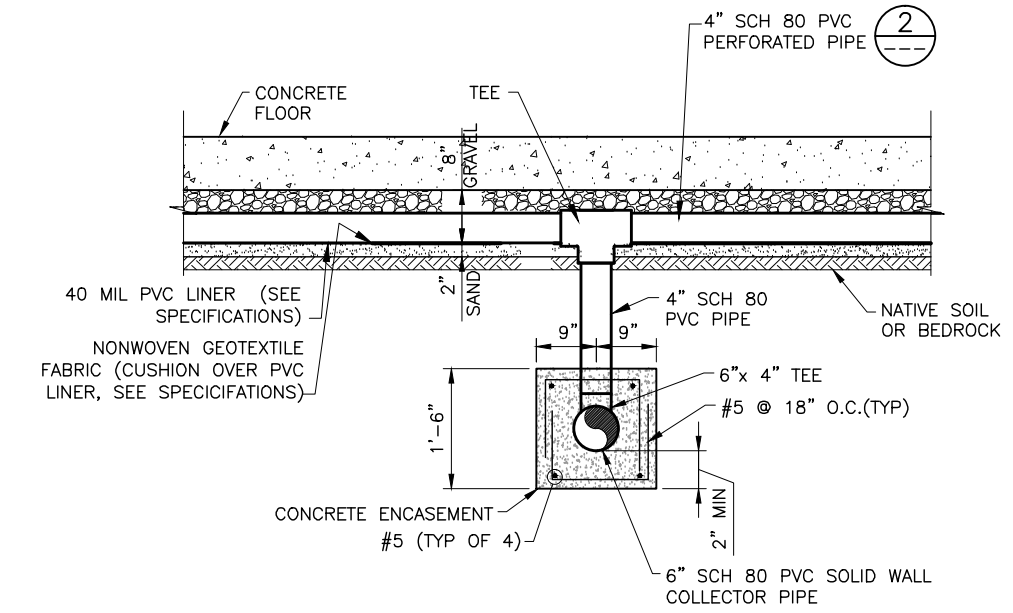


**PLAN**  
SCALE: 3/16"=1'-0"

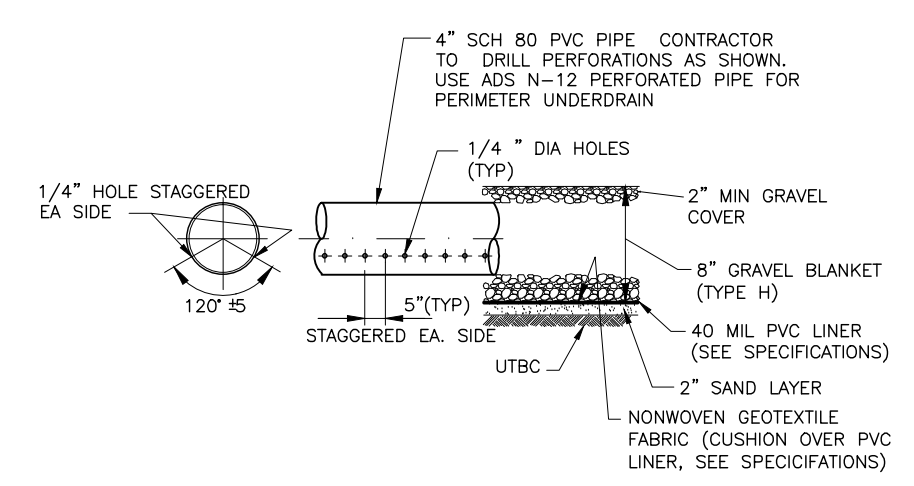


**RESERVOIR UNDERDRAIN PIPING PROFILE AND PVC LINER EXTENSION AT FOOTINGS**  
SCALE: NONE

- NOTES:**
1. ALL 6" SOLID WALL PIPES LOCATED UNDER RESERVOIR SHALL BE ENCASED IN CONCRETE TO A POINT LOCATED 8- FEET BEYOND OUTSIDE OF RESERVOIR FOOTING, (NO CONCRETE ENCASEMENT REQUIRED ON PERIMETER UNDERDRAIN)
  2. ALL UNDERDRAIN PIPE BENEATH THE RESERVOIR SHALL BE SCHEDULE 80 PVC. PERIMETER UNDERDRAIN PIPE SHALL BE ADS N-12 PERFORATED. ALL PERFORATED PIPE SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL AND INSTALLED IN GRAVEL BLANKET OVER PVC LINER.
  3. GRAVEL BLANKET, GEOTEXTILE, PVC LINER, AND SAND LAYER SHOWN IN CONTINUOUS UNDERNEATH ENTIRE RESERVOIR. GRAVEL, GEOTEXTILE, PVC LINER, AND SAND SHALL EXTEND 3 FOOT BEYOND EDGE OF ALL FOOTINGS, SEE
  4. ALL PVC LINER, GEOTEXTILE, AND UNDERDRAIN PIPING SHALL BE INSPECTED BY ENGINEER PRIOR TO BURIAL.



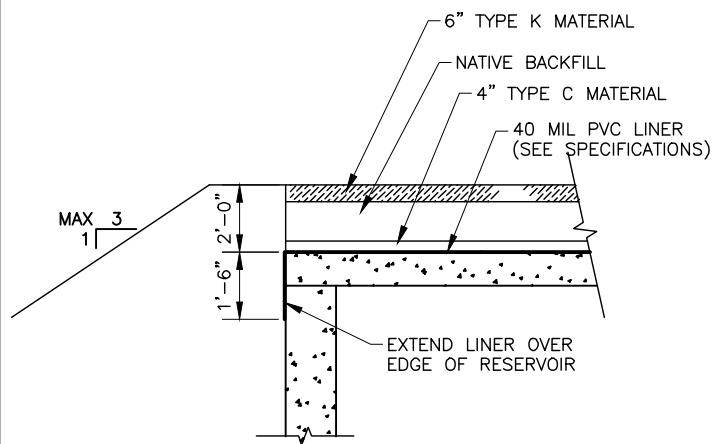
**6" COLLECTOR DRAIN PIPE**  
SCALE: NTS



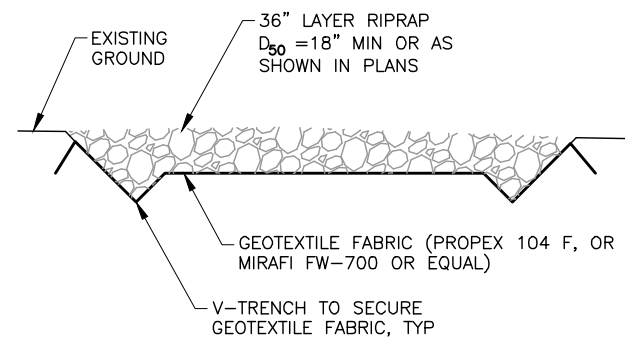
**4" PERFORATED DRAIN PIPE**  
SCALE: NONE

NOT FOR CONSTRUCTION FOR REVIEW ONLY	
NO. DATE REV. BY DESCRIPTION REVISIONS	
<b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING	<b>REVIEW</b> CHECKED G. LOSCHER APPROVED J. BECKMAN
DESIGN E. NEIL R. GARCIA	PROJECT 347-12-01 NUMBER DATE: MARCH 2013
<b>RESERVOIR UNDERDRAIN SYSTEM</b>	
DRAWING NO. <b>C-5</b>	
SHEET <b>9</b> OF <b>50</b>	

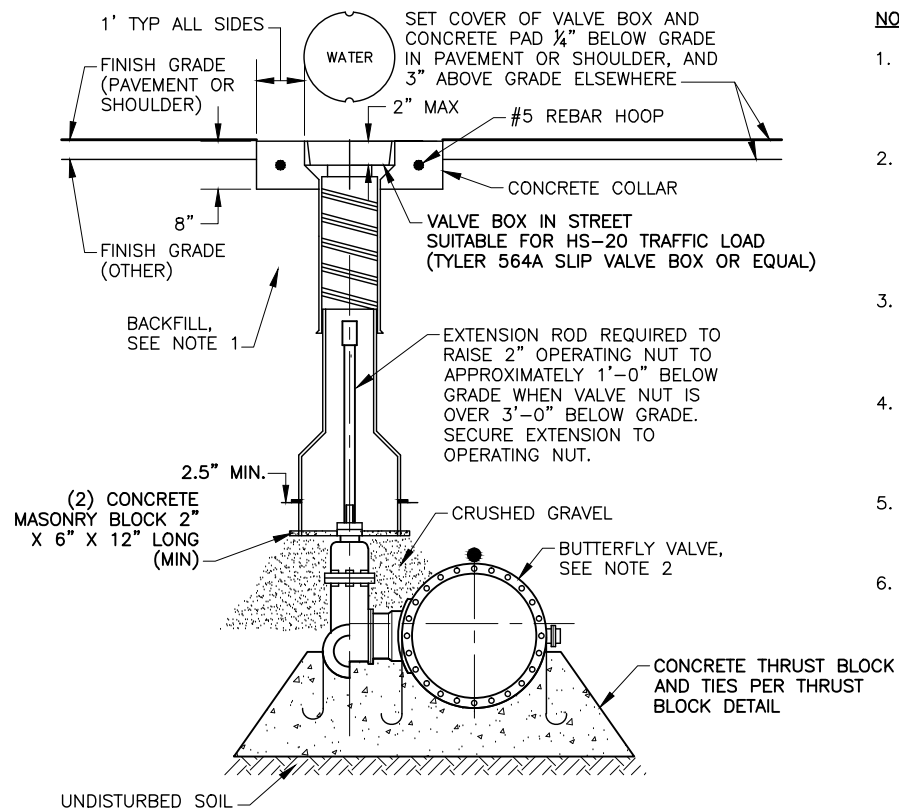
SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
 EARL'S PEAK WATER PROJECT  
 WEBER COUNTY, UTAH



**FILL ON TOP OF RESERVOIR** (C) 2000  
SCALE: NTS



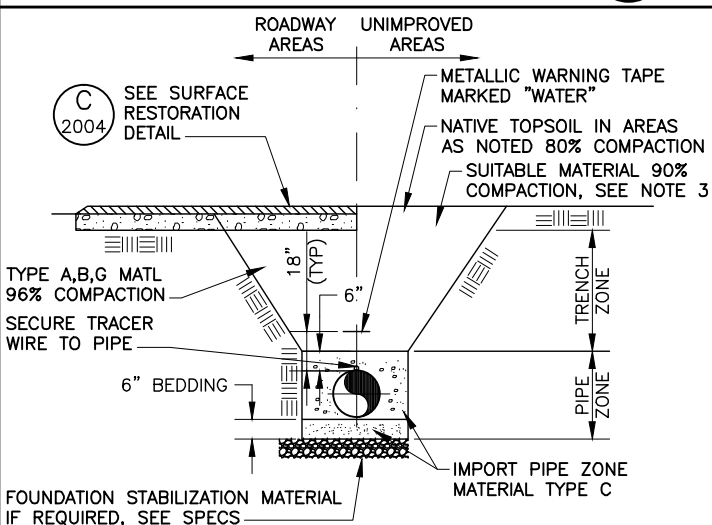
**RIPRAP & ARMOR PROTECTION** (C) 2001  
SCALE: NTS



**TYPICAL BURIED BUTTERFLY VALVE INSTALLATION** (C) 2002  
SCALE: NTS

**NOTES:**

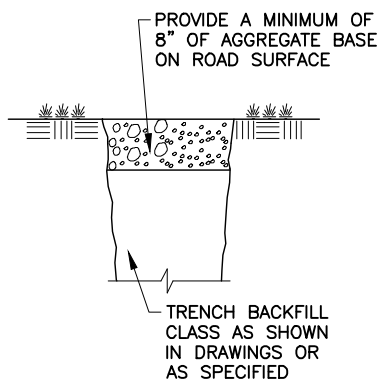
- BACKFILL: INSTALL AND COMPACT BACKFILL IN ACCORDANCE WITH DETAIL (C) 2003
- PROVIDE AND INSTALL BUTTERFLY VALVE WITH CAST IRON BODY, AND FUSION BONDED EPOXY FACTORY COATING AND LINING. VALVE TO CONFORM TO THE REQUIREMENTS OF AWWA C509, NON-RISING STEM DESIGN WITH "O" RING SEALS. OPEN COUNTER CLOCKWISE.
- VALVE BOX SHALL BE PLUMB AND SHALL BE COMPLETELY SUPPORTED TO AVOID TRANSFERRING VALVE BOX WEIGHT OR SURFACE LOADS TO VALVE OR PIPING.
- FOR DEEP VALVES (8FT OR GREATER) SUBSTITUTE PVC C900 PIPE OR CAST IRON SOIL PIPE FOR VALVE BOX BASE TO MAINTAIN TWO PIECE VALVE BOX CONFIGURATION.
- INSTALL ADDITIONAL VALVE BOXES AS REQUIRED TO PROVIDE SURFACE CONNECTION POINTS FOR TRACER WIRE AT LOCATIONS IDENTIFIED ON THE DRAWINGS.
- PROVIDE PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY IN ACCORDANCE WITH SPECS.



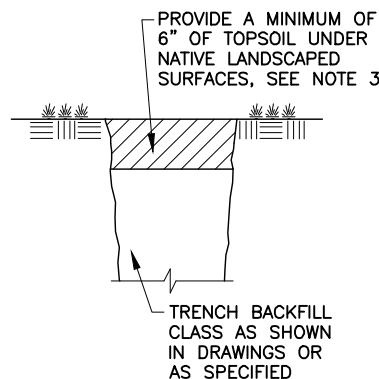
**TYPICAL TRENCH BACKFILL SECTION** (C) 2003  
SCALE: NTS

**NOTES:**

- SEE SPECIFICATIONS SECTION 02200 "EARTHWORK" FOR DEFINITION OF BACKFILL MATERIAL AND COMPACTION REQUIREMENTS.
- IMPORT BACKFILL REQUIRED FOR TRENCH BACKFILL UNDER ROADWAY AREAS.
- NATIVE MATERIAL MEETING SPECIFICATION REQUIREMENT FOR 'SUITABLE MATERIAL' MAY BE USED FOR TRENCH ZONE BACKFILL IN UNIMPROVED AREAS.
- BENCH TRENCH AS REQUIRED TO INSTALL DUAL WATER LINES TO DEPTHS AND GRADES SHOWN ON PLANS.



**GRAVEL**



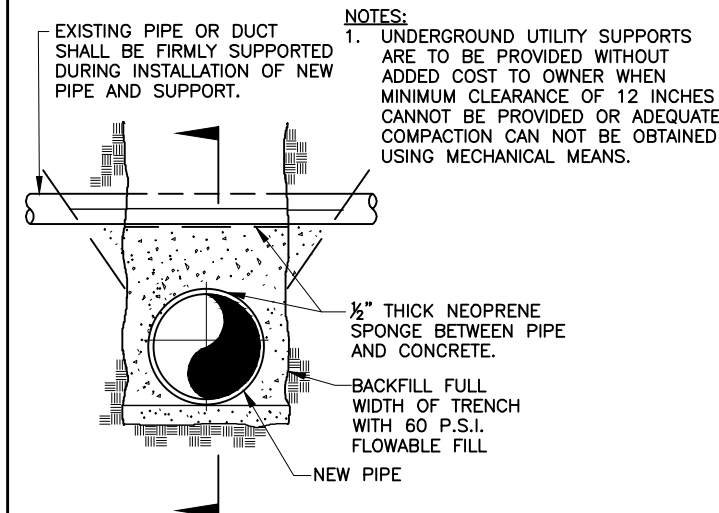
**TOPSOIL**

**NOTES:**

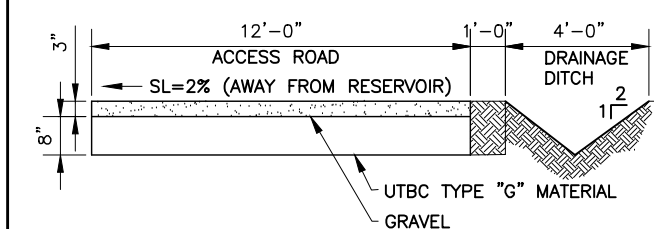
- BASE RESTORATION - SELECT FILL:
  - USE UNTREATED BASE COURSE TYPE G
  - MATCH EXISTING AGGREGATE BASE THICKNESS OR PROVIDE AT LEAST 8 INCHES OF AGGREGATE BASE.
  - INSTALL AND COMPACT ALL BACKFILL MATERIAL PER SPECIFICATION SECTION 02200.
- PROVIDE SURFACE TO MATCH EXISTING GRADE. REPLACE VEGETATION TO MATCH PRE-CONSTRUCTION CONDITIONS AS SPECIFIED.
- REVEGETATION - USE THE SEED MIX BELOW FOR ALL DISTURBED AREAS:

NO.	COMMON NAME	BOTANICAL NAME	LBS PLS/ACRE	% OF MIX	SEED/SF
1	INDIAN RICEGRASS	ANCHNATHERUM HYMENOIDES	4.7	27.5	15
2	WYOMING BIG SAGEBRUSH	ARETEMISIA TRIDENTATA WYGENSIS	0.1	0.8	8
3	RUBBER RABBITBRUSH	CHRYSOTHANMUS NAUSEOUS	0.5	3.0	5
4	WHITE EVENING PRIMROSE	OENOTHERA PALLIDA	0.3	1.7	3
5	WESTERN WHEATGRASS	PASCOPYRUM SMITHII	10.5	62.0	27
6	SANDBERG BLUEGRASS	POA SANDERGI	0.7	4.0	14
7	SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	0.2	1.0	21
TOTAL			17.0	100.0	93

**SURFACE RESTORATION** (C) 2004  
SCALE: NTS



**UNDERGROUND UTILITY SUPPORT** (C) 2005  
SCALE: NTS



**ACCESS ROAD AND DRAINAGE DITCH** (C) 2006  
SCALE: NTS

**Bowen Collins & Associates, Inc.**  
Professional Engineering Firm

**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

**GENERAL CIVIL DETAILS - 1**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01  
DRAWING NUMBER: GC-1  
SHEET 10 OF 50

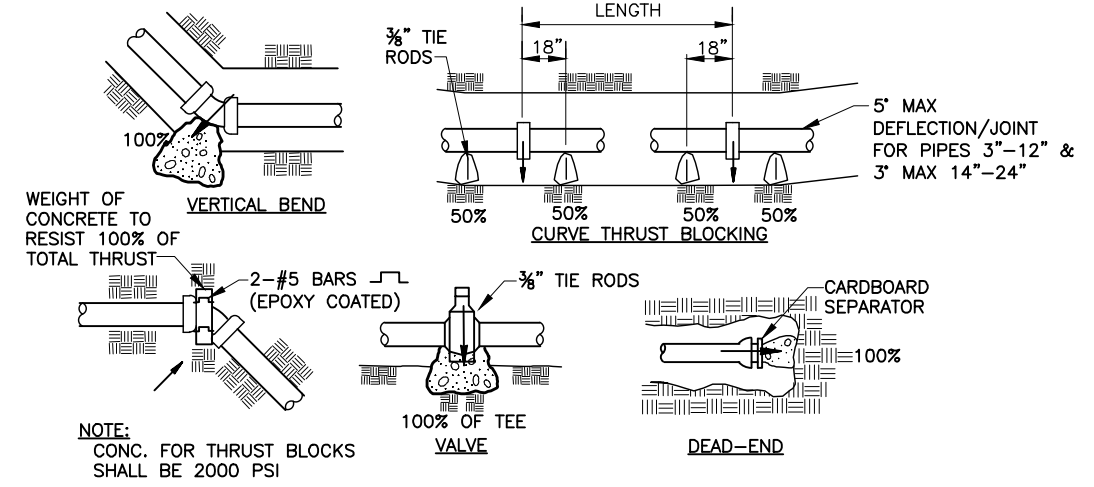
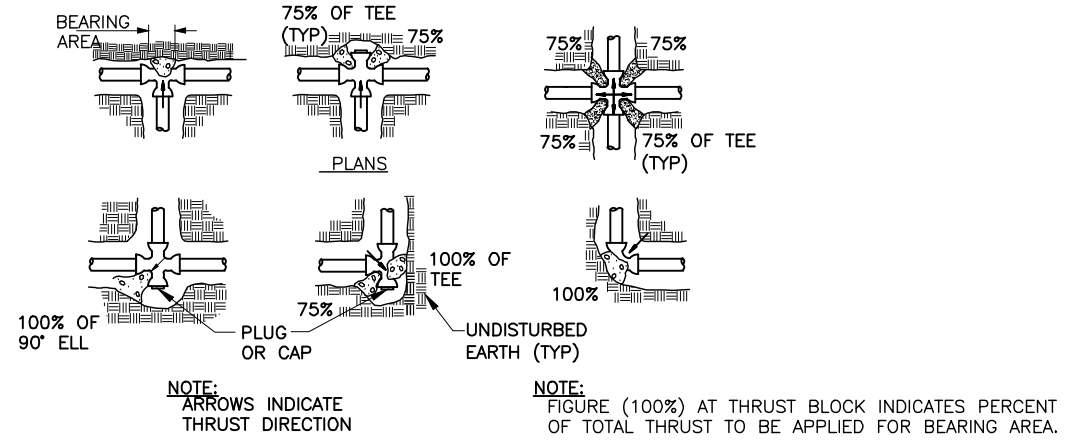
DESIGN: BCA STANDARDS  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

REVISIONS

NO. DATE REV. BY DESCRIPTION

VERIFY SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING

NOT FOR CONSTRUCTION FOR REVIEW ONLY



REQUIRED LENGTH OF RESTRAINED PIPE FOR VARIOUS FITTINGS (FT)				
PIPE SIZE (N)	DEAD END OR TEE	HORIZ. 90° BEND	VERTICAL 22.5° BEND	HORIZ. 45° BEND
6-DI	57	21	12	9
6-PVC	38	17	10	8
12-PVC	71	32	15	14
16-PVC	92	41	19	17

MINIMUM BEARING AREA OF CONCRETE THRUST BLOCKS FOR VARIOUS FITTINGS (FT <sup>2</sup> )					
PIPE SIZE (N)	DEAD END OR TEE	90° BEND	45° BEND	22.5° BEND	
4	2	3	2	1	
6	4	6	3	2	
12	16	22	12	6	
16	28	38	21	11	

1. LENGTH GIVEN FOR BENDS REPRESENTS THE RESTRAINED LENGTH REQUIRED FOR EACH SIDE OF BEND.

**NOTE:** CONTRACTOR SHALL INSTALL THRUST RESTRAINT AT ALL FITTINGS PRIOR TO PRESSURIZING THE WATER LINE. IN ALL AREAS WHERE THE PIPELINE WILL NOT BE PRESSURIZED FOR 5 DAYS, CONTRACTOR SHALL HAVE THE OPTION OF USING RESTRAINED PIPE LENGTHS OR CONCRETE THRUST BLOCKS IN ACCORDANCE WITH THE TABLES ABOVE. WHERE THE NEW LINES WILL CONNECT TO EXISTING WATER MAINS, MECHANICAL THRUST RESTRAINT AND THRUST BLOCKS WILL BE REQUIRED TO ALLOW THE NEW PIPELINE TO BE PUT INTO SERVICE IMMEDIATELY AFTER ACCEPTANCE.

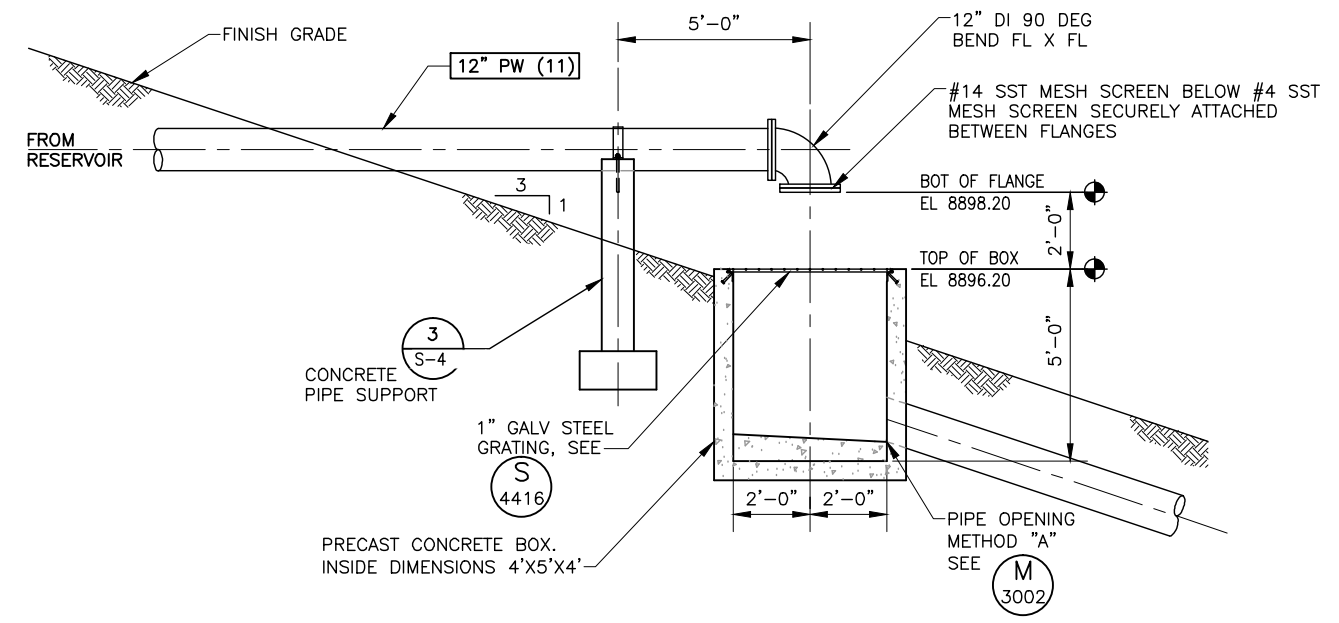
- THRUST BLOCKS TO BE INSTALLED IN ACCORDANCE WITH DETAIL SHOWN ABOVE.
- CONCRETE MUST BE ALLOWED TO CURE IN THRUST RESTRAINTS FOR 5 DAYS PRIOR TO PRESSURIZING WATER LINES OR HAVE ADDITIONAL APPROVED THRUST RESTRAINTS INSTALLED PRIOR TO PRESSURIZING THE WATERLINE.
- PRIOR TO POURING CONCRETE FOR THRUST BLOCKS, WRAP PIPE SYSTEM WITH 8 MIL THICK PLASTIC SHEET TO PREVENT BONDING OF CONCRETE TO PIPE SYSTEM.
- VALUES PROVIDE ASSUME AT LEAST 5 FEET OF COVER AND SOIL BEARING STRENGTH OF 3500 PSF.

**CONCRETE THRUST BLOCKS** (C) 2007

SCALE: NTS

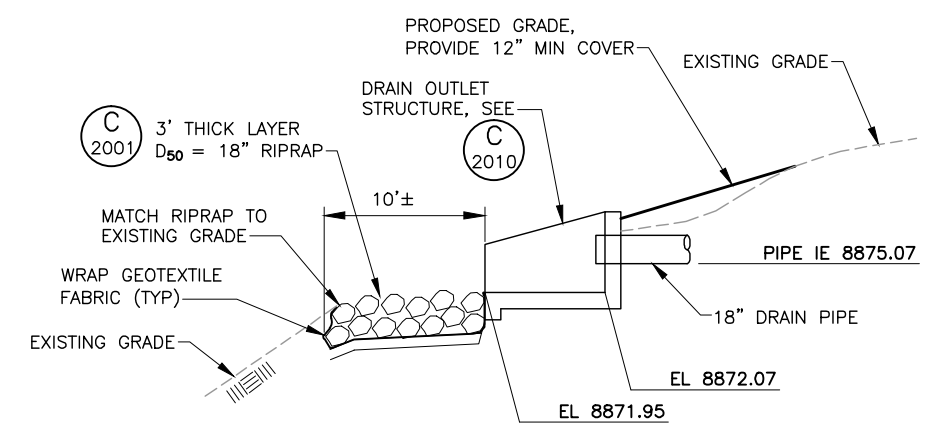
**NOTES:**

- ALL BURIED DIP FITTINGS SHALL BE POLYETHYLENE WRAPPED PER NOTE 16, DWG G-4.
- COAT EXPOSED PIPING PER SPECIFICATION 09900.



**OVERFLOW OUTLET DETAIL** (C) 2008

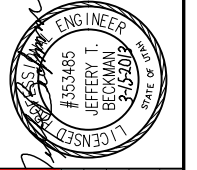
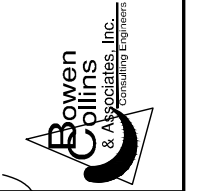
SCALE: NTS



**NOTE:** ALL RIPRAP AREAS SHALL HAVE NON WOVEN-GEOTEXTILE FABRIC PLACED ON PREPARED NATIVE SOIL.

**DRAIN OUTLET SECTION** (C) 2009

SCALE: NTS



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NO.	DATE	REV. BY	DESCRIPTION

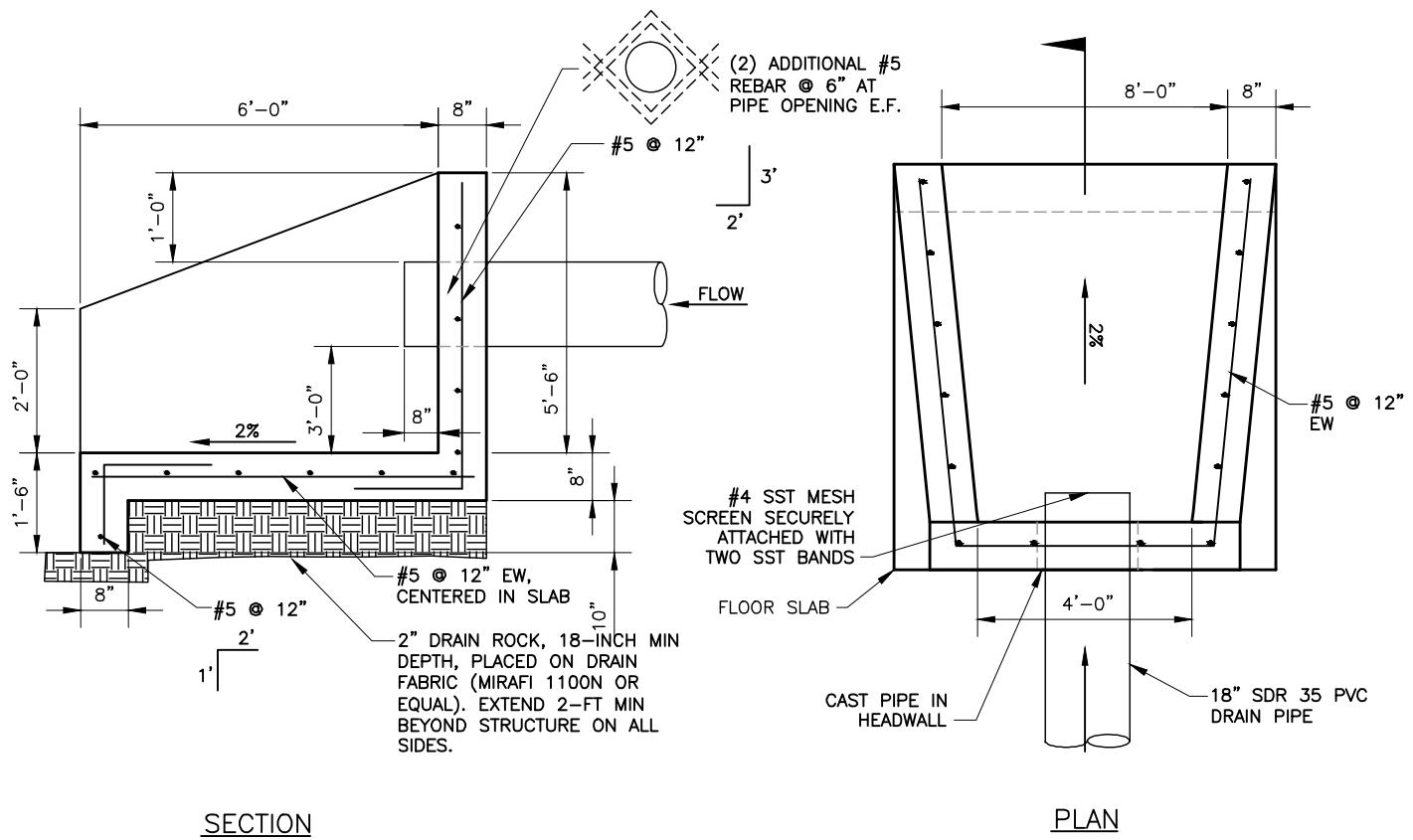
**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW CHECKED: G. LOSCHER APPROVED: J. BECKMAN

DESIGN BCA STANDARDS DRAWN BCA STANDARDS

CIVIL  
**GENERAL CIVIL DETAILS - 2**

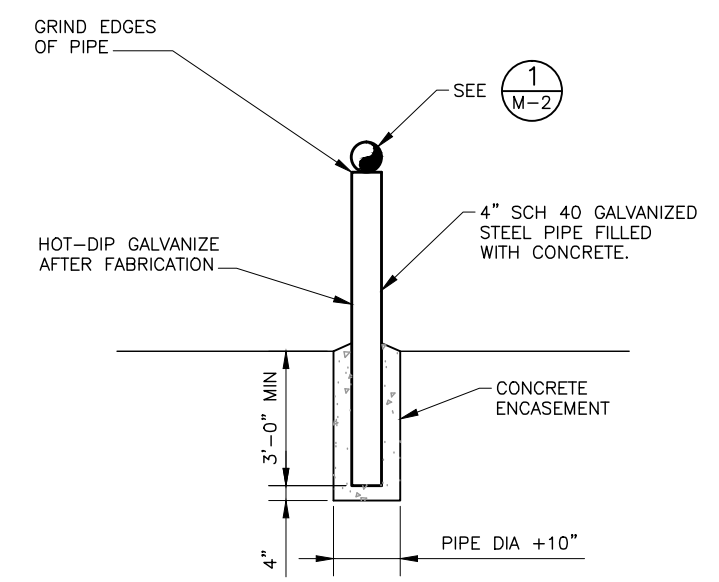
DATE: MARCH 2013 PROJECT NUMBER: 347-12-01



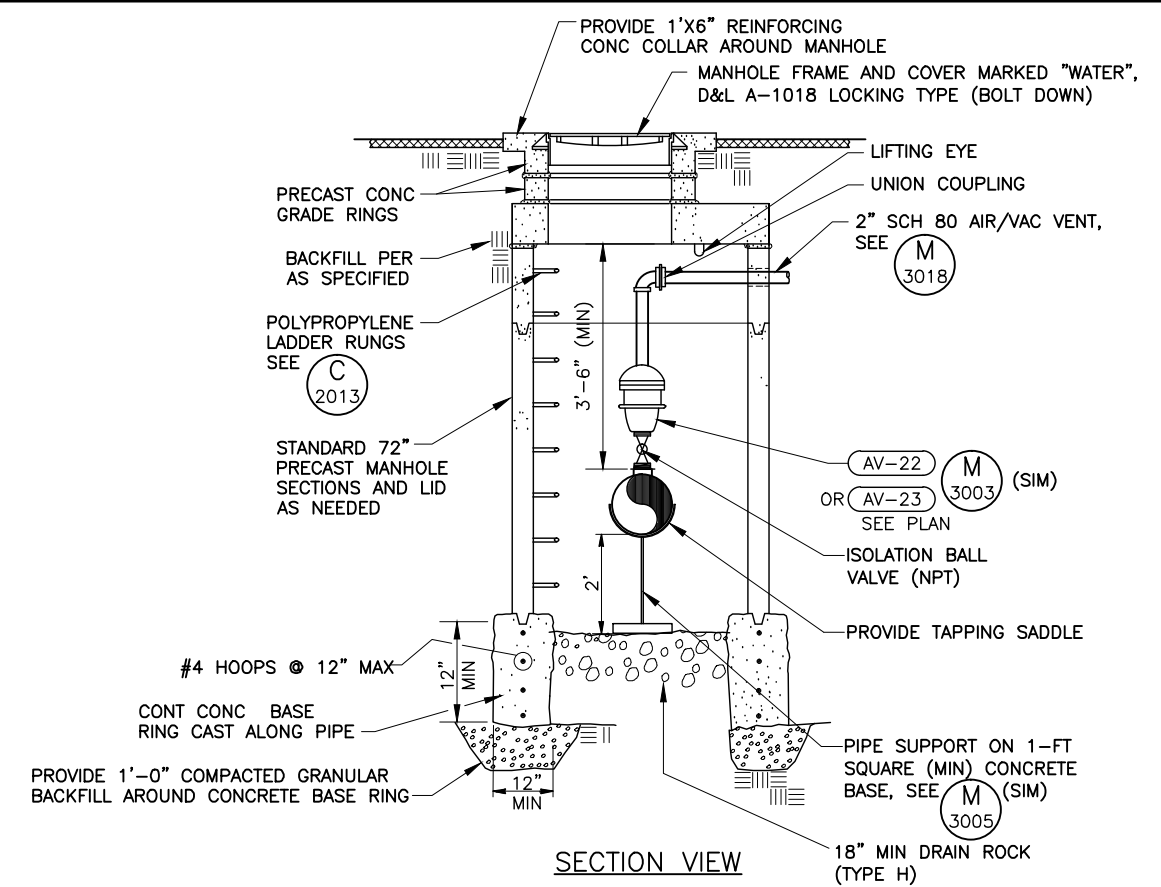
SECTION

PLAN

**DRAIN OUTLET STRUCTURE** (C) 2010  
SCALE: NTS

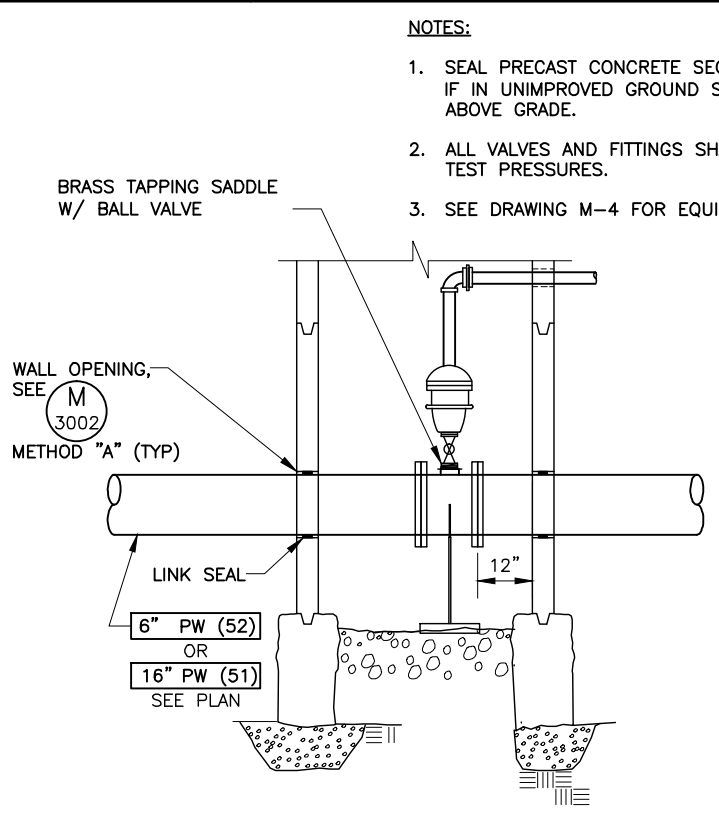


**BOLLARD PIPE SUPPORT** (C) 2011  
SCALE: NTS



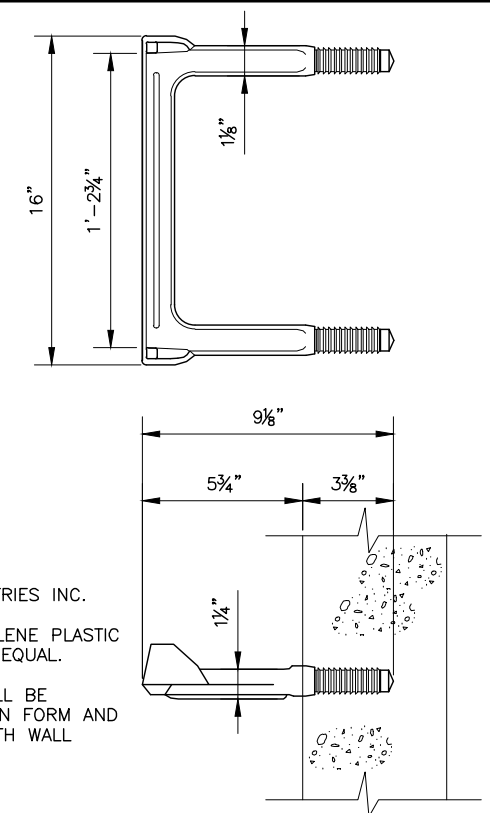
SECTION VIEW

**AIR RELEASE / AIR VACUUM VALVE MANHOLE** (C) 2012  
SCALE: NTS



SIDE VIEW

- NOTES:**
1. SEAL PRECAST CONCRETE SECTIONS WITH MASTIC. IF IN UNIMPROVED GROUND SET MANHOLE TO 6" ABOVE GRADE.
  2. ALL VALVES AND FITTINGS SHALL BE RATED FOR TEST PRESSURES.
  3. SEE DRAWING M-4 FOR EQUIPMENT SCHEDULE.



NOTES:

M.A. INDUSTRIES INC. COPOLYMER POLYPROPYLENE PLASTIC STEPS, OR EQUAL.  
STEPS SHALL BE INSTALLED IN FORM AND CAST IN WITH WALL PLACEMENT.

**LADDER RUNG DETAIL** (C) 2013  
SCALE: NTS

**Bowen Collins & Associates, Inc.**  
Professional Engineer  
#353485  
JEFFERY T. BECKMAN  
3-12-2012  
STATE OF UTAH

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NO.	DATE	REV. BY	DESCRIPTION

REVISIONS

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

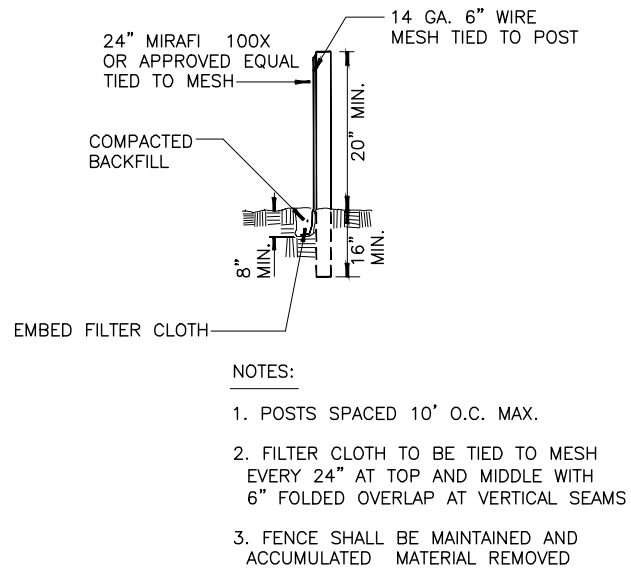
**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

DESIGN: **BCA STANDARDS**  
CHECKED: **G. LOSCHER**  
DRAWN: **BCA STANDARDS**  
APPROVED: **J. BECKMAN**

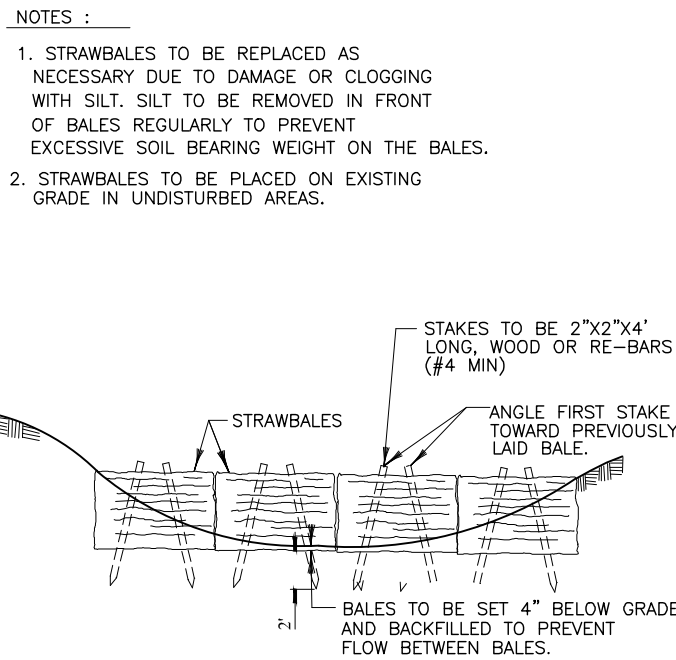
**CIVIL GENERAL CIVIL DETAILS - 3**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

DRAWING NO. **GC-3**  
SHEET 12 OF 50

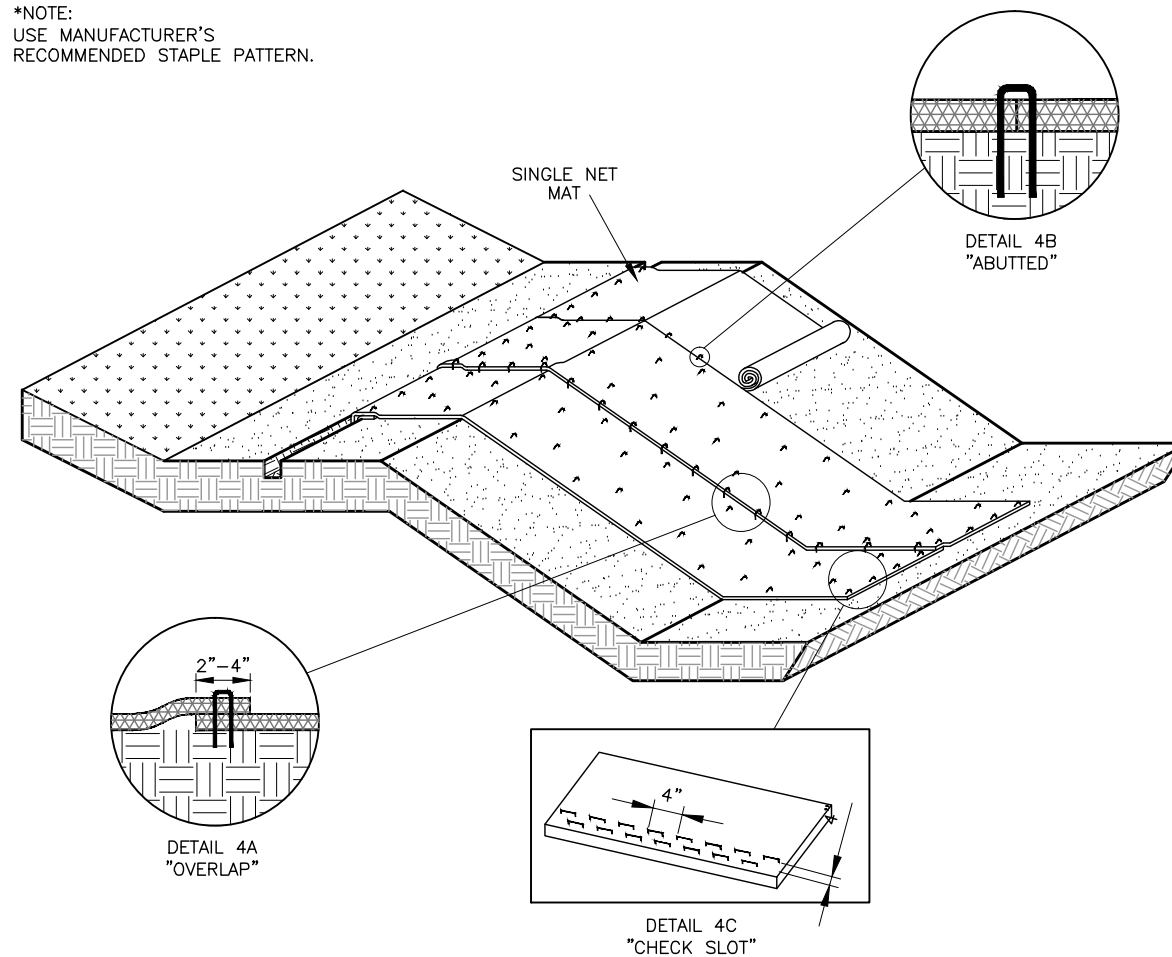


**SILT FENCE DETAIL** **C**  
SCALE: NTS 2014

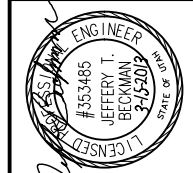
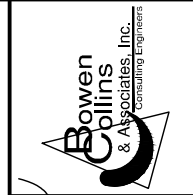


**STAKED STRAWBALE DETAIL** **C**  
SCALE: NTS 2015

\*NOTE:  
USE MANUFACTURER'S RECOMMENDED STAPLE PATTERN.



**EROSION CONTROL BLANKET/NET MAT** **C**  
SCALE: NTS 2016



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NO.	DATE	REV. BY	DESCRIPTION

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN BCA STANDARDS  
DRAWN BCA STANDARDS

REVIEW CHECKED G. LOSCHER  
APPROVED J. BECKMAN

CIVIL  
**GENERAL CIVIL DETAILS - 4**

DATE: MARCH 2013

PROJECT NUMBER 347-12-01

DRAWING NO.  
**GC-4**

SHEET 13 OF 50

**general notes:**

- A. PROVIDE VENTILATION AS INDICATED.
- B. ROOFING TO BE CLASS C.
- C. ROOFING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- D. VERIFY ALL CONDITIONS PRIOR TO INSTALLATION.
- E. CRICKETS AND OVERHANGS SHALL PROVIDE A MIN. 3/8" SLOPE OVER ROOF, EXPECT WITHIN 24" OF RIDGES, INCLUDING ALL ROOF PERIMETERS, PROJECTIONS, PENETRATIONS, VALLEYS AND WALL INTERSECTIONS AND EXTERIOR WALL/ROOF INTERSECTIONS. 24" AT RIDGES SHALL RECEIVE 30# ROOF UNDERLAYMENT, OVERLAP ICE SHIELD.
- G. ALL EXPOSED MECHANICAL VENTS & GRILLES TO BE PRE-FINISHED AS SELECTED BY ARCHITECT.
- H. ALL EXPOSED WOOD SHALL BE PAINTED AND / OR STAINED.
- J. PROVIDE 28 GAUGE GALVANIZED SHEET METAL VALLEY FLASHING 12" BOTH SIDE OF VALLEY OR EQUIPMENT CURB.
- K. REFER TO FLASHING DETAILS FOR PERIMETER FLASHING.
- L. PROVIDE METAL ROOF CRICKETS AT ALL ROOF PENETRATIONS.
- M. ALL FLUES / VENT SHALL BE U.L. LISTED.
- N. REFER TO MECHANICAL PLANS FOR PIPE VENTS.

**roof ventilation:**

ATTIC VENTILATION (1/300 SF REQUIRED), PROVIDE 1 PERM VAPOR BARRIER ON WARM SIDE OF ALL CEILINGS AT ROOF.

**ROOF AREA / VENTILATION CALCULATION:**

ROOF AREA: 390 SF  
(390 / 300 = 1.3 SF)

**REQUIRED VENT AREA = 1.3 S.F.**

ROOF PERIMETER: 80'  
ROOF LENGTH (SOFFIT LENGTH): 24' (20' AT INTERIOR)

**PROVIDED:**

**LOW SIDE:**  
(28) 2" DIA VENTILATION HOLES= (0.04SF \* 28) = 1.12 SF  
PROVIDE TWO HOLES PER CAVITY, WITH INSECT SCREEN.

**HIGH SIDE:**

(28) 2" DIA VENTILATION HOLES= (0.04SF \* 28) = 1.12 SF  
PROVIDE TWO HOLES PER CAVITY, WITH INSECT SCREEN.

**TOTAL ROOF VENTILATION PROVIDED = 2.24 SF**

**general notes:**

1. ALL PIPING, EQUIPMENT, ELECTRICAL PANELS, ETC.. SHOWN ON THIS SHEET FOR REFERENCE ONLY. REFER TO DISCIPLINE SHEET FOR INFORMATION AND INSTRUCTIONS.

**door notes:**

DOOR SPEC: MANUFACTURER: CECO DOOR PRODUCTS, AN ASSA ABLOY GROUP COMPANY.

EXTERIOR INSULATED DOOR. INSULATED R=6.0; EXTRA HEAVY DUTY. FACE SHEETS FABRICATED FROM METALLIC-COATED STEEL SHEET. COMPLY WITH ANSI/SDI A250.8 FOR LEVEL AND MODEL AND ANSI/SDI A250.4 FOR PHYSICAL PERFORMANCE LEVEL: LEVEL 3 AND PHYSICAL PERFORMANCE LEVEL A, MODEL 2 (SEAMLESS).

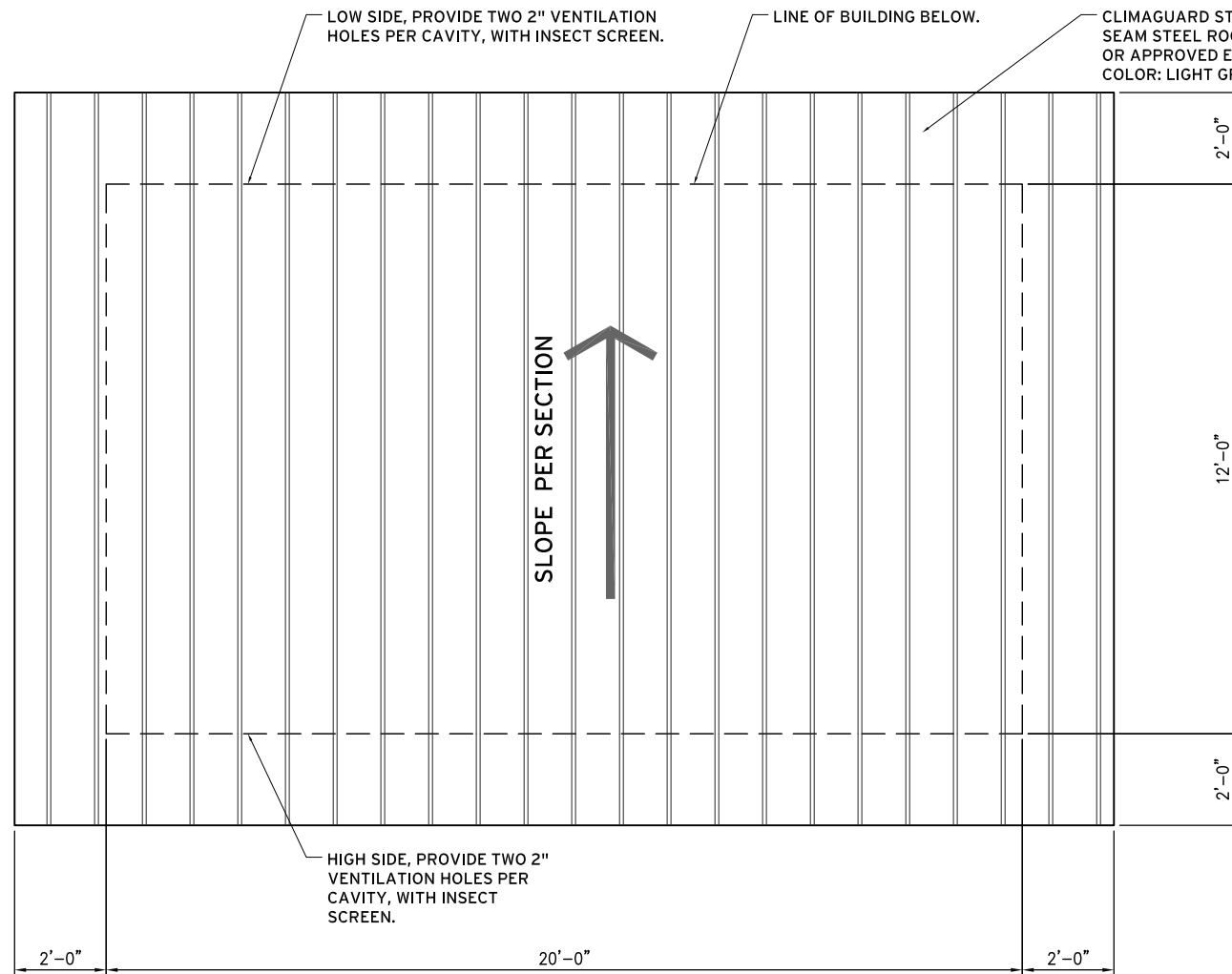
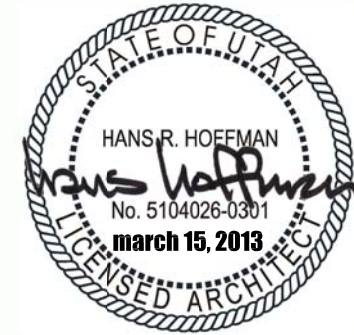
2" EXTERIOR HOLLOW METAL FRAME FOR 2x6 WALL. FABRICATED FROM METALLIC-COATED STEEL SHEET, MITERED OR COPED CORNERS, FABRICATE AS FULL PROFILE WELDED. FRAME TO BE 14 GAGE OR 0.0474" INCH THICKNESS.

**DOOR HARDWARE:**

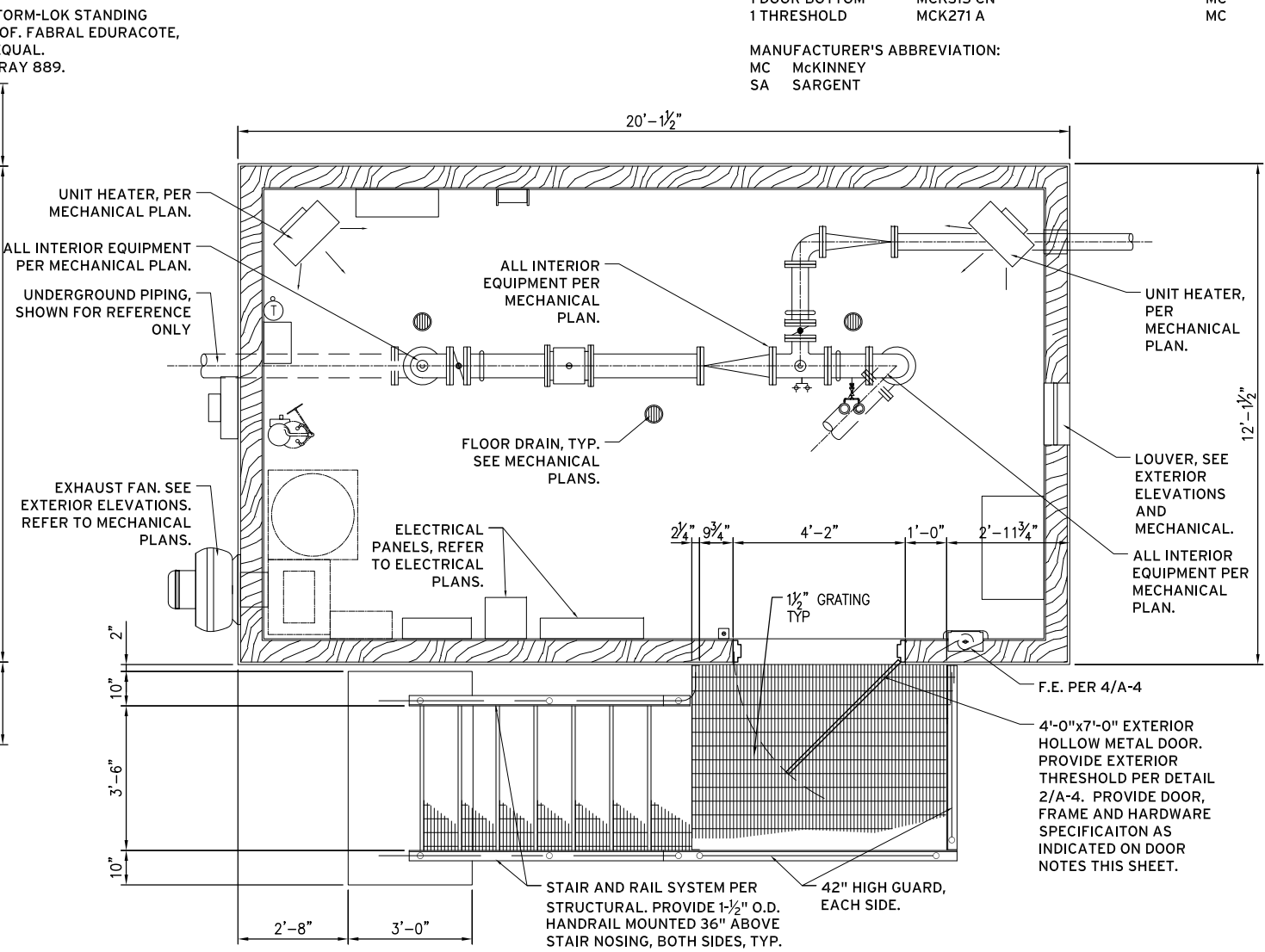
3 HINGES	T4A3386 4 1/2 x 4 1/2 NRP	32D	MC
1 CLOSER	351 CPS	EN	SA
1 KICKPLATE	KP50 10" x 2" LDW	US32D	MC
1 WEATHERSTRIP	MCK2891 AS @ HEAD		MC
2 WEATHERSTRIP	MCK290 AS @ JAMBS		MC
1 DOOR BOTTOM	MCK315 CN		MC
1 THRESHOLD	MCK271 A		MC

**MANUFACTURER'S ABBREVIATION:**

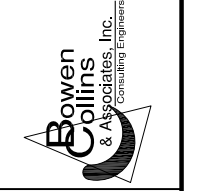
MC MCKINNEY  
SA SARGENT



**2 roof plan**  
SCALE: 1/2" = 1'-0"



**1 floor plan**  
SCALE: 1/2" = 1'-0"



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FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN: OTHERS: STAFF: \_\_\_\_\_  
REVIEW: CHECKED: HRH APPROVED: J. BECKMAN

SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

ARCHITECTURAL  
**PUMP STATION FLOOR PLAN**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

NOT FOR CONSTRUCTION  
FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION

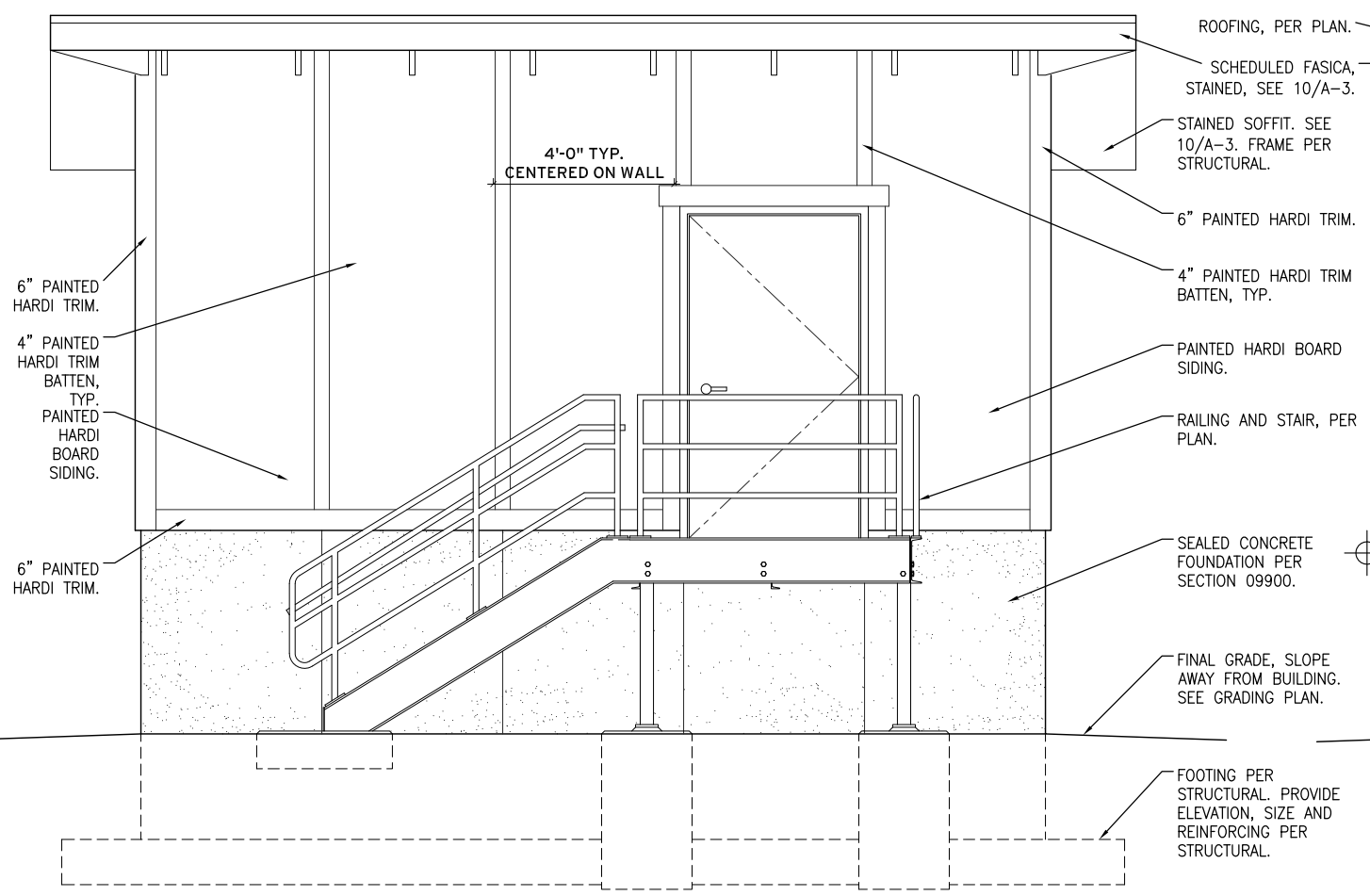
VERIFIED SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW CHECKED HRH APPROVED J. BECKMAN

DESIGN OTHERS STAFF  
DRAWN

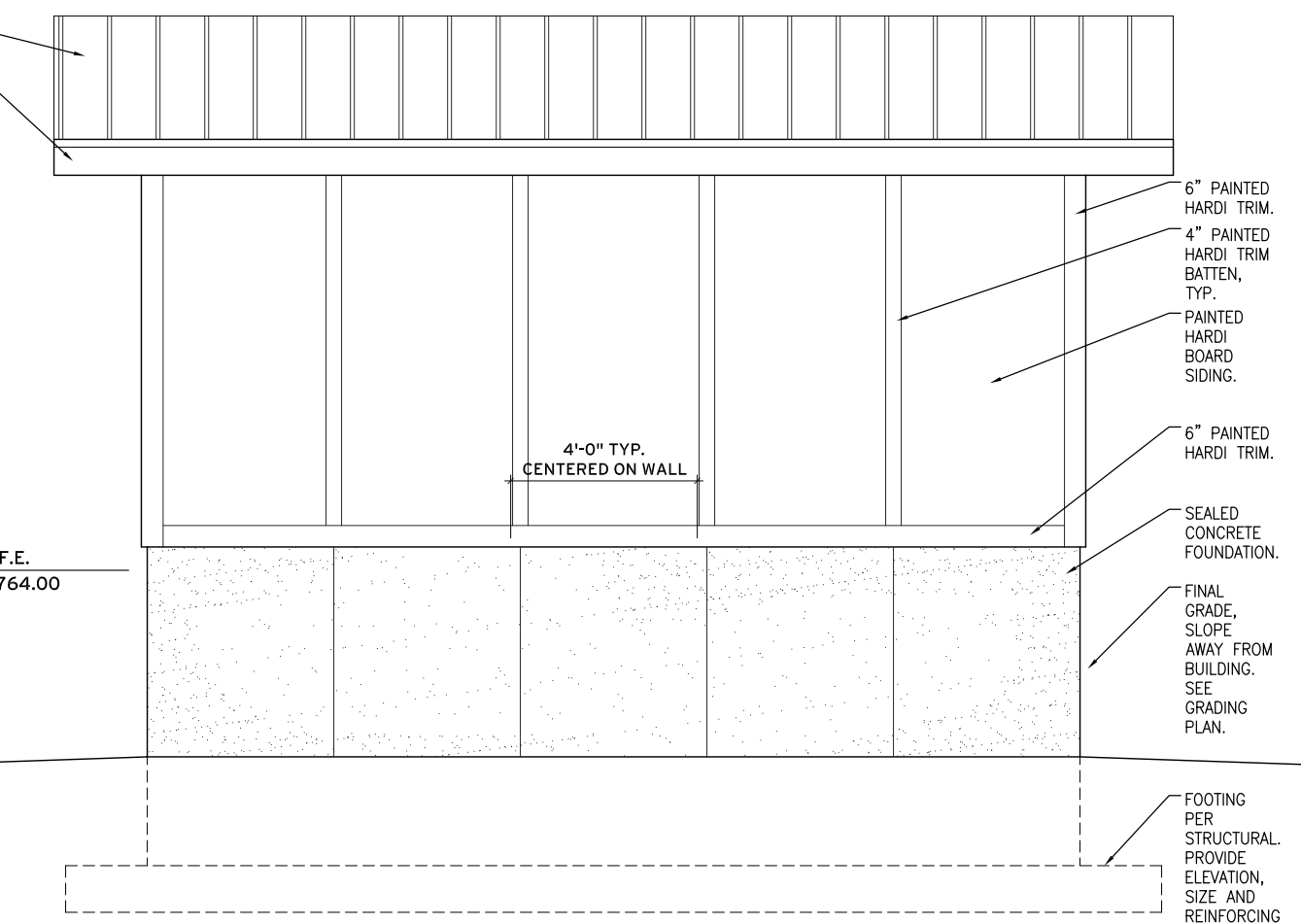
ARCHITECTURAL  
**PUMP STATION  
EXTERIOR  
ELEVATIONS**  
PROJECT 347-12-01  
NUMBER

DATE: MARCH 2013  
DRAWING NO.  
**A-2**  
SHEET 15 OF 50



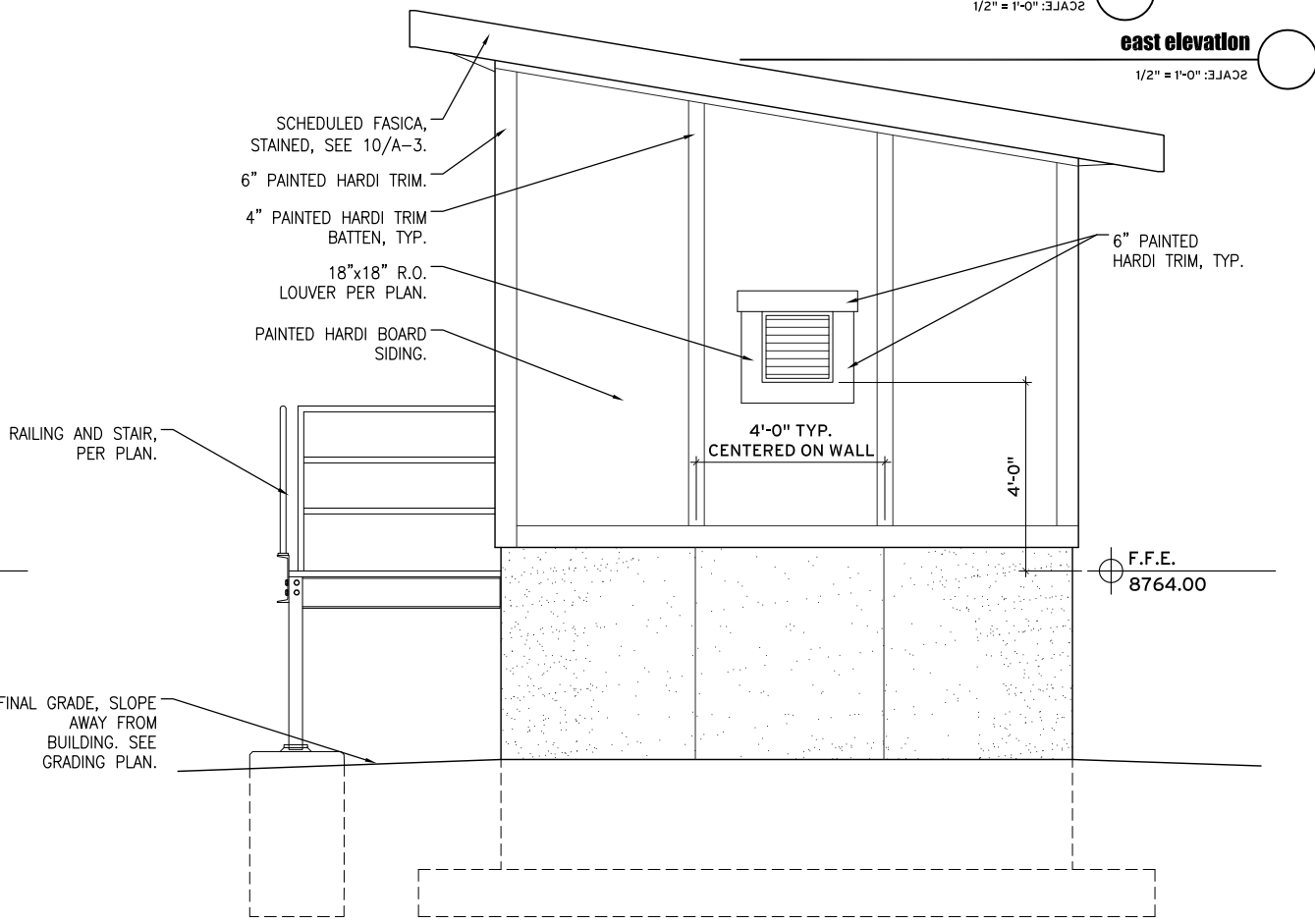
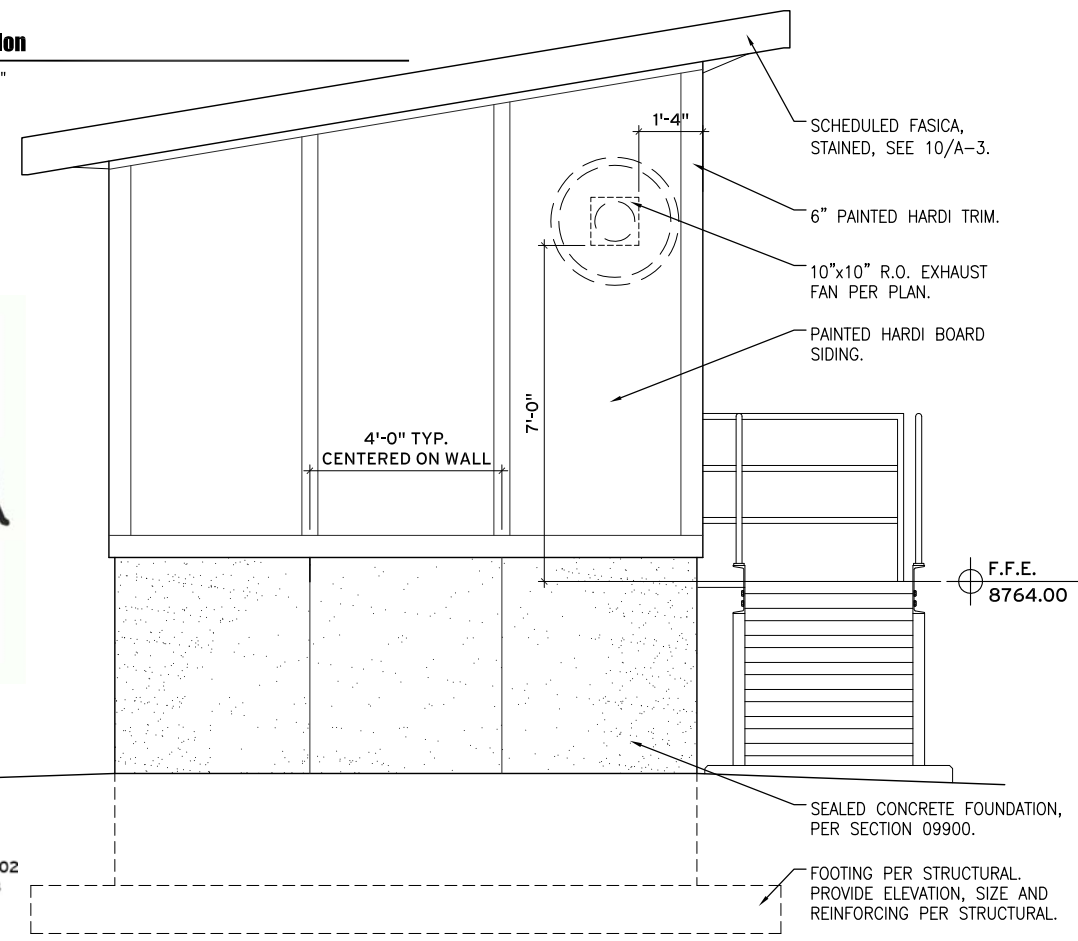
**south elevation**  
SCALE: 1/2" = 1'-0"

**west elevation**  
SCALE: 1/2" = 1'-0"



**north elevation**  
SCALE: 1/2" = 1'-0"

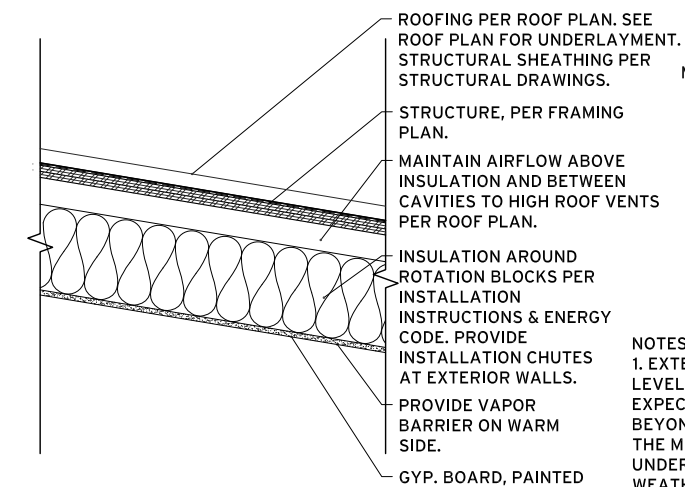
**east elevation**  
SCALE: 1/2" = 1'-0"



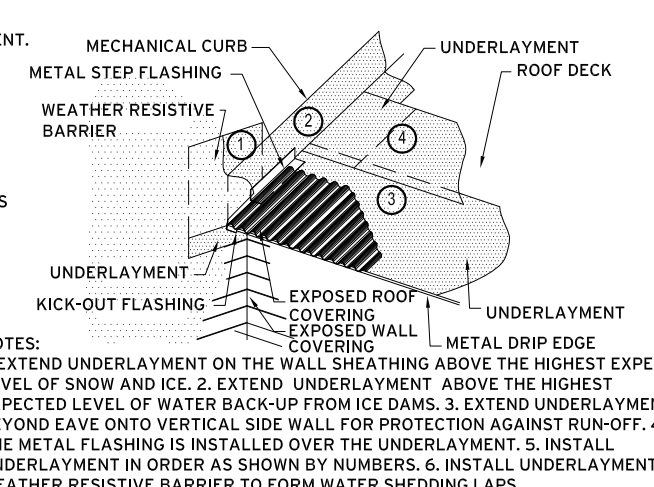
**hoffman architects** LLC

1308 south 1700 east #202  
salt lake city, utah 84108  
o 801 583 3400  
f 866 213 9895  
hhoffman.com

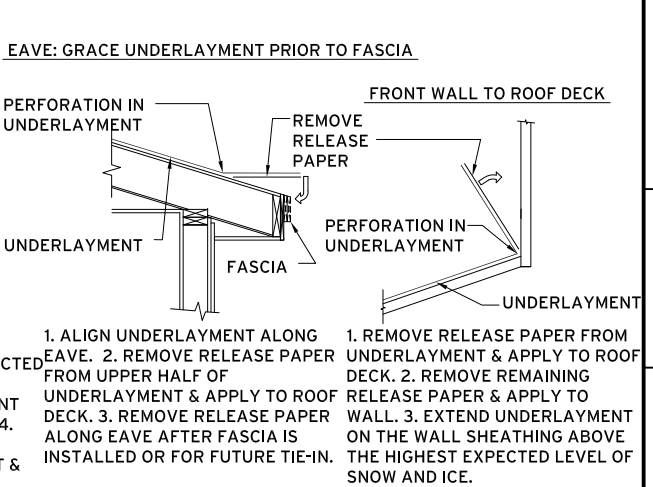




**9 typical roof detail**  
SCALE: 1" = 1'-0"



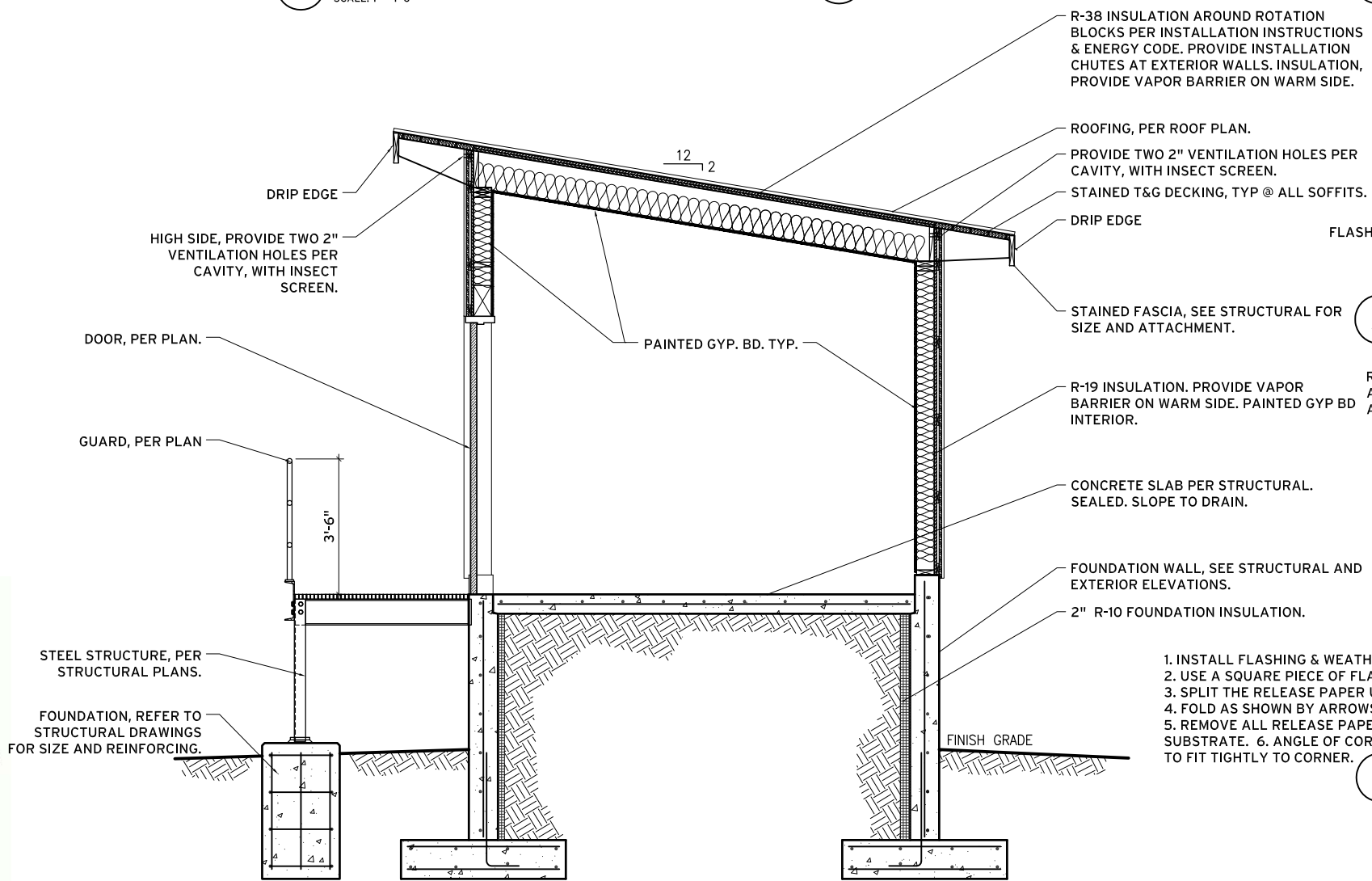
**5 roofing underlayment detail**  
SCALE: N.T.S.



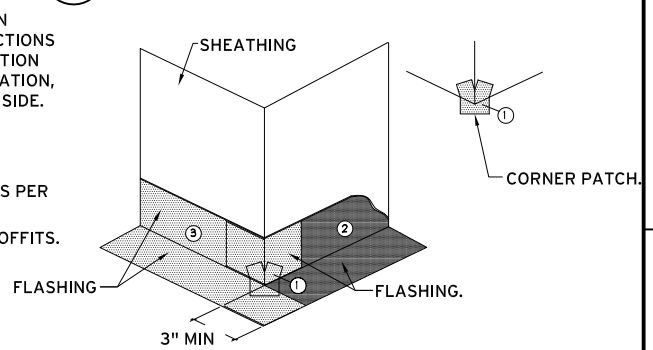
**1 roofing underlayment - release**  
SCALE: N.T.S.

NOTES:  
1. EXTEND UNDERLAYMENT ON THE WALL SHEATHING ABOVE THE HIGHEST EXPECTED LEVEL OF SNOW AND ICE. 2. EXTEND UNDERLAYMENT ABOVE THE HIGHEST EXPECTED LEVEL OF WATER BACK-UP FROM ICE DAMS. 3. EXTEND UNDERLAYMENT BEYOND EAVE ONTO VERTICAL SIDE WALL FOR PROTECTION AGAINST RUN-OFF. 4. THE METAL FLASHING IS INSTALLED OVER THE UNDERLAYMENT. 5. INSTALL UNDERLAYMENT IN ORDER AS SHOWN BY NUMBERS. 6. INSTALL UNDERLAYMENT & WEATHER RESISTIVE BARRIER TO FORM WATER SHEDDING LAPS.

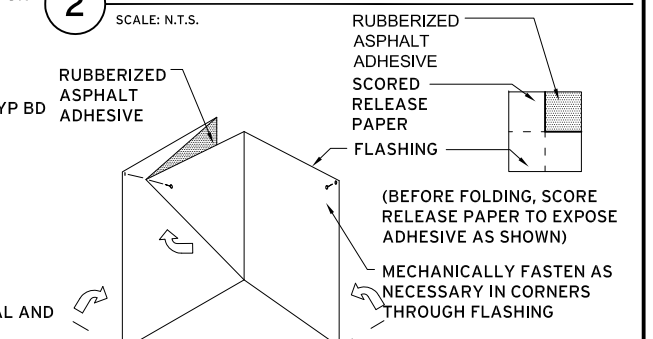
1. ALIGN UNDERLAYMENT ALONG EAVE. 2. REMOVE RELEASE PAPER FROM UPPER HALF OF UNDERLAYMENT & APPLY TO ROOF DECK. 3. REMOVE RELEASE PAPER ALONG EAVE AFTER FASCIA IS INSTALLED OR FOR FUTURE TIE-IN.  
1. REMOVE RELEASE PAPER FROM UNDERLAYMENT & APPLY TO ROOF DECK. 2. REMOVE REMAINING RELEASE PAPER & APPLY TO WALL. 3. EXTEND UNDERLAYMENT ON THE WALL SHEATHING ABOVE THE HIGHEST EXPECTED LEVEL OF SNOW AND ICE.



**10 building section**  
SCALE: 1/2" = 1'-0"

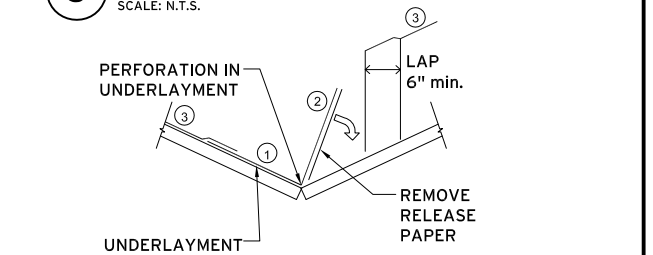


**2 self-adhered flashing**  
SCALE: N.T.S.



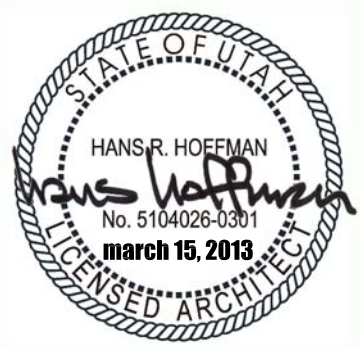
**3 self-adhered flashing - wall**  
SCALE: N.T.S.

1. INSTALL FLASHING & WEATHER RESISTIVE BARRIER TO FORM WATER SHEDDING LAPS.  
2. USE A SQUARE PIECE OF FLASHING MATERIAL (6" x 6" MINIMUM).  
3. SPLIT THE RELEASE PAPER USING FOR EASE OF INSTALLATION & TO MINIMIZE SCORING CUTS.  
4. FOLD AS SHOWN BY ARROWS.  
5. REMOVE ALL RELEASE PAPER PER STANDARD INSTALLATION INSTRUCTIONS & ADHERE TO SUBSTRATE. 6. ANGLE OF CORNER MAY VARY, ADJUST FOLDING OF THE FLASHING ACCORDINGLY TO FIT TIGHTLY TO CORNER.



**4 roofing underlayment - release**  
SCALE: N.T.S.

1. INSTALL IN ORDER AS SHOWN BY NUMBERS.  
2. ENGAGE UNDERLAYMENT TO SPLIT RELEASE PAPER.  
3. ALIGN & INSTALL UNDERLAYMENT OVER VALLEY.  
4. REFER TO NRCA OR SMACNA FOR VALLEY METAL FLASHING & ROOF COVERING OPTIONS.



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VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

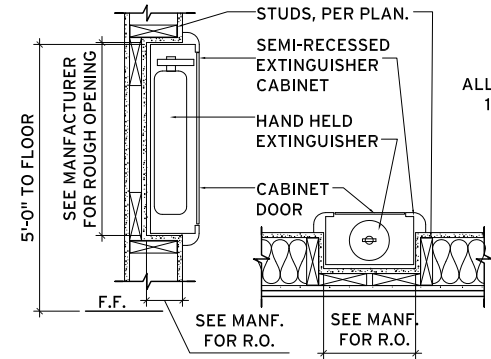
ARCHITECTURAL  
PUMP STATION &  
SECTION &  
DETAILS

NO.	DATE	REV. BY	DESCRIPTION

REVIEW  
CHECKED HRH  
APPROVED J. BECKMAN

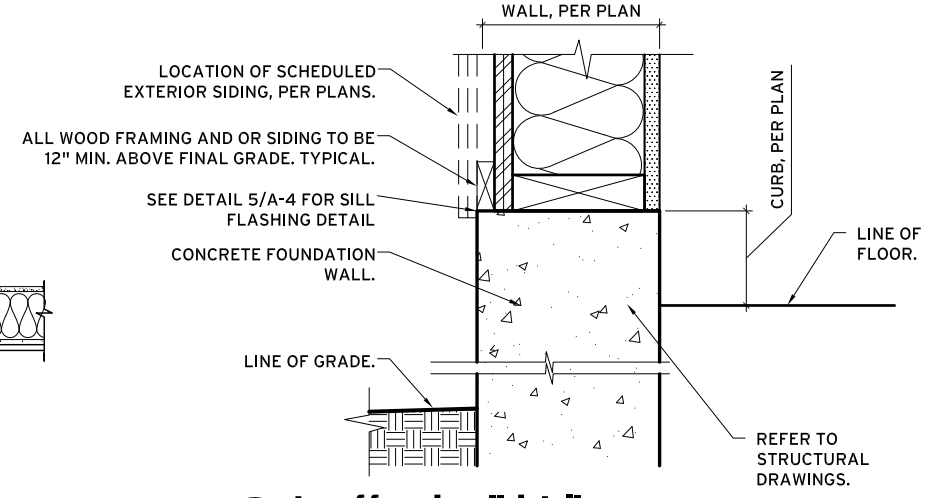
DESIGN  
DESIGN OTHERS  
DRAWN STAFF

DATE: MARCH 2013  
PROJECT NUMBER 347-12-01

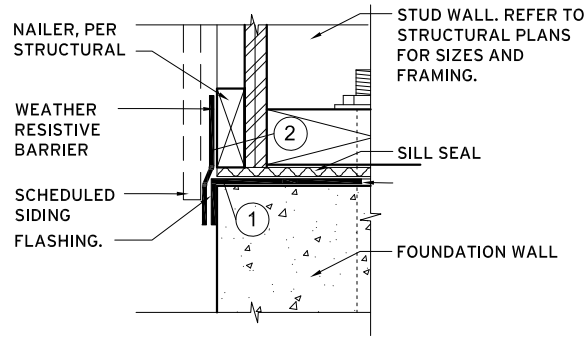


NOTE:  
COORDINATE MODEL WITH DEPTH OF STUDS.  
FIRE EXTINGUISHER PER NFPA 10.

**4 recessed fire extinguisher**  
SCALE: n.t.s.

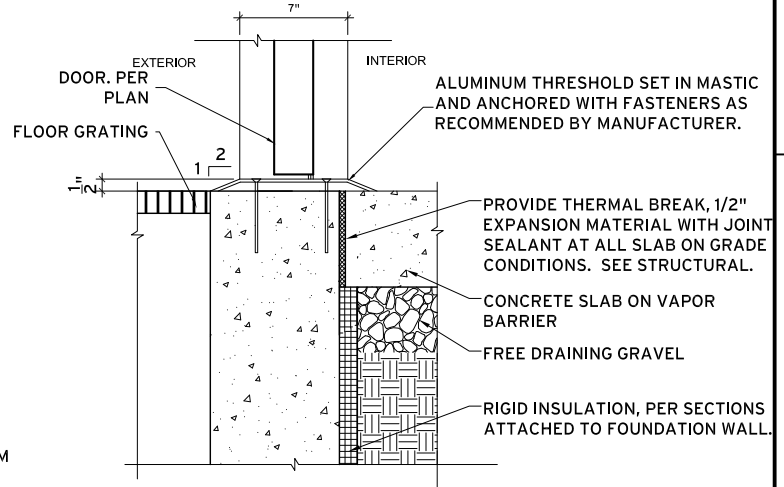


**1 top of found. wall detail**  
SCALE: 3" = 1'-0"

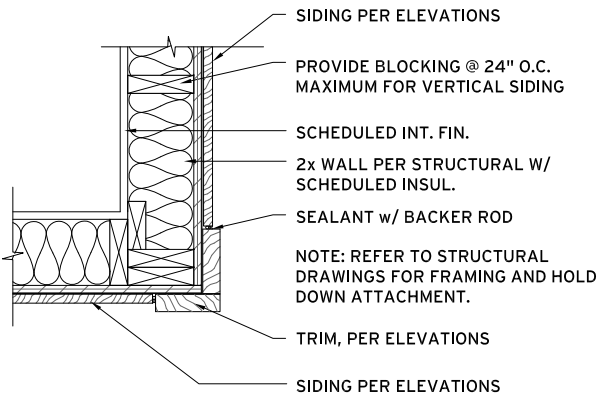


\*INSTALL FLASHING IN ORDER AS SHOWN BY NUMBERS  
\*\*INSTALL FLASHING AND WEATHER RESISTIVE BARRIER TO FORM WATER SHEDDING LAPS

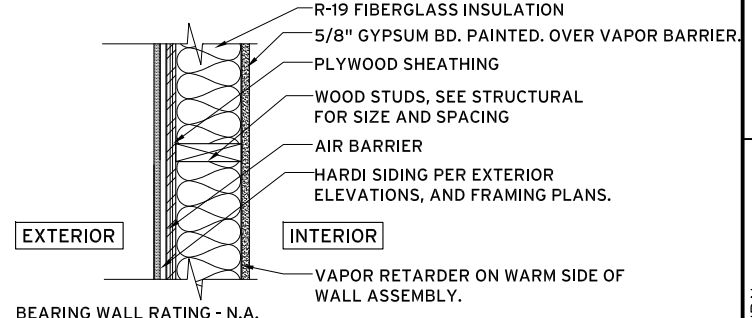
**5 self adhered flashing @ sill plate**  
SCALE: n.t.s.



**2 threshold detail**  
SCALE: 3" = 1'-0"



**6 sliding corner detail**  
SCALE: 1 1/2" = 1'-0"



BEARING WALL RATING - N.A.

- WOOD STUDS - NOM. 2 X 6 INCH SPACED 16 INCHES O.C. WITH TWO 2 X 6 INCH TOP AND ONE 2 X 6 INCH BOTTOM PLATES. STUDS LATERALLY BRACED AND EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.
- BATTS AND BLANKETS\* - MINERAL FIBER OR GLASS FIBER INSULATION, 5 1/2" THICK. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 0.9 PCF. GLASS FIBER INSULATION TO BE FACED AND HAVE A MINIMUM DENSITY OF 0.9 PCF.
- WALLBOARD, GYPSUM\* - 5/8 IN. THICK, 4 FT. WIDE, APPLIED VERTICALLY WITH 6D CEMENT COATED NAILS @ 6 INCHES O.C.
- WOOD STRUCTURAL SHEATHING - 4 FT WIDE WOOD STRUCTURAL PANELS. INSTALLED WITH LONG DIMENSION OF SHEET OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM. 2 X 4 INCH WOOD BLOCKING.
- EXTERIOR WALL FACINGS: INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS.

**3 typ. wall**  
SCALE: n.t.s.

NOT FOR CONSTRUCTION  
FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN	OTHERS	STAFF

REVIEW  
CHECKED HRH  
APPROVED J. BECKMAN

DESIGN	OTHERS	STAFF

ARCHITECTURAL  
PUMP STATION  
DETAILS

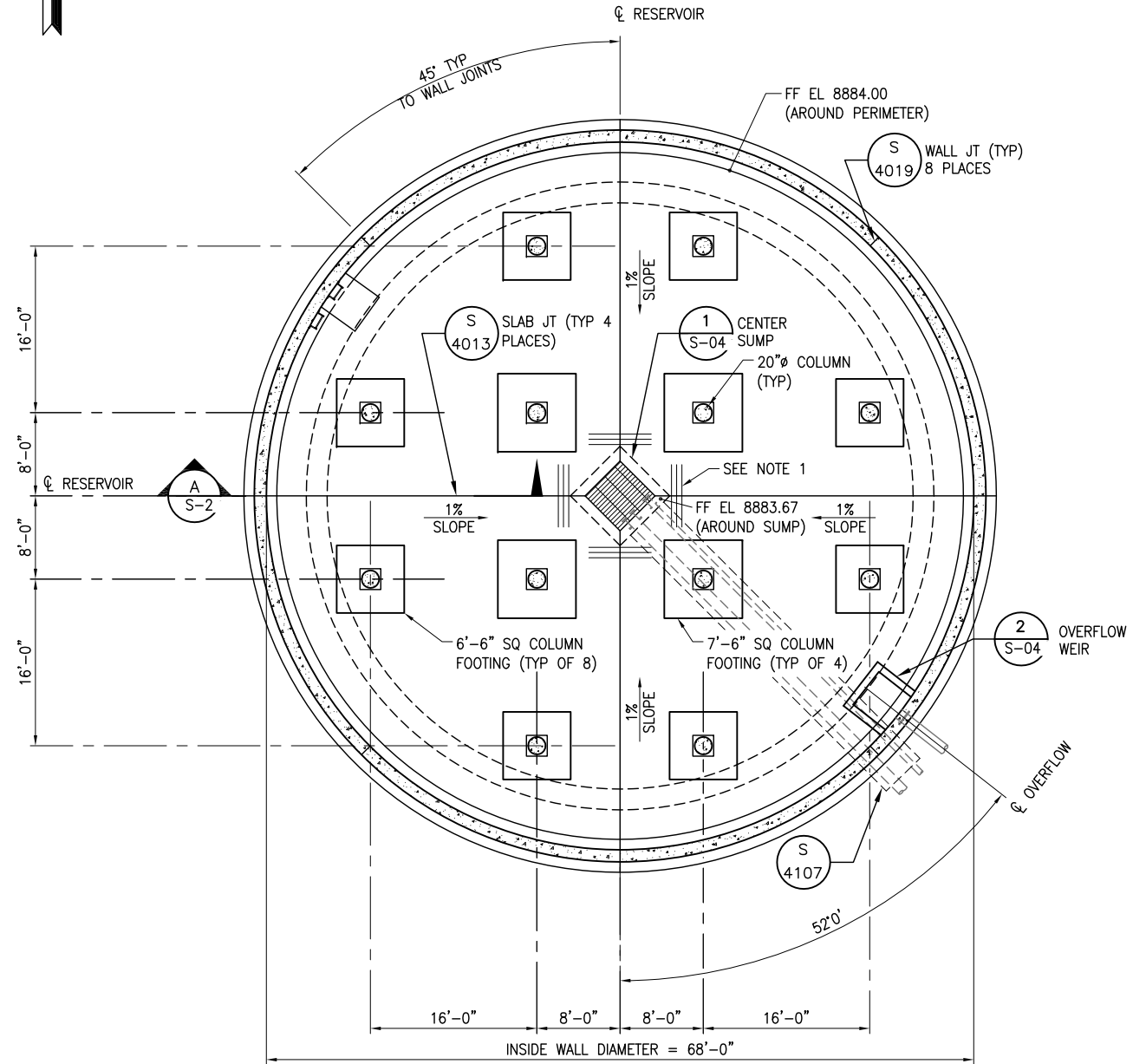
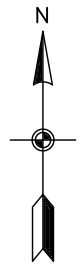
DATE:	PROJECT NUMBER
MARCH 2013	347-12-01

DRAWING NO.	SHEET	OF	TOTAL
A-4	17	OF	50



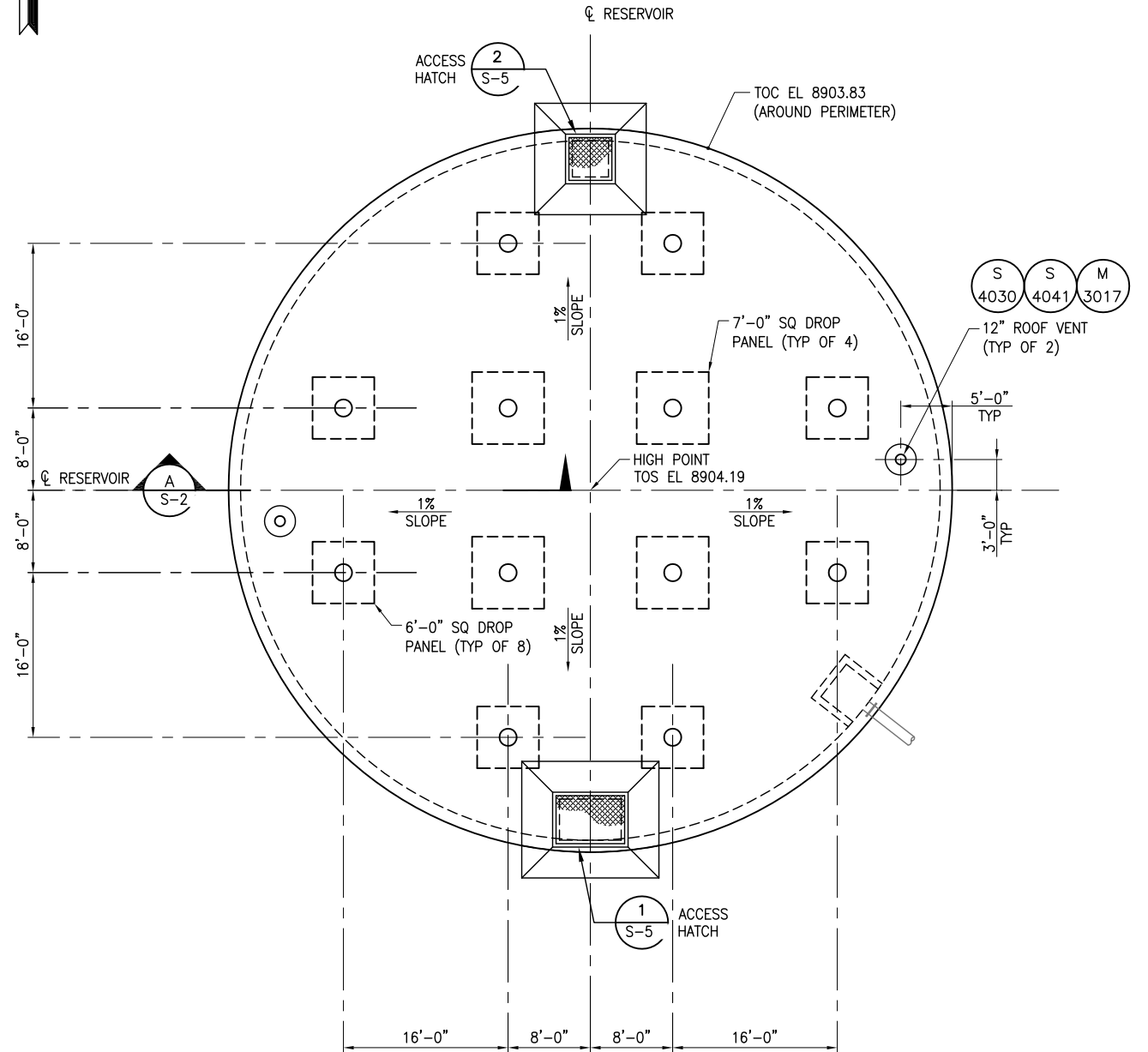
**hoffman architects** LLC

1308 south 1700 east #202  
salt lake city, utah 84108  
o 801 583 3400  
f 866 213 9895  
hhoffman.com



**ROOF PLAN**

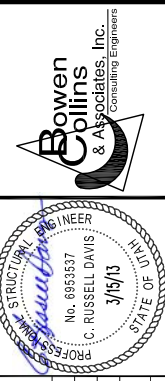
SCALE: 1/8"=1'-0"



**FOUNDATION PLAN**

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

- NOTES:
1. PROVIDE 3-#5 x 6'-0" LG DIAGONAL BARS AT 6" SPACING IN EACH FACE OF BASE SLAB AT RE-ENTRANT CORNERS.



NOT FOR CONSTRUCTION  
FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION

DESIGN	R. DAVIS	APPROVED	R. DAVIS
REVIEW	G. LOSCHER	CHECKED	G. LOSCHER
VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING		

DRAWING NO.	S-1
SHEET	18 OF 50



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NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

SUMMIT MOUNTAIN HOLDING GROUP, LLC  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

DESIGN	REVIEW	CHECKED	APPROVED
R. DAVIS	G. LOSCHER	G. LOSCHER	R. DAVIS

STRUCTURAL

**RESERVOIR SECTION**

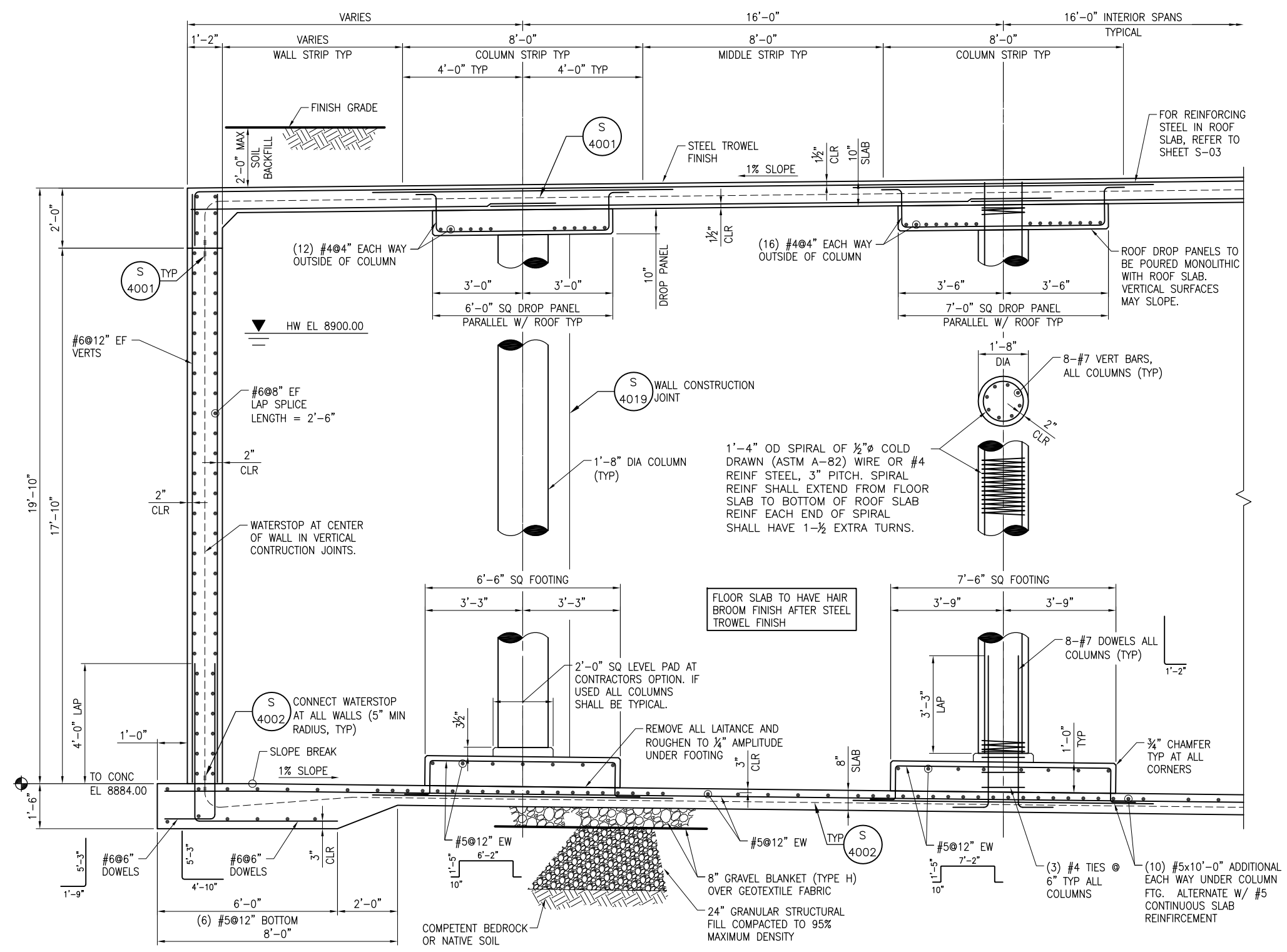
DATE: MARCH 2013 PROJECT NUMBER 347-12-01

DRAWING NO.
S-2

SHEET 19 OF 50

**RESERVOIR NOTES:**

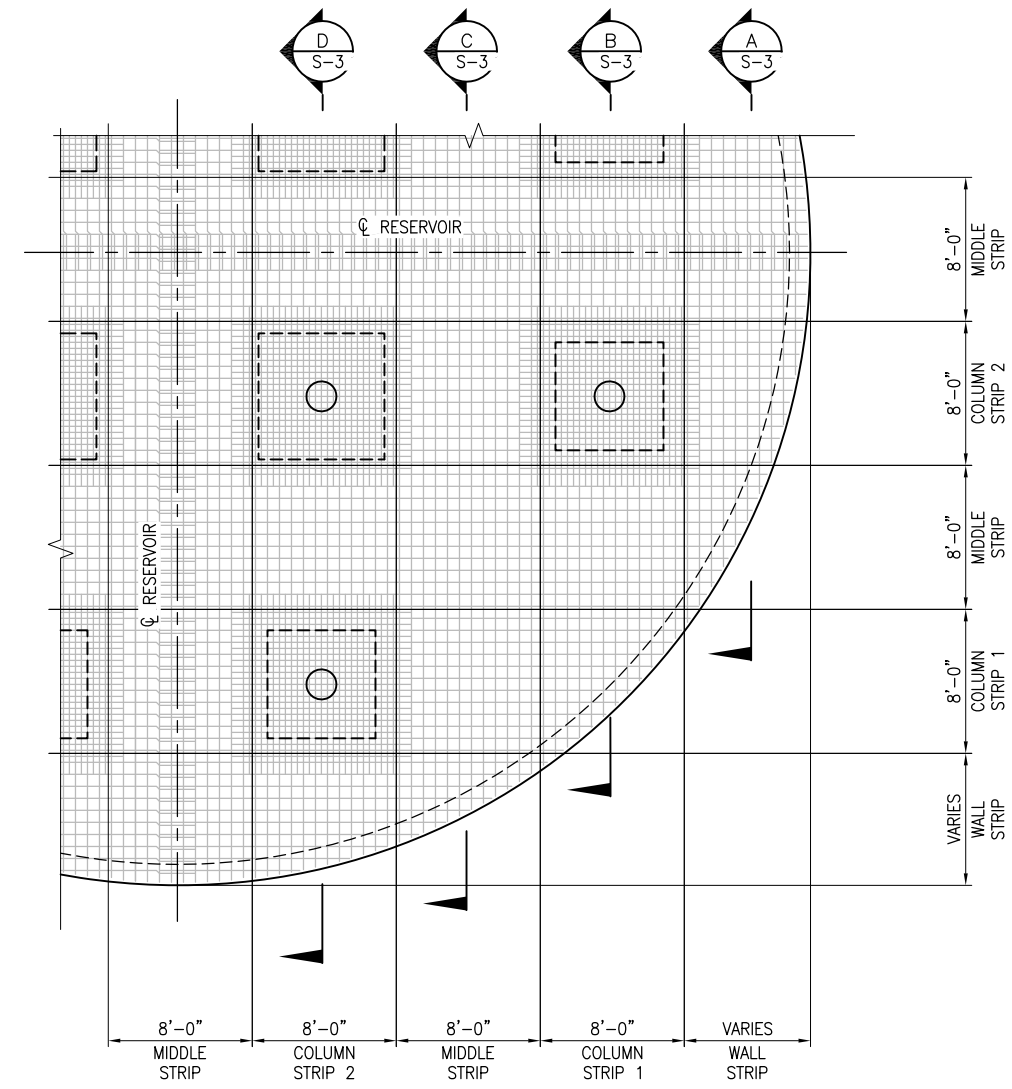
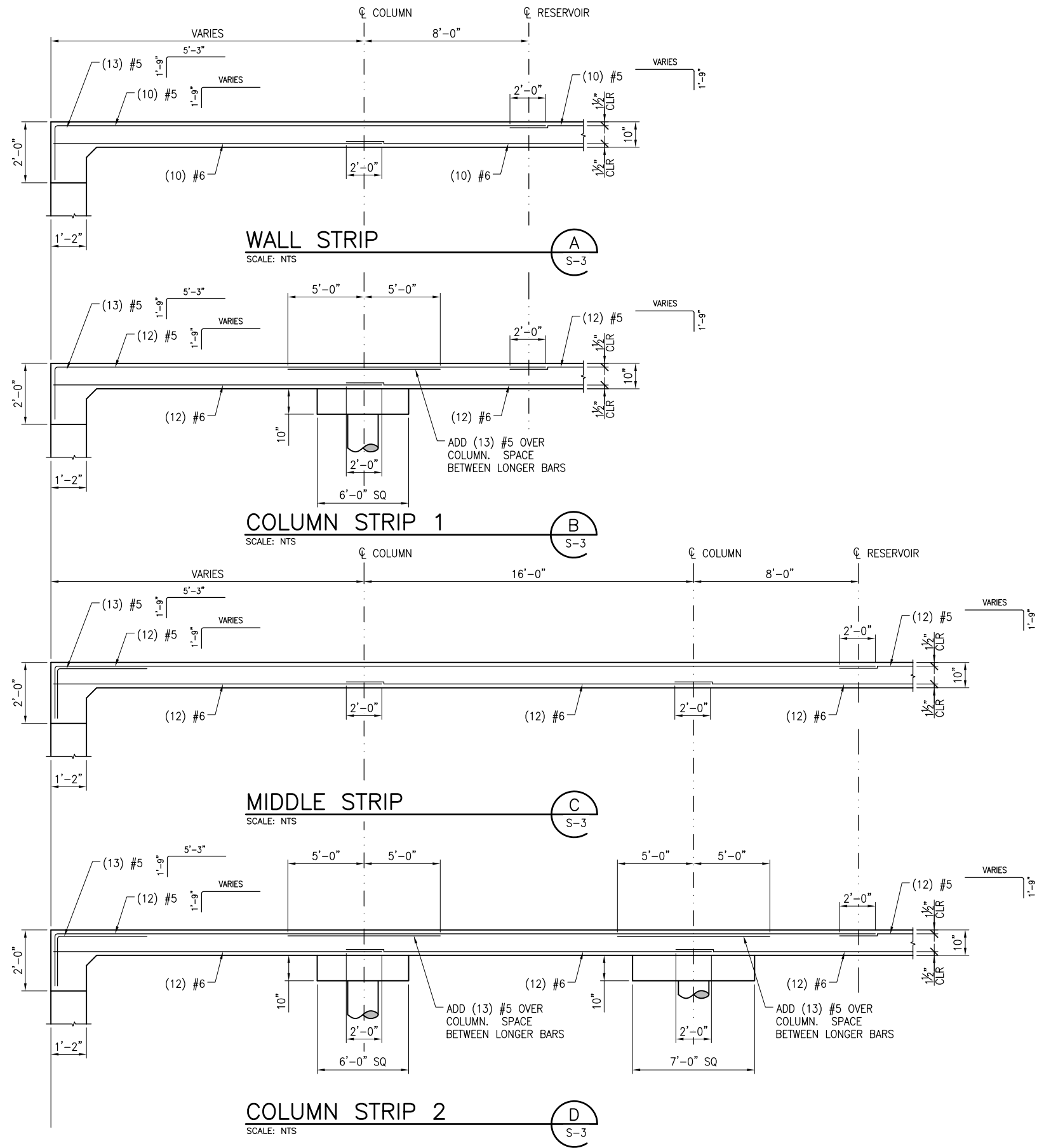
- ROOF SLAB DESIGNED FOR A SUPERIMPOSED SOIL DEAD LOAD OF 240 PSF PLUS 280 PSF SNOW PLUS 120 PSF LIVE LOAD.
- FOOTINGS ARE DESIGNED FOR A NET SOILS PRESSURE OF 4200 PSF MAXIMUM FOR DEAD LOAD PLUS LIVE LOAD, PER SOILS INVESTIGATION RECOMMENDATIONS BY IGES (PROJECT NO. 01628-003 DATED NOVEMBER 9, 2012).
- ALL ROOF OPENING DIMENSIONS ARE GIVEN TO THE CENTERLINE OF THE OPENING.
- FOR ROOF SLAB REINFORCEMENT, SEE SHEET S-3.
- BOTTOM RING FOOTING REINFORCING BARS SHALL BE PLACED RADIALLY AND TANGENTIAL TO THE CENTER OF THE RESERVOIR. ALL OTHER FLOOR REINFORCING TO BE PLACED NORTH/SOUTH AND EAST/WEST (PARALLEL TO FOOTINGS).
- AT ALL SLAB CONSTRUCTION JOINTS, CONCRETE SHALL BE WORKED UNDER WATERSTOPS BY HAND, MAKING SURE THAT ALL AIR AND ROCK POCKETS ARE REMOVED.



**RESERVOIR SECTION**

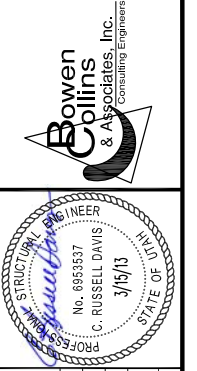
SCALE: 1/2"=1'-0"





**ROOF SLAB STRIP LAYOUT**  
SCALE: 3/16"=1'-0"

- NOTES:**
- UNLESS OTHERWISE NOTED, ALL ROOF SLAB BARS SHALL BE EQUALLY SPACED WITHIN DESIGNATED STRIPS (SEE THIS SHEET).
  - SEE DETAIL S/4034 FOR ADDITIONAL REINFORCEMENT AT ROOF SLAB ACCESS OPENINGS.
  - METAL BAR SUPPORTS OR SPACERS SHALL NOT MAKE CONTACT WITH FORMS UNLESS THEY ARE GALVANIZED AND THE LEGS ARE PLASTIC COATED. AT COLUMNS, TOP REINFORCEMENT OF ROOF SLAB MAY BE WIRED TO COLUMN VERTICAL BARS.
  - FOR ROOF PLAN SEE SHEET S-1.



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FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

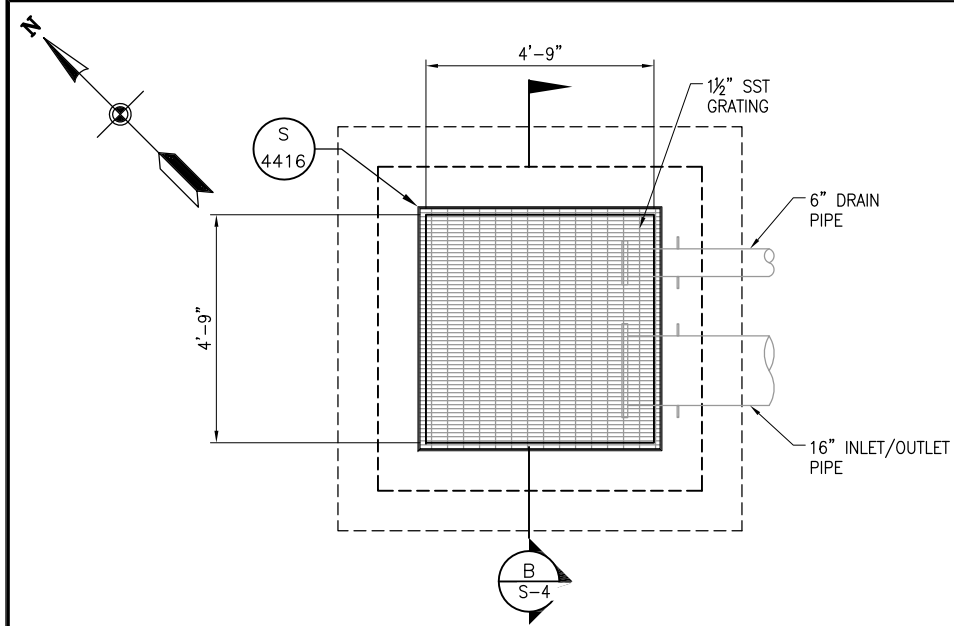
SUMMIT MOUNTAIN HOLDING GROUP, LLC  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

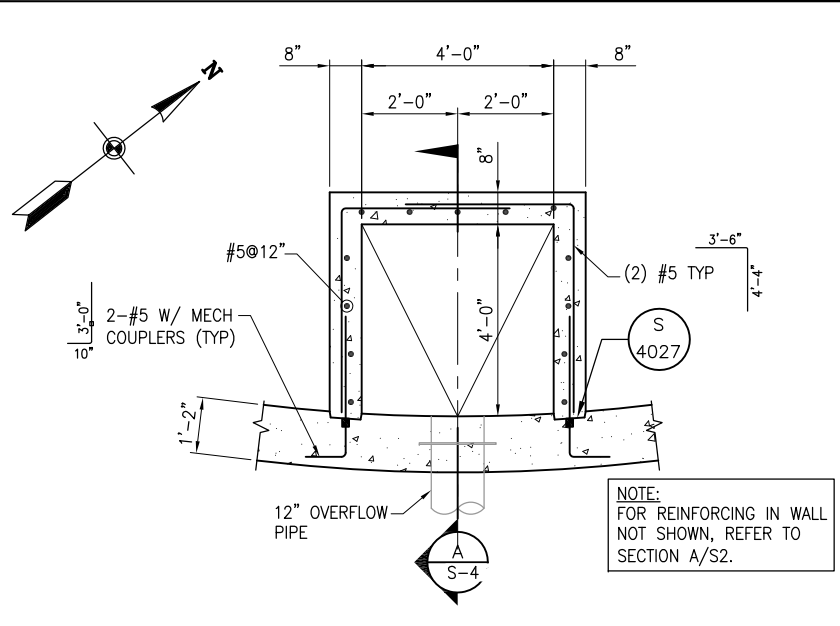
DESIGN: R. DAVIS  
CHECKED: G. LOSCHER  
APPROVED: R. DAVIS

STRUCTURAL  
**RESERVOIR ROOF SLAB AND REINFORCEMENT DETAILS**

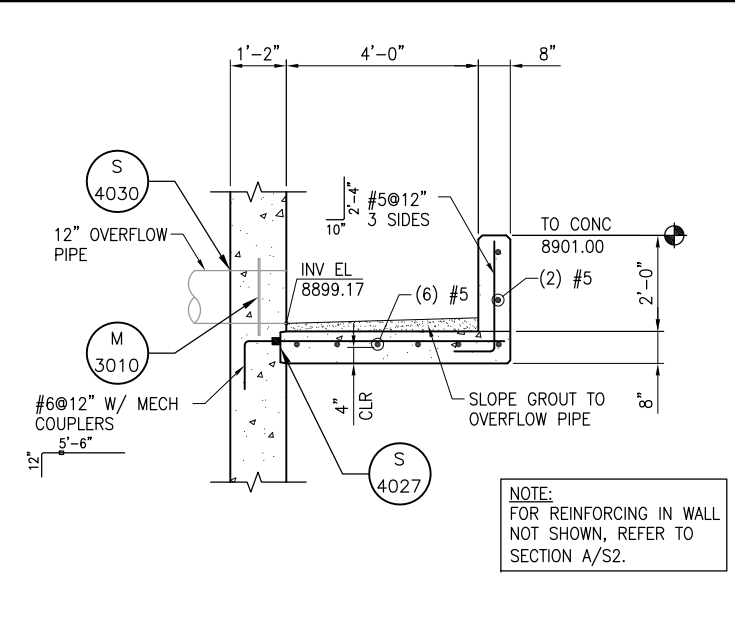
DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01



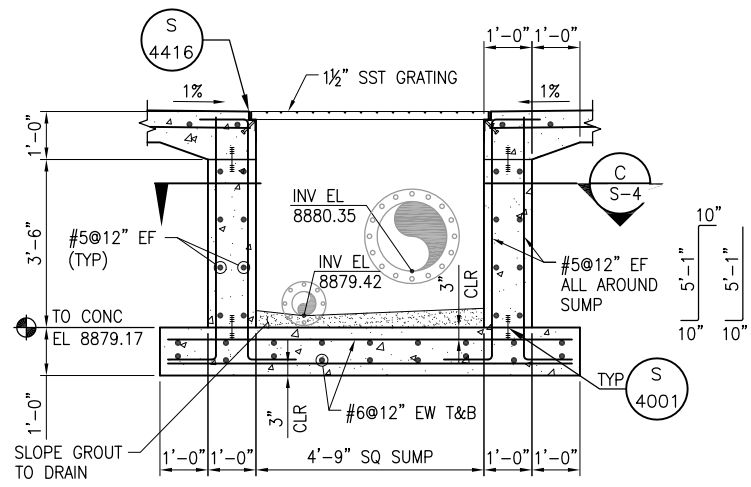
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SCALE: 1/2"=1'-0"  
S-01



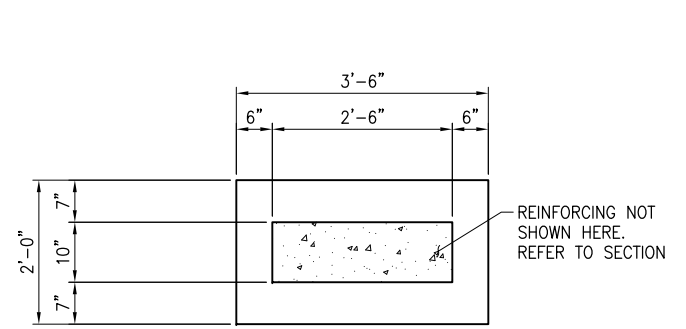
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S-01



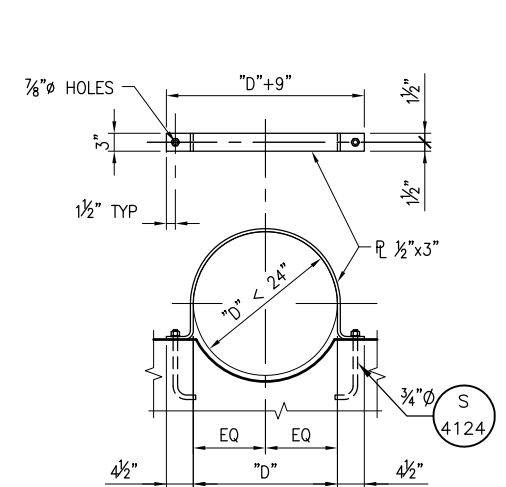
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S-4



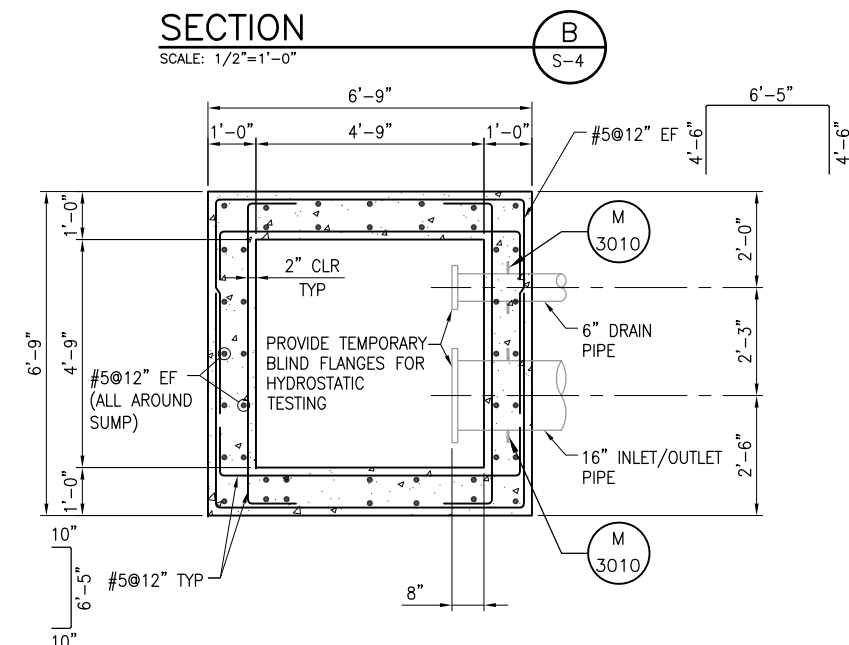
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S-4



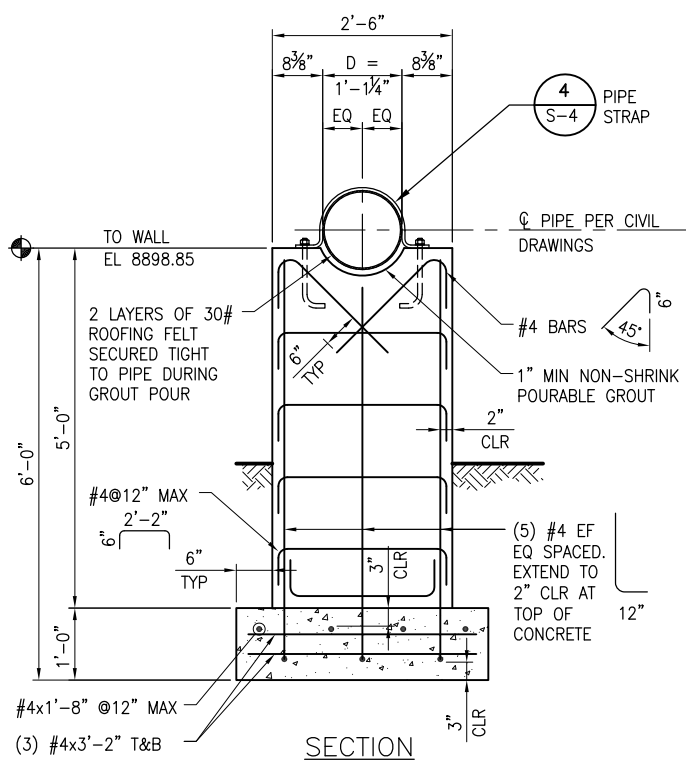
**PLAN**



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



**SECTION C**  
SCALE: 1/2"=1'-0"  
S-4



**SECTION 3**  
SCALE: 1/2"=1'-0"  
GC-2

**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

PROFESSIONAL ENGINEER  
No. 8893837  
C. RUSSELL DAVIS  
3/15/13  
STATE OF UTAH

NO.	DATE	REV. BY	DESCRIPTION

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW  
CHECKED G. LOSCHER  
APPROVED R. DAVIS

DESIGN  
DESIGN R. DAVIS  
DRAWN R. DAVIS

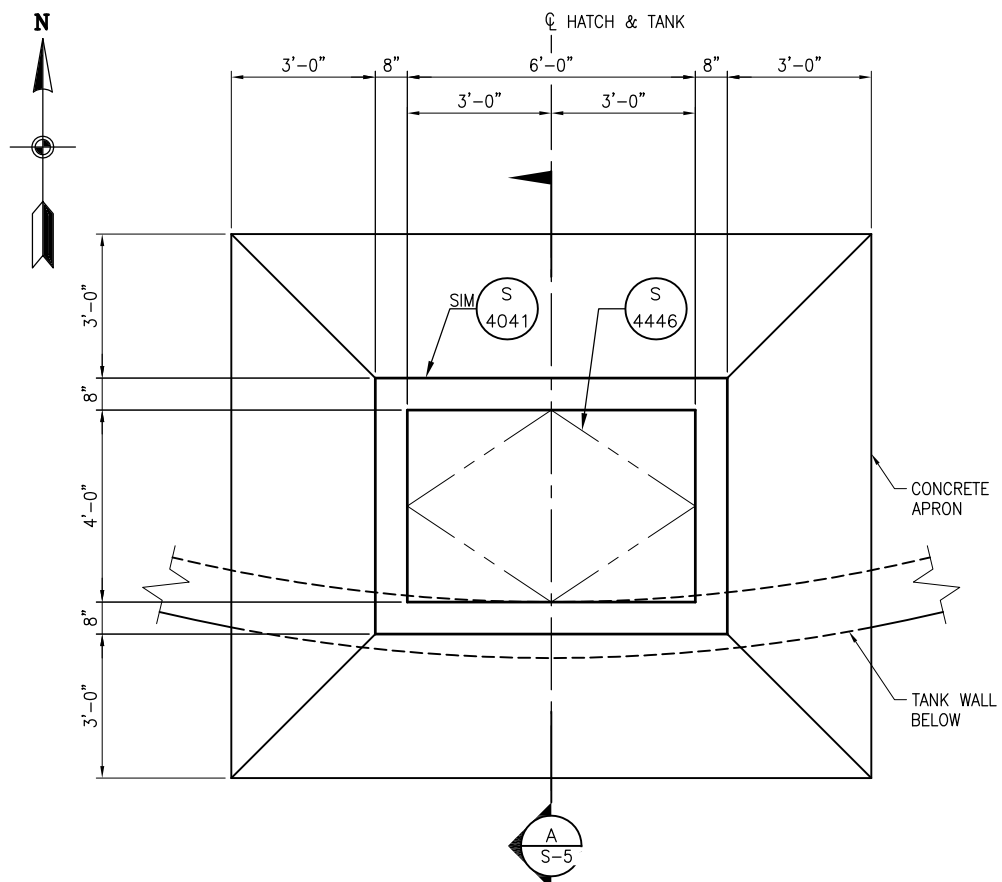
SUMMIT MOUNTAIN HOLDING GROUP, LLC  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

STRUCTURAL  
**RESERVOIR OVERFLOW & SUMP SECTIONS AND DETAILS**

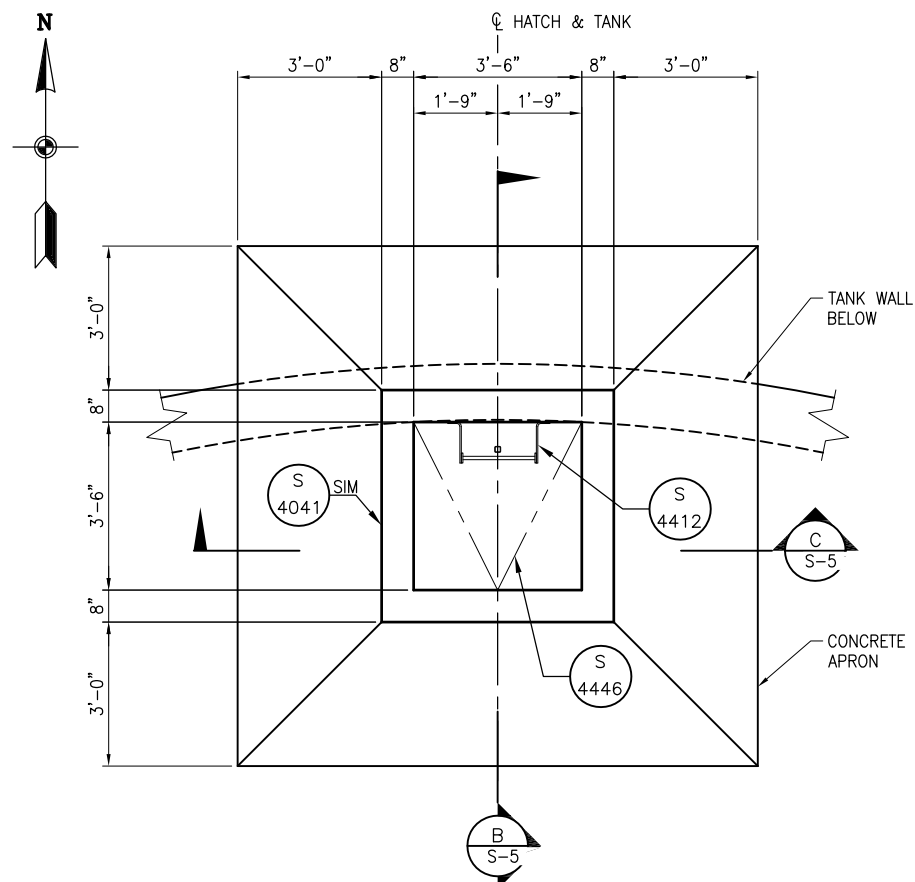
DATE: MARCH 2013  
PROJECT NUMBER 347-12-01

DRAWING NO.  
**S-4**

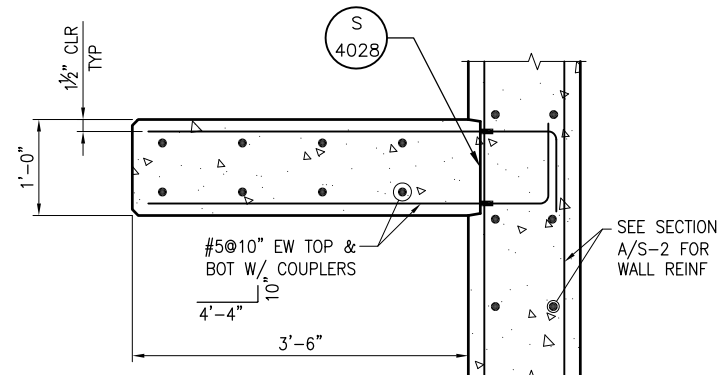
SHEET 21 OF 50



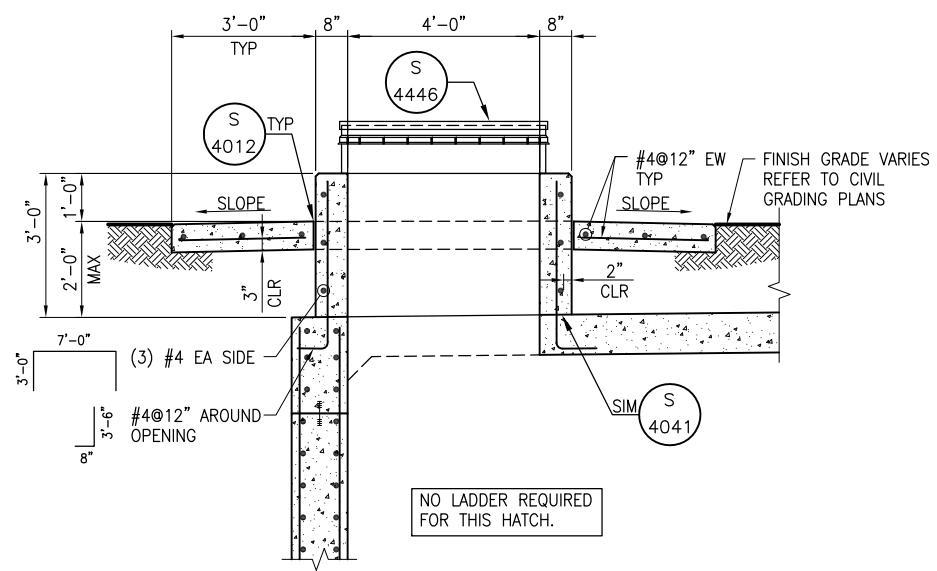
**DETAIL 1**  
SCALE: 1/2"=1'-0"  
S-01



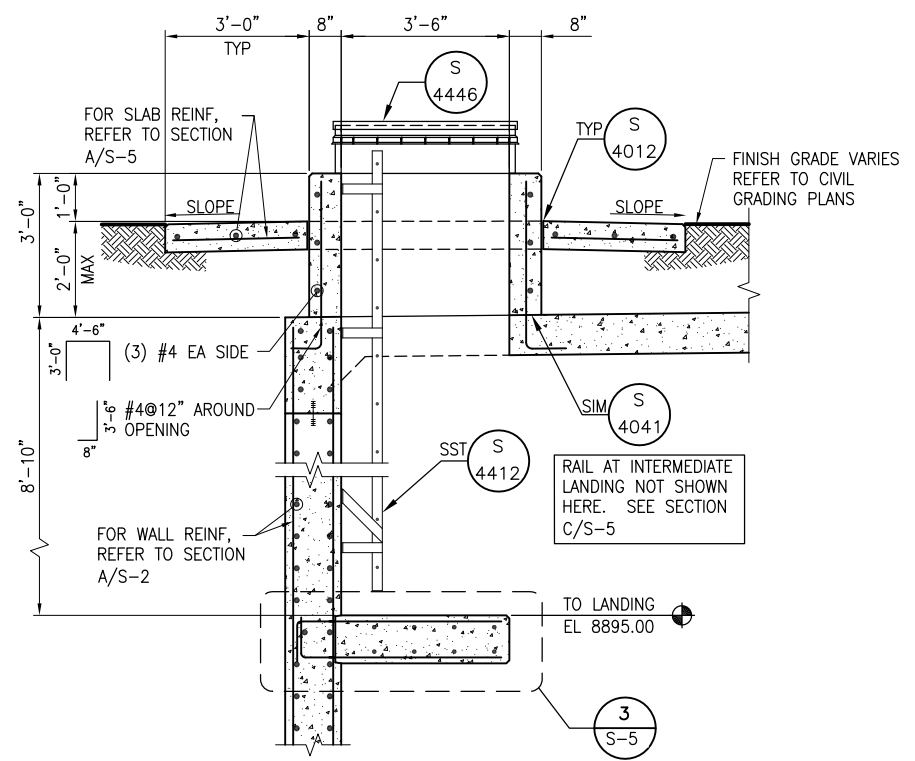
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S-01



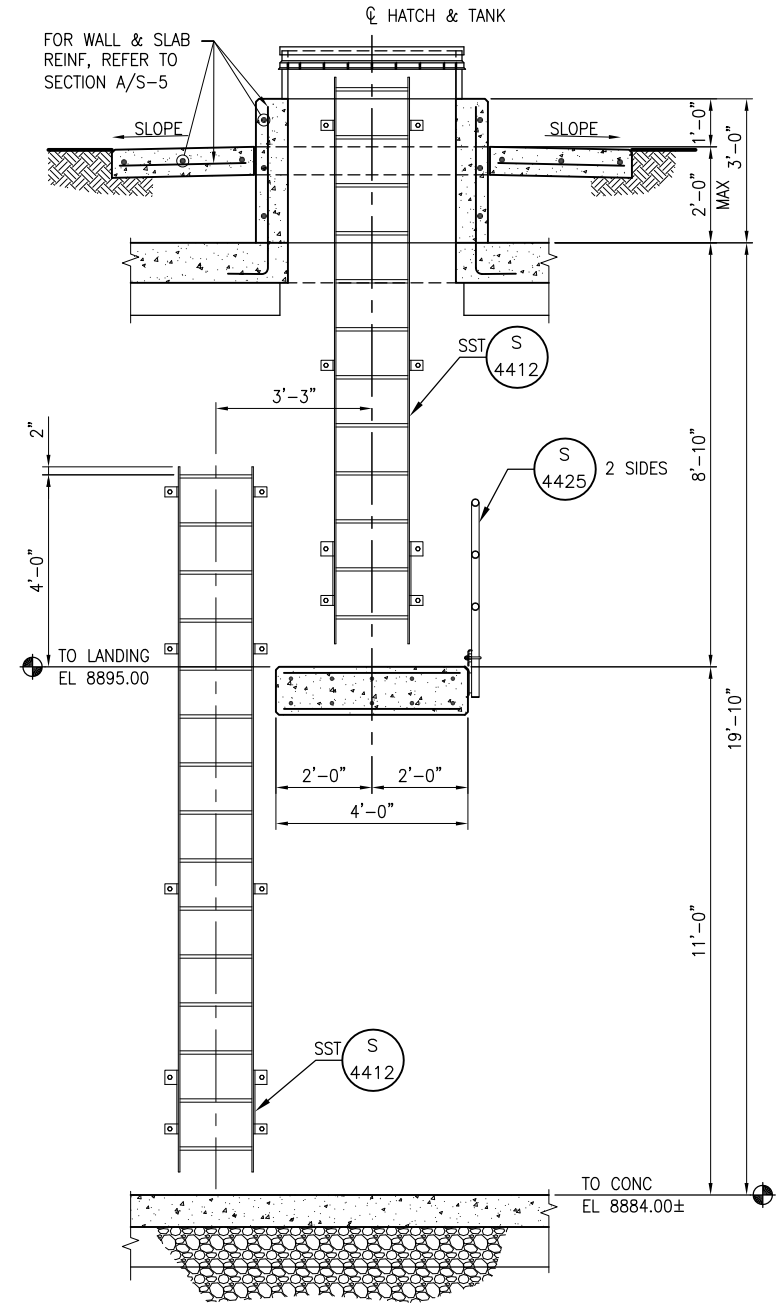
**DETAIL 3**  
SCALE: 1"=1'-0"  
S-05



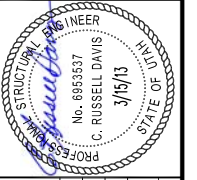
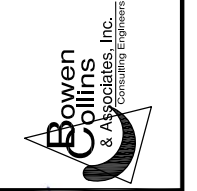
**SECTION A**  
SCALE: 1/2"=1'-0"  
S-05



**SECTION B**  
SCALE: 1/2"=1'-0"  
S-05



**SECTION C**  
SCALE: 1/2"=1'-0"  
S-05



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NO.	DATE	REV. BY	DESCRIPTION

VERIFIED SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN: R. DAVIS  
CHECKED: G. LOSCHER  
APPROVED: R. DAVIS

REVIEW: R. DAVIS

STRUCTURAL  
**RESERVOIR ACCESS SECTIONS AND DETAILS**

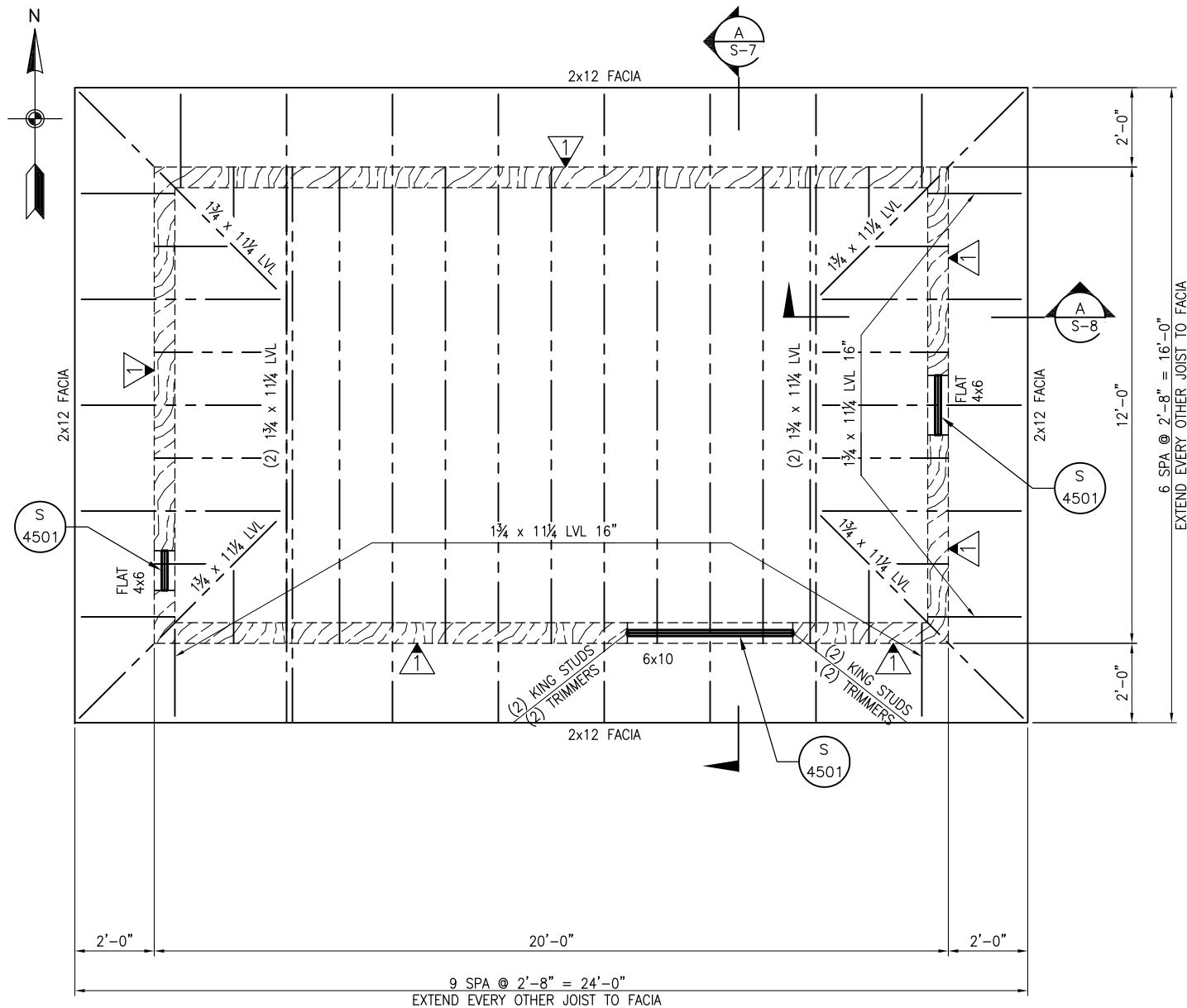
PROJECT NUMBER: 347-12-01  
DATE: MARCH 2013

DRAWING NO. S-5  
SHEET 22 OF 50

SHEAR WALL SCHEDULE				
WALL	SHEATHING MATERIAL	EDGE NAILING	FIELD NAILING	PLATE ATTACHMENT
1	23/32" STRUCT 1 PANEL BLOCKED ONE SIDE OF WALL	10d SINKER NAILS @ 6"	10d SINKER NAILS @ 12"	1/2" TITEN HD @ 48"

**SHEAR WALL NOTES:**

1. A MINIMUM OF 2 ANCHOR BOLTS SHALL BE USED ON EACH BASE PLATE. PROVIDE ANCHOR BOLT WITHIN 9 INCHES OF EACH END OF EACH PIECE.
2. PROVIDE CONTINUOUS TOP PLATE AT ALL SHEAR WALLS. UNLESS NOTED OTHERWISE, LAP SPLICE TOP PLATE A MINIMUM OF 48" WITH (20) 16d NAILS STAGGERED AT 4" OC ON EACH SIDE OF SPLICE JOINT.
3. PROVIDE FULL-HEIGHT DOUBLE STUDS MINIMUM AT ENDS OF SHEAR WALL PANELS.
4. BLOCK ALL PANEL EDGES WHERE INDICATED IN SCHEDULE. EDGE NAIL SHEATHING AT ALL BLOCKED EDGES.
5. ANCHOR BOLTS ARE TITEN HD AS MANUFACTURED BY SIMPSON STRONG-TIE, INC.
6. CORROSION RESISTANT NAILS ARE REQUIRED WHERE INSTALLED INTO PRESSURE TREATED SILL PLATE. PROVIDE STAINLESS STEEL OR HOT-TUMBLE GALVANIZED NAILS.

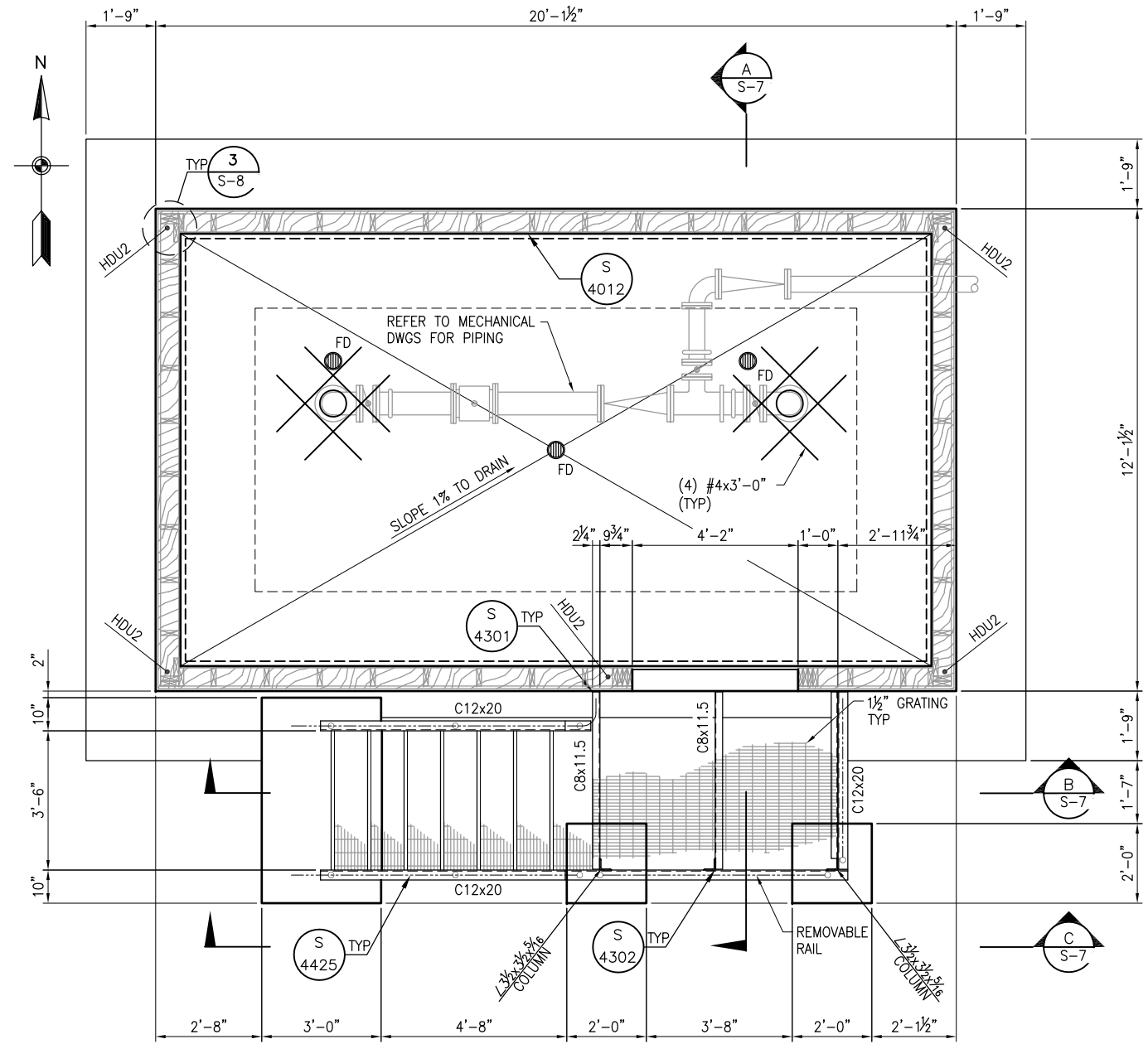


**ROOF FRAMING PLAN**

SCALE: 1/2"=1'-0"

**PLAN NOTES:**

1. TYPICAL ROOF SHEATHING AND NAILING SHALL BE AS FOLLOWS:  
2 LAYERS 23/32" STRUCTURAL 1 PANELS - STAGGER JOINTS.  
10d AT 6" BOUNDARY NAILING (DIAPHRAGM BOUNDARIES, SHEAR PANEL BLOCKING, SOLID BLOCKING, AND DRAG MEMBERS).  
10d AT 6" EDGE NAILING (AT PANEL EDGES).  
10d AT 12" FIELD NAILING (ALONG INTERMEDIATE FRAMING MEMBERS).
2. SOLID SAWN HEADERS SHOWN ON THE FRAMING PLAN MAY BE SUBSTITUTED WITH BUILT-UP HEADERS PER DETAIL S/4501.



**FOUNDATION PLAN**

SCALE: 1/2"=1'-0"



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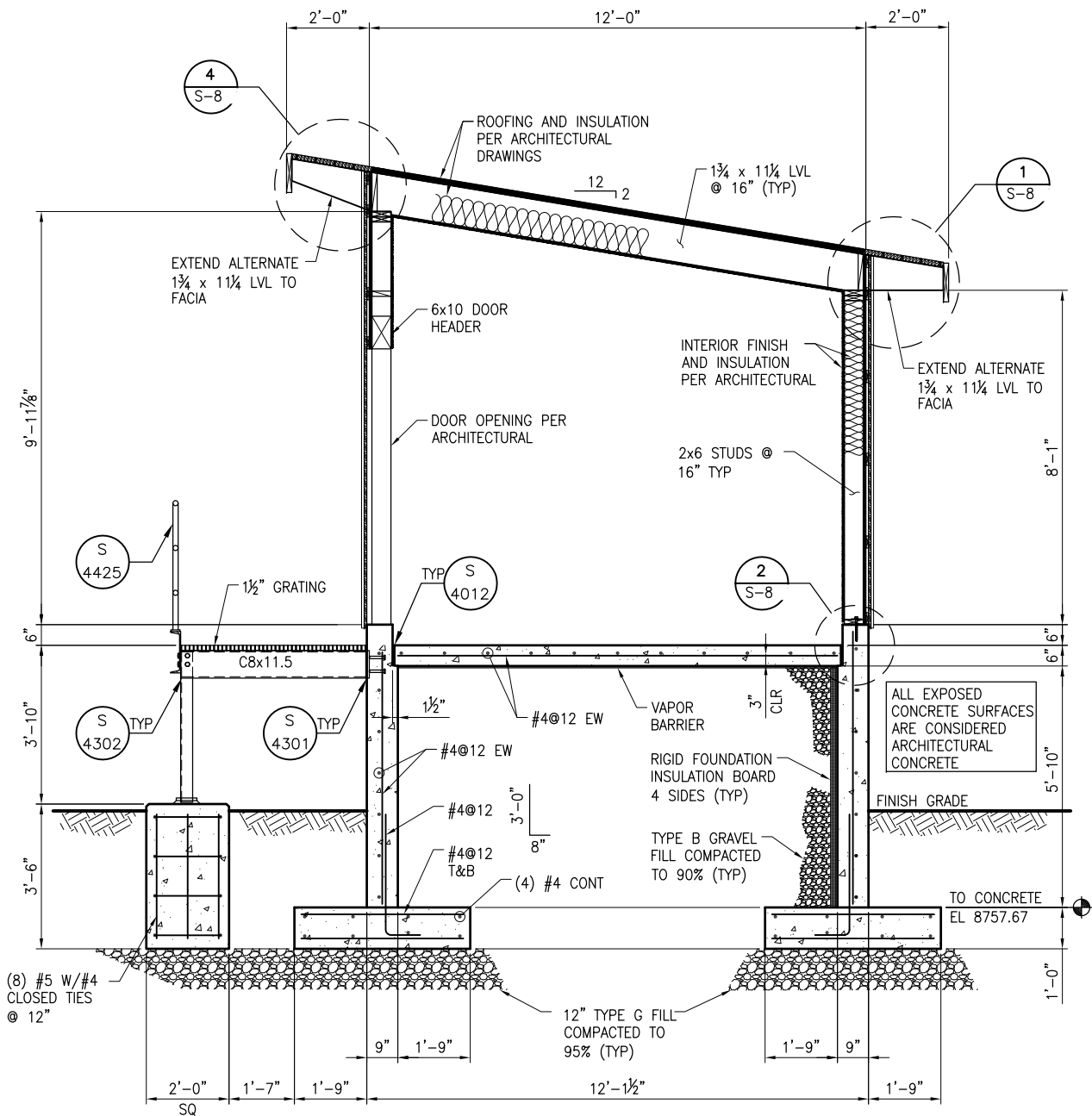
NO.	DATE	REV. BY	DESCRIPTION

DESIGN	R. DAVIS	REVIEW	CHECKED G. LOSCHER
DESIGN	R. DAVIS	APPROVED	R. DAVIS

STRUCTURAL  
**PUMP STATION AND FOUNDATION AND ROOF FRAMING PLAN**  
 DATE: MARCH 2013  
 PROJECT NUMBER 347-12-01

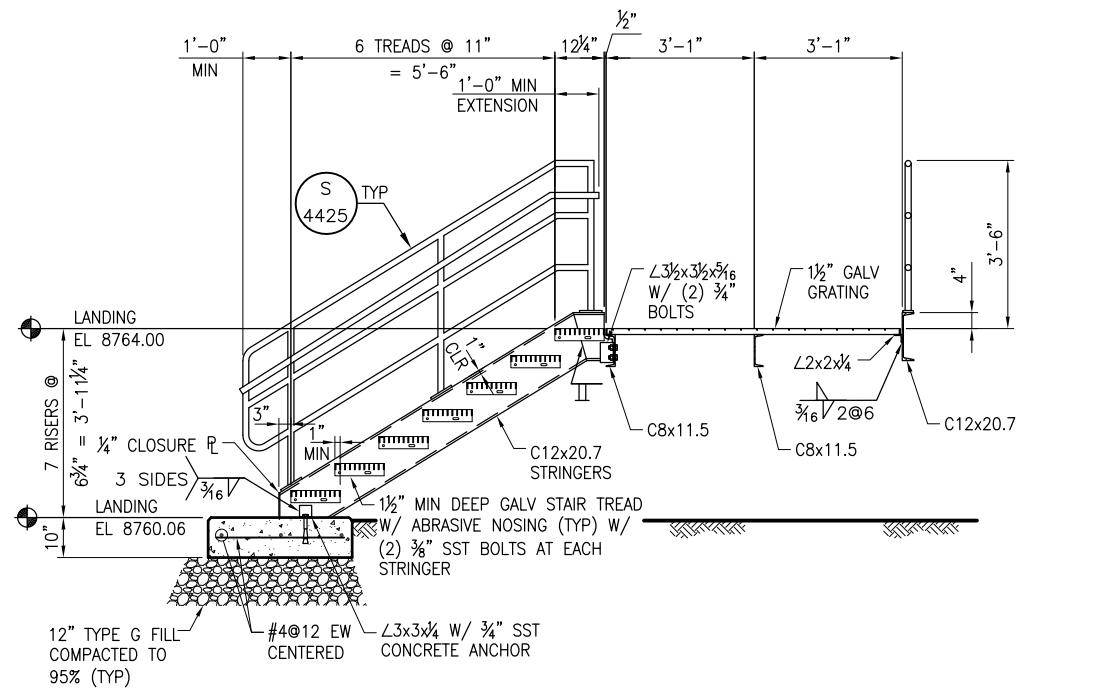
DRAWING NO.  
**S-6**  
 SHEET 23 OF 50





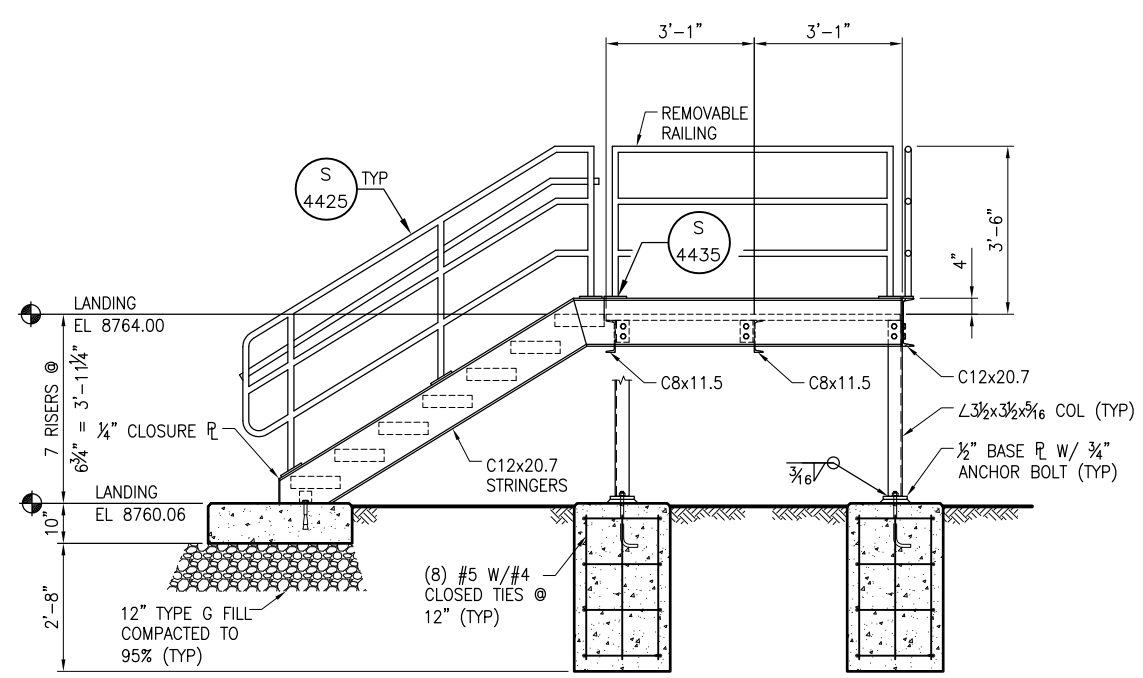
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SCALE: 1/2"=1'-0"

A  
S-6



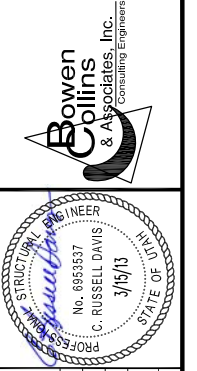
**SECTION**  
SCALE: 1/2"=1'-0"

B  
S-6



**SECTION**  
SCALE: 1/2"=1'-0"

C  
S-6



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FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN	REVIEW
DESIGN R. DAVIS	CHECKED G. LOSCHER
DRAWN R. DAVIS	APPROVED R. DAVIS

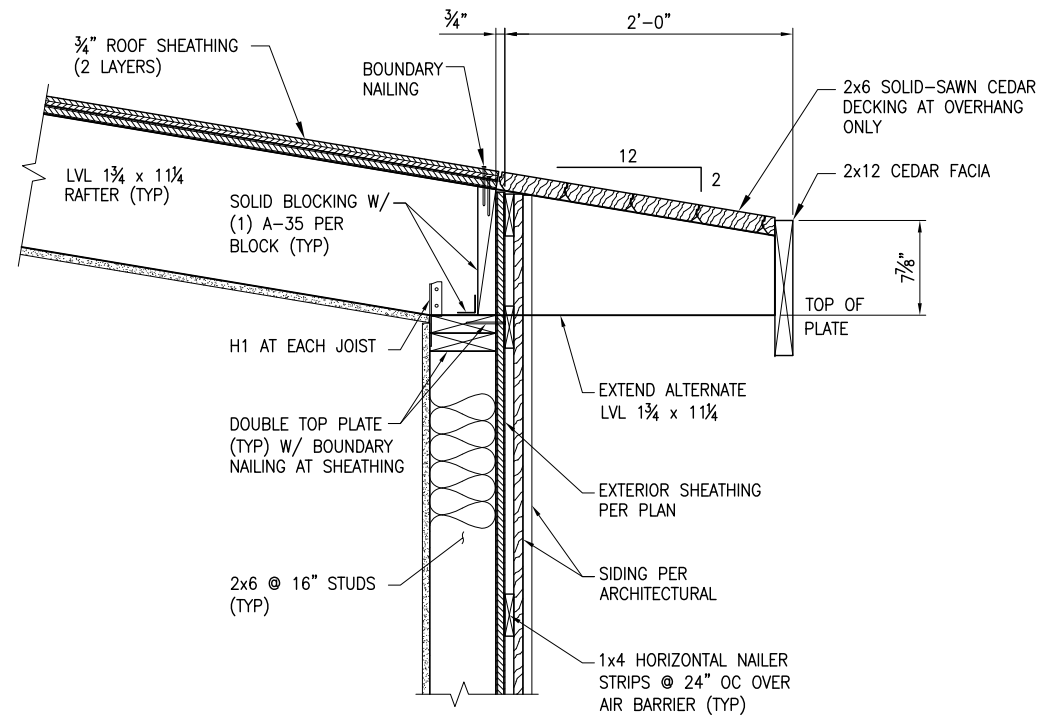
PROJECT NUMBER: 347-12-01

STRUCTURAL  
**PUMP STATION AND SECTIONS AND DETAILS 1**

DATE: MARCH 2013

DRAWING NO. **S-7**

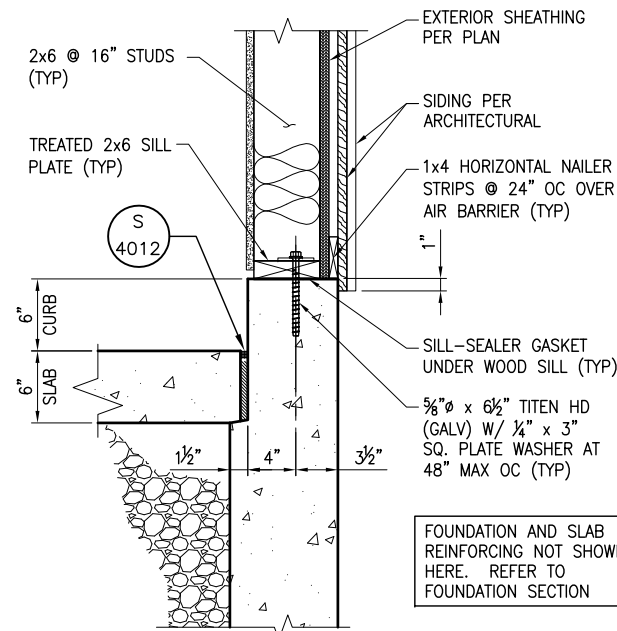
SHEET 24 OF 50



**DETAIL**

SCALE: 1-1/2"=1'-0"

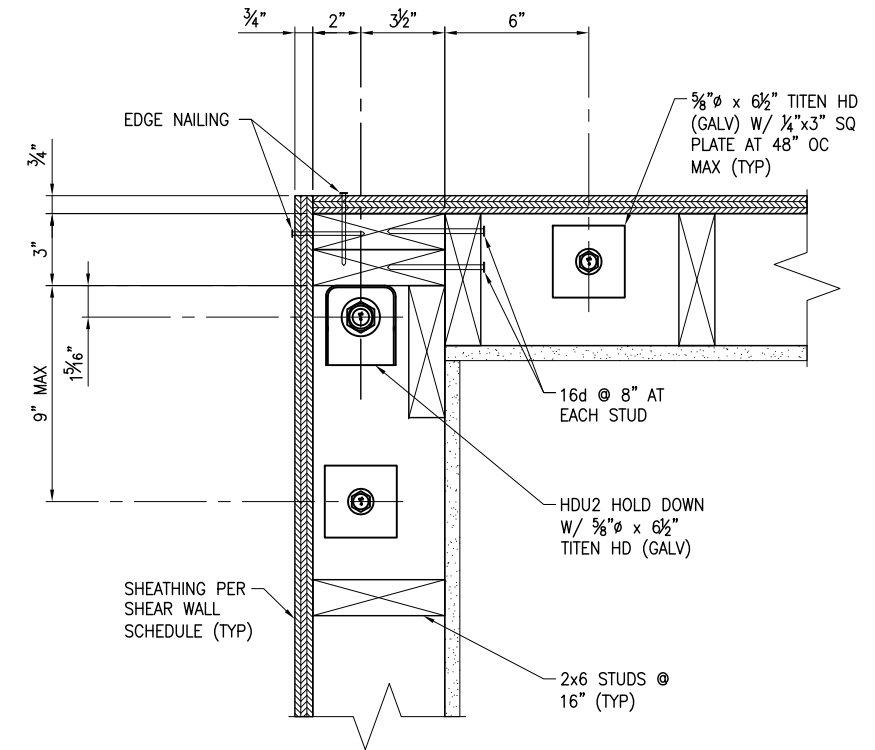
1  
S-7



**DETAIL**

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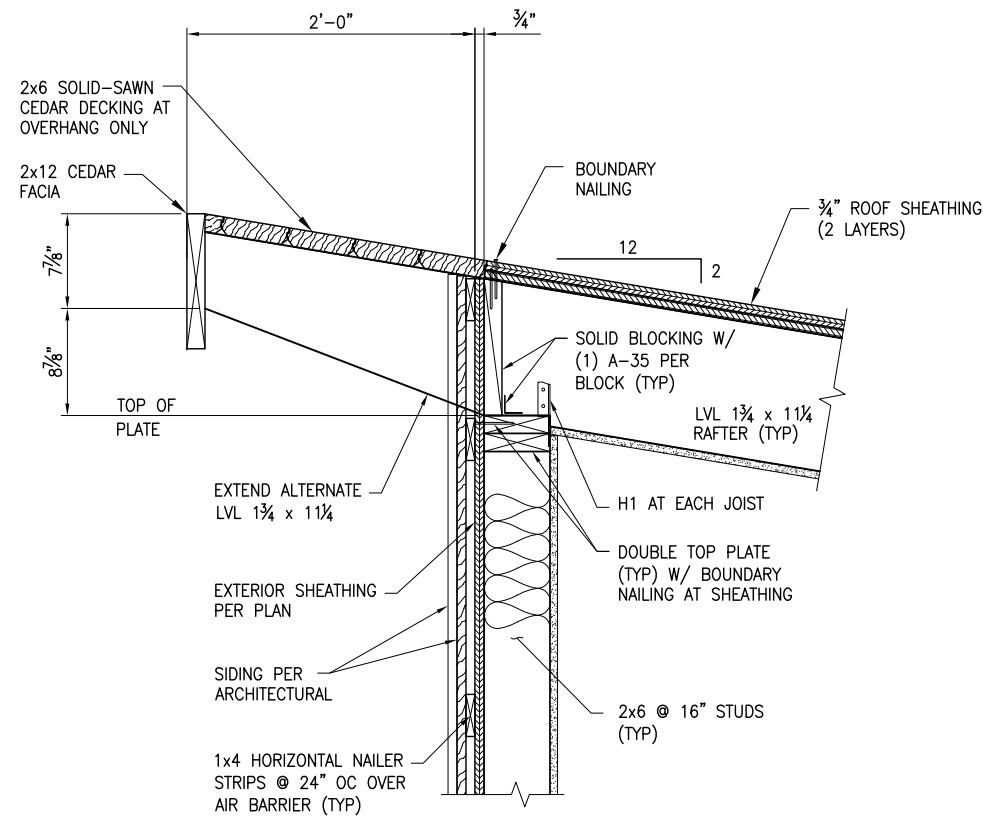
2  
S-7



**DETAIL**

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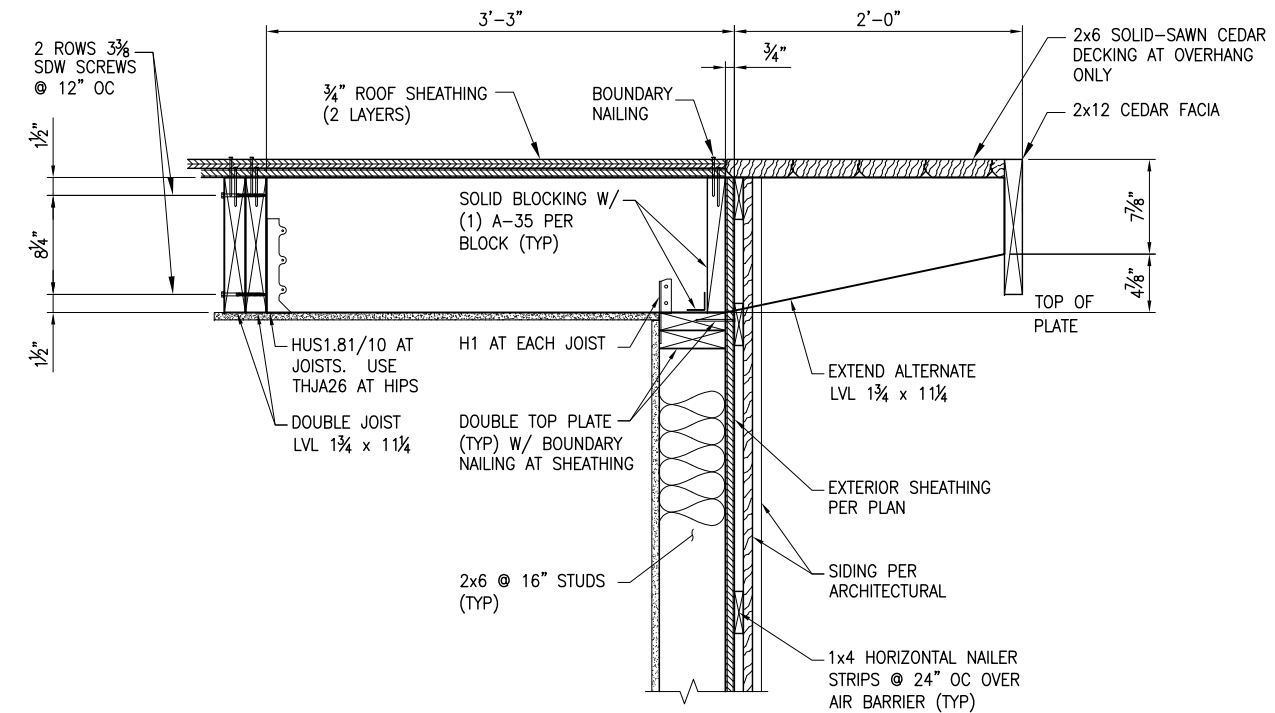
3  
S-6



**DETAIL**

SCALE: 1-1/2"=1'-0"

4  
S-7



**SECTION**

SCALE: 1-1/2"=1'-0"

A  
S-6

NOT FOR CONSTRUCTION  
FOR REVIEW ONLY

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

**REVISION**  
CHECKED G. LOSCHER  
APPROVED R. DAVIS

**DESIGN**  
DESIGN R. DAVIS  
DRAWN R. DAVIS

**STRUCTURAL**  
PUMP STATION AND SECTIONS AND DETAILS 2

DATE: MARCH 2013  
PROJECT 347-12-01  
NUMBER

DRAWING NO.  
S-8

SHEET 25 OF 50

# GENERAL STRUCTURAL NOTES

## GENERAL

- THE SPECIFICATIONS AND REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL CONSTRUCTION AND INSPECTION REQUIREMENTS FOR THIS PROJECT, AS INCLUDED IN THE PROJECT SPECIFICATIONS. ADDITIONAL AND MORE STRINGENT REQUIREMENTS ARE GIVEN IN THOSE SPECIFICATIONS. IN THE EVENT OF A CONFLICT BETWEEN THESE GENERAL NOTES AND THE REQUIREMENTS GIVEN IN THE PROJECT SPECIFICATIONS, THE PROJECT SPECIFICATIONS GOVERN.
- FOR LOCATION AND DIMENSIONS OF SLEEVES, CURBS, OPENINGS, AND DEPRESSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE ARCHITECTURAL, CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL VERIFY AND COORDINATE PENETRATIONS SHOWN ON THE OTHER PROJECT DRAWINGS, WHETHER THEY ARE SHOWN ON THE STRUCTURAL DRAWINGS OR NOT.
- EMBEDDED ITEMS, SUCH AS PIPE SLEEVES, CONDUITS, AND INSERTS SHALL ALL BE RIGIDLY INSTALLED IN PLACE BEFORE CONCRETE IS POURED. SEE ARCHITECTURAL, CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ITEMS REQUIRING SLEEVES AND EMBEDMENTS IN CONCRETE, WHICH ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, DUCTS, ETC. UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
- DESIGN DETAILS AS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND APPLY TO ALL SIMILAR SITUATIONS OCCURRING ON THE PROJECT, WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED IN EACH LOCATION. CONSULT THE ENGINEER FOR CONCURRENCE PRIOR TO CONSTRUCTION.
- SUBMIT DRAWINGS AND RECEIVE REVIEW OF ALL STRUCTURAL RELATED SHOP DRAWINGS PRIOR TO ERECTION OR CONSTRUCTION.
- APPLICABLE BUILDING CODE FOR THE PROJECT IS THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND AMERICAN CONCRETE INSTITUTE (ACI) 350-06, "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."

## FOUNDATIONS

- PROVIDE AND PLACE 2'-0" MINIMUM COMPACTED THICKNESS OF STRUCTURAL FILL BENEATH ALL SLABS/FOOTINGS. COMPACTED GRANULAR STRUCTURAL FILL TO EXTEND FROM BOTTOM OF SLAB/FOOTING DOWN TO UNDISTURBED EARTH AND TO EXTEND MINIMUM 2'-0" HORIZONTALLY BEYOND THE EDGE OF ALL FOOTINGS OR SLABS. WHEN A MOISTURE BARRIER IS CALLED FOR UNDER A FLOOR SLAB, PLACE THE BARRIER IMMEDIATELY ON TOP OF 2'-0" OF STRUCTURAL FILL. PLACE 2" OF SAND IMMEDIATELY OVER THE MOISTURE BARRIER AND PLACE CONCRETE ON THE SAND.
- FOUNDATIONS ARE DESIGNED FOR NET ALLOWABLE BEARING PRESSURE OF 4200 PSF.
- DO NOT PLACE BACKFILL AGAINST CANTILEVERED WALLS UNTIL THE CONCRETE IN THOSE WALLS HAS ATTAINED 100% OF ITS SPECIFIED COMPRESSIVE STRENGTH.
- PLACE NO BACKFILL AGAINST WALLS THAT ARE TIED TO ELEVATED SLABS OR DECKS UNTIL THE SLABS HAVE ATTAINED 100% OF THEIR SPECIFIED COMPRESSIVE STRENGTH AND ALL SLABS OR DECKING IS IN PLACE AND WELDED OR SCREWED AS SPECIFIED.
- DESIGN AND INSTALL ALL REQUIRED SHORING TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, STREETS, UTILITIES, ETC.
- OBTAIN APPROVAL OF FOUNDATION BEARING SURFACES BY ENGINEER/SPECIAL INSPECTOR PRIOR TO PLACING STRUCTURAL FILL.

## FORMWORK, SHORING, AND BRACING

- CONFORM TO ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" FOR DESIGN AND CONSTRUCTION OF CONCRETE FORMWORK AND BRACING. CONTRACTOR IS RESPONSIBLE FOR DESIGN AND CONSTRUCTION OF FORMWORK AND BRACING.
- STRUCTURES AS SHOWN ON THESE DRAWINGS INDICATE THE FINAL CONDITION ONLY AND DO NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR STRUCTURAL STABILITY DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATED TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
- TEMPORARY SHORING TO REMAIN IN PLACE UNTIL ELEVATED CONCRETE SLABS HAVE REACHED 28-DAY DESIGN STRENGTH AS DETERMINED BY CYLINDER BREAKS.

## CONCRETE

- ALL CONCRETE CONSTRUCTION TO CONFORM TO ACI 350 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES," INCLUDING BAR BENDS AND HOOKS UNLESS SPECIFICALLY DETAILED OTHERWISE ON THESE DRAWINGS.
- CAST-IN-PLACE STRUCTURAL CONCRETE FOR THE RESERVOIR STRUCTURE TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. ALL OTHER STRUCTURAL CONCRETE TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- NON-STRUCTURAL ELEMENTS, SUCH AS ENCASEMENTS, CURBS, SIDEWALKS AND LEAN CONCRETE TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
- USE CEMENT CONFORMING TO ASTM C150, TYPE II, LOW ALKALI.
- ALL CONSTRUCTION JOINTS, EXPANSION JOINTS, AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFICALLY SHOWN ON THE DRAWINGS TO BE APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
- INSTALL CONTINUOUS WATERSTOPS IN ALL EXPANSION, CONTRACTION, CONTROL, AND CONSTRUCTION JOINTS OF WATER-HOLDING BASINS, CHANNELS, AND BELOW-GRADE STRUCTURES UNLESS SPECIFICALLY NOTED OTHERWISE.
- PROVIDE 3/4-INCH CHAMFER AT ALL EXPOSED EDGES AND CORNERS UNLESS NOTED OTHERWISE.
- BEFORE PLACING THE SECOND POUR AT CONSTRUCTION JOINTS, THOROUGHLY CLEAN AND ROUGHEN ALL JOINT SURFACES TO A MINIMUM AMPLITUDE OF 1/4 INCH.

## REINFORCEMENT STEEL

- PROVIDE REINFORCEMENT STEEL CONFORMING TO ASTM A615, GRADE 60 EXCEPT WHERE WELDING IS PERMITTED BY THE ENGINEER. PROVIDE STEEL CONFORMING TO ASTM A706 WHEN WELDING IS PERMITTED.
- PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A185.
- DIMENSIONS GIVEN FOR REINFORCING BARS ARE TO BAR CENTERS UNLESS NOTED OTHERWISE. BAR COVER IS THE CLEAR DISTANCE BETWEEN BAR AND CONCRETE SURFACE. CLEARANCE FOR REINFORCEMENT BARS PER THE FOLLOWING UNLESS SHOWN OTHERWISE:
 

WHEN PLACED AGAINST GROUND	3"
INTERIOR SURFACES OF WATER-BEARING STRUCTURES	2"
ELEVATED SLABS	1"
ALL OTHER CONCRETE SURFACES	2"
- CONTINUE WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. EXTEND REINFORCEMENT INTO CONNECTING WALLS AND LAP ON THE OPPOSITE FACE OF THE CONNECTING WALLS.
- UNLESS OTHERWISE NOTED, ALL HOOKS SHOWN ARE 90° STANDARD HOOK AS DEFINED IN ACI 350-06.
- LAP VERTICAL WALL BARS WITH DOWELS FROM BELOW AND EXTEND THROUGH SLABS ABOVE TO TOP FACE. BEND AND/OR LAP TO TOP SLAB REINFORCEMENT AS INDICATED.
- UNLESS OTHERWISE INDICATED, CONTRACTOR MAY SPLICE CONTINUOUS SLAB OR LONGITUDINAL BEAM BARS AT LOCATIONS OF HIS CHOOSING, EXCEPT THAT TOP BAR SPLICES ARE TO BE LOCATED AT MIDSPAN AND BOTTOM BAR SPLICES ARE TO BE LOCATED AT SUPPORTS. MINIMUM LAP REQUIREMENTS ARE AS FOLLOWS UNLESS OTHERWISE INDICATED.

LAP LENGTHS - GRADE 60								
BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
CONCRETE DESIGN STRENGTH = 4500 PSI								
LAP LENGTH	1'-8"	2'-0"	2'-4"	3'-4"	4'-0"	4'-9"	6'-0"	7'-0"
CONCRETE DESIGN STRENGTH = 4000 PSI								
LAP LENGTH	1'-8"	2'-2"	2'-8"	3'-6"	4'-0"	5'-0"	6'-2"	7'-5"

## STRUCTURAL STEEL

- UNLESS NOTED OTHERWISE, PROVIDE STRUCTURAL STEEL CONFORMING TO ASTM A36. ROLLED WIDE FLANGE SHAPES TO CONFORM TO ASTM A992. PIPE TO CONFORM TO ASTM A53, TYPE E OR S, GRADE B. STRUCTURAL TUBING TO CONFORM TO ASTM A500, GRADE B. FABRICATE AND ERECT ALL STRUCTURAL STEEL IN CONFORMANCE WITH AISC SPECIFICATIONS.
- PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554, GRADE 36.
- USE ONLY CERTIFIED WELDERS FOR ALL WELDING WORK. USE FILLER METAL HAVING A MINIMUM TENSILE STRENGTH OF 70 KSI AND PERFORM ALL WORK IN ACCORDANCE WITH THE CURRENT STRUCTURAL WELDING CODE (AWS D1.1).
- UNLESS OTHERWISE NOTED, COAT ALL STRUCTURAL STEEL COMPONENTS WITH PAINT OF OTHER PROTECTIVE COATINGS AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- MINIMUM THICKNESS FOR GUSSET PLATES IS 3/8 INCH.
- STRUCTURAL STEEL, WHICH IS TO BE EMBEDDED INTO CONCRETE TO BE CLEAN AND FREE OF PAINT, OIL, OR DIRT.
- PERFORM ALL WELDED OR BOLTED CONNECTIONS IN ACCORDANCE WITH THE DETAILS, SPECIFICATIONS, AND THE THIRTEENTH EDITION OF THE AISC HANDBOOK OF FRAMED BEAM CONNECTIONS. USE ASTM 3/4-INCH A325N BOLTS UNLESS OTHERWISE NOTED.

## STAINLESS STEEL

- WHERE REQUIRED, PROVIDE STAINLESS STEEL SHAPES, PLATES, BARS, AND RODS CONFORMING TO ASTM A666 AND A276, TYPE 316 OR 316L.
- PROVIDE STAINLESS STEEL BOLTS AND NUTS CONFORMING TO ASTM F593 AND F594.

## ALUMINUM

- WHERE REQUIRED, PROVIDE ALLOY 6061-T6 FOR ALL ALUMINUM STRUCTURAL MATERIALS.
- COAT ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS AS DETAILED IN THE SPECIFICATIONS TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION.
- PERFORM ALUMINUM WELDING TO CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.2).

## LUMBER

- SAWN FRAMING LUMBER SHALL COMPLY WITH THE LATEST EDITION OF THE GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) OR THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB). ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED LUMBER GRADING AGENCY. SAWN LUMBER SHALL HAVE THE FOLLOWING MINIMUM GRADE, UNLESS NOTED OTHERWISE IN CONSTRUCTION DOCUMENTS.

MEMBER	DESIGNATION
WALL STUDS	DF/L STUD OR #2
TIMBER BEAMS & HEADERS	DF/L #1 & BTR
WALL PLATES & OTHER STRUCTURAL SAWN MEMBERS NOT SPECIFIED ABOVE	DF/L CONSTRUCTION

- LAMINATED-VENEER LUMBER (LVL) TO PROVIDE MINIMUM VALUES AS FOLLOWS:

PARAMETER	VALUE
Fb	2600 PSI
E	2,000,000 PSI

- LUMBER RESTING ON CONCRETE SHALL BE TREATED WITH A PRESERVATIVE IN ACCORDANCE WITH AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) REQUIREMENTS. FIELD TREATMENT OF END CUTS AND BORINGS IS REQUIRED ON MEMBERS OVER 2-IN THICK.
- WOOD CONNECTORS SHOWN ON THESE DRAWINGS SHALL BE PRODUCTS OF SIMPSON STRONG-TIE, INC. UNLESS NOTED OTHERWISE. HARDWARE BY OTHER MANUFACTURERS MAY BE USED PROVIDED THEY ARE OF EQUIVALENT CAPACITY FOR THE INTENDED APPLICATION AND HAVE CURRENT ICC-ES APPROVALS. SUBSTITUTIONS MUST BE APPROVED BY THE STRUCTURAL ENGINEER. INSTALL ALL CONNECTORS WITH ALL FASTENERS REQUIRED BY THE MANUFACTURER'S SPECIFICATIONS UNLESS NOTED OTHERWISE.

- ALL NAILS SHALL BE SINKER NAILS WITH THE FOLLOWING PROPERTIES:

NAIL SIZE	SHANK Ø	LENGTH
8d SINKER	0.113"	2 3/8"
10d SINKER	0.120"	2 7/8"
12d SINKER	0.135"	3 3/8"
16d SINKER	0.148"	3 1/4"

- ALL STRUCTURAL WOOD PANELS SHALL BE STRUCTURAL I APA RATED SHEATHING, AND MUST CONFORM TO THE FOLLOWING NOMINAL THICKNESS AND SPAN RATING, UNLESS NOTED OTHERWISE:

THICKNESS	SPAN RATING
7/16"	32 / 16
23/32	48 / 24

- FULL WIDTH SHEATHING PANELS SHALL BE USED WHENEVER POSSIBLE.
- ALL SHEAR WALL BOTTOM PLATE ANCHOR BOLTS SHALL HAVE A MINIMUM 0.25" x 3" x 3" SQUARE PLATE WASHER PLACED BETWEEN THE NUT AND WOOD SURFACE. EDGE OF PLATE TO BE WITHIN 1/2" OF SHEATHING EDGE.
- ALL FRAMING AT ADJOINING PANEL EDGES IN SHEAR WALLS SHALL BE DOUBLE 2x MEMBERS OR GREATER. BLOCKING MEMBERS AT PANEL EDGES MAY BE LAID FLAT AT THE CONTRACTOR'S OPTION.

## LOADING CRITERIA

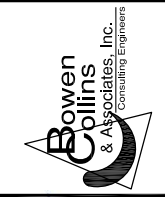
- DEAD LOAD CALCULATED FROM UNIT WEIGHT
- LIVE LOADS:
 

STAIRS/PLATFORMS	100 PSF
VAULT ROOF SLABS	150 PSF
ALL FLOORS/SLABS NOT INDICATED	50 PSF
RESERVOIR ROOF	120 PSF
- LATERAL EARTH PRESSURE (EFP) NON SATURATED 60 PCF
- TRAFFIC SURCHARGE 2 FT OF EARTH
- HYDROSTATIC FLUID PRESSURE 62.4 PCF
- WIND LOAD:
 

BASIC WIND SPEED	90 MPH
EXPOSURE	C
IMPORTANCE FACTOR	1.15
- SNOW LOAD:
 

GROUND SNOW LOAD	273 PSF
FLAT ROOF SNOW LOAD	252 PSF
SNOW EXPOSURE COEFFICIENT	1.0
IMPORTANCE FACTOR	1.2
THERMAL FACTOR	1.0
- SEISMIC LOAD:
 

IBC MCE SPECTRA	
2% EXCEEDANCE IN 50 YEARS.	
MAX ACC FOR 0.2 SEC PERIOD (Ss)	0.812g
MAX ACC FOR 1.0 SECOND PERIOD (S1)	0.269g
SITE CLASS	D
SEISMIC DESIGN CATEGORY	C
IMPORTANCE FACTOR	1.50
- FROST DEPTH 40 INCHES

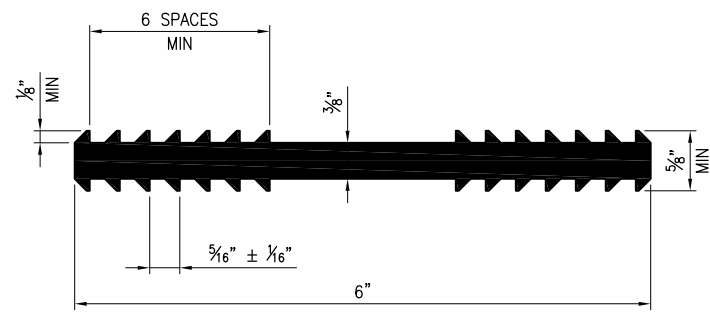


NOT FOR CONSTRUCTION FOR REVIEW ONLY	NO.	DATE	REV. BY	DESCRIPTION

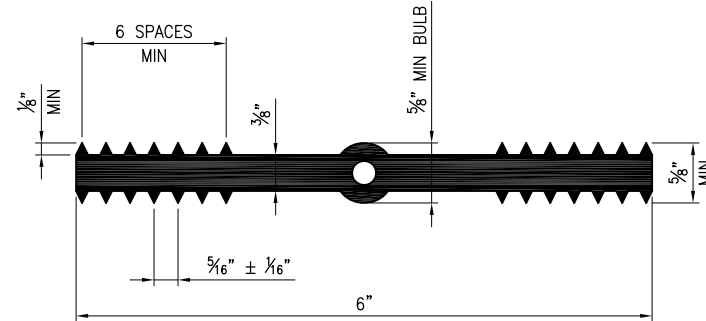
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN R. DAVIS  
CHECKED G. LOSCHER  
APPROVED R. DAVIS

GENERAL STRUCTURAL NOTES  
PROJECT 347-12-01  
DATE: MARCH 2013  
NUMBER

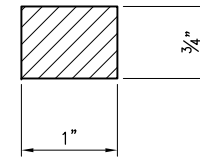


**WATERSTOP** S 4001  
NOT TO SCALE

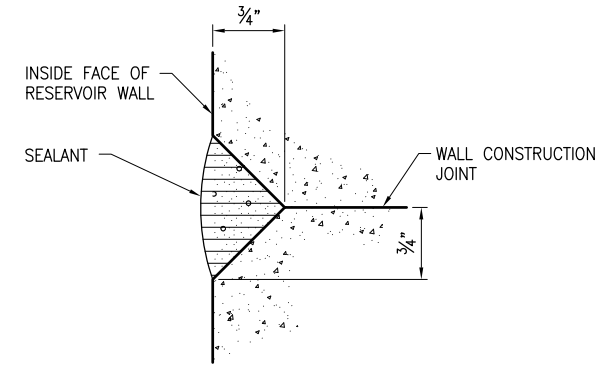


**WATERSTOP** S 4002  
NOT TO SCALE

NOTE: WATERSTOP IS PREFORMED PLASTIC ADHESIVE TYPE.

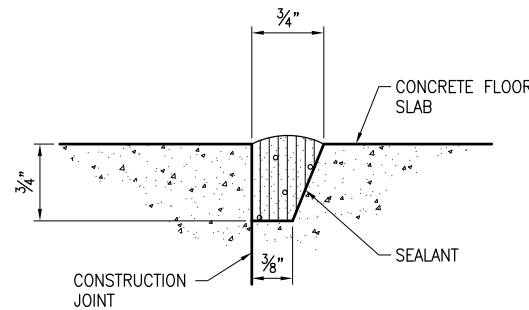


**WATERSTOP** S 4005  
NOT TO SCALE



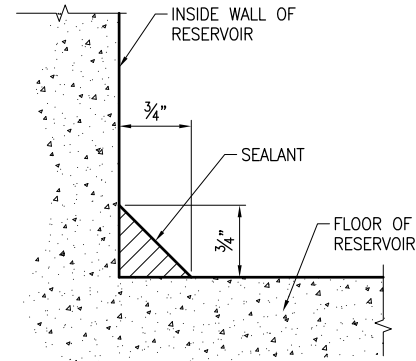
NOTE: SEALANT GROOVE TO EXTEND FROM TOP OF WALL FOOTING TO BOTTOM OF 6" FILLET, INSIDE WALL CONSTRUCTION JOINTS ONLY.

**SEALANT** S 4006  
NOT TO SCALE

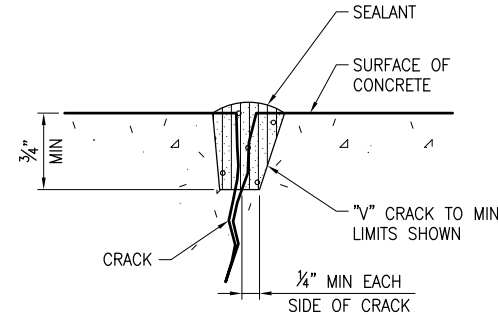


NOTES:  
1. AT CONTRACTOR'S OPTION, SEALANT GROOVES MAY CONTINUE STRAIGHT ACROSS CONSTRUCTION JOINT INTERSECTION OR BE STAGGERED UPON APPROVAL OF THE ENGINEER.  
2. NO BOND BREAKER WHERE SEALANT GROOVE IS CONSTRUCTED.

**SEALANT** S 4007  
NOT TO SCALE

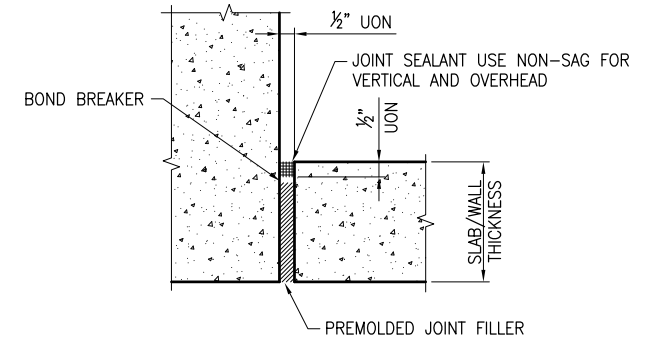


**SEALANT** S 4009  
NOT TO SCALE



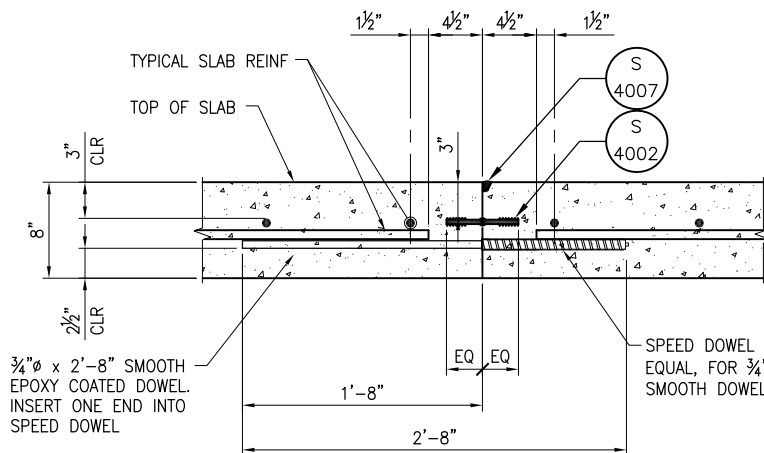
NOTE: ALL CRACKS IN FLOOR SLABS, WALLS, AND ROOF SLABS ARE TO BE REPAIRED PER THIS DETAIL OR AS INSTRUCTED BY THE ENGINEER PRIOR TO FILLING THE RESERVOIR WITH WATER.

**CRACK REPAIR** S 4010  
NOT TO SCALE



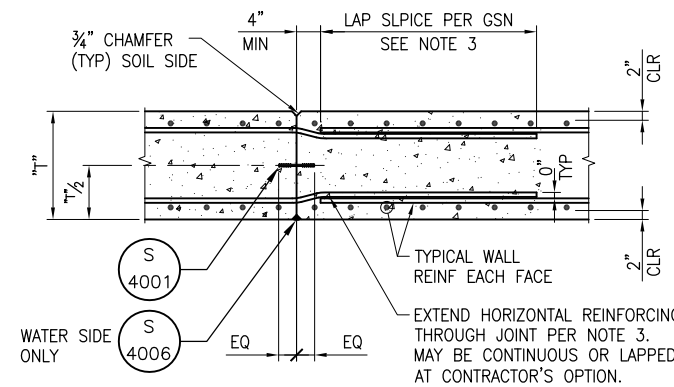
NOTE: DISCONTINUE ALL REINFORCING AT JOINT. REINFORCING IS NOT SHOWN FOR CLARITY.

**EXPANSION JT** S 4012  
NOT TO SCALE



NOTE: DETAIL IS TYPICAL IN RESERVOIR FLOOR.

**RESERVOIR SLAB JOINT** S 4013  
NOT TO SCALE



NOTES:

- UNLESS OTHERWISE NOTED, 3/4" CHAMFERS SHALL BE OMITTED IN SURFACES SCHEDULED TO RECEIVE ARCHITECTURAL FINISHES.
- UNLESS SPECIFICALLY NOTED OTHERWISE, #5 AND LARGER BARS SHALL BE CONTINUOUS THROUGH WALL JOINTS WHILE #4 AND SMALLER BARS SHALL ONLY EXTEND 50% THROUGH THE JOINT.
- UNLESS OTHERWISE NOTED, STAGGER ALL LAP SPLICES PER DETAIL S/4040.

**RESERVOIR WALL JOINT** S 4019  
NOT TO SCALE



NOT FOR CONSTRUCTION FOR REVIEW ONLY

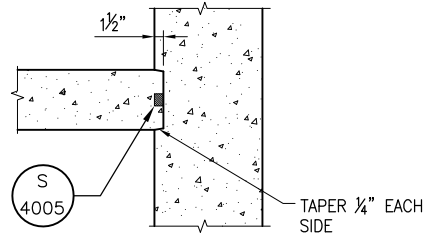
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN: R. DAVIS  
CHECKED: G. LOSCHER  
APPROVED: R. DAVIS

GENERAL STRUCTURAL DETAILS 1  
DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

DRAWING NO. GS-2

SHEET 27 OF 50



- NOTES:**
- CONSTRUCTION JOINT SHOWN APPLIES FOR BOTH VERTICAL AND HORIZONTAL JOINTS, KEYWAYS TO BE CONTINUOUS.
  - REINFORCING NOT SHOWN FOR CLARITY. USE BAR COUPLERS AT THIS JOINT AND LAP/EMBED REINFORCING ON EACH SIDE OF JOINT.

**CONST JT W/ WATERSTOP**

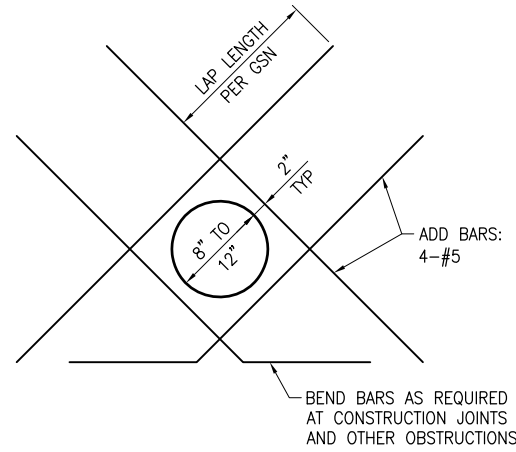
NOT TO SCALE

S  
4027

**CONST JT W/O WATERSTOP**

NOT TO SCALE

S  
4028

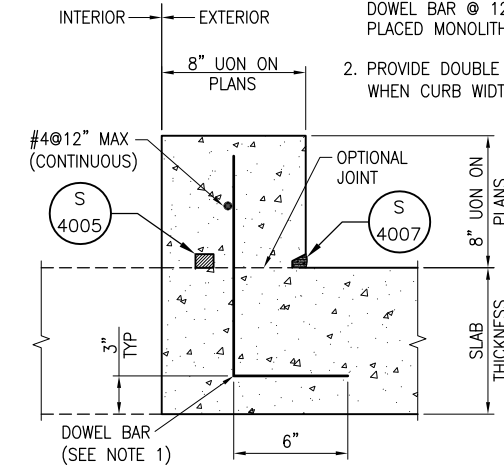


- NOTES:**
- THIS DETAIL TO BE USED WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER DETAIL IS SPECIFIED.
  - CUT NORMAL REINFORCING 2" CLEAR OF OPENING.
  - DIAGONAL BARS TO BE PLACED:
    - AT CENTERLINE OF WALL OR SLAB WHERE SINGLE MAT OF REINFORCEMENT IS PROVIDED.
    - AT EACH FACE OF WALL OR SLAB WHERE TWO MATS OF REINFORCEMENT ARE PROVIDED.
  - NO ADDITIONAL REINFORCING REQUIRED FOR OPENINGS SMALLER THAN 8".

**DIAGONAL REINFORCEMENT AT CIRCULAR OPENINGS**

NOT TO SCALE

S  
4030

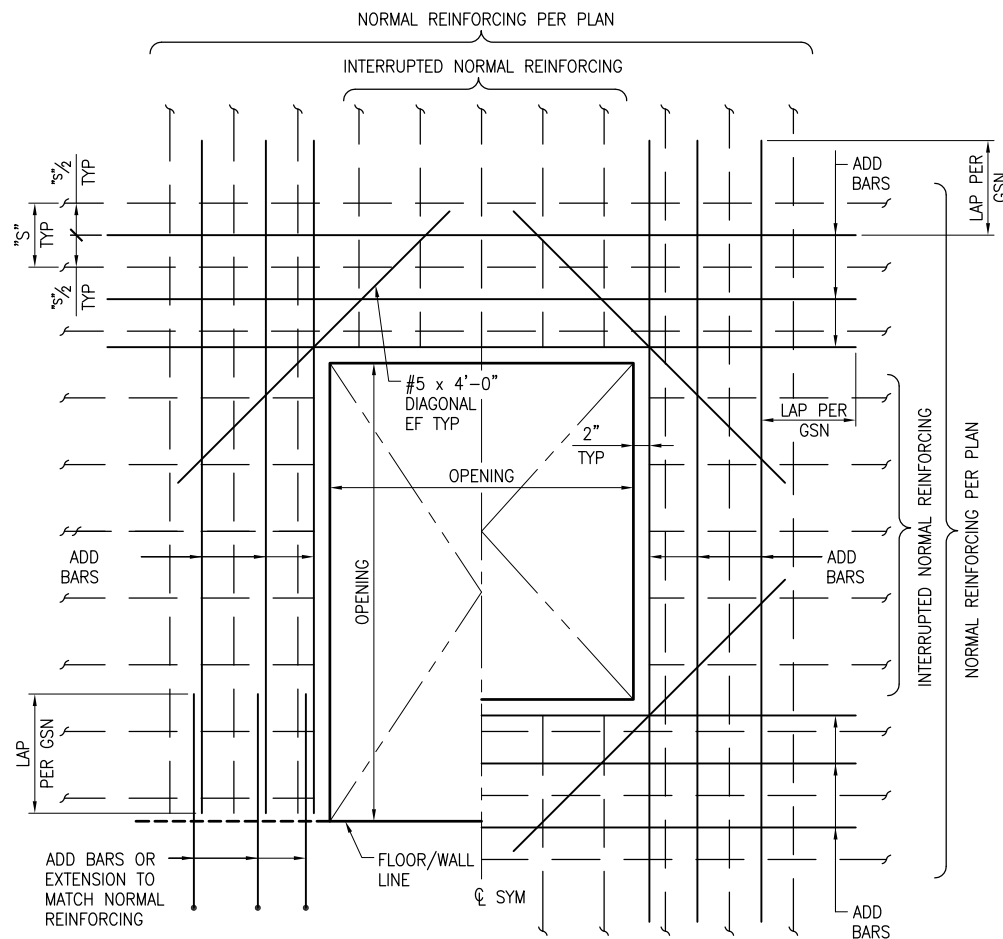


- NOTES:**
- UNLESS OTHERWISE NOTED, PROVIDE #4 DOWEL BAR @ 12" OC IF CURB IS NOT PLACED MONOLITHIC WITH SLAB.
  - PROVIDE DOUBLE MAT OF REINFORCING WHEN CURB WIDTH EXCEEDS 9"

**CONCRETE CURB**

NOT TO SCALE

S  
4041

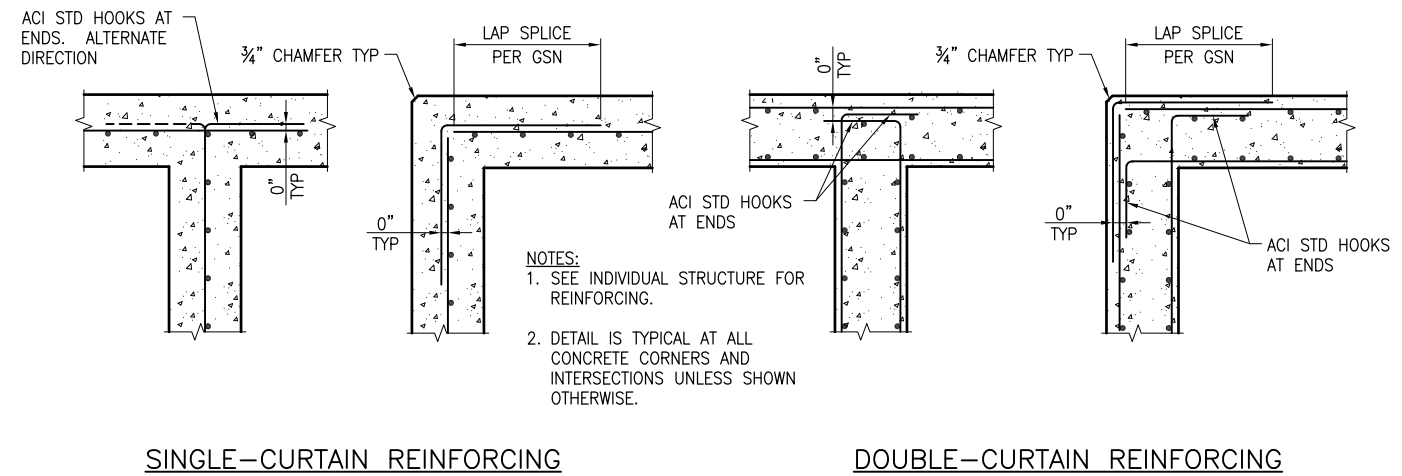


- NOTES:**
- THIS DETAIL TO BE USED WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER ADDITIONAL REINFORCING IS SPECIFIED.
  - AREA OF ADD BARS AT EACH EDGE OF OPENING IN EACH DIRECTION SHALL MATCH 1/2 THE CROSS SECTIONAL AREA OF THE INTERRUPTED BARS. BARS UP TO TWO BAR SIZES LARGER THAN NORMAL REINFORCING MAY BE USED. FIT ADD BARS WITHIN A DISTANCE OF 2X WALL/SLAB THICKNESS FROM EDGE OF OPENING.
  - CUT NORMAL REINFORCING 2" CLEAR OF OPENING.
  - PROVIDE STANDARD ACI HOOKS ON BARS/DOWELS IF STRAIGHT EXTENSION PAST THE OPENING CANNOT BE ACHIEVED.
  - PLACE ADD BARS IN SAME PLANES AS NORMAL REINFORCING INDICATED.
  - PLACE #5 ADD DIAGONAL CORNER BARS UNDER NORMAL REINFORCING INDICATED.
  - NO ADDITIONAL REINFORCING REQUIRED FOR OPENINGS SMALLER THAN 8" SQUARE.
  - WHEN AN INTERSECTING SLAB OR WALL OCCURS WITHIN ONE WALL/SLAB THICKNESS OF THE EDGE OF OPENING, NO ADD BARS ARE REQUIRED ON THAT SIDE.

**ADDITIONAL REINF @ RECTANGULAR OPENINGS IN WALLS/SLABS**

NOT TO SCALE

S  
4034

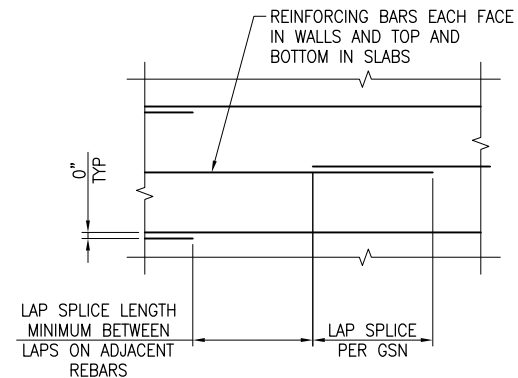


- NOTES:**
- SEE INDIVIDUAL STRUCTURE FOR REINFORCING.
  - DETAIL IS TYPICAL AT ALL CONCRETE CORNERS AND INTERSECTIONS UNLESS SHOWN OTHERWISE.

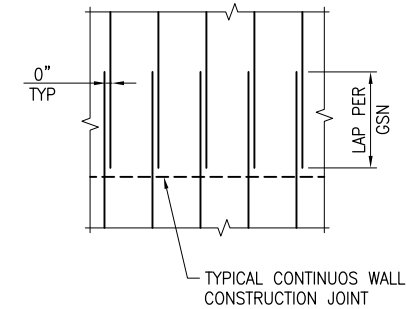
**WALL REINFORCING AT CORNERS AND JUNCTIONS**

NOT TO SCALE

S  
4039



**HORIZONTAL REINFORCING**



**VERTICAL REINFORCING**

**REINFORCING STEEL LAP SPLICES**

NOT TO SCALE

S  
4040

**Summit Mountain Holding Group, LLC**  
**EARL'S PEAK WATER PROJECT**  
 WEBER COUNTY, UTAH

**GENERAL STRUCTURAL DETAILS 2**

DATE: MARCH 2013 PROJECT NUMBER: 347-12-01

DRAWING NO. **GS-3**

SHEET 28 OF 50

**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

**VERIFY SCALE**  
 BAR IS ONE INCH ON ORIGINAL DRAWING

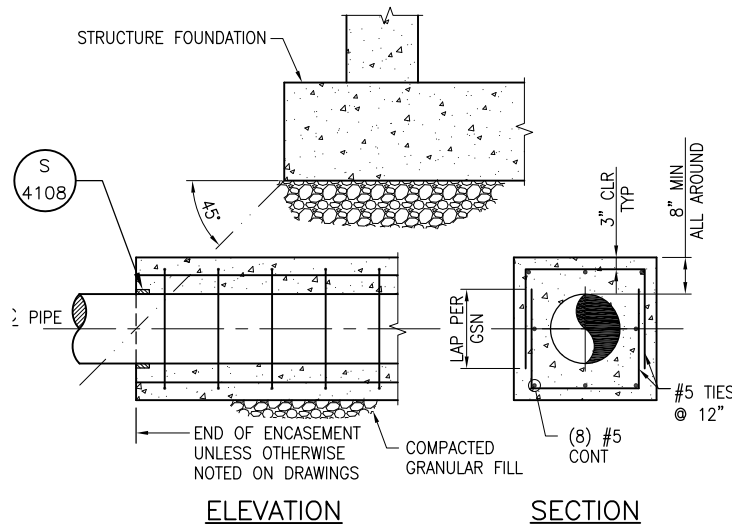
DESIGN: R. DAVIS  
 CHECKED: G. LOSCHER  
 APPROVED: R. DAVIS

REVIEW: [ ]  
 DATE: [ ]  
 REV. BY: [ ]  
 DESCRIPTION: [ ]

NO. [ ]

REVISIONS

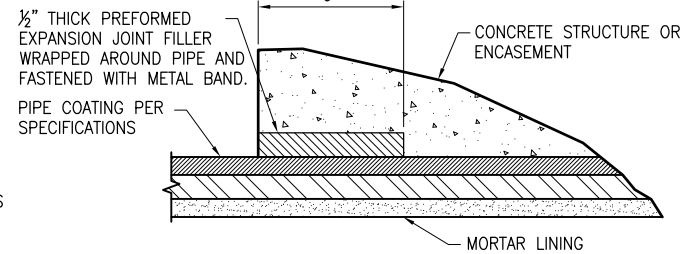
**Bohannon Collins & Associates, Inc.**  
 Consulting Engineers  
 No. 885337  
 C. RUSSELL DAVIS  
 3/15/13  
 STATE OF UTAH



PIPE ENCASEMENT END

NOT TO SCALE

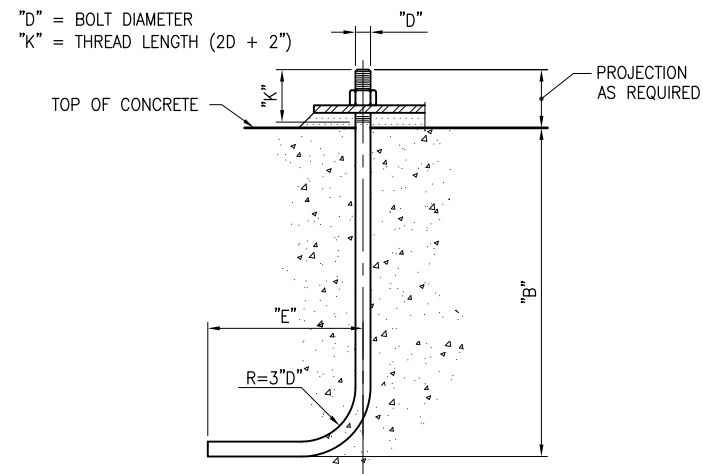
S 4107



PIPE ENCASEMENT END

NOT TO SCALE

S 4108



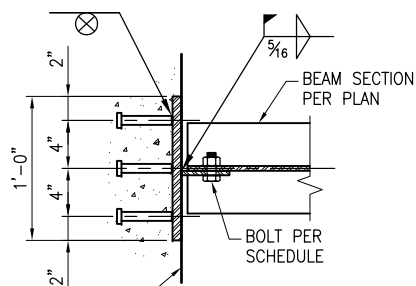
ANCHOR BOLT (TYPE VI)

NOT TO SCALE

S 4124

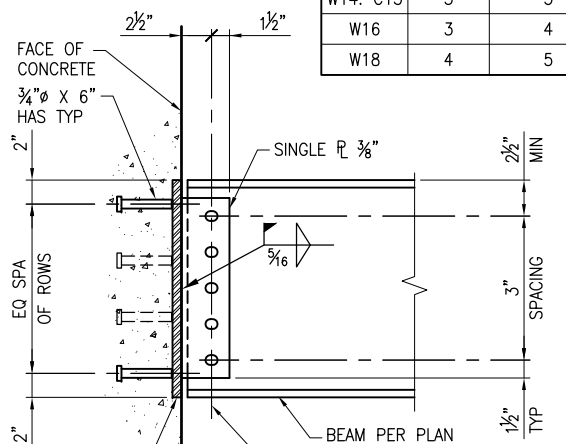
ANCHOR BOLT SCHEDULE			
"D"	"E"	"B"	REMARKS
3/8"	3"	8"	
1/2"	3"	10"	
5/8"	4"	12"	
3/4"	5"	14"	
7/8"	7"	16"	
1"	8"	20"	

NOTE:  
ANCHOR BOLT TYPE VI IS TO BE USED UNLESS OTHER ANCHORS ARE SPECIFICALLY CALLED FOR ON THE DRAWINGS.



PLAN

CONNECTION SCHEDULE		
STEEL SECTION	ROWS OF HAS	ROWS OF A325N BOLTS
W8, C8	2	2
W10, C10	2	2
W12, C12	2	3
W14, C15	3	3
W16	3	4
W18	4	5

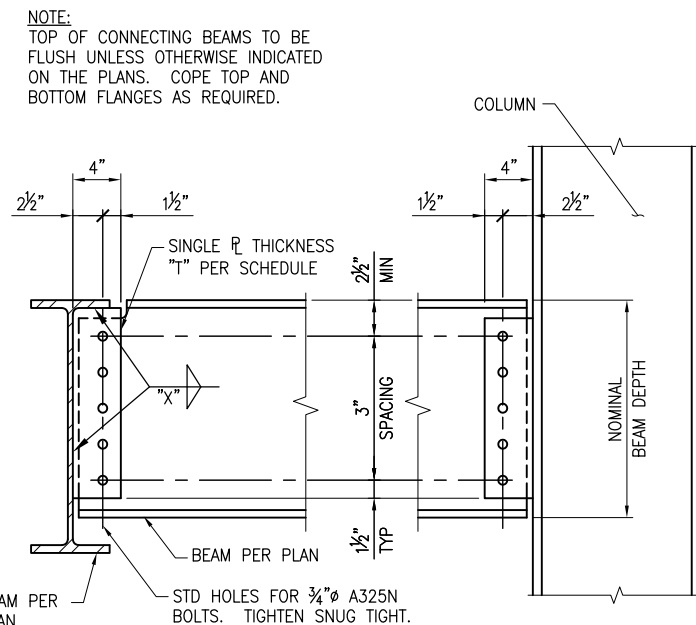


ELEVATION

EMBEDDED BEAM CONNECT

NOT TO SCALE

S 4301



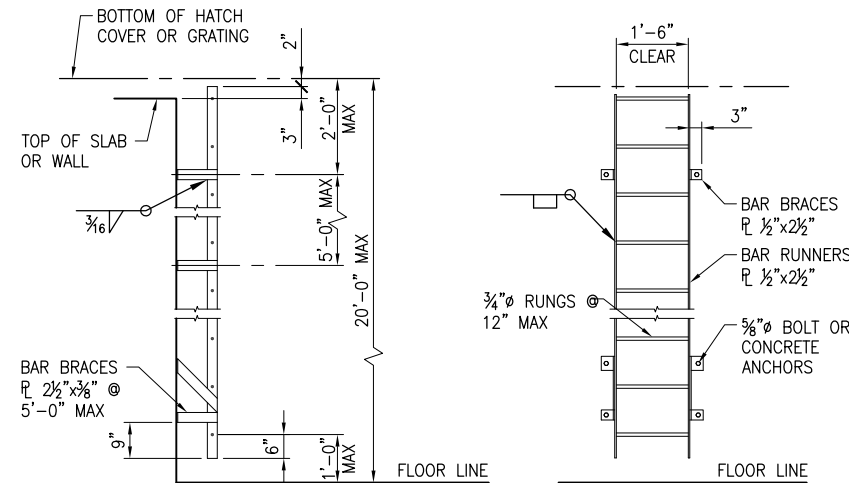
SINGLE-PLATE BEAM CONNECT

NOT TO SCALE

S 4302

CONNECTION SCHEDULE			
NOMINAL BEAM DEPTH (IN)	ROWS OF A325N BOLTS	SINGLE R THICK "T" (IN)	FILLET WELD SIZE "X" (IN)
W8, C8	2	3/8	5/16
W10, C10	2	3/8	5/16
W12, C12	3	3/8	5/16
W14, C15	3	3/8	5/16
W16	4	3/8	5/16
W18	5	3/8	5/16

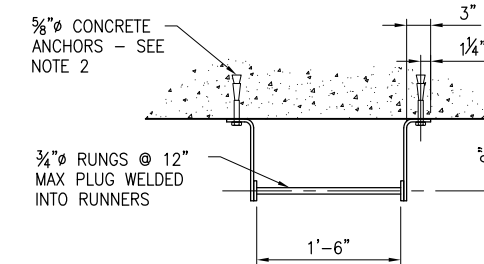
NOTE:  
SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLANS BY (3) WHERE THE SYMBOL INDICATES THE NUMBER OF ROWS OF A325N BOLTS TO BE USED FOR THE SPECIAL CONNECTION.



FIXED LADDER

NOT TO SCALE

S 4412



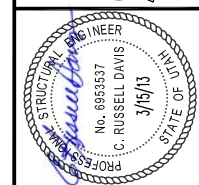
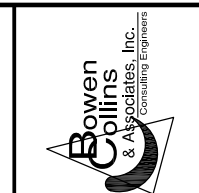
GRATING NOTES:

- UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL GRATING IS GALVANIZED STEEL.
- GRATING DEPTH "T" AS NOTED ON DRAWINGS.
- ALL EDGES AND OPENINGS ARE TO BE Banded.
- WEIGHT OF INDIVIDUAL GRATING SECTION SHALL NOT EXCEED 80 LBS.
- METAL BEARING BARS ARE TO BE DEPTH "T" x 3/16 @ 1 1/2 OC. CROSS BARS ARE TO BE AT 4" OC.
- PROVIDE A MINIMUM OF 4 CLIPS PER GRATING PANEL AND LOCATE APPROXIMATELY 4" FROM PANEL CORNERS. MAXIMUM SPACING OF CLIPS IS 3'-0".
- MATERIALS:
  - ALUMINUM GRATING - USE ALUMINUM ANGLE SUPPORTS AND STAINLESS STEEL BOLTS AND CLIPS.
  - GALVANIZED STEEL GRATING - USE GALVANIZED STEEL SUPPORTS, BOLTS, AND CLIPS. HOT-DIP GALVANIZE AFTER FABRICATION.
  - STAINLESS STEEL GRATING - USE 316 STAINLESS STEEL ANGLE SUPPORTS, BOLTS, AND CLIPS.

GRATING EDGE

NOT TO SCALE

S 4416



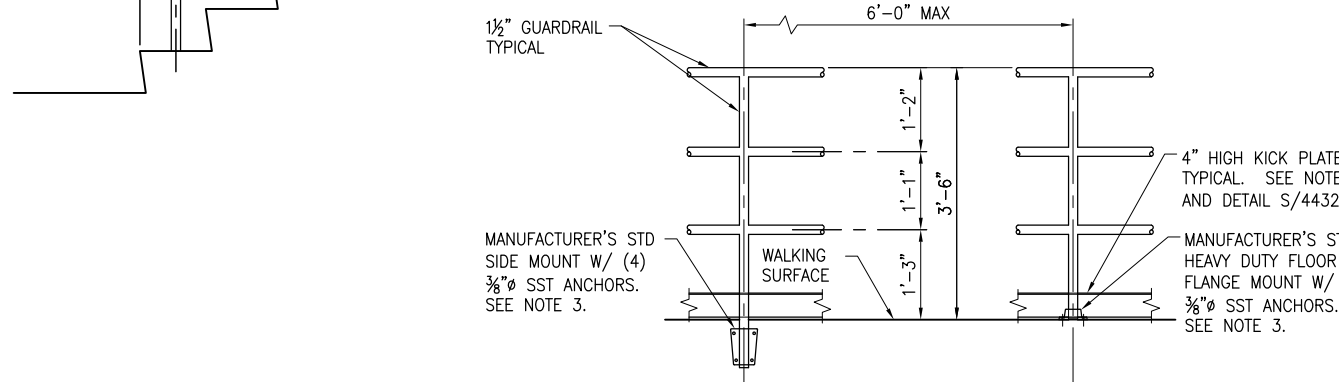
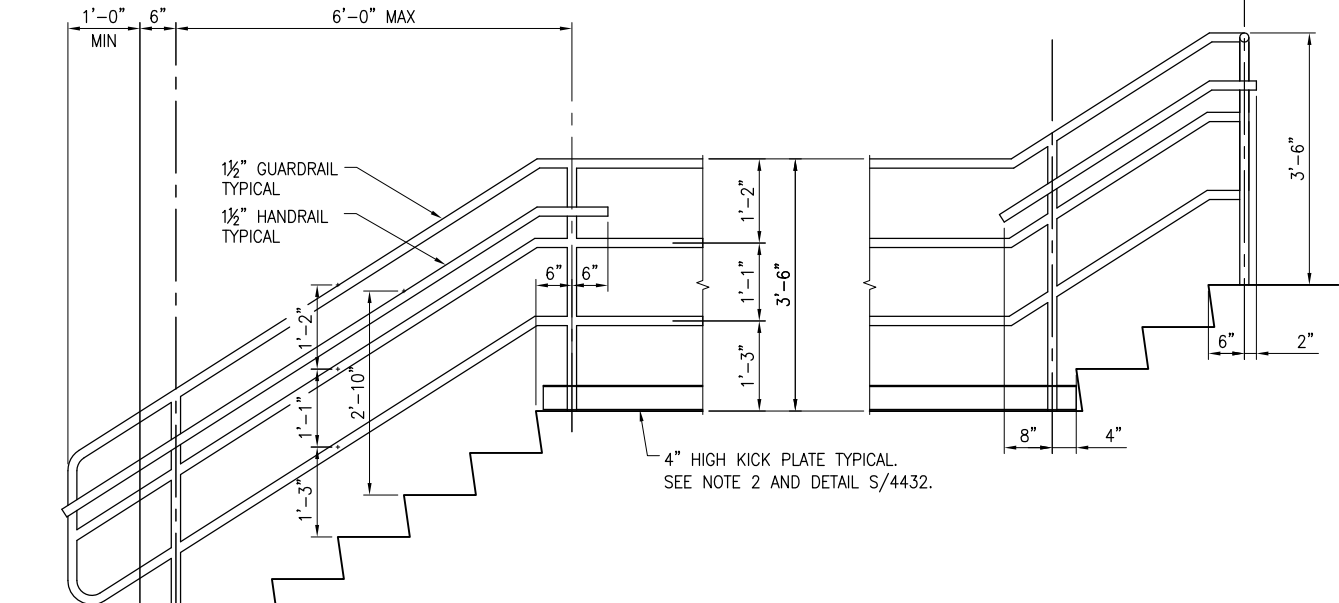
NOT FOR CONSTRUCTION FOR REVIEW ONLY

VERIFICATION SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN R. DAVIS  
CHECKED G. LOSCHER  
APPROVED R. DAVIS

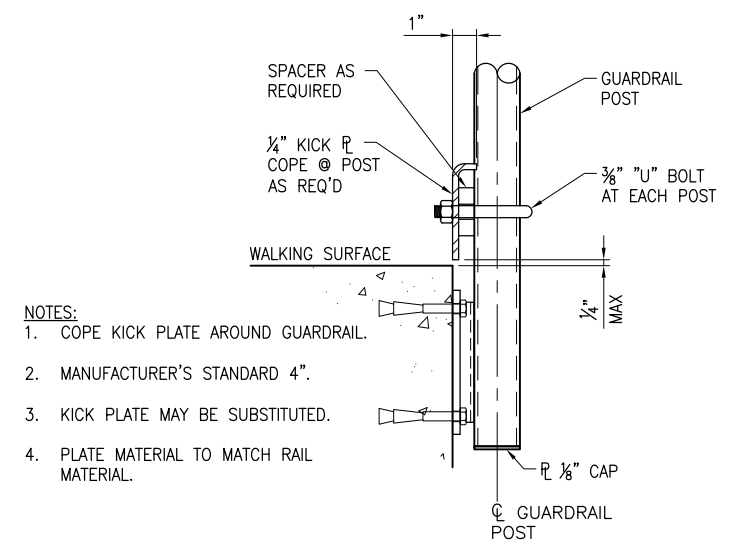
DRAWING NO. GS-4

SHEET 29 OF 50

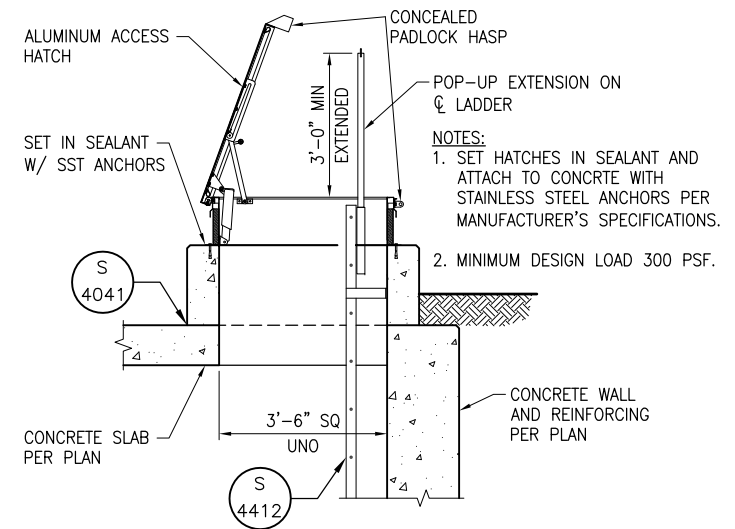


- NOTES:**
1. PLACE CENTER OF FLOOR FLANGE MOUNTED POSTS 4" FROM EDGE OF CONCRETE OR 6" FROM STAIR NOSINGS UNLESS OTHERWISE NOTED ON DRAWINGS.
  2. KICKPLATE MAY BE EXTRUDED SHAPE OR BENT PLATE AND SHALL BE ATTACHED WITH STAINLESS STEEL BOLTS. BOLT KICKPLATE TO POSTS WITH BOTTOM 1/4" CLEAR FROM WALKING SURFACE. FOR SIDE MOUNTED RAILS, PROVIDE STANDARD SPACER BLOCK BETWEEN POST AND KICKPLATE TO MAINTAIN 1/4" MAXIMUM CLEAR SPACING. PROVIDE KICKPLATE AT ALL PLACES WHERE DROP FROM ONE LEVEL TO ANOTHER EXCEEDS 2'-6" AND WHERE INDICATED ON THE DRAWINGS. HAND TIGHTEN AND CENTER PUNCH BOLT THREADS TO LOCK. KICKPLATE MAY BE OMITTED WHERE RAILING IS MOUNTED ON MINIMUM 4" HIGH STEEL OR CONCRETE CURB.
  3. VARIOUS POST MOUNTINGS ARE SHOWN IN THIS DETAIL. SIDE MOUNTING IS PREFERRED WHEN PRACTICAL. REFER TO DRAWINGS FOR SPECIFIC MOUNTING REQUIREMENTS.
  4. PLACE RAIL POSTS OPPOSITE EACH OTHER WHEN POSSIBLE AND WHERE GUARDRAILS ARE PARALLEL.
  5. COAT ALL SURFACES OF ALUMINUM IN CONTACT WITH CONCRETE IN ACCORDANCE WITH SPECIFICATIONS. PLACE NEOPRENE GASKET BETWEEN ALUMINUM AND STEEL.
  6. ALL GUARDRAILS ARE FIXED UNLESS OTHERWISE NOTED ON DRAWINGS.
  7. ALL JOINTS IN STEEL RAIL SHALL BE COPEDED, WELDED, AND GROUND SMOOTH.
  8. FOR RAIL POSTS MOUNTED TO BEAM OR STAIR CHANNEL, PROVIDE MANUFACTURER'S STANDARD REINFORCED CONNECTION FROM POST TO PLATE. BOTH THE PLATE AND REINFORCED INSERT TO BE GALVANIZED STEEL, ALUMINUM, OR STAINLESS STEEL TO MATCH RAIL MATERIAL.
  9. SEE DRAWINGS AND SPECIFICATIONS FOR GUARDRAIL MATERIALS.

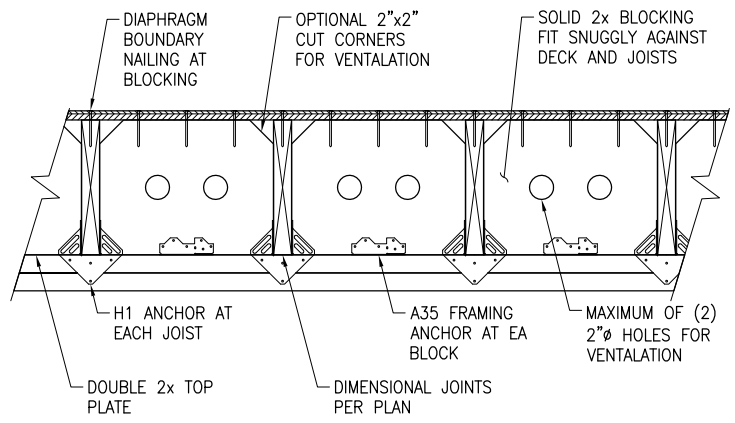
**THREE-RAIL GUARDRAIL** S 4425  
NOT TO SCALE



**KICK PLATE** S 4432  
NOT TO SCALE

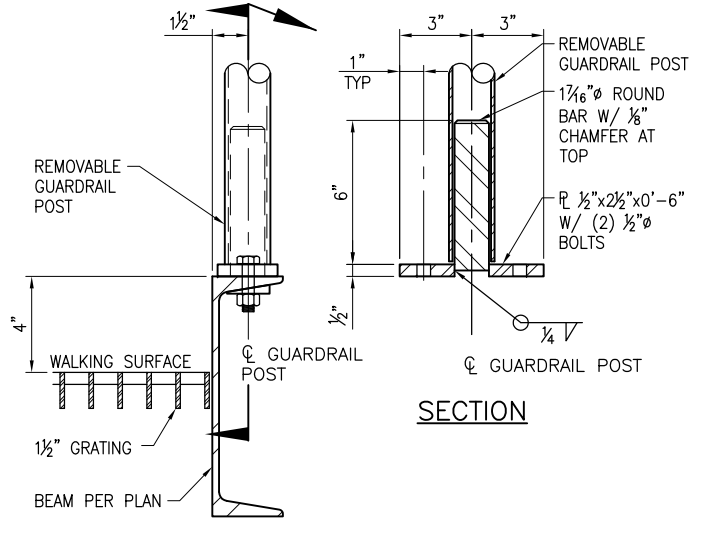


**MANWAY HATCH** S 4446  
NOT TO SCALE

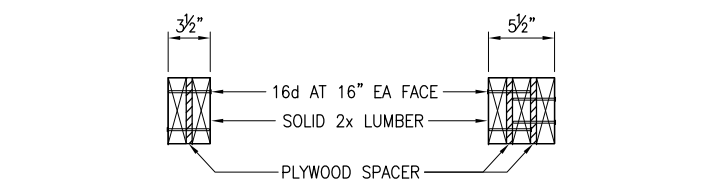


- NOTES:**
1. MAY USE EITHER ROUND HOLES OR CUT CORNERS FOR VENTILATION BUT NOT BOTH.

**JOIST BLOCKING** S 4502  
NOT TO SCALE



**REMOVABLE RAIL ANCHORAGE** S 4435  
NOT TO SCALE



SOLID HEADER	BUILT-UP HEADER	SOLID HEADER	BUILT-UP HEADER
4x4	(2) 2x6	FLAT 4x6	(3) 2x6
4x6	(2) 2x8	6x6	(3) 2x8
4x8	(2) 2x10	6x8	(3) 2x10
4x10	(2) 2x12	6x10	(3) 2x12

- NOTES:**
1. BUILT-UP HEADER MAY BE USED AS AN ALTERNATIVE TO SOLID 4x AND 6x HEADERS UNLESS NOTED OTHERWISE ON DRAWINGS.
  2. BUILT-UP HEADER ALTERNATIVE SHALL NOT BE USED IN LIEU OF BEAMS.

**BUILT-UP HEADER** S 4501  
NOT TO SCALE

**Bowen Collins & Associates, Inc.**  
Consulting Engineers

No. 889387  
C. RUSSELL DAVIS  
3/15/13  
STATE OF UTAH  
PROFESSIONAL ENGINEER

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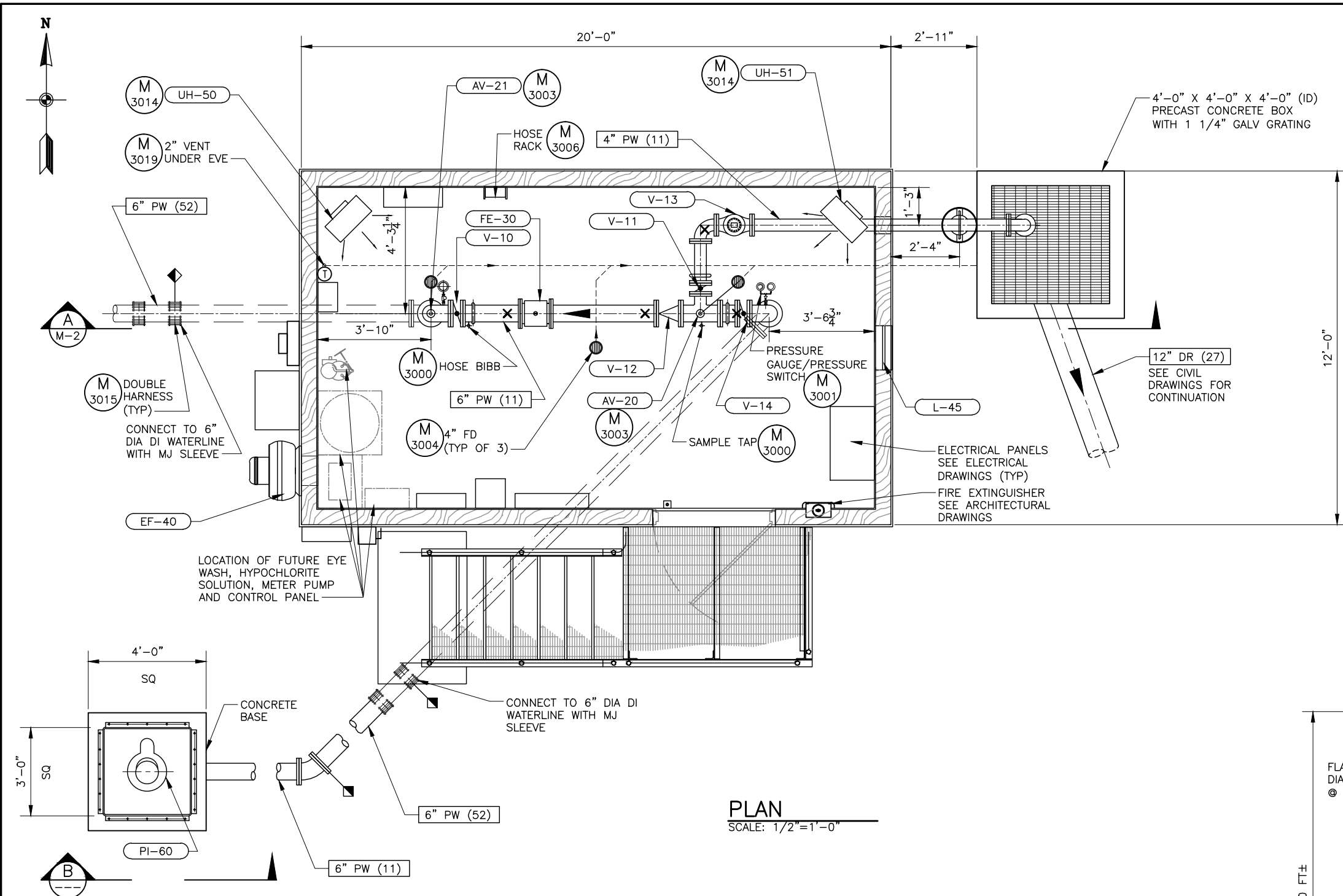
NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW: R. DAVIS  
CHECKED: G. LOSCHER  
APPROVED: R. DAVIS

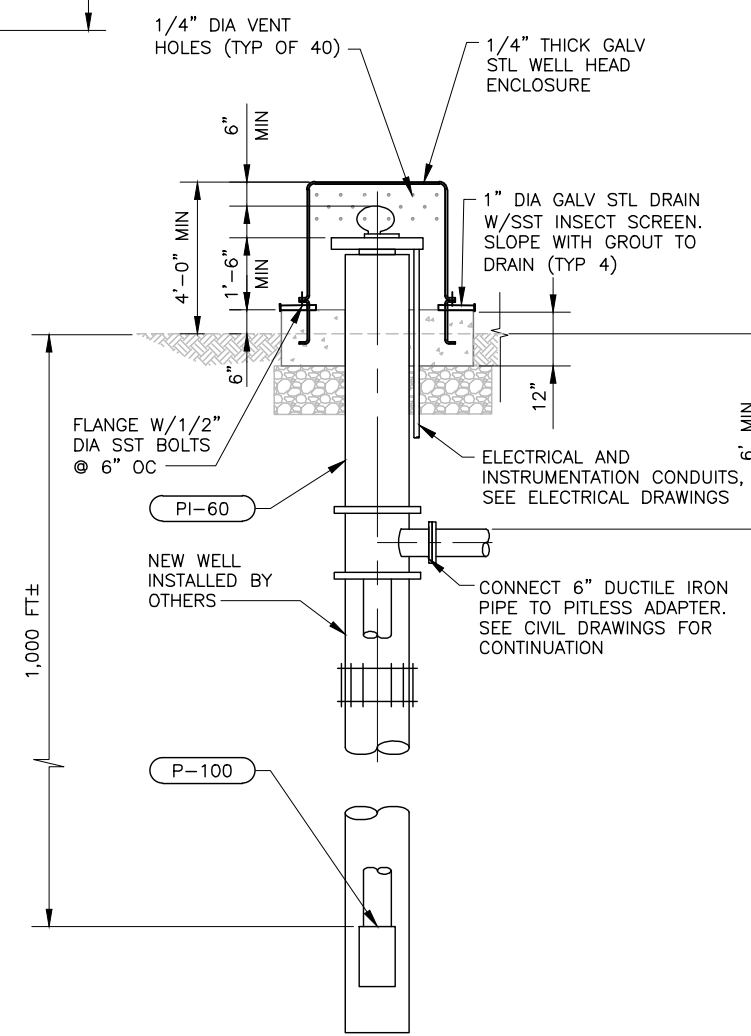
SUMMIT MOUNTAIN HOLDING GROUP, LLC  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

STRUCTURAL  
**GENERAL STRUCTURAL DETAILS 4**  
DATE: MARCH 2013  
PROJECT 347-12-01  
DRAWING NO. GS-5  
SHEET 30 OF 50

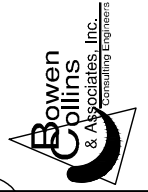


**PLAN**  
SCALE: 1/2"=1'-0"

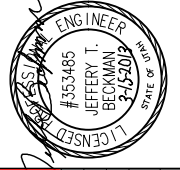
- NOTES:
1. MINIMUM SLOPE FOR ALL DRAIN PIPES SHALL BE 1/4" PER FT.
  2. X REPRESENTS LOCATION OF PIPE SUPPORTS ( PLAN ONLY) SEE DETAIL M 3005
  3. SEE DRAWING NO. M-4 FOR MECHANICAL EQUIPMENT.



**SECTION B-B**

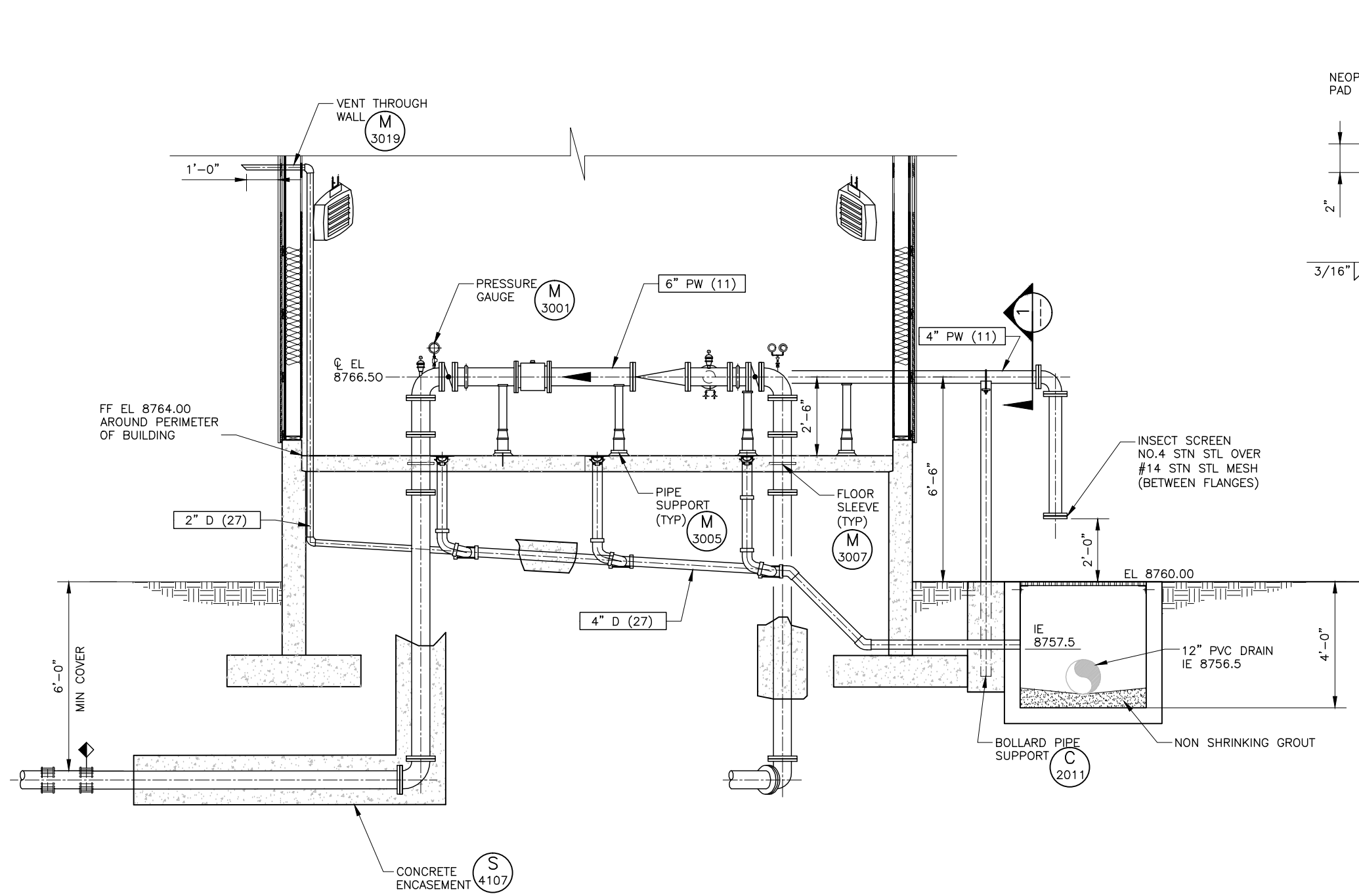


**Bowen Collins & Associates, Inc.**  
Professional Engineering

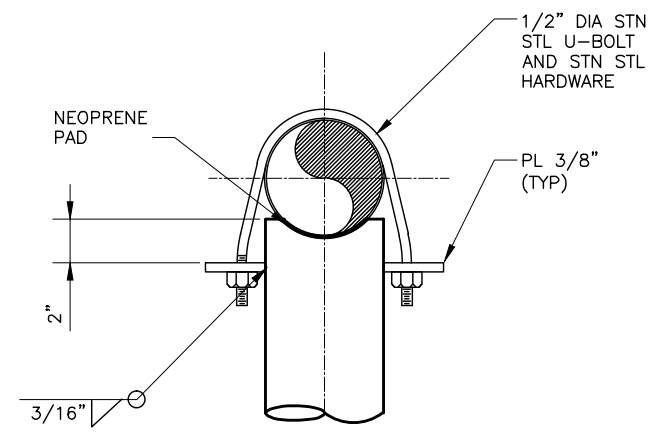


NOT FOR CONSTRUCTION FOR REVIEW ONLY	
NO. DATE REV. BY DESCRIPTION	REVISIONS
<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING</p>	
<p>REVIEW CHECKED: G. LOSCHER APPROVED: J. BECKMAN</p>	<p>DESIGN DESIGN: E. NEIL DRAWN: R. GARCIA</p>
<p>MECHANICAL</p> <p><b>WELL PUMP STATION MECHANICAL PLAN</b></p> <p>PROJECT 347-12-01 NUMBER</p> <p>DATE: MARCH 2013</p>	
<p>DRAWING NO. <b>M-1</b></p> <p>SHEET 31 OF 50</p>	

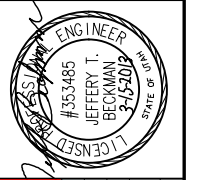
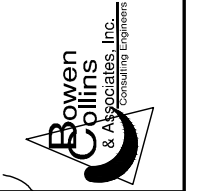




SECTION A  
SCALE: 1/2"=1'-0"  
M-1



SECTION 1  
NO SCALE

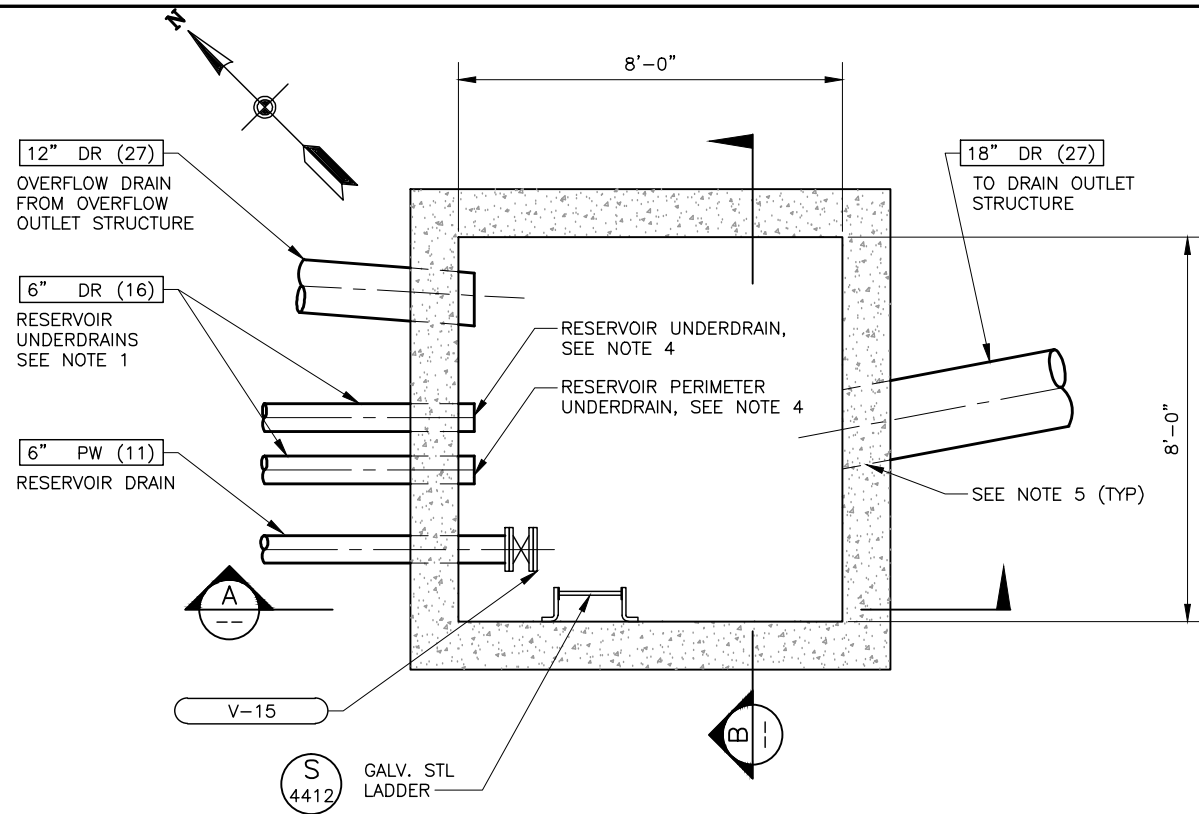


**NOT FOR CONSTRUCTION  
FOR REVIEW ONLY**

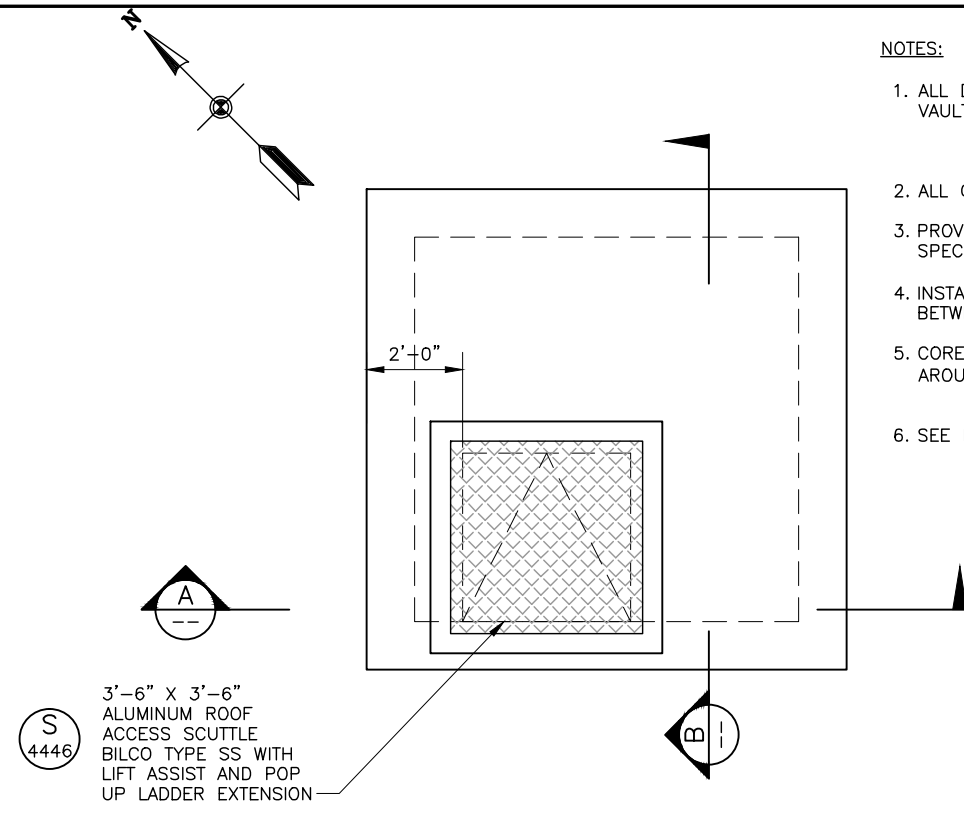
NO.	DATE	REV. BY	DESCRIPTION

SUMMIT MOUNTAIN HOLDING GROUP, LLC. <b>EARL'S PEAK WATER PROJECT</b> WEBER COUNTY, UTAH	
DESIGN E. NEIL	REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING	

MECHANICAL <b>WELL PUMP STATION MECHANICAL SECTION</b>	PROJECT 347-12-01 NUMBER
DATE: MARCH 2013	DRAWING NO. <b>M-2</b>



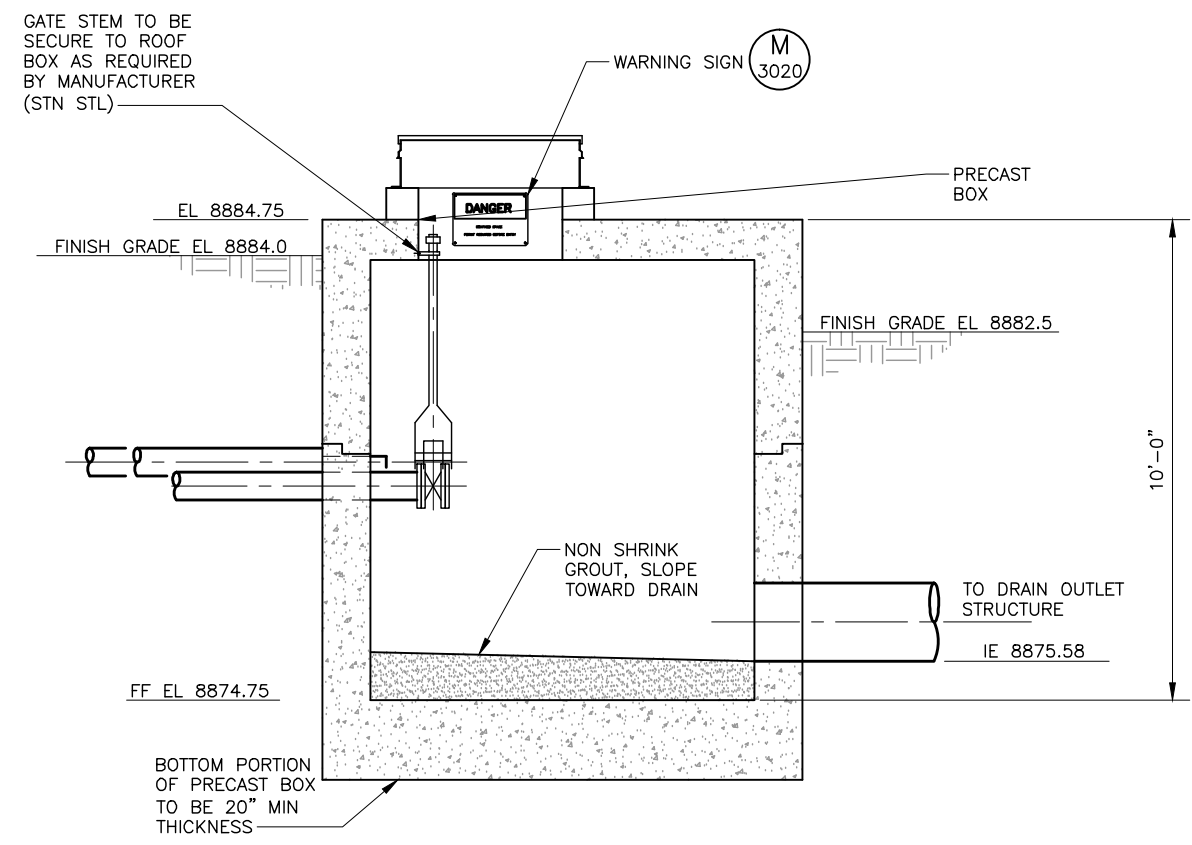
**FLOOR PLAN**  
SCALE: 1/2" = 1'-0"



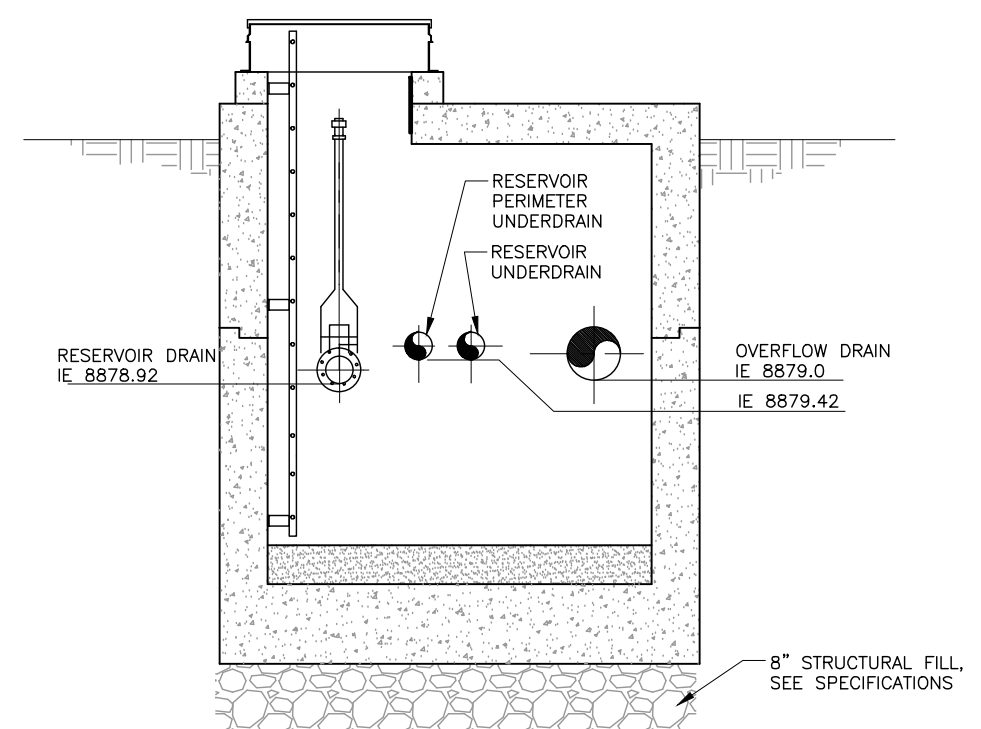
**ROOF PLAN**  
SCALE: 1/2" = 1'-0"

**NOTES:**

1. ALL DRAIN PIPES SHALL EXTEND 4" MIN INTO THE VAULT. LABEL EACH PIPE ON WALL. E.G. PUD = PERIMETER UNDERDRAIN RUD = RESERVOIR UNDERDRAIN
2. ALL GALVANIZED STEEL SHALL BE HOT DIPPED.
3. PROVIDE PROTECTIVE COATING IN ACCORDANCE WITH SPECIFICATION 09900.
4. INSTALL #4 STAINLESS STEEL MESH SCREEN ATTACHED BETWEEN FLANGES ON END.
5. CORE DRILL OPENINGS AND INSTALL LINK SEAL AROUND PIPE AND GROUT OPENINGS METHOD "A" (M 3002)
6. SEE DRAWING M-4 FOR EQUIPMENT SCHEDULE.



**SECTION A-A**  
SCALE: 1/2" = 1'-0"



**SECTION B-B**  
SCALE: 1/2" = 1'-0"

**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

Summit Mountain Holding Group, LLC.  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

DESIGN: E. NEIL  
DRAWN: R. GARCIA

REVIEW: CHECKED G. LOSCHER  
APPROVED J. BECKMAN

VERIFIED SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING

PROJECT NUMBER: 347-12-01

DATE: MARCH 2013

DRAWING NO. M-3

SHEET 33 OF 50

REVISIONS:

NO.	DATE	REV. BY	DESCRIPTION

Professional Engineer Seal: #353485, JEFFERY T. BECKMAN, 2-12-2012, STATE OF UTAH

**MECHANICAL EQUIPMENT SCHEDULES**

**VALVE SCHEDULE**

NO.	LOCATION	SIZE (INCH)	JOINT TYPE	REMARKS
V-10	WELL PUMP STATION	6	FL	BUTTERFLY VALVE WITH HAND OPERATOR
V-11	WELL PUMP STATION	4	FL	BUTTERFLY VALVE WITH HAND OPERATOR
V-12	WELL PUMP STATION	6	FL	SILENT GLOBE CHECK VALVE, CLA-VAL SERIES 581 OR EQUAL
V-13	WELL PUMP STATION	4	FL	DEEP WELL PUMP CONTROL VALVE, CLA-VAL MODEL 61-02KC OR EQUAL
V-14	WELL PUMP STATION	6	FL	BUTTERFLY VALVE WITH HAND OPERATOR
V-15	DRAIN COLLECTION VAULT	6	FL	GATE VALVE, AWWA C509, CLASS 150, WITH 2" OPERATING NUT EXTEND TO 2' MIN BELOW TOP OF BOX
V-16	RESERVOIR SITE	16	MJ	BURIED BUTTERFLY VALVE WITH 2" OPERATING NUT
AV-20	WELL PUMP STATION	1	NPT	NSF 61 APPROVED, COMBINATION AIR RELEASE/AIR VACUUM VALVE, RATED FOR TEST PRESSURES, VAL-MATIC MODEL 201C.2 OR APPROVED EQUAL
AV-21	WELL PUMP STATION	1	NPT	NSF 61 APPROVED, AIR RELEASE VALVE RATED FOR TEST PRESSURES, VAL-MATIC MODEL 22.3 OR APPROVED EQUAL
AV-22	AIR RELEASE/VACUUM VALVE MANHOLE AT WELL	2	NPT	NSF 61 APPROVED, COMBINATION AIR RELEASE/AIR VACUUM VALVE, RATED FOR TEST PRESSURES, A.R.I. MODEL D-040 OR APPROVED EQUAL
AV-23	AIR RELEASE/VACUUM VALVE MANHOLE AT RESERVOIR	6	NPT	NSF 61 APPROVED, COMBINATION AIR RELEASE/AIR VACUUM VALVE, RATED FOR TEST PRESSURES, VAL-MATIC MODEL 206C OR APPROVED EQUAL

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION

**FLOW METER SCHEDULE**

NO.	LOCATION	SIZE (INCH)	TYPE	DESIGN FLOW (GPM)	REMARKS
FE-30	WELL PUMP STATION	6	ELECTROMAGNETIC	500	FLXFL, EPOXY COATED CARBON STEEL BODY, SIEMENS SITRANS FM MAG 5100 W WITH MAG 5000 INDICATOR (TRANSMITTER MOUNTED INTEGRALLY ON THE METER OR EQUAL)

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION

**EXHAUST FAN/LOUVER SCHEDULE**

NO.	LOCATION	AIRFLOW (CFM)	DRIVE	HP	VOLTAGE	PHASE	REMARKS
EF-40	WELL PUMP STATION	350	BELT	.019	120	SINGLE	CENTRIFUGAL EXHAUST VENTILATOR, WALL MOUNTED, COOK ACW-B MODEL 100W2B OR EQAUL
L-45	WELL PUMP STATION	350	---	---	120	SINGLE	ADJUSTABLE LOUVER, RUSKIN MODEL ELM811D OR EQUAL WITH ELECTRIC ACTUATOR, RUSKIN MODEL FSLF120-RUS OR EQUAL

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION

**UNIT HEATER SCHEDULE**

NO.	LOCATION	TYPE	SIZE	VOLTAGE	PHASE	REMARKS
UH-50	WELL PUMP STATION	ELECTRICAL	5 KW	480	3	WALL MOUNTED, CHROMALOX MODEL LUH-05-43-32 WITH INTEGRATED THERMOSTAT
UH-51	WELL PUMP STATION	ELECTRICAL	5 KW	480	3	WALL MOUNTED, CHROMALOX MODEL LUH-05-43-32 WITH INTEGRATED THERMOSTAT

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION

**MISCELLANEOUS MECHANICAL EQUIPMENT SCHEDULE**

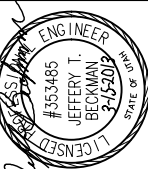
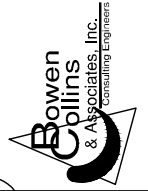
NO.	DESCRIPTION	LOCATION	SIZE	REMARKS
PI-60	PITLESS ADAPTER	WELL	14"	NSF 61 APPROVED, INSTALL PER MANUFACTURER RECOMMENDATIONS, BAKER MONITOR OR EQUAL

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION

**SUBMERSIBLE PUMP SCHEDULE**

NO.	LOCATION	SIZE (IN)	TDH (FT)	DESIGN FLOW (GPM)	REMARKS
P-100	WELL	10	1,150	500	3600 RPM, HITACHI MODEL 10-L-20 OR EQUAL

NOTES: REFER TO SPECIFICATIONS FOR FURTHER INFORMATION



**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

DESIGN  
DESIGN: E. NEIL  
DRAWN: D. LAMPH

**MECHANICAL EQUIPMENT SCHEDULE**

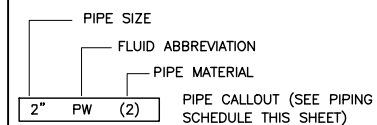
PROJECT NUMBER: 347-12-01  
DATE: MARCH 2013

FLUID ABBREVIATION	FUNCTION (SEE NOTE 5)	PIPING MATERIAL (SEE SCHEDULE AT RIGHT)				FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4)		
		EXPOSED PIPING (SEE NOTE 14)		BURIED PIPING (SEE NOTE 13)		MIN TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
		2" DIA & SMALLER	2 1/2" DIA & LARGER	2" DIA & SMALLER	2 1/2" DIA & LARGER			
AV	AIR VENT	2, 14, 16	2, 14	2, 14, 16	2, 16, 24	NOTE 7	--	--
CLS	CHLORINE SOLUTION							
CV	CHLORINE VENT							
DR	DRAIN	16	16	2	8, 12, 16, 22, 28, 36, 27, 51, 52, 53, 54, 55	NOTE 6	WATER	2,16,8,27,51,52,53(A), 12,28(B), 22,54,55(C)
HWS	DOMESTIC HOT WATER SUPPLY							
LSP	LANDSCAPING SPRINKLING SYSTEM	12, 16	12, 16	12, 16	12, 16	NOTE 7	--	--
OF	OVERFLOW	16	8	16	8	150	WATER	(A)
PW	POTABLE WATER	12, 24	2, 11	4, 24	2, 11, 19, 36	150	WATER	2, 11, 24(A), 19(B)
RL	REFRIGERANT LIQUID							
RS	REFRIGERANT SUCTION							
RW	RAW WATER	2	8, 11	2	8, 11, 28	125	WATER	2, 8, 11(A), 28(B)
SA	SAMPLE LINE	2, 16, 18, 24	--	16, 18, 24	--	125	WATER	(A)
SD	SANITARY DRAIN	4, 12, 16	2, 16	12, 16, 27	12, 16, 21, 27	NOTE 7	--	--
SDR	STORM DRAIN	--	8	--	16, 22, 28	NOTE 6	WATER	8, 16(A), 28(B), 22(C)
SS	SANITARY SEWER							
SV	SANITARY VENT							
TOF	TANK OVERFLOW							
TW	TREATED WATER (POTABLE)	16, 24	2, 8, 16	24	2,8,11,16,51,52	150	WATER	(A)
UW	UTILITY WATER (NON-POTABLE WATER)	2, 16, 24	2, 11, 16, 32	2, 16, 24	2, 8, 15, 16, 18	125	WATER	2, 11, 24(A), 19(B)

**GENERAL NOTES:**

- ALTHOUGH SEVERAL PIPING MATERIALS ARE SHOWN THAT MAY BE USED FOR A GIVEN FUNCTION, ONLY THE CALLED OUT PIPING MATERIAL SHOWN ON THE CONSTRUCTION DRAWINGS AND SPECIFICATION SHALL BE USED. THE CONTRACTOR DOES NOT HAVE THE OPTION TO USE A DIFFERENT MATERIAL.

**TYPICAL PIPE DESIGNATION:**

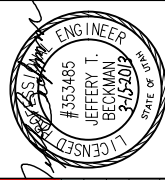
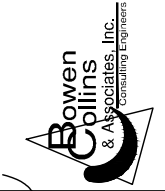


**DRAWING NOTES:**

- PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO REQUIREMENTS OF THE SPECIFICATIONS.
- LEAKAGE ALLOWANCE IS AS FOLLOWS:
  - PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
  - PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.002 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
  - 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.
  - PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT.
  - PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OR MORE THAN 4 INCHES MERCURY COLUMN.
- FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.
- ANY DEVIATION FROM THE PIPING MATERIALS OR FIELD TEST REQUIREMENTS SHOWN WILL BE NOTED IN THE SPECIFICATIONS OR ON THE DRAWINGS.
- PIPING GROUP NUMBER SHOWN THUS \* SHALL BE INSULATED, SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.
- STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.
- INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.
- NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.
- INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
- PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
- FOR VALVES 4 INCHES AND LARGER SEE VALVE SCHEDULE. FOR SPECIAL VALVES SEE SPECIFICATIONS.
- CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED, THUS:
- FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.
- EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY ENGINEER.
- PIPING MATERIAL SHALL BE NON-ABRASIVE FLEXIBLE RUBBER HOSE AND QUICK CONNECTION COUPLINGS WITH GROUP NO. 1 AT EQUIPMENT.
- VALVES 2-1/2 INCH AND SMALLER MAY HAVE SCREWED ENDS UNLESS OTHERWISE SHOWN OR SPECIFIED.

**PIPE MATERIAL SCHEDULE (SEE NOTE 4)**

GROUP NO.	PIPE	FITTINGS	VALVES
1	STEEL, ASTM 53 SCHEDULE 40, BLACK WELDED	2-1/2 INCH AND SMALLER, MALLEABLE IRON, ANSI B16.3. THREADED, BANDED, BLACK, 150 PSI OR STEEL, ANSI B16.9 BUTT-WELDED, 3-INCH AND LARGER, CAST IRON, ANSI B16.1, 125 PSI FLANGED OR MECHANICAL COUPLINGS.	BRONZE, THREADED, GATE STOCKHAM B-105, GLOBE, STOCKHAM B-37, CHECK, STOCKHAM B-319, STEEL LUBRICATED PLUG, NORDSTROM FIG. 142 OR 143, ECCENTRIC PLUG, DEZURIK SERIES 118 BALL, JAMESBURY FIG. 351.
2	STEEL, ASTM 53 SCHEDULE 40 WELDED, GALVANIZED	2-1/2 INCH AND SMALLER, MALLEABLE IRON, ANSI B16.3. THREADED, BANDED, GALVANIZED 150 PSI, 3 INCH AND LARGER, CAST IRON ANSI B16.1, 125 PSI FLANGED OR MECHANICAL COUPLINGS.	2-1/2 INCH AND SMALLER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED, DEZURIK 118S BALL, JAMESBURY FIG. 351 3 INCH AND LARGER, ECCENTRIC PLUG, SYNTHETIC RUBBER FACED, DEZURIK 118F GATE, AWWA C500, BUTTERFLY, AWWA, FLANGED.
3	STEEL, ASTM A106 OR A53, SCHEDULE 80, SEAMLESS, BLACK.	FORGED STEEL, ANSI B16.11, SOCKET WELDED OR THREADED, BLACK, 2000 PSI, OR STEEL, ANSI B16.9, BUTT-WELDED, SCHEDULE 80.	CAST IRON, LUBRICATED PLUG, NORDSTROM FIG. 214 OR 305.
4	SAME AS GROUP NO. 1	CAST IRON, ANSI B16.12, THREADED, DRAINAGE PATTERN.	-----
5	WELDED STEEL, AWWA C200, UNLINED.	WELDED STEEL, FABRICATED, AWWA C200, UNLINED.	AS INDICATED ON DRAWINGS.
6	STEEL, ASTM A106, OR A53, SCHEDULE 40, SEAMLESS, BLACK.	STEEL, ANSI B16.9, BUTT-WELDED, CAST IRON, ANSI B16.1, 125 PSI, FLANGED, FORGED STEEL, SOCKET WELDED, ANSI B16.11, 2000 PSI OR STEEL, ANSI B16.5, 150 PSI FLANGED.	CAST IRON, FLANGED, LUBRICATED PLUG, NORDSTROM FIG. 143 OR 133GG.
7	SAME AS GROUP NO. 2.	MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, GALVANIZED, 300 PSI.	BRONZE THREADED, GLOBE, STOCKHAM B-62 OR B-32, BALL, JAMESBURY FIG. 351 CHECK, STOCKHAM B-322T.
8	WELDED STEEL, AWWA C200.	WELDED, STEEL, AWWA C200, FABRICATED.	AS INDICATED ON DRAWINGS.
9	SAME AS GROUP 1	2-1/2 INCH AND SMALLER, MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, BLACK, 150 PSI, 3-INCH AND LARGER, STEEL ANSI B16.9, BUTT-WELDED.	ECCENTRIC PLUG, DEZURIK SERIES 118 CHECK, CRANE NO. 366E, BALL, JAMESBURY FIG. 351.
10	SAME AS GROUP NO. 3.	1-1/4 INCH AND SMALLER, FORGED STEEL, ANSI B16.11, THREADED OR SOCKET WELDED, BLACK, 3000 PSI, WITH FLANGED AMMONIA UNIONS. 1-1/2 INCH AND LARGER, STEEL, ANSI B16.9, BUTT-WELDED OR FLANGED, SCHEDULE 80.	SEMI-PLUG AND YOKE TYPE OR BALL FOR CHLORINE SERVICE, FORGED CARBON STEEL.
11	DUCTILE IRON, ANSI A21.51, (AWWA C151) OR CAST IRON ANSI A21.6, CLASS 52, BELL AND SPIGOT, MECHANICAL JOINTS, MECHANICAL COUPLINGS, OR CLASS 52 FLANGED (TYPICAL SERVICE - WATER LINES) (PREINSULATED) PER SPECIFICATION SECTION 02565	DUCTILE IRON OR CAST IRON, ANSI A21.10 OR AWWA C110, BELL AND SPIGOT, MECHANICAL COUPLINGS, FLANGED OR MECHANICAL JOINTS, 350 PSI (PRESSURE RATING) 12-INCHES AND SMALLER, 350 PSI (PRESSURE RATING) 14-INCHES AND LARGER, WITH 125 PSI ANSI B16.1 FLANGES.	GATE, AWWA C500, 'O' RING SEALS, MECHANICAL JOINT ENDS, MUELLER A-2380-20 BUTTERFLY, AWWA, ECCENTRIC PLUG, DEZURIK SERIES 118 BALL, PRATT.
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.	AS INDICATED ON DRAWINGS.
13	CORROSION RESISTANT (HIGH SILICON CONTENT) CAST IRON, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS.	CORROSION RESISTANT (HIGH SILICON CONTENT) CAST IRON, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS.	-----
14	STAINLESS STEEL, TYPE 316, ASTM A312, SCHEDULE 40S.	STAINLESS STEEL, TYPE 316 ANSI B16.3, SCREWED, 150 PSI, ANSI B16.9, BUTT-WELDED, SCHEDULE 40S, OR 150 PSI FLANGED.	STAINLESS STEEL, BALL, FLANGED, JAMESBURY TYPE A/D150F. CHECK, LADISH, NO. 5272 OR AS SHOWN ON DRAWINGS.
15	STAINLESS STEEL, TYPE 316, ASTM A312, SCHEDULE 10S.	STAINLESS STEEL, TYPE 316 ANSI B16.9, BUTT-WELDED SCHEDULE 10S OR 150 PSI FLANGED.	STAINLESS STEEL, AS INDICATED ON DRAWINGS.
16	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT, ASTM D1785.	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT, SOCKET SOLVENT WELD JOINTS, ASTM D2467.	POLYVINYL CHLORIDE, BALL, DIAPHRAGM, BUTTERFLY, BALL OR LIFT CHECK. NIBCO/CHEMTROL OR HILLS-MCCANNA.
17	POLYPROPYLENE, ASTM D4101, SCHEDULE 40, WITH HEAT FUSED JOINTS.	POLYPROPYLENE, SCHEDULE 40, DRAINAGE TYPE WITH HEAT FUSED SOCKET JOINTS.	-----
18	FIBERGLASS REINFORCED PLASTIC, ASTM D2996, FILAMENT WOUND, SOCKET AND SPIGOT ENDS, ADHESIVE BONDED.	FIBERGLASS REINFORCED PLASTIC, FILAMENT-WOUND, SOCKET ENDS, ADHESIVE BONDED, OR FIBERGLASS FLANGED.	PLASTIC LINED, FLANGED, FLANGES TO MATCH 150 PSI ANSI B16.5 DIMENSIONS, OR AS INDICATED ON DRAWINGS.
19	POLYVINYL CHLORIDE PRESSURE PIPE ASTM D2241 WITH BELL AND SPIGOT JOINTS.	CAST IRON, 150 PSI, FOR POLYVINYL CHLORIDE PIPE, AWWA C110 CEMENT MORTAR LINED, AWWA C104.	SAME AS GROUP NO. 11.
20	VITRIFIED CLAY, PERFORATED, ASTM C 700, EXTRA STRENGTH, FLEXIBLE COMPRESSION JOINTS FOR BELL AND SPIGOT PIPE OR PLAIN END WITH MECHANICAL COMPRESSION JOINTS.	VITRIFIED CLAY, ASTM C700, FLEXIBLE JOINTS FOR BELL AND SPIGOT PIPE OR PLAIN END WITH MECHANICAL COMPRESSION JOINTS.	-----
21	VITRIFIED CLAY, ASTM C700, EXTRA STRENGTH, FLEXIBLE COMPRESSION JOINTS FOR BELL AND SPIGOT PIPE OR PLAIN END WITH MECHANICAL COMPRESSION JOINTS.	VITRIFIED CLAY, ASTM C700, FLEXIBLE JOINTS FOR BELL AND SPIGOT PIPE OR PLAIN END WITH MECHANICAL COMPRESSION JOINTS.	-----
22	REINFORCED CONCRETE, ASTM C76 TONGUE AND GROOVE JOINTS, (TYPICAL SERVICE - CULVERTS)	SAME AS GROUP NO. 8	-----
23	TEMPERED GLASS, (ARMORED, WHERE BURIED). ANSI/ASTM C599.	TEMPERED GLASS DRAINAGE TYPE WITH COMPRESSION COUPLINGS AND TEFLON JOINTS, ANSI/ASTM C599 (ARMORED WHERE BURIED).	-----
24	COPPER, ASTM B88, TYPE K, SOFT TEMPERED WHERE BURIED, HARD TEMPERED WHERE EXPOSED.	WROUGHT COPPER OR CAST BRONZE, ANSI B16.22, SOLDER JOINT, 150 PSI, OR COMPRESSION FITTINGS, (FOR OXYGEN PIPING USE SILVER SOLDER, FOR COMPRESSED AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER).	BRONZE, SOLDER JOINT, GLOBE, CRANE NO. 1310 OR STOCKHAM B-141. CHECK, CRANE NO. 1342 OR 36, OR STOCKHAM B-309 OR B-345. GATE, CRANE NO. 426, OR STOCKHAM B-104 OR B-105.
25	STEEL, ASTM A106 OR A53, SCHEDULE 40, SEAMLESS, BLACK, SARAN OR POLYPROPYLENE-LINED.	STEEL, ANSI B16.5, 150 PSI FLANGED, SARAN OR POLYPROPYLENE-LINED.	CAST STEEL PLUG, DIAPHRAGM OR CHECK, 150 PSI FLANGED, SARAN OR POLYPROPYLENE-LINED.
26	SAME AS GROUP NO. 11 (TYPICAL SERVICE - SLUDGE AND SEWAGE LINES).	SAME AS GROUP NO. 11.	SEE SPECIFICATIONS.
27	POLYVINYL CHLORIDE GRAVITY SEWER PIPE, SDR 35 ASTM D3034, BELL AND SPIGOT.	POLYVINYL CHLORIDE, ANSI/ASTM D3034 & F679, BELL AND/OR SPIGOT.	-----
28	REINFORCED CONCRETE, AWWA C302, CLASS- SEE DRAWINGS. (TYPICAL SERVICE - PRESSURE PIPELINES).	SAME AS GROUP NO. 8.	AS INDICATED ON DRAWINGS.
29	SAME AS GROUP NO. 1.	2-INCH AND SMALLER, MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, BLACK, 150 PSI, 2-1/2 INCH AND LARGER, STEEL ANSI B16.9, BUTT-WELDED.	SAME AS GROUP NO. 1, EXCEPT LUBRICATED PLUG SHALL BE ROCKWELL FIG. 114 OR 115, OR POWELL FIG. 2202 OR 2203.
30	SAME AS GROUP NO. 11, GLASS-LINED OR STEEL ASTM A120, SCHEDULE 40, GLASS-LINED.	SAME AS GROUP NO. 11, GLASS-LINED OR STEEL, ANSI B16.9, SCHEDULE 40, GROOVED WITH MECHANICAL COUPLINGS, GLASS-LINED.	SAME AS GROUP NO. 26.
31	2-1/2 INCH AND SMALLER, STEEL, ASTM A106 OR A53, SCHEDULE 80, SEAMLESS, BLACK. 3-INCH AND LARGER DUCTILE IRON, ANSI A21.51 (AWWA C151) OR CAST IRON ANSI A21.56 OR A21.8 MECHANICAL COUPLINGS OR 125 PSI FLANGED.	2-1/2 INCH AND SMALLER, FORGED STEEL, ANSI B16.11, SOCKET-WELDED OR THREADED, BLACK, 2000 PSI, OR STEEL, ANSI B16.9, BUTT-WELDED SCHEDULE 80. 3-INCH AND LARGER, DUCTILE IRON OR CAST IRON, ANSI A21.10 OR AWWA C110, MECHANICAL COUPLING OR 125 PSI FLANGED.	CAST IRON, LUBRICATED PLUG, ROCKWELL FIG. 142 OR 143, OR POWELL FIG. 2200 OR 2201.
32	PVC TYPE 1, GRADE 1, 18 ASTM D-1784 AWWA C-905.	SHORT BODY CAST IRON OR DUCTILE IRON AWWA C110.	SAME AS GROUP 11.
33	CORRUGATED HDPE SLOTTED, SPLIT COUPLING JOINTS.	FABRICATED OR MOLDED.	-----
34	FIBERGLASS DOUBLE CONTAINMENT (FOR USE WITH FLAMMABLE LIQUIDS) SEE SPECS.	FIBERGLASS.	AS PER MANUFACTURER'S RECOMMENDATIONS.
35	CPVC	CPVC	CPVC
36	HIGH DENSITY POLYETHYLENE, DR-11, DR-17	4 INCH AND LARGER HIGH DENSITY POLYETHYLENE, DR-11, DR-17	SAME AS GROUP NO. 11
51	PVC AWWA C905	DUCTILE IRON AWWA C110	SAME AS GROUP NO. 11
52	PVC AWWA C900	DUCTILE IRON AWWA C110	SAME AS GROUP NO. 11
53	NOT USED	NOT USED	-----
54	DOUBLE - WALL CORRUGATED HDPE, ADS N-12, SOLID WALL	FABRICATED OR MOLDED	-----
55	DOUBLE - WALL CORRUGATED HDPE, ADS N-12, SLOTTED	FABRICATED OR MOLDED	-----



**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

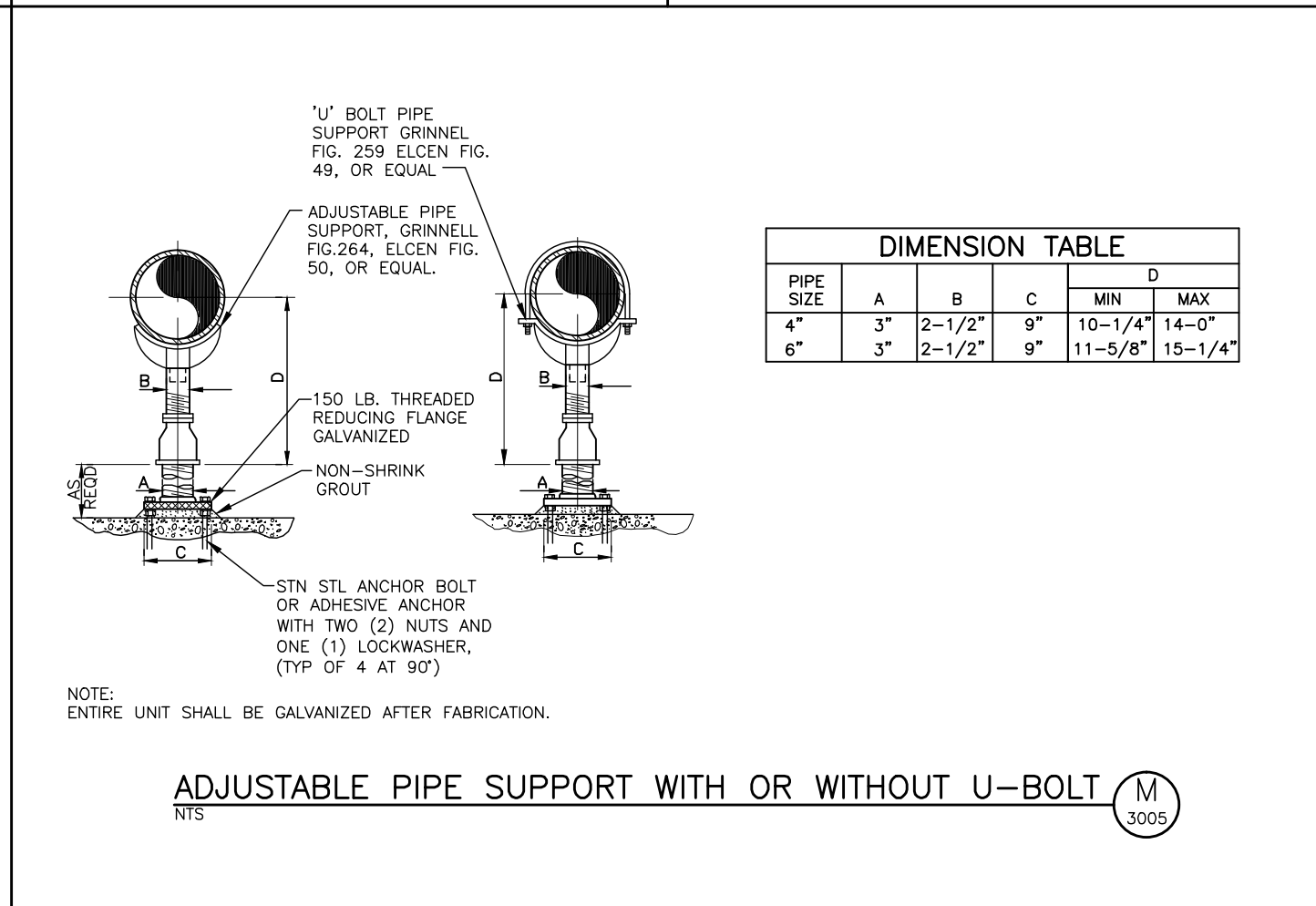
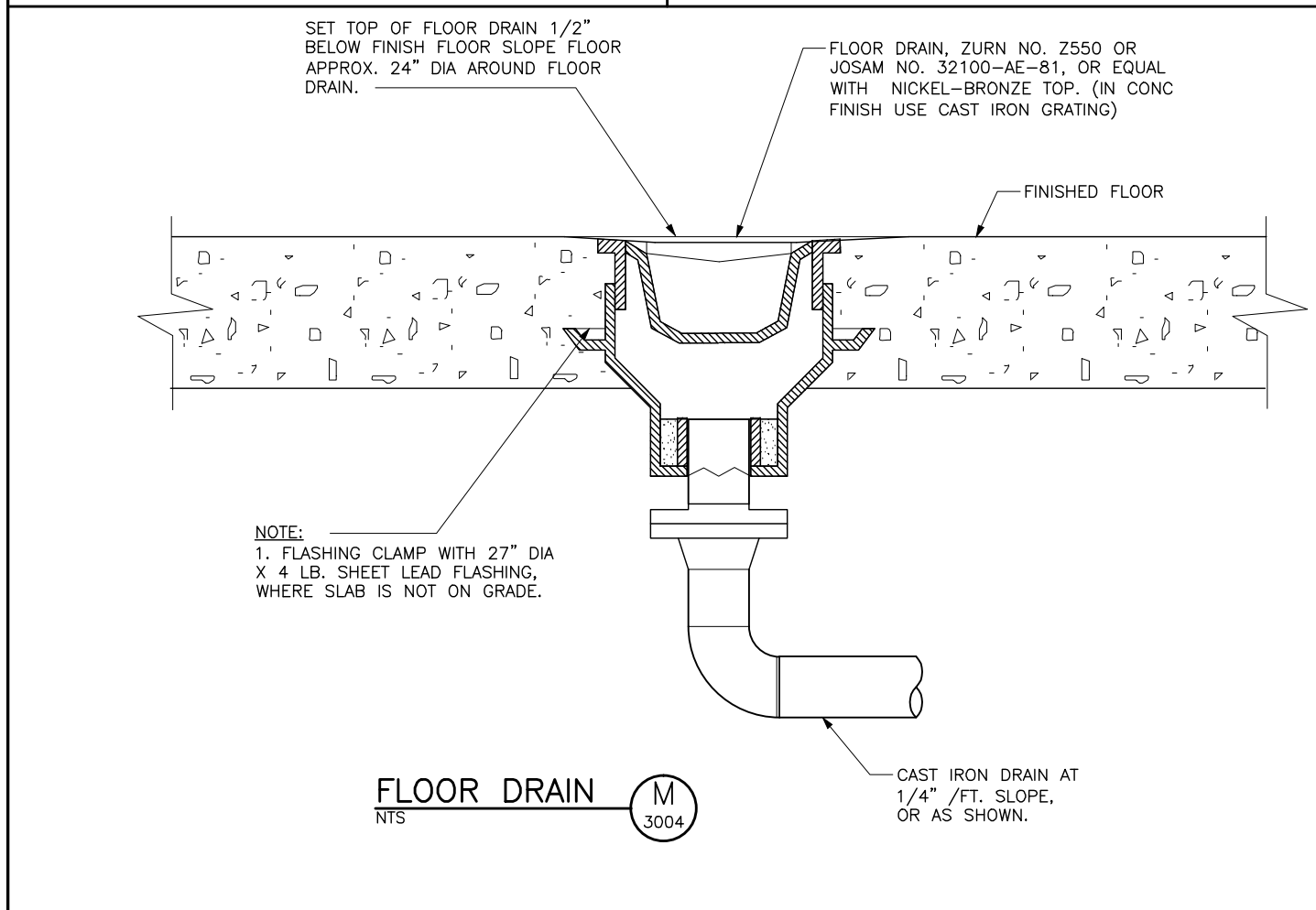
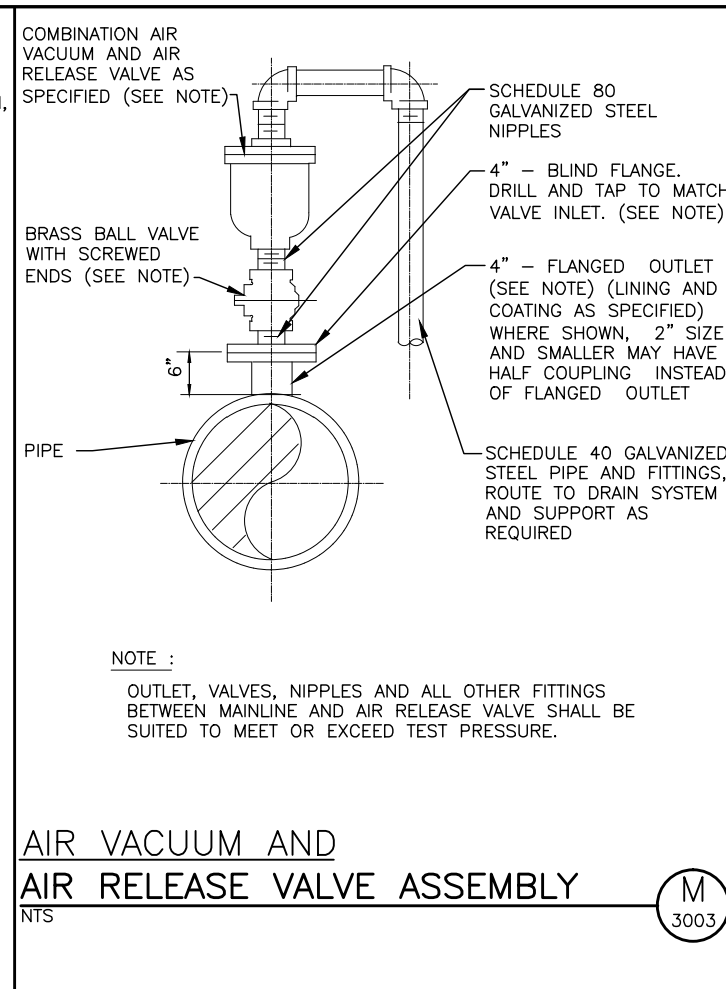
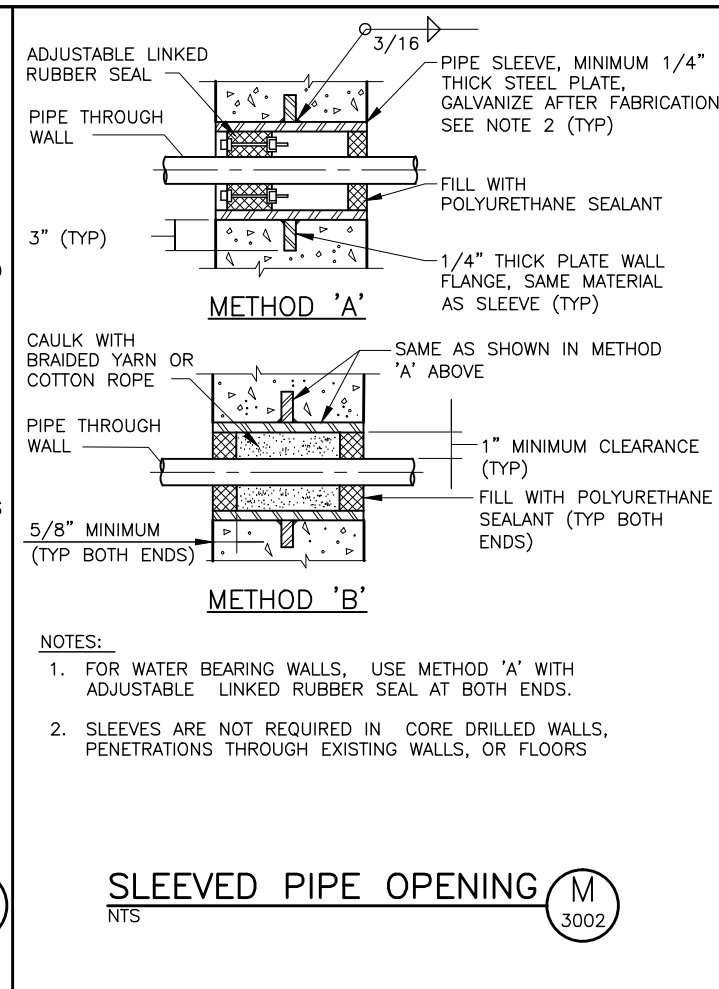
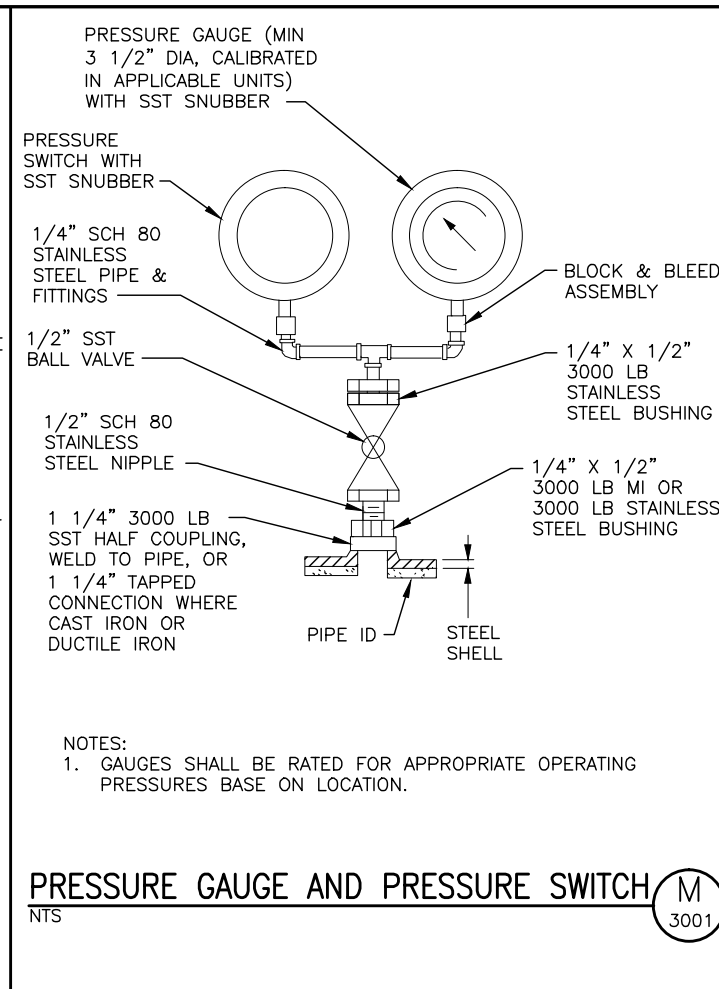
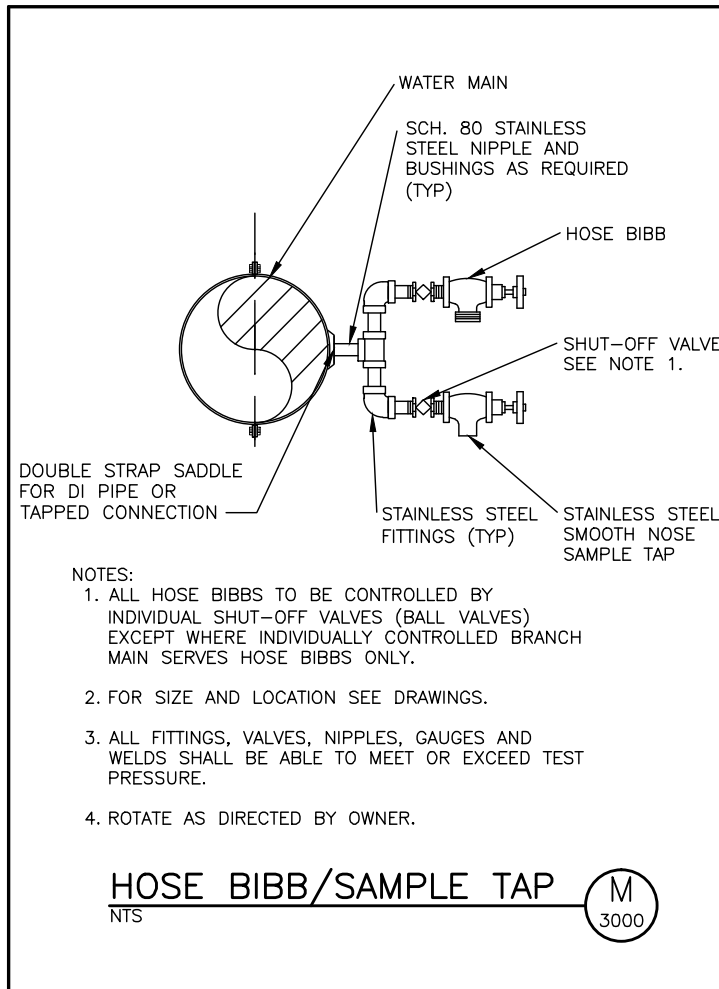
**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

REVIEW  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

DESIGN  
BCA STANDARDS  
DRAWN: BCA STANDARDS

MECHANICAL  
**PIPE MATERIAL SCHEDULE**  
PROJECT 347-12-01  
NUMBER  
DATE: MARCH 2013

DRAWING NO.  
**GM-1**



**Bowen Collins & Associates, Inc.**  
Professional Engineering Firm

REGISTERED PROFESSIONAL ENGINEER  
#353485  
JEFFERY T. BECKMAN  
2-15-2012  
STATE OF UTAH

**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN: G. LOSCHER  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

MECHANICAL  
**GENERAL MECHANICAL DETAILS - 1**

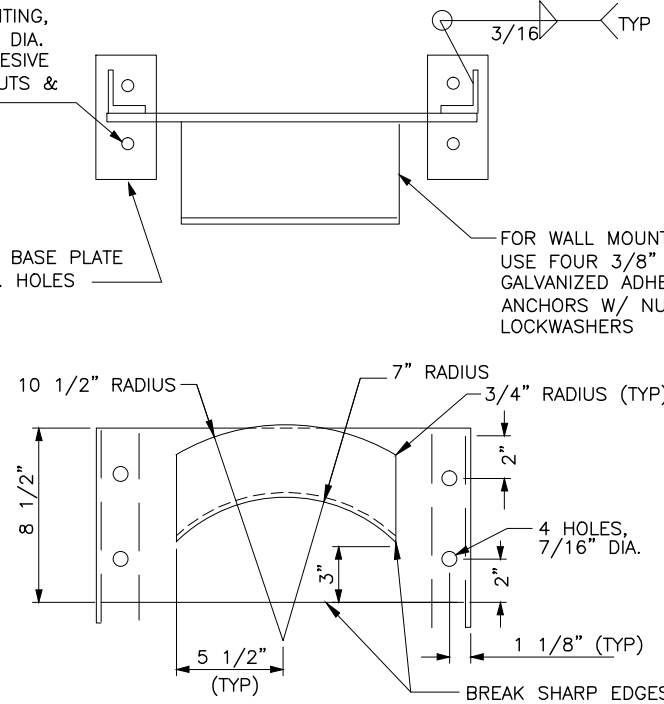
DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

DRAWING NO. **GM-2**

SHEET 36 OF 50

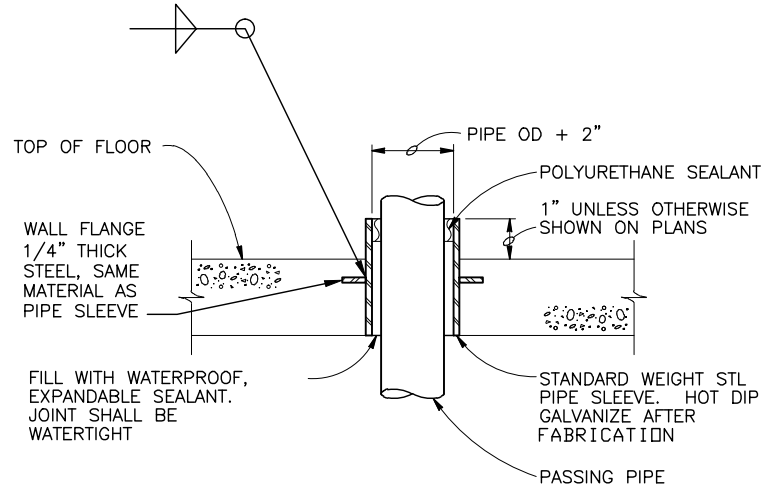
FOR BASE MOUNTING,  
USE FOUR 3/4" DIA.  
GALVANIZED ADHESIVE  
ANCHORS W/ NUTS &  
LOCKWASHERS

8" X 4" X 1/4" BASE PLATE  
W/ (2) 7/8 DIA. HOLES

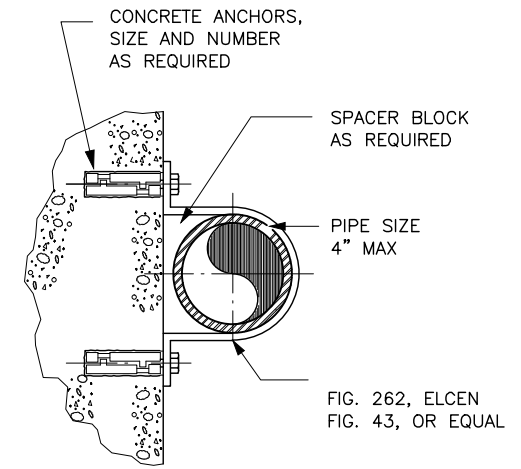


**HOSE RACK** (M) 3006  
NTS

**NOTES:**  
1. WHERE HOSE RACK IS FREE-STANDING, PROVIDE (2) STL. 2 X 2 X 1/4" BASE PLATES. (OMIT BASE PLATES WHERE ANGLES CAN BE SET IN CONCRETE.)  
2. CONSTRUCTION: B GA. STEEL SHEET, ALL WELDED, GALVANIZED AFTER FABRICATION.

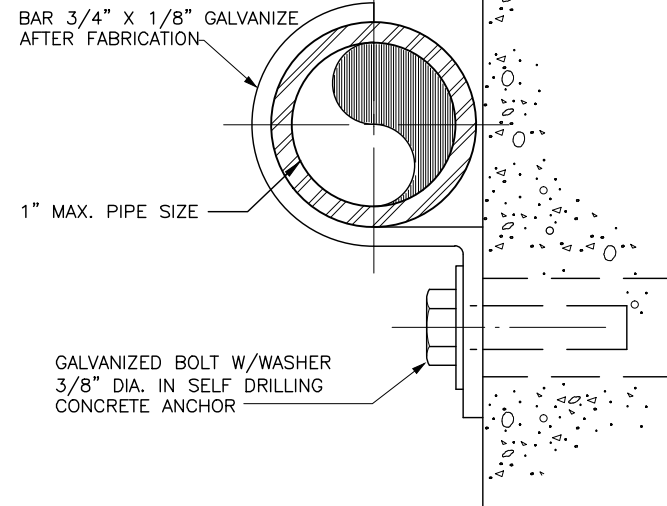


**FLOOR SLEEVE** (M) 3007  
NTS



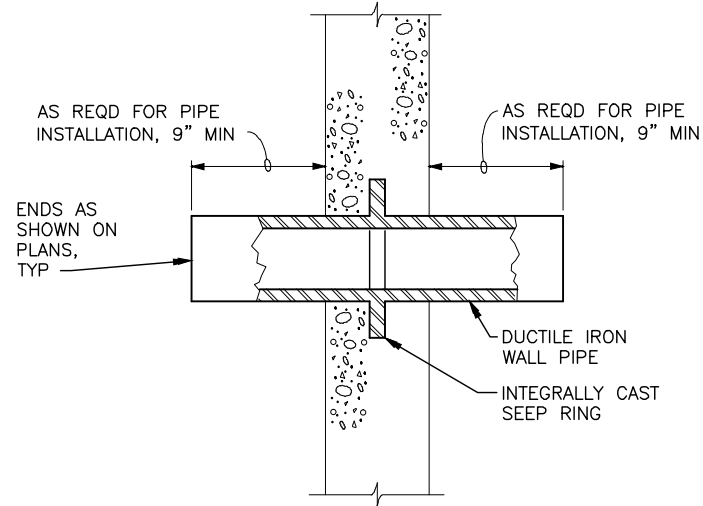
**NOTE:**  
ALL HARDWARE SHALL BE STAINLESS STEEL

**PIPE SUPPORT** (M) 3008  
NTS



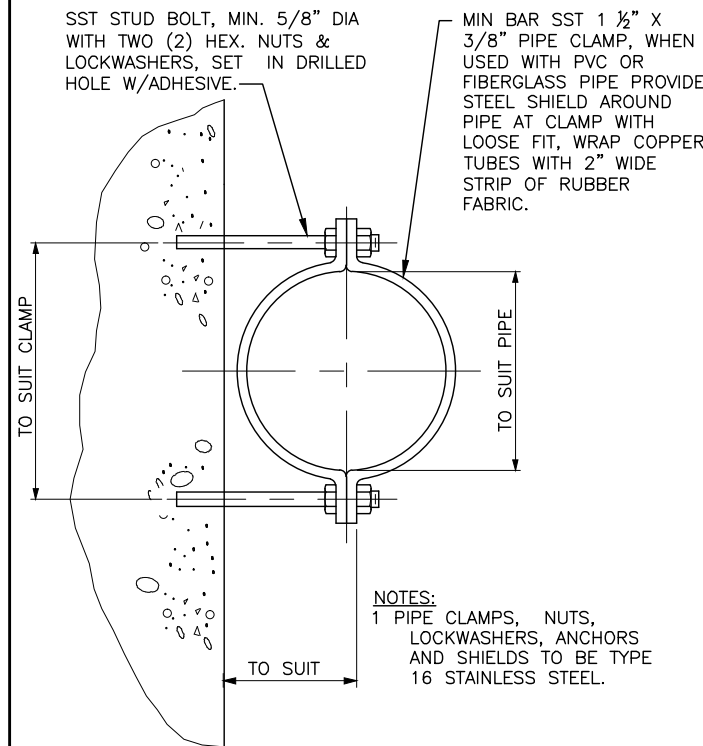
**NOTES:**  
1. WHERE SUBMERGED, PIPE CLAMP, BOLT, WASHER, SHIELD AND SELF DRILLING CONCRETE ANCHOR TO BE TYPE 316 STAINLESS STEEL.  
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT, WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC.

**PIPE CLAMP FOR INDIVIDUAL PIPES** (M) 3009  
NTS



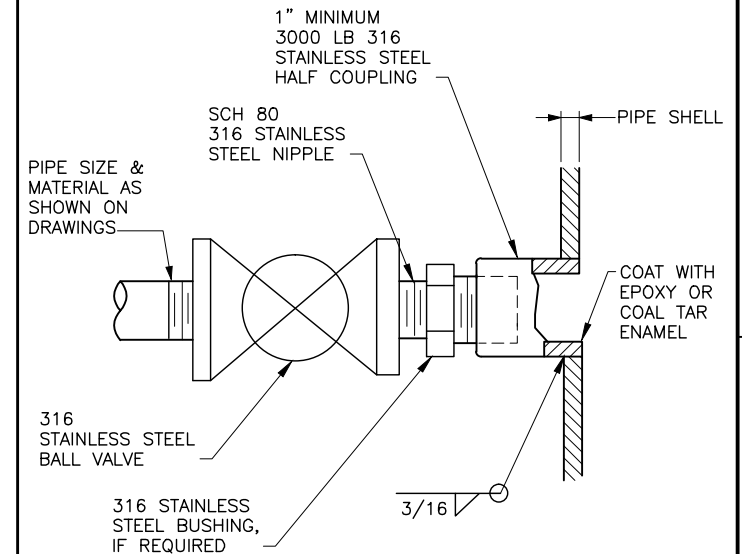
**NOTE:**  
COAT WALL PIPE WITH SPECIFIED PAINT SYSTEM PRIOR TO CONCRETE PLACEMENT.

**WALL THIMBLE** (M) 3010  
NTS



**NOTES:**  
1. PIPE CLAMPS, NUTS, LOCKWASHERS, ANCHORS AND SHIELDS TO BE TYPE 316 STAINLESS STEEL.

**PIPE CLAMP** (M) 3011  
NTS



**NOTE:**  
IF PIPE MATERIAL IS STAINLESS STEEL, SAME TYPE MATERIAL ATTACHMENT SHALL BE USED.

**PIPE CONNECTION 2 1/2\"/>**



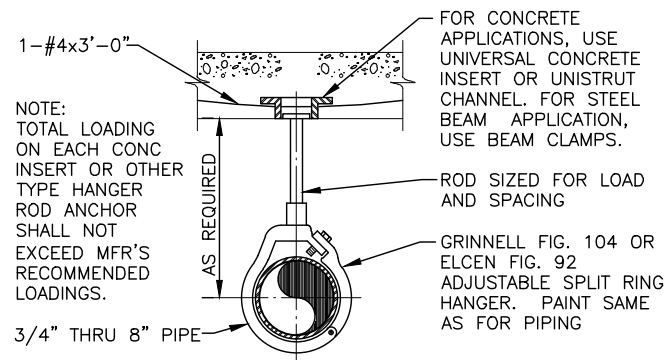
**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN: BCA STANDARDS  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

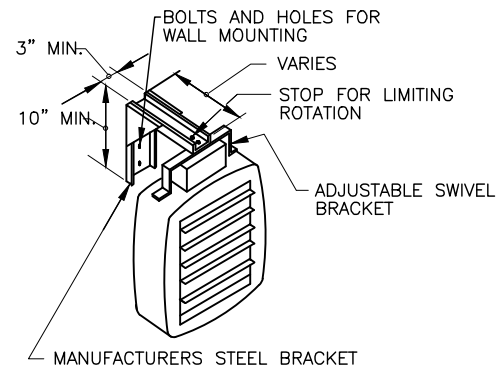
MECHANICAL  
**GENERAL MECHANICAL DETAILS - 2**  
DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01



PIPE HANGER

NTS

M  
3013



- NOTES:
1. HEATER TO BE CONTROLLED FROM WALL-MOUNTED THERMOSTAT, UNLESS OTHERWISE SHOWN.
  2. SEE ELECTRICAL DRAWINGS FOR CONNECTIONS.

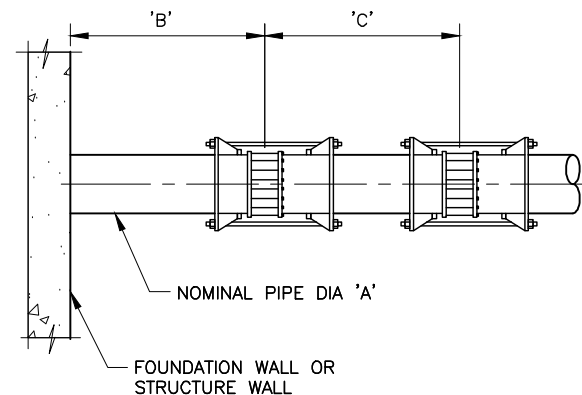
WALL MOUNTING POSITION

ELECTRIC UNIT HEATER

NTS

M  
3014

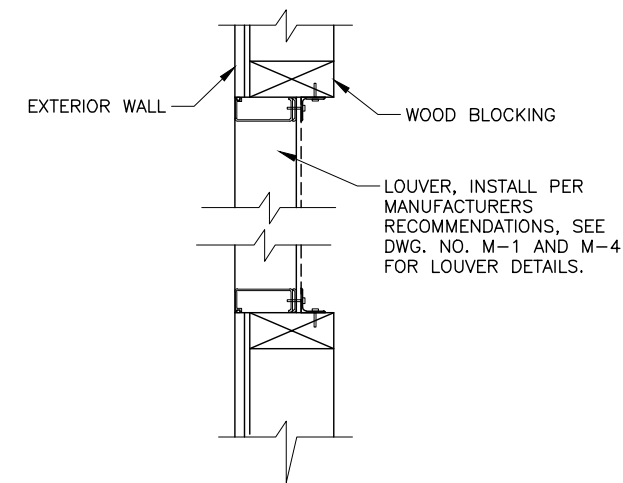
DIMENSIONS IN INCHES (MM)		
'A'	'B'	'C'
6 (150)	16 (400)	48 (1200)
16 (400)	24 (600)	56 (1420)



EXTERIOR DOUBLE HARNESS SET

NTS

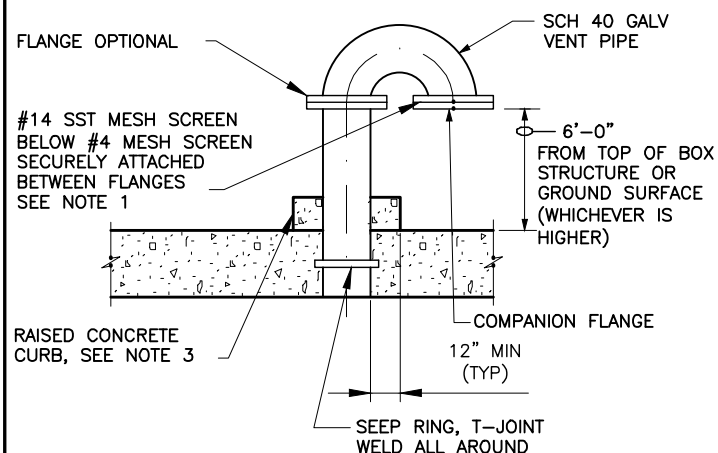
M  
3015



LOUVER WITH MANUAL DAMPER

NTS

M  
3016

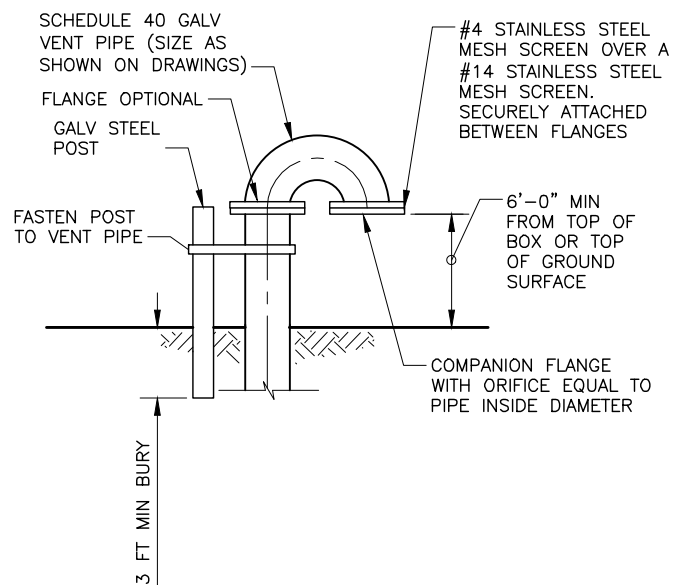


- NOTES:
1. PROVIDE RUBBER GASKETS ABOVE AND BELOW SCREEN.
  2. HOT DIP GALVANIZED PIPE AFTER FABRICATION.
  3. RAISED CONCRETE CURB REQUIRED ON RESERVOIR AND DRAIN VAULT. CURB SHALL EXTEND TO 12" ABOVE FINISHED GROUND SURFACE OR 6" ABOVE STRUCTURE (WHICHEVER IS HIGHER). SLOPE CURB AWAY FROM PIPE. CURB SHALL BE FORMED AS A SINGLE POUR WITH THE ROOF DECK. ATTACH PVC LINER TO SIDE OF CURB.
  4. SEE STRUCTURAL DRAWINGS FOR REINFORCEMENT DETAILS.

AIR VENT DETAIL

NTS

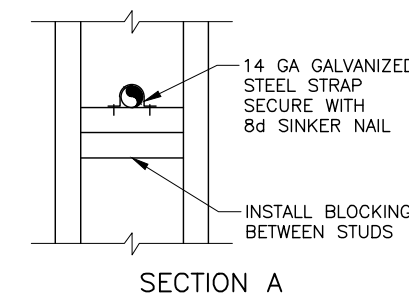
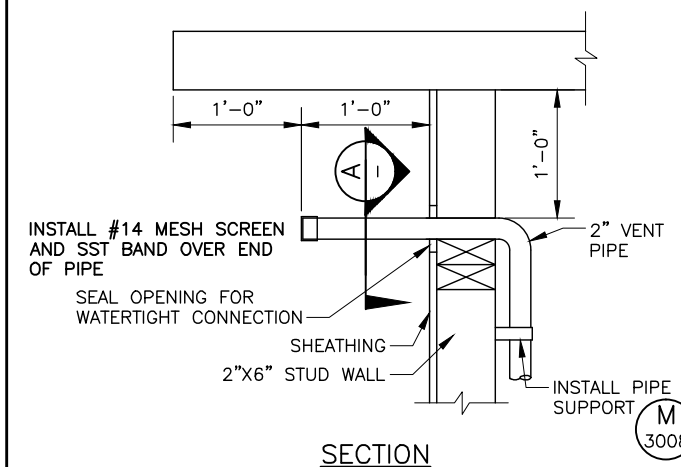
M  
3017



AIR VENT DETAIL

NTS

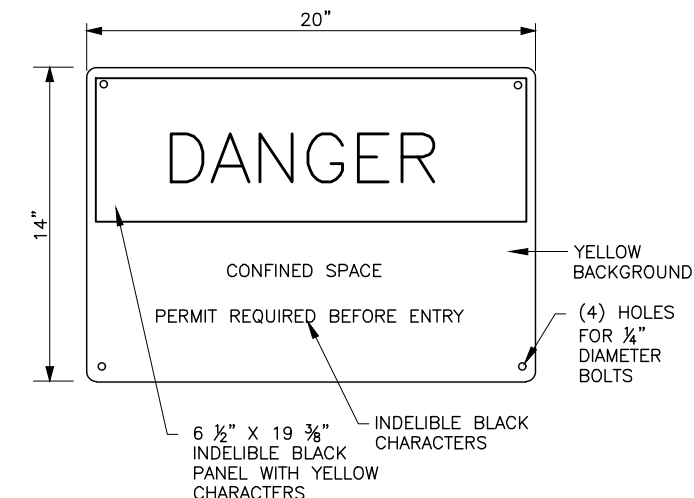
M  
3018



VENT THROUGH WALL

NTS

M  
3019

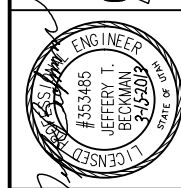
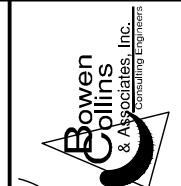


NOTE:  
MATERIAL TO BE 0.040" ALUMINUM WITH BAKED ENAMEL FINISH OR EQUAL, STYLE AS SHOWN. SIGN TO BE ATTACHED IN CONSPICUOUS LOCATION AT ENTRY TO STRUCTURE.

WARNING SIGN

NTS

M  
3020



NOT FOR CONSTRUCTION FOR REVIEW ONLY

NO.	DATE	REV. BY	DESCRIPTION	REVISIONS

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING

SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
EARL'S PEAK WATER PROJECT  
WEBER COUNTY, UTAH

DESIGN: BCA STANDARDS  
DRAWN: BCA STANDARDS

REVIEW: G. LOSCHER  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

MECHANICAL  
GENERAL MECHANICAL DETAILS - 3

PROJECT NUMBER: 347-12-01  
DATE: MARCH 2013

DRAWING NO. GM-4  
SHEET 38 OF 50

SCHEMATIC SWITCHES		
NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
		MOMENTARY PUSHBUTTON
		MAINTAINED POSITION MUSHROOM HEAD PUSHBUTTON
		LEVEL OR FLOAT
		TEMPERATURE
		FLOW
		TIME
		FORCE OR TORQUE
		PRESSURE
		LIMIT
		SELECTOR SWITCH, THREE POSITION MAINTAINED CONTACT WITH HAND-OFF-AUTO LEGEND

POWER SYMBOLS		
		DUPLEX FLOOR BOX
		QUAD FLOOR BOX
		DUPLEX IN CEILING
		QUAD IN CEILING
		DUPLEX GFCI
		SIMPLEX RECEPTACLE
		DUPLEX RECEPTACLE
		DUPLEX SPLIT WIRED
		COMBO MOTOR STARTER
		FUSED DISCONNECT
		DISCONNECT
		JUNCTION BOX
		CONTROL STATION
		SINGLE POLE TOGGLE SWITCH
		THREE WAY TOGGLE SWITCH
		FOUR WAY TOGGLE SWITCH
		DATA JACK
		VOICE JACK
		DATA/VOICE JACK
		PHOTOELECTRIC CONTROL UNIT
		THERMOSTAT

LIGHTING SYMBOLS		
F1		DESIGNATES FIXTURE NUMBER - REFER TO FIXTURE SCHEDULE
		WALL MOUNTED
		2'x4' FLUORESCENT LIGHT
		1'x4' FLUORESCENT LIGHT
		EMERGENCY LIGHT
		2' WALL MOUNT LIGHT
		4' WALL MOUNT LIGHT
		POLE MOUNTED W/ONE LUMINAIRE
		PENDANT OR CEILING MOUNTED
		EXIT LIGHT
		WARNING LIGHT

POWER ONE-LINE SYMBOLS		
		UTILITY METERING CURRENT TRANSFORMER
		UTILITY METERING SOCKET
		TRANSFER SWITCH ATS: AUTOMATIC TRANSFER SWITCH MTS: MANUAL TRANSFER SWITCH
		DISCONNECT
		FUSED DISCONNECT
		MOTOR (HP SHOWN)
		GENERATOR
		POWER FEED
		POWER FACTOR CAPACITOR
		CIRCUIT BREAKER OR MCP (MOTOR CIRCUIT PROTECTOR)
		UTILITY METERING SOCKET WITH CIRCUIT BREAKER
		MOTOR STARTER WITH OVERLOADS: X = NEMA SIZE
		DELTA-WYE TRANSFORMER
		RVSS REDUCED VOLTAGE SOFT STARTER
		SURGE SUPPRESSOR OR SURGE ARRESTOR
		VFD VARIABLE FREQUENCY DRIVE
		PNL POWER DISTRIBUTION PANEL GRAY = EXISTING AND FUTURE AS INDICATED
		CIRCUIT DISTRIBUTION PANELBOARD
		CONTROL PANEL ENCLOSURE
		SPD SURGE PROTECTION DEVICE

SCHEMATIC/CONTROL DIAGRAM SYMBOLS		
		CONDUCTOR
		CONDUCTOR (OUTSIDE EQUIPMENT, ENCLOSURE OR CONTROLLER)
		ELECTRICAL CONNECTION OR NODE
		NO CONNECTION OR NODE
		NORMALLY CLOSED (NC) CONTACTS
		NORMALLY OPEN (NO) CONTACTS
		FUSE HOLDER AND FUSE
		FUSE TERMINAL FUSE NUMBER: F5 FUSE RATING: 5 AMPS
		CONTRACTOR CONTACT (GANG OPERATED). NUMBER OF CONTACTS SHOWN. 30 = 30 AMP RATED
		MOTOR OVERLOAD MOTOR OVERLOAD MODIFIERS: BLANK = SOLID STATE ELECTRONIC BI = BI-METALLIC
		CONTROL RELAY X = RELAY NUMBER
		PILOT LIGHT LEGEND PLATE: ON MODIFIERS: A: AMBER LENS B: BLUE LENS G: GREEN LENS R: RED LENS W: WHITE LENS
		PILOT LIGHT - PUSH-TO-TEST
		PLC DIGITAL INPUT
		PLC DIGITAL OUTPUT
		PLC ANALOG INPUT
		PLC ANALOG OUTPUT
		SIGNAL CONDITIONER

CONTROL ONE-LINE SYMBOLS		
		ENCLOSURE OR CONTROL PANEL
		HOME RUN TO POWER PANEL "A" CIRCUIT "B"
		INSTRUMENT CONNECTION POINT
		JUNCTION BOX

PLAN SYMBOLS		
		GROUND ROD
		GROUND ROD IN GROUND WELL
		GROUND RISER FROM THE GROUND PLATE (REBAR)
		BOLTED AND WELDED GROUND CONNECTIONS, RESPECTIVELY
		GROUND CABLE: • EMBEDDED IN CONCRETE • BURIED IN EARTH • EXPOSED
		HVAC EQUIPMENT
		UNIT HEATER - WALL MOUNTED, AND CEILING MOUNTED RESPECTIVELY
		PAD MOUNTED CONDENSING UNIT, SIDE DISCHARGE, AND UP FLOW, RESPECTIVELY
		ROOFTOP MOUNTED EQUIPMENT
		EXHAUST FAN
		CONDUIT & RACEWAYS
		CONCEALED RACEWAY OR WIRING SYSTEM - BELOW GRADE, BEHIND WALLS AND EQUIPMENT, ETC.
		FLEX CONDUIT
		RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED
		HOMERUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
		JUNCTION BOX
		RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)
		RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)
		RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION OR DISTANCE FROM VIEWER
		CONDUIT STUB AND CAP

**NOT FOR CONSTRUCTION FOR REVIEW ONLY**

<p><b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING</p>	<p>REVIEW CHECKED: G. LOSCHER APPROVED: J. BECKMAN</p>	<p>DESIGN D. STEWART</p>	<p>DRAWN D. LAMPH</p>
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SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

**ELECTRICAL SYMBOLS**

DATE: MARCH 2013 PROJECT NUMBER 347-12-01

DRAWING NO. **E-1**

SHEET 39 OF 50



**EQUIPMENT GROUNDING CONDUCTORS**

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

**GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM**

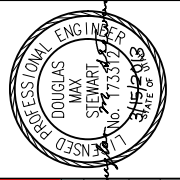
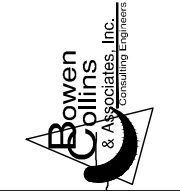
COPPER CONDUCTOR #2 OR SMALLER	WIRE SIZE #8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0
>600 KCMIL THRU 1100 KCMIL	2/0
>1100 KCMIL	3/0

**GENERAL NOTES:**

1. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO ENSURE NEC CODE CLEARANCE REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
2. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN.
3. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
4. THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH ELECTRICAL ROOMS OR SPACES; OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN THE OTHER AREAS.
5. ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
6. FOR PACKAGE EQUIPMENT PROVIDED ON THE PROJECT, SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDED ALL NECESSARY ELECTRICAL INFORMATION TO ELECTRICAL SUBCONTRACTOR FOR INCLUSION WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS.
7. IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ELECTRICAL REQUIREMENTS AND CONTROL REQUIREMENTS OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.
8. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO DELIVER THE COMPLETE SET OF PLANS IN ORDER TO INSURE THAT ALL ITEMS RELATED TO ELECTRICAL POWER AND CONTROL SYSTEMS ARE COMPLETELY ACCOUNTED FOR.
9. ALL EQUIPMENT DIMENSIONS SHOWN ON PLANS AND ELEVATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE THE SHOP DRAWINGS FOR PROPER LAYOUT, FOUNDATION AND PAD, ETC. FOR FINAL INSTALLATION WITHOUT ANY ADDITIONAL COST TO THE OWNER.
10. THE DRAWINGS DIAGRAMMATICALLY INDICATE THE DESIRED LOCATION AND ARRANGEMENT OF OUTLETS, CONDUIT RUNS, EQUIPMENT AND OTHERS ITEMS. DETERMINE EXACT LOCATIONS IN THE FIELD BASED ON PHYSICAL SIZE AND ARRANGEMENT OF EQUIPMENT, FINISHED ELEVATIONS, AND OTHERS OBSTRUCTIONS. LOCATIONS SHOWN ON THE DRAWINGS, HOWEVER, SHALL BE ADHERED TO AS CLOSELY AS POSSIBLE.
11. THE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE CURRENT VERSION OF THE NEC.

**FIXTURE SCHEDULE**

SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NO.	VA	LAMP	MOUNTING	NOTES
F1	ENCLOSED INDUSTRIAL FIBERGLASS HOUSING, WET LOCATION TWO LAMP FLUORESCENT 120 VOLT, INSTANT START ELECTRONIC BALLAST	LITHONIA METALUX HOLOPHANE	DMW 232 AR 120 GEB VT2-232DR-120V-EB81-WL-U EMS04YBBMP042EP1U	74	F32T8/ COOL WHITE	CEILING	
F2	DELEON TL UNIVERSAL FACE EXIT SIGN UL WET/DAMP LOCATION LISTED DUAL VOLTAGE 120/277 w/GREEN EXIT LETTERS SELF-CONTAINED, SEALED MAINTENANCE FREE NICKEL CADMIUM BATTERY	HOLOPHANE	LNME-D-NC-G-SG-S-N	5	LED	WALL	
F3	WALL PACK, CUTOFF, LED, 120 VOLT AC, BLACK	HOLOPHANE	W4GLED 10C 1000 40K T3M 120 BK	38	LED	WALL	
F4	EMERGENCY LIGHT WITH TWO HEADS, 90MIN BATTERY POWER, WET AND CORROSIVE LOCATION, INPUT POWER 120 VAC	HOLOPHANE	DM4N25SHS92WL	25	TUNGSTEN	WALL	



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NO.	DATE	REV. BY	DESCRIPTION

**VERIFY SCALE**  
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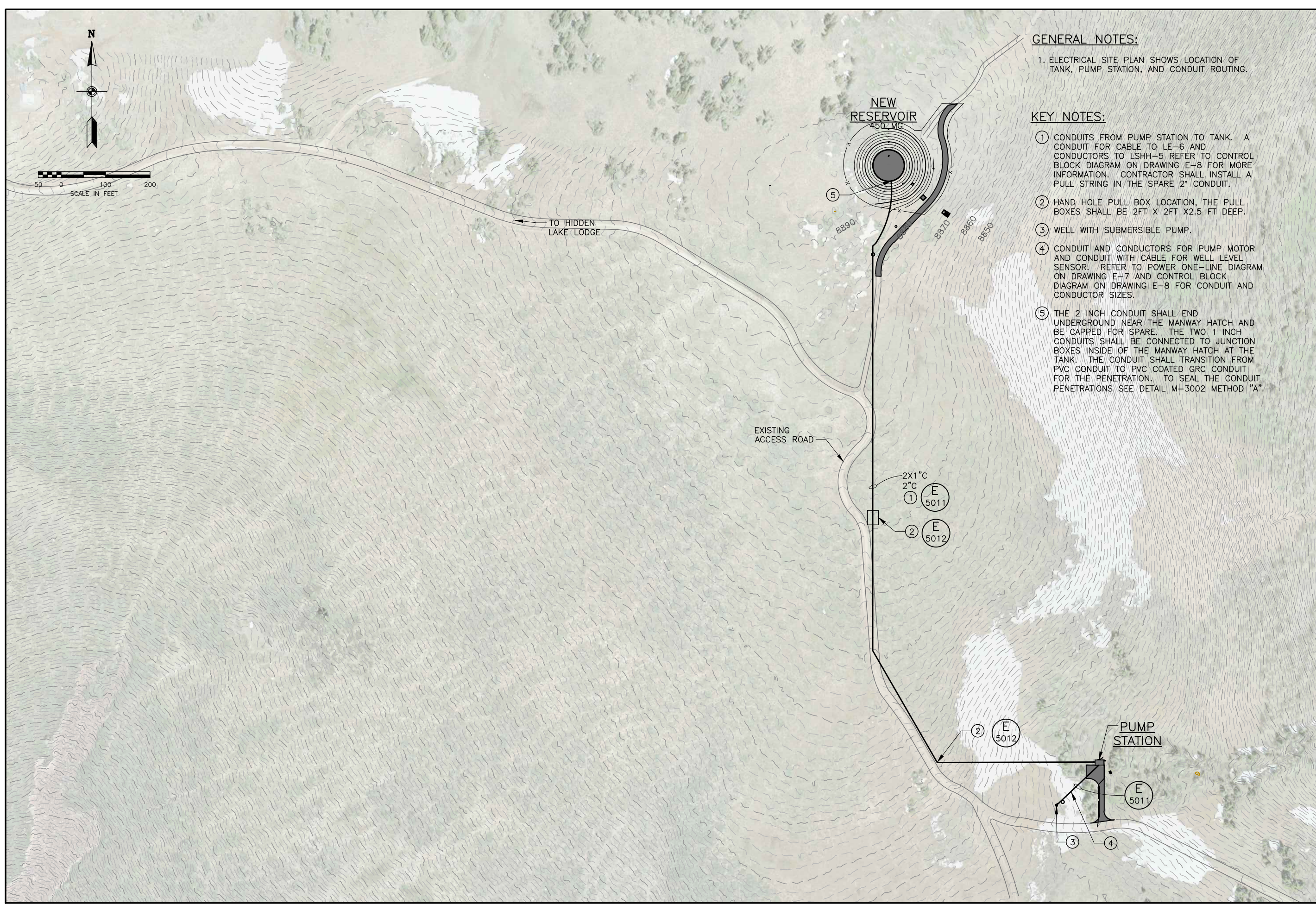
REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN

DESIGN D. STEWART DRAWN D. LAMPH

**SCHEDULES AND NOTES**  
DATE: MARCH 2013 PROJECT NUMBER 347-12-01

DRAWING NO. **F-2**

SHEET 40 OF 50

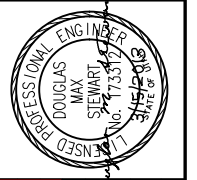
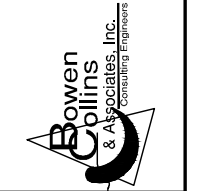


**GENERAL NOTES:**

1. ELECTRICAL SITE PLAN SHOWS LOCATION OF TANK, PUMP STATION, AND CONDUIT ROUTING.

**KEY NOTES:**

- ① CONDUITS FROM PUMP STATION TO TANK. A CONDUIT FOR CABLE TO LE-6 AND CONDUCTORS TO LSHH-5 REFER TO CONTROL BLOCK DIAGRAM ON DRAWING E-8 FOR MORE INFORMATION. CONTRACTOR SHALL INSTALL A PULL STRING IN THE SPARE 2" CONDUIT.
- ② HAND HOLE PULL BOX LOCATION, THE PULL BOXES SHALL BE 2FT X 2FT X2.5 FT DEEP.
- ③ WELL WITH SUBMERSIBLE PUMP.
- ④ CONDUIT AND CONDUCTORS FOR PUMP MOTOR AND CONDUIT WITH CABLE FOR WELL LEVEL SENSOR. REFER TO POWER ONE-LINE DIAGRAM ON DRAWING E-7 AND CONTROL BLOCK DIAGRAM ON DRAWING E-8 FOR CONDUIT AND CONDUCTOR SIZES.
- ⑤ THE 2 INCH CONDUIT SHALL END UNDERGROUND NEAR THE MANWAY HATCH AND BE CAPPED FOR SPARE. THE TWO 1 INCH CONDUITS SHALL BE CONNECTED TO JUNCTION BOXES INSIDE OF THE MANWAY HATCH AT THE TANK. THE CONDUIT SHALL TRANSITION FROM PVC CONDUIT TO PVC COATED GRC CONDUIT FOR THE PENETRATION. TO SEAL THE CONDUIT PENETRATIONS SEE DETAIL M-3002 METHOD "A".

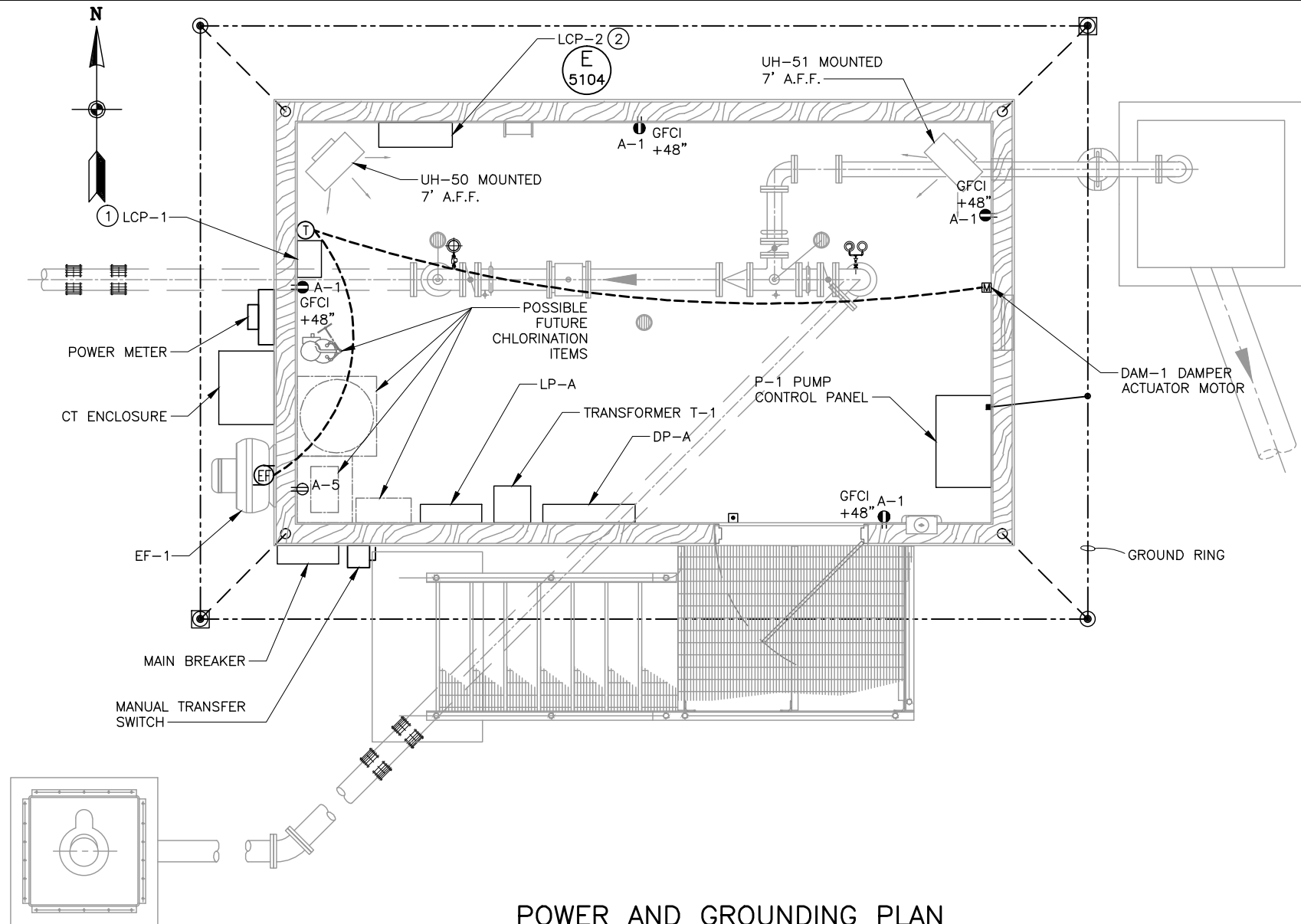


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NO.	DATE	REV. BY	DESCRIPTION

<b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING	
DESIGN D. STEWART	REVIEW G. LOSCHER
DRAWN D. LAMPH	APPROVED J. BECKMAN

<b>ELECTRICAL</b>	<b>EARL'S PEAK WATER PROJECT</b> WEBER COUNTY, UTAH
<b>ELECTRICAL SITE PLAN</b>	PROJECT NUMBER 347-12-01
DATE: MARCH 2013	DRAWING NO. E-3



**POWER AND GROUNDING PLAN**  
SCALE: 1/2"=1'-0"

**GENERAL NOTES:**

1. THE GROUNDING SYSTEM SHALL HAVE A GROUND RING OF 2/0 AWG BARE COPPER CONDUCTOR BURIED NOT LESS THAN 30" BELOW THE EARTH'S SURFACE. CONNECT REBAR TO THE GROUND RING VIA 2/0 AWG BARE COPPER CONDUCTOR (GROUND RISERS). ROCKY MOUNTAIN POWER'S TRANSFORMER, THE GENERATOR, THE METERING ENCLOSURE WITH THE MAIN DISCONNECT, THE AUTOMATIC TRANSFER SWITCH, SWITCHBOARD-2 AND MISCELLANEOUS METALWORK SHALL BE CONNECTED TO THE GROUND RING WITH 2/0 AWG BARE COPPER CONDUCTOR. MOTOR CONTROL CENTER-2, REDUCED VOLTAGE SOFT STARTERS AND PUMP BASES SHALL BE CONNECTED TO THE GROUND RING WITH 2/0 AWG BARE COPPER CONDUCTOR. THE GROUND RING SHALL BE A MINIMUM OF 2 FEET FROM BUILDING FOUNDATION.
2. DRAWING SHOWS TYPICAL LOCATIONS OF GROUNDING SYSTEM COMPONENTS.
3. DRAWING SHOWS APPROXIMATE LOCATIONS AND MINIMUM NUMBER OF RISERS AND GROUNDING CONNECTIONS TO BE INSTALLED.
4. REFER TO POWER ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZES. REFER TO PANEL SCHEDULE FOR CIRCUIT INFORMATION.

**KEY NOTES:**

- ① THERMOSTAT AND CONTROL PANEL LCP-1 TO CONTROL EXHAUST FAN EF-1 AND DAMPER DAM-1. REFER TO DETAIL E-5105.
- ② CONTROL ENCLOSURE FOR LIT-6, LIT- 7 AND CELL AUTO-DIALER ALARM.

**Bowen Collins & Associates, Inc.**  
Professional Engineering  
Douglas Stewart  
Professional Engineer  
No. 173317  
State of Utah

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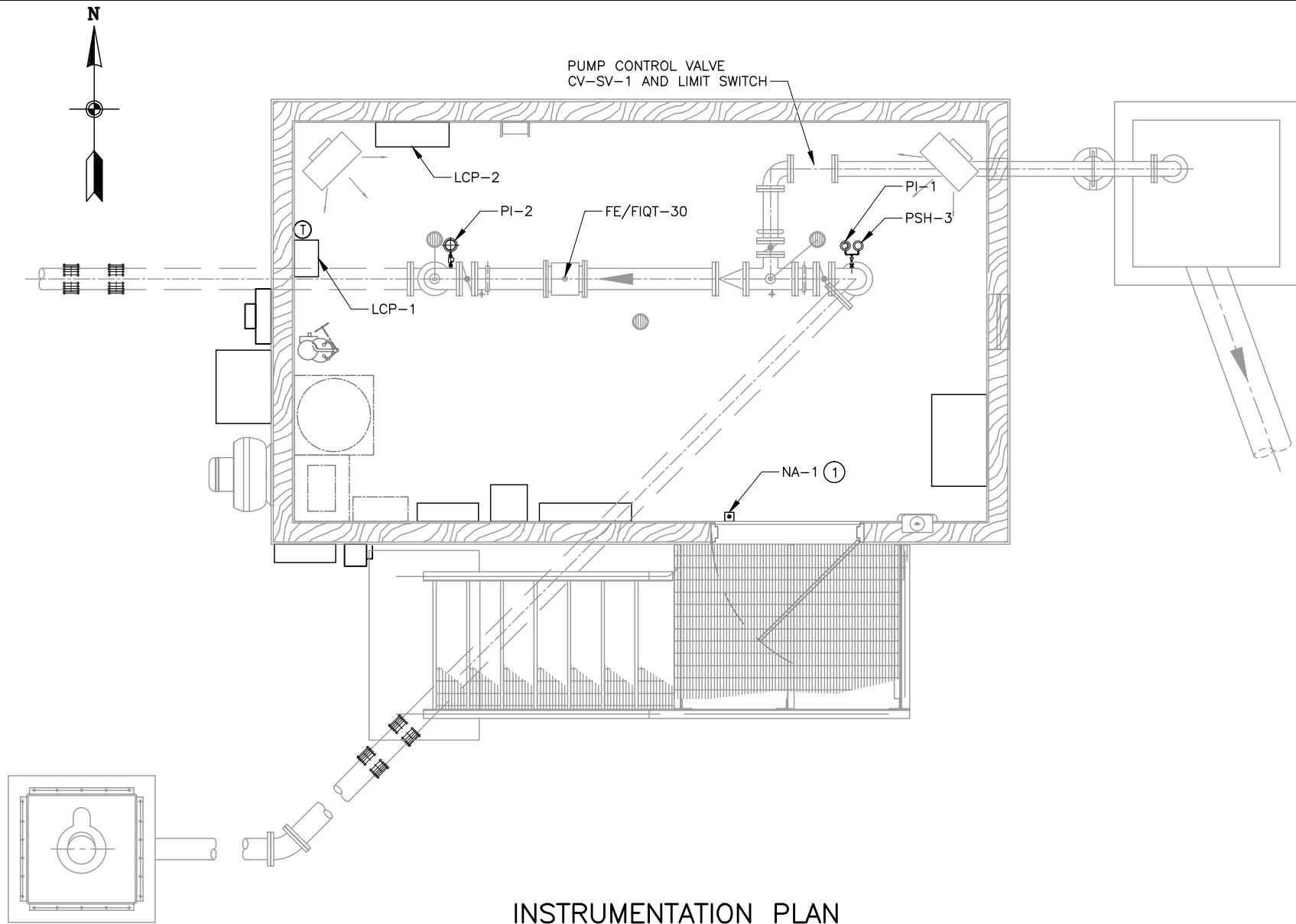
SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN	D. STEWART
DRAWN	D. LAMPH
REVIEW	CHECKED G. LOSCHER APPROVED J. BECKMAN

**POWER AND GROUNDING PLAN**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01



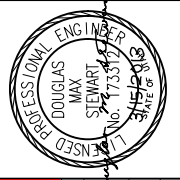
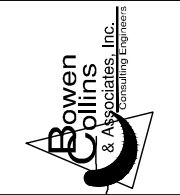
**INSTRUMENTATION PLAN**  
SCALE: 1/2" = 1'-0"

**GENERAL NOTES:**

1. REFER TO CONTROL BLOCK DIAGRAM FOR CONDUIT AND CONDUCTOR SIZES.

**KEY NOTES:**

① OPEN DOOR ALARM SENSOR, REFER TO CONTROL BLOCK DIAGRAM AND DETAIL E-5107.

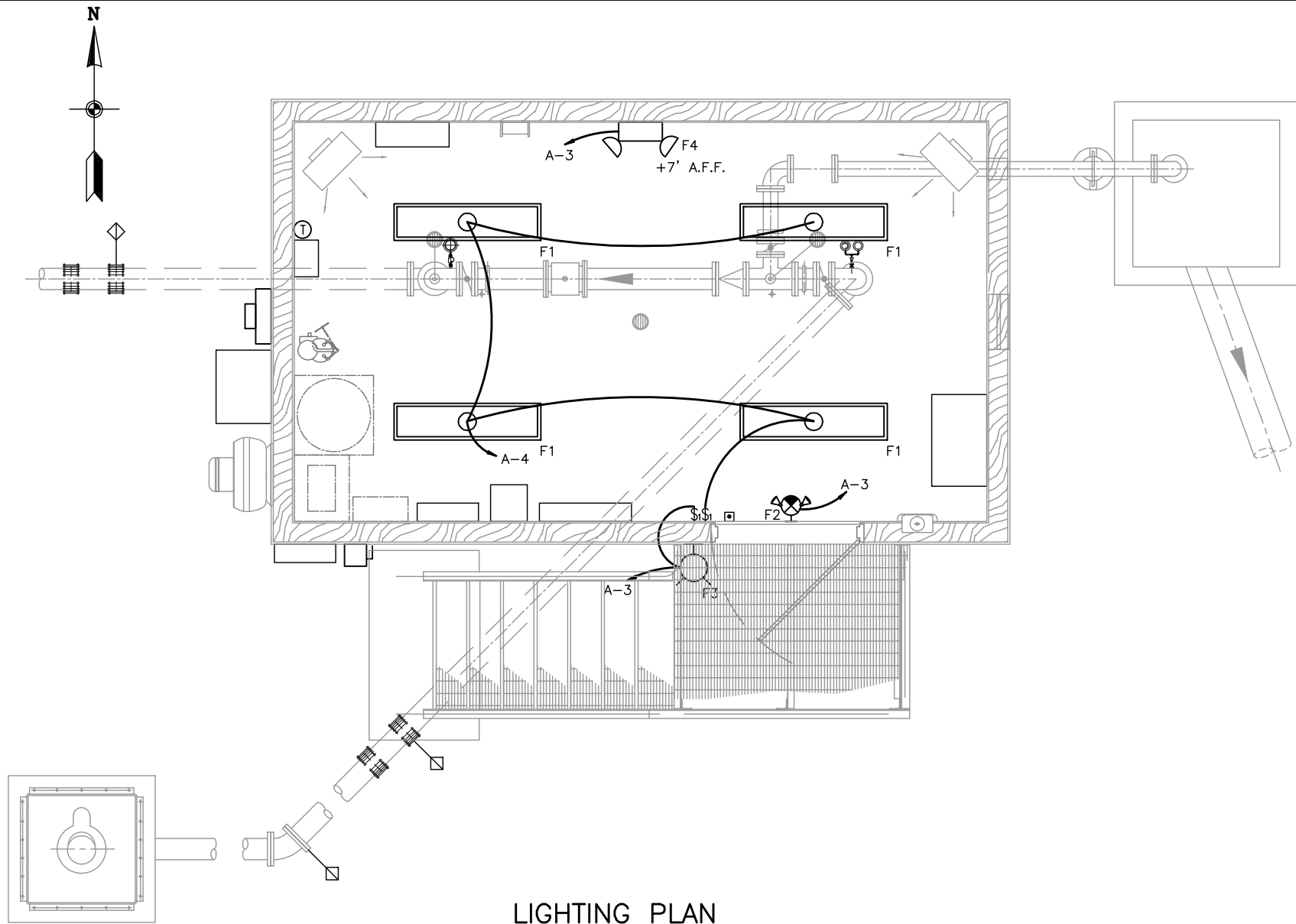


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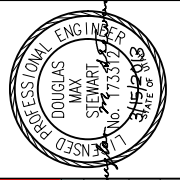
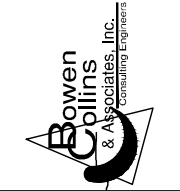
SUMMIT MOUNTAIN HOLDING GROUP, LLC. <b>EARL'S PEAK WATER PROJECT</b> WEBER COUNTY, UTAH	
DESIGN DESIGN D. STEWART DRAWN D. LAMPH	REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN

ELECTRICAL <b>INSTRUMENTATION PLAN</b>	PROJECT NUMBER 347-12-01
DATE: MARCH 2013	



**LIGHTING PLAN**  
SCALE: 1/2"=1'-0"

**GENERAL NOTES:**  
1. REFER TO PANEL SCHEDULE FOR CIRCUIT INFORMATION.

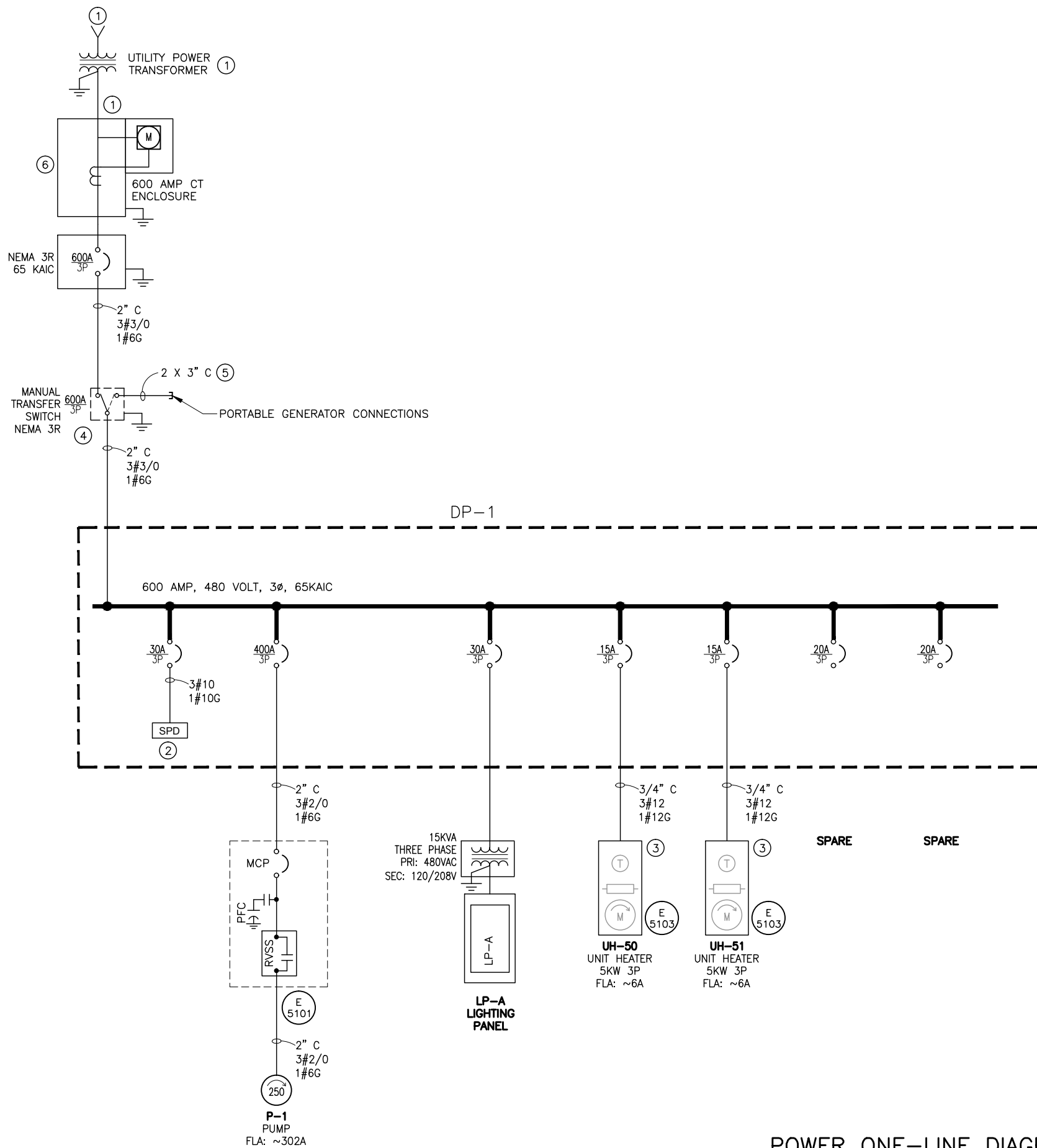


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DESIGN DESIGN D. STEWART DRAWN D. LAMPH	REVIEW CHECKED G. LOSCHER APPROVED J. BECKMAN
<b>VERIFY SCALE</b> BAR IS ONE INCH ON ORIGINAL DRAWING	

ELECTRICAL <b>LIGHTING PLAN</b>	PROJECT 347-12-01 NUMBER
DATE: MARCH 2013	



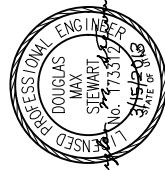
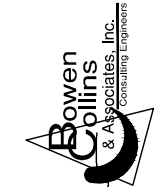
**POWER ONE-LINE DIAGRAM**  
SCALE: NTS

**GENERAL NOTES:**

1. REFER TO ELECTRICAL PLAN DRAWINGS FOR EQUIPMENT LOCATION.

**KEY NOTES:**

- ① UTILITY POWER FEED. CONTRACTOR SHALL COORDINATE WITH UTILITY TO PROVIDE AND INSTALL REQUIRED CONDUITS AND TRANSFORMER PAD/Vault IN ACCORDANCE WITH UTILITY REQUIREMENTS.
- ② SPD IS RATED 160 kA PER PHASE AND 80 kA PER MODE, REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
- ③ CHROMALOX ELECTRIC UNIT HEATER P/N LUH-05-43-32 WITH A THERMOSTAT KIT P/N LUH-TK1 AND WALL MOUNTING BRACKET.
- ④ THREE POLE, DOUBLE THROW, HEAVY DUTY, NEMA 3R, WITH 2 EACH LUGS PER PHASE, RATED FOR 250 kCMIL TO 500 kCMIL. EATON CATALOG #DT266URK WITH A COPPER GROUND KIT. OR EQUAL.
- ⑤ TWO 3 INCH CONDUITS ONE FOOT LONG CONNECTED TO BOTTOM OF ENCLOSURE, GENERATOR CONNECTIONS SHALL BE ON BOTTOM OF SWITCH.
- ⑥ CONTRACTOR SHALL PROVIDE AND INSTALL CT ENCLOSURE AND METER BASE IN ACCORDANCE WITH UTILITY COMPANY'S REQUIREMENTS.



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**VERIFY SCALE**  
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REVIEW  
CHECKED G. LOSCHER  
APPROVED J. BECKMAN

DESIGN  
DESIGN D. STEWART  
DRAWN D. LAMPH

ELECTRICAL  
**POWER ONE-LINE DIAGRAM**  
PROJECT NUMBER 347-12-01  
DATE: MARCH 2013

PANEL SCHEDULE													
PANEL		LP-A	VOLTS	208 / 120	PHASE	3	WIRES	4	RATING	10,000 AIC	FEEDER SIZE	60	
LOCATION			MOUNTING			FEED							
			<input type="checkbox"/> FLUSH	<input type="checkbox"/> TOP FEED		<input type="checkbox"/> LUGS ONLY							
			<input type="checkbox"/> SURFACE	<input type="checkbox"/> BOTTOM FEED		<input checked="" type="checkbox"/> 60 AMP MAIN BREAKER							
CKT	POLE	AMPS	DESCRIPTION	VA					DESCRIPTION	AMPS	POLE	CKT	
				C	A	B	C	C					
1	1	20	OUTLETS		720	300				X			2
3	1	20	OUTSIDE, EMERGENCY LIGHTS AND EXT SIGN	X		120		208		X			4
5	1	20	FUTURE CHLORINE PUMP	X									6
7	1	20	EXHAUST FAN EF-1 AND DAM-1		300								8
9	1	20	SPARE										10
11	1	20	SPARE										12
13	1	20	SPARE										14
15	1	20	SPARE										16
17			SPACE										18
19			SPACE										20
21			SPACE										22
23			SPACE										24
25			SPACE										26
27			SPACE										28
29			SPACE										30
				1,395	408	-	TOTAL VA		1,803	TOTAL 3φ AMPS		5.0	

**GENERAL NOTES:**

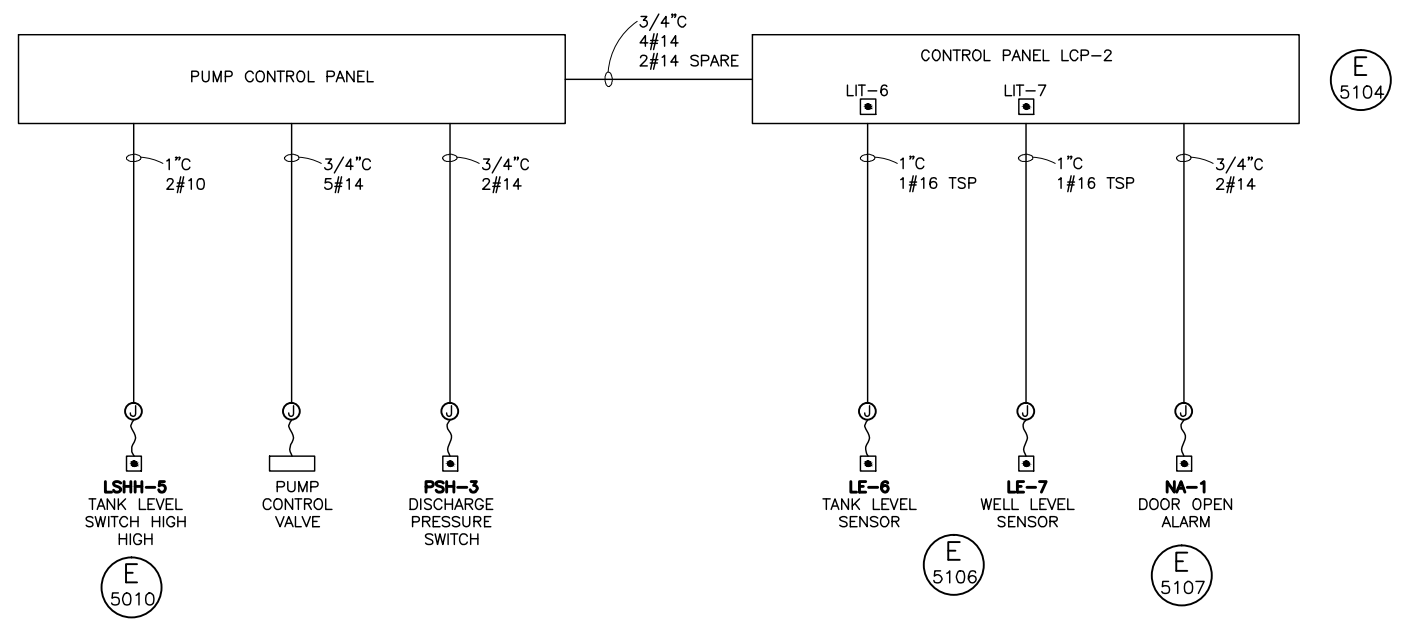
1. REFER TO ELECTRICAL PLAN DRAWINGS FOR EQUIPMENT LOCATION.

**Notes**

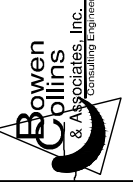
1- Contractor to size all wire to meet or exceed current National Electrical Code (NEC) Table 1 is provided as a reference only

Breaker	Wire Size
15 amps	12 awg
20 amps	12 awg
30 amps	10 awg
40 amps	8 awg
50 amps	8 awg

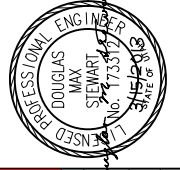
**TABLE 1**



**CONTROL BLOCK DIAGRAM**



**Bowen Collins & Associates, Inc.**  
Professional Engineering



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NO.	DATE	REV. BY	DESCRIPTION	REVISIONS

**VERIFY SCALE**  
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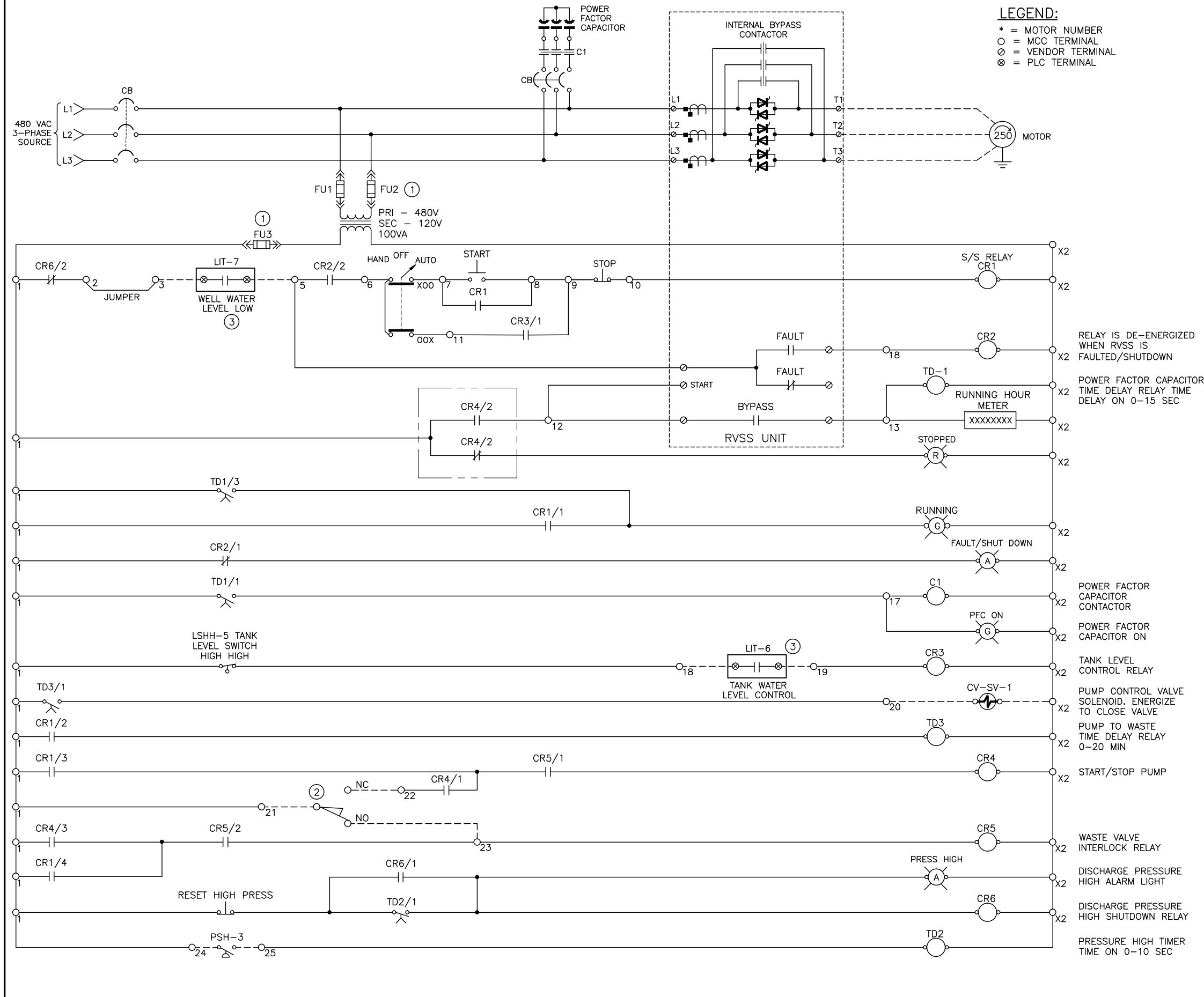
<p>DESIGN: <b>D. STEWART</b></p> <p>DRAWN: <b>D. LAMPH</b></p>	<p>REVIEW: <b>G. LOSCHER</b></p> <p>CHECKED: <b>G. LOSCHER</b></p> <p>APPROVED: <b>J. BECKMAN</b></p>	<p>PROJECT: EARL'S PEAK WATER PROJECT WEBER COUNTY, UTAH</p>
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**ELECTRICAL**

**CONTROL BLOCK DIAGRAM AND PANEL SCHEDULE LP-A**

DATE: MARCH 2013      PROJECT NUMBER: 347-12-01

DRAWING NO.	E-8
SHEET	46 OF 50



**LEGEND:**

- \* = MOTOR NUMBER
- = MCC TERMINAL
- ⊗ = VENDOR TERMINAL
- ⊗ = PLC TERMINAL

**NOTES:**

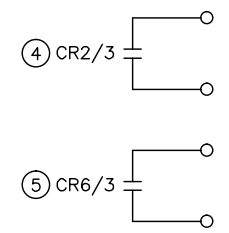
1. THIS IS A GENERIC WIRING DIAGRAM OF A SOFTSTARTER WITH BUILT-IN BYPASS CONTACTOR. DEPENDING ON THE MANUFACTURER, THE ACTUAL WIRING DIAGRAM MAY DIFFER SLIGHTLY.
2. KEYPAD SHALL BE INSTALLED ON MCC FRONT DOOR.

**KEY NOTES:**

- ① CONTROL POWER TRANSFORMER AND FUSES SHALL BE SIZED BY MANUFACTURER FOR CONTROL CIRCUIT LOADS.
- ② PUMP CONTROL VALVE LIMIT SWITCHES.
- ③ LEVEL INDICATOR/CONTROLLERS.
- ④ LEVEL INDICATOR/CONTROLLERS, LOCATED IN CONTROL PANEL LCP-2 WITH AUTO-DIALER REFER TO DETAIL E-5104.
- ⑤ RVSS FAULT ALARM WIRED TO ALARM AUTO-DIALER.
- ⑥ DISCHARGE PRESSURE HIGH ALARM WIRED TO ALARM AUTO-DIALER.

**PUMP AND CONTROL VALVE OPERATING SEQUENCE:**

1. TANK LEVEL CONTROL RELAY CR3 STARTS THE PUMP STARTING SEQUENCE TO FILL THE TANK AUTOMATICALLY AS REQUIRED. THE LEVEL INDICATOR/CONTROLLER LIT-6 HAS A CONTACT THAT CLOSING WHEN THE TANK WATER LEVEL IS LOW WHICH ENERGIZES CONTROL RELAY CR3. THE TANK WATER LEVEL HIGH CONTACT OPENS WHEN THE TANK IS FULL, WHICH DE-ENERGIZES CR3 AND THE PUMP STOPPING SEQUENCE BEGINS. LSHH-5 LEVEL SWITCH HIGH HIGH IS A SAFETY BACK UP TO THE TANK WATER LEVEL CONTROL CONTACT.
2. THE PUMP CONTROL VALVE INTERLOCK RELAY CR5 IS ENERGIZED WHEN THE CONTROL VALVE IS OPEN TO WASTE. WHEN CR5 IS ENERGIZED THEN THE PUMP IS ABLE TO START AS DESCRIBED IN STEP 3.
3. TO START THE PUMP IN THE AUTO MODE THE TANK LEVEL RELAY CR3 WHEN ENERGIZED WILL ENERGIZE THE START/STOP RELAY CR1, WHICH ENERGIZES CR4 AND TD3. CR4 STARTS THE PUMP AND AFTER THE PRESET TIME DELAY TD3 WILL ENERGIZE THE SOLENOID FOR THE PUMP CONTROL VALVE, WHICH WILL CLOSE THE VALVE AND WATER WILL THEN FLOW TO THE TANK.
4. TO STOP THE PUMP WHEN THE TANK IS FULL THE TANK WATER LEVEL HIGH CONTACT WILL OPEN AND DE-ENERGIZE CR3. THIS WILL DE-ENERGIZE CR1, TD3, AND THE PUMP CONTROL VALVE SOLENOID. THIS WILL OPEN THE PUMP CONTROL VALVE, CR4 WILL DE-ENERGIZE AND THE PUMP WILL STOP.



**PUMP MOTOR CONTROL DIAGRAM** (E 5101)

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**EARL'S PEAK WATER PROJECT**

SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
WEBER COUNTY, UTAH

**CONTROL DETAILS - 1**

ELECTRICAL

PROJECT NUMBER: 347-12-01  
DATE: MARCH 2013

DRAWING NO. ECD-1  
SHEET 47 OF 50

NO.	DATE	REV. BY	DESCRIPTION

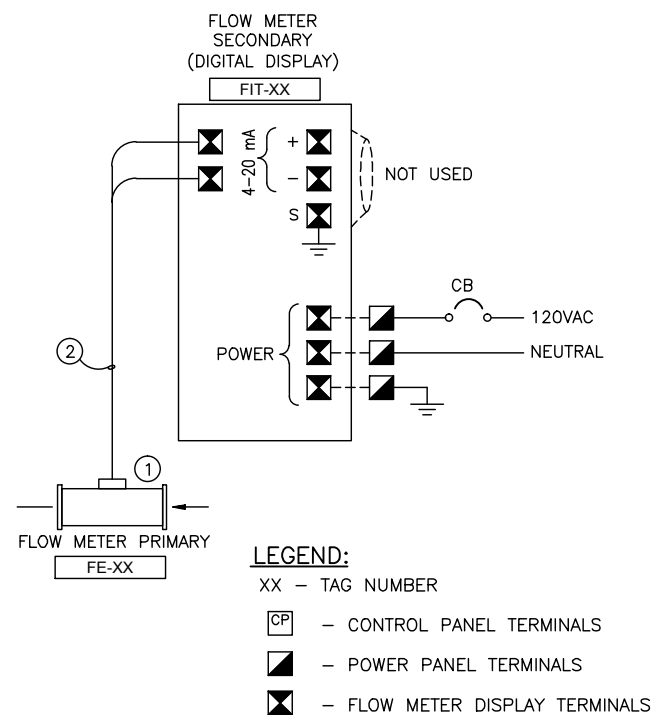
**DOUGLAS MAY STEWART**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 17337  
 State of UTAH

**REVIEW**  
 CHECKED G. LOSCHER  
 APPROVED J. BECKMAN

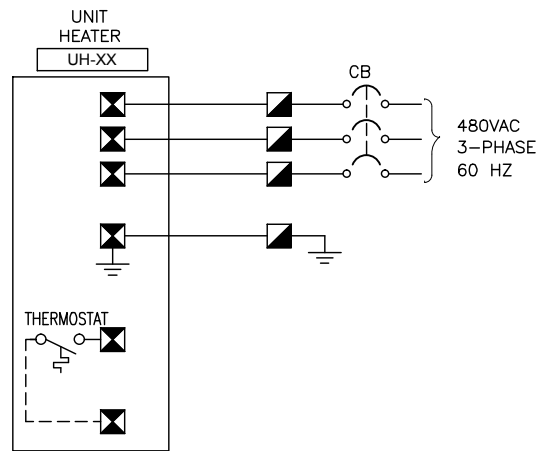


**NOTES:**

- ① GROUND FLOW METER PRIMARY AS REQUIRED BY MANUFACTURERS.
- ② CABLE NOT REQUIRED, FLOW METER SECONDARY SHALL BE MOUNTED ON FLOW METER PRIMARY.



**TYPICAL FLOW METER SCHEMATIC** (E 5102)  
SCALE: NTS



- LEGEND:**
- XX - TAG NUMBER
  - - MCC TERMINALS
  - - UNIT HEATER TERMINALS

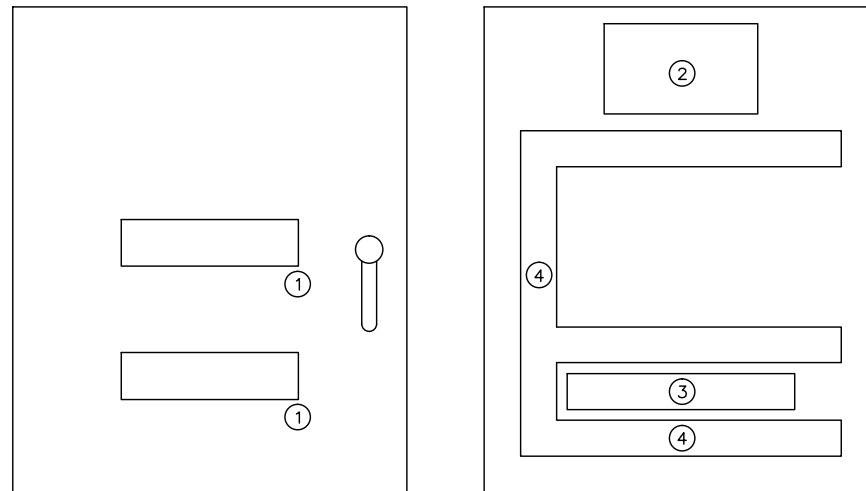
**TYPICAL UNIT HEATER CONNECTION DIAGRAM** (E 5103)  
SCALE: NTS

**GENERAL NOTES:**

- 1. CONTROL PANEL ENCLOSURE SIZED BY PANEL BUILDER SHALL BE A TYPE 12 ENCLOSURE WITH BACK PANEL.

**KEY NOTES:**

- ① LIT-6 INDICATOR CONTROLLER LABELED "TANK LEVEL" AND LIT-7 INDICATOR CONTROLLER LABELED "WELL LEVEL" SHALL BE MOORE INDUSTRIES MODEL 330 MOUNTED ON DOOR OF ENCLOSURE, SO THAT THE DISPLAYS CAN BE READ WITH THE DOOR SHUT.
- ② CELL PHONE ALARM AUTO-DIALER. ANTENNA SHALL BE MOUNTED OUTSIDE OF ENCLOSURE. (IF REQUIRED AUTO-DIALER WILL BE MOUNTED OUTSIDE PANEL).
- ③ DIN RAIL, 35 MM WITH HARDWARE TO MOUNT IT 1.5 INCHES OFF BACK PANEL. TERMINAL STRIP SHALL HAVE 3 FUSED TERMINALS RATED MINIMUM OF 15 AMP AT 120 VAC, SCREW TERMINALS SIZED FOR #18 TO #12 AWG CONDUCTORS, EACH FUSED TERMINAL SHALL HAVE A 5 AMP FUSE TO POWER READOUTS AND CELL PHONE AUTO-DIALER. TERMINAL BLOCK WITH TERMINALS RATED MINIMUM OF 15 AMP AT 120 VAC, SCREW TERMINALS, #18 TO #12 AWG CONDUCTORS.
- ④ WIREWAY, 2 INCH BY 2 INCH PLASTIC WITH COVER.



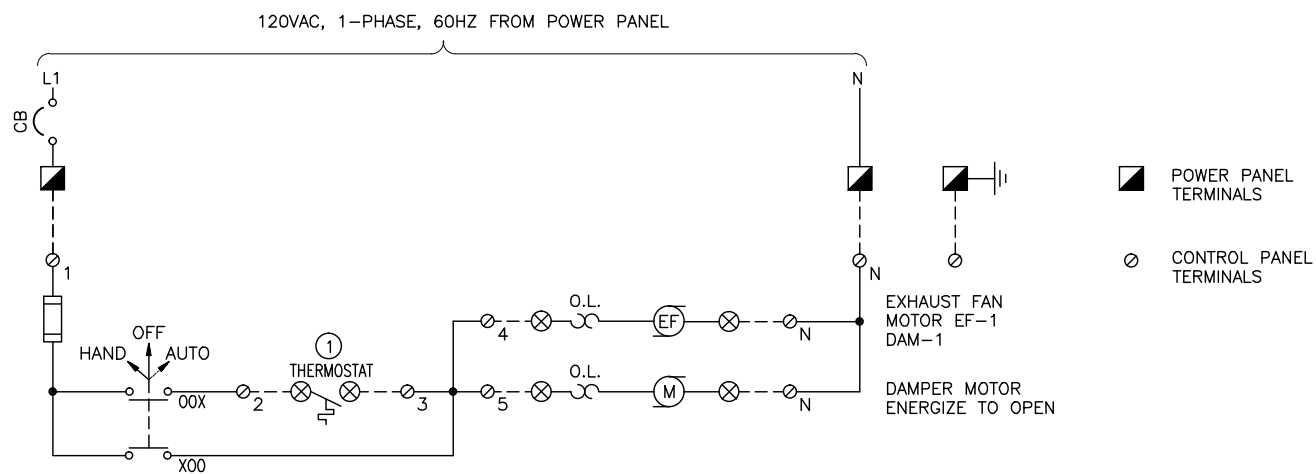
**CONTROL PANEL LCP-2** (E 5104)  
SCALE: NTS

**NOTES:**

- 1. CONTRACTOR SHALL PROVIDE AND INSTALL CONTROL HARDWARE IN CONTROL PANEL. NEMA 12 ENCLOSURE SHALL BE SIZED BY CONTRACTOR.

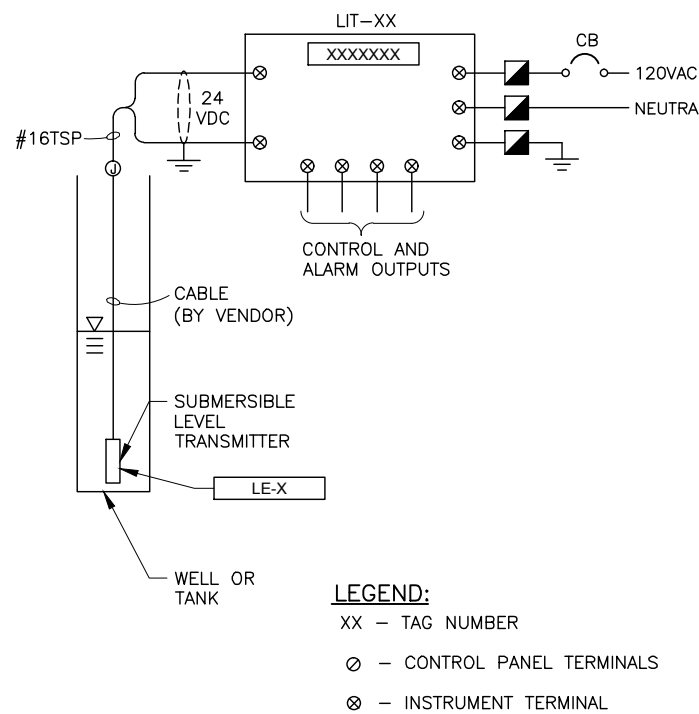
**KEY NOTES:**

- ① LINE VOLTAGE COOLING THERMOSTAT WITH CONTACT THAT CLOSSES ON TEMPERATURE RISE RATED FOR 120 VOLTS, 16 AMPS. TEMPERATURE RANGE 30 TO 110 DEGREES FAHRENHEIT, GRAINGER ITEM #4LZ94, DAYTON MODEL #4LZ94, OR EQUAL.



**CONTROL PANEL LCP-1** (E 5105)  
SCALE: NTS

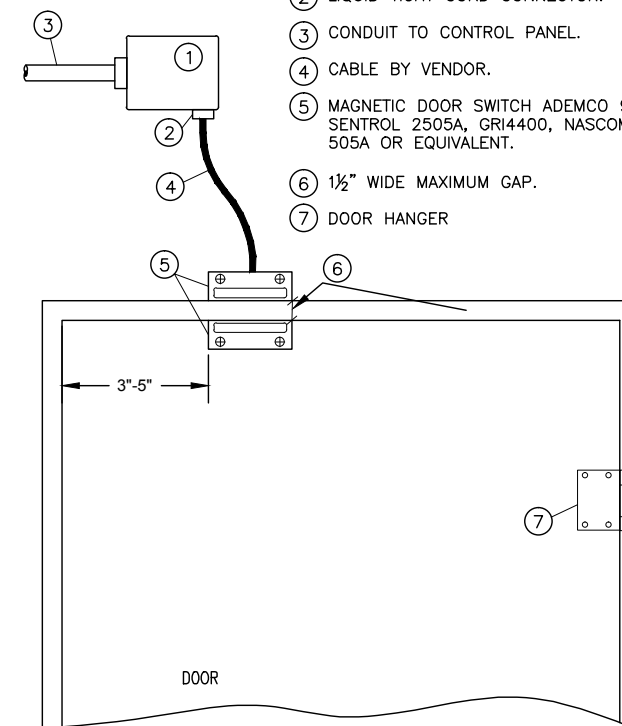
**NOTES:**



**TYPICAL LEVEL CONTROL SCHEMATIC FOR WELL OR TANK** (E 5106)  
SCALE: NTS

**NOTES:**

- ① JUNCTION BOX.
- ② LIQUID TIGHT CORD CONNECTOR.
- ③ CONDUIT TO CONTROL PANEL.
- ④ CABLE BY VENDOR.
- ⑤ MAGNETIC DOOR SWITCH ADEMCO 960, SENTROL 2505A, GRI4400, NASCOM 505A OR EQUIVALENT.
- ⑥ 1½" WIDE MAXIMUM GAP.
- ⑦ DOOR HANGER



**OPEN DOOR ALARM INSTALLATION DETAIL** (E 5107)  
SCALE: NTS

**Bowen Collins & Associates, Inc.**  
Professional Engineering

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**VERIFY SCALE**  
BAR IS ONE INCH ON ORIGINAL DRAWING

**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

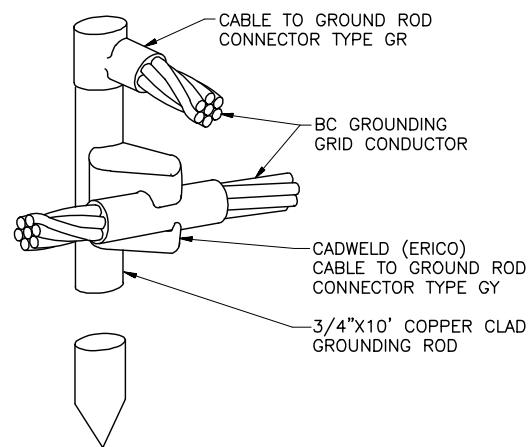
DESIGN: **D. STEWART**  
DRAWN: **D. LAMPH**

REVIEW: **G. LOSCHER**  
CHECKED: **G. LOSCHER**  
APPROVED: **J. BECKMAN**

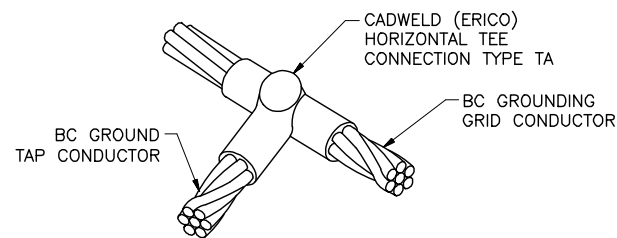
**CONTROL DETAILS - 2**

DATE: **MARCH 2013**  
PROJECT NUMBER: **347-12-01**

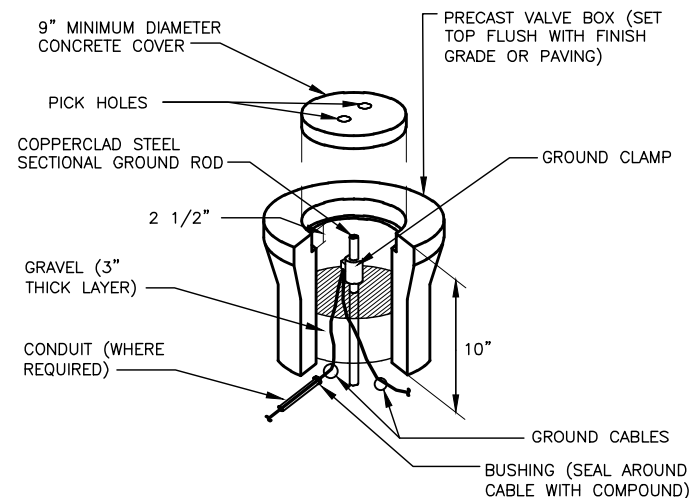
DRAWING NO. **ECD-2**  
SHEET **48** OF **50**



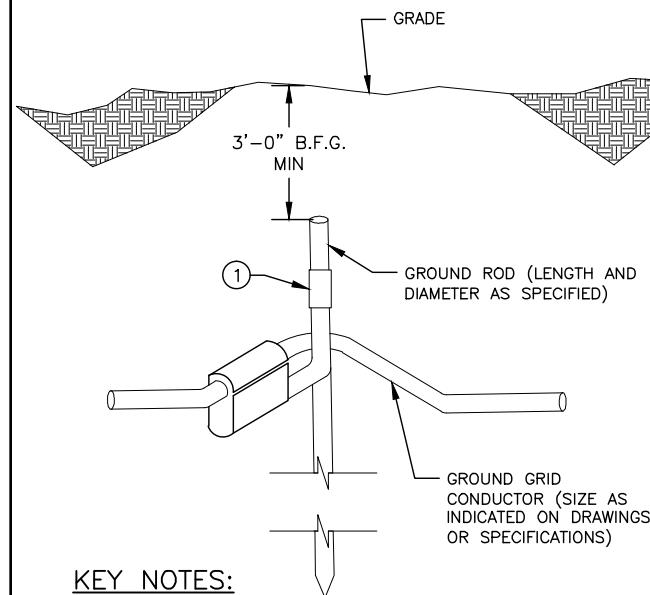
**GROUND ROD CONNECTION DETAIL** (E 5001)  
SCALE: NTS



**GROUND TAP DETAIL** (E 5002)  
SCALE: NTS

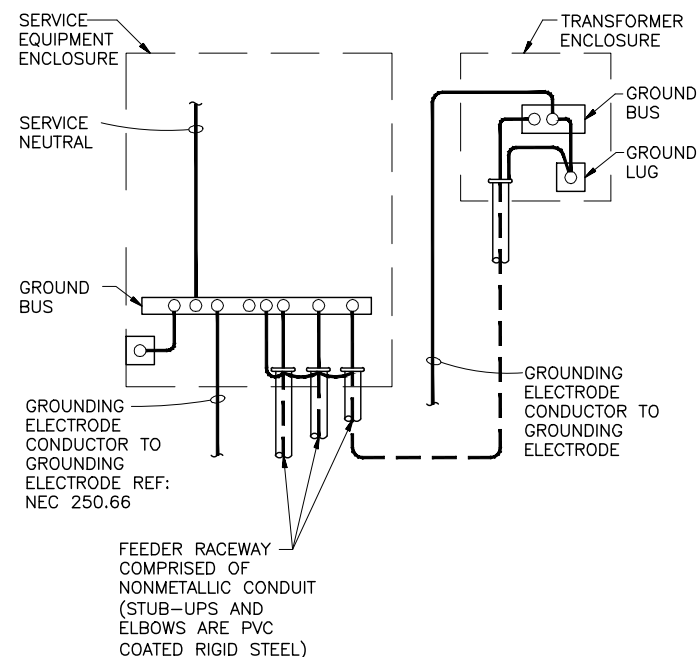


**GROUND ROD AND WELL** (E 5003)  
SCALE: NTS

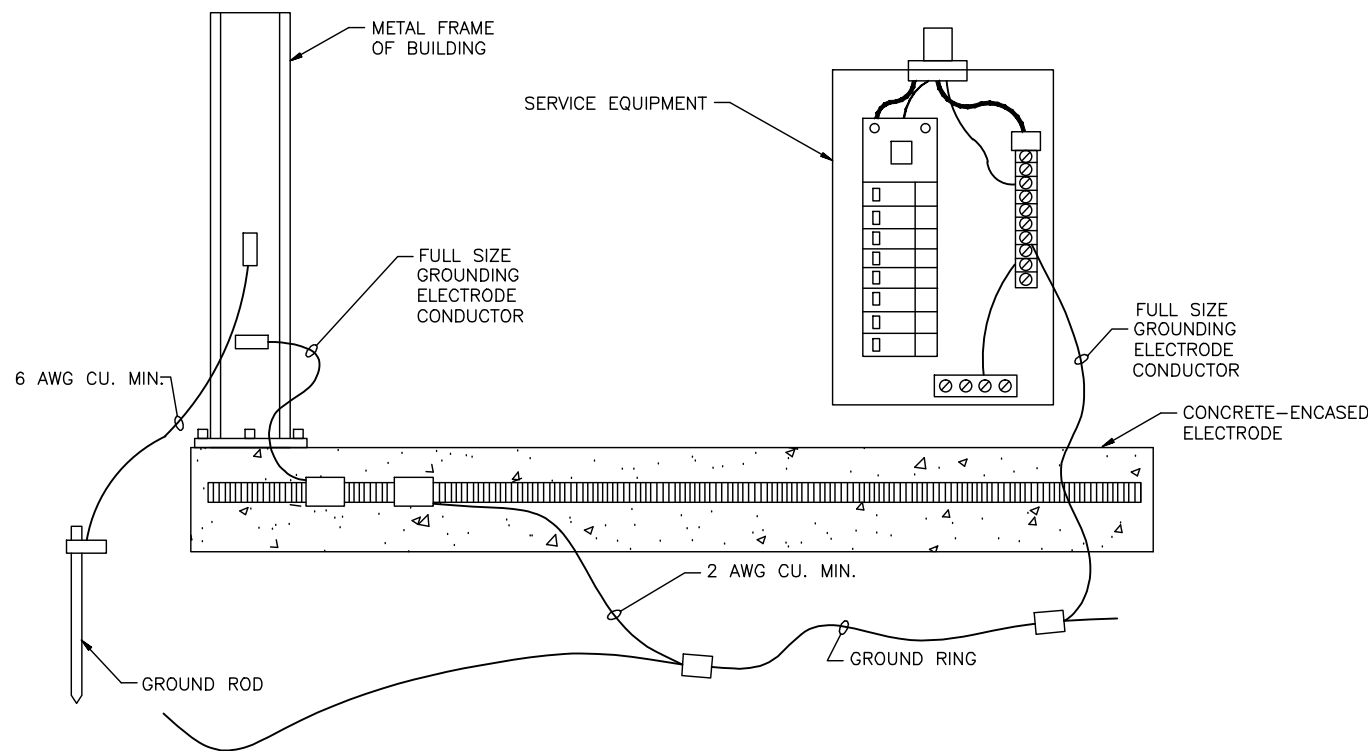


**KEY NOTES:**  
① GROUND ROD TO GROUND GRID CROSS CONNECTOR. SIZE FOR ROD AND CABLE PER MANUFACTURERS GUIDELINES.

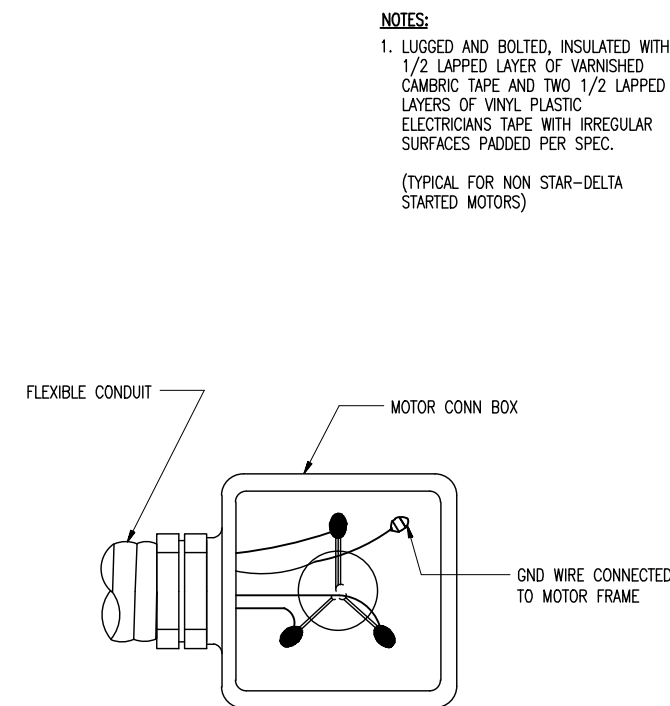
**GROUND ROD INSTALLATION** (E 5004)  
SCALE: NTS



**SERVICE AND EQUIPMENT GROUNDING DETAIL** (E 5005)  
SCALE: NTS



**STANDARD DETAIL FOR GROUNDING ELECTRODE SYSTEM** (E 5006)  
SCALE: NTS



**MAKEUP AT MOTOR DETAIL** (E 5007)  
SCALE: NTS

**Bowen Collins & Associates, Inc.**  
Professional Engineer  
Douglas Stewart  
No. 173317  
State of Utah

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REVISIONS

**VERIFY SCALE**  
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**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

DESIGN: D. STEWART  
DRAWN: D. LAMPH

REVIEW: G. LOSCHER  
CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

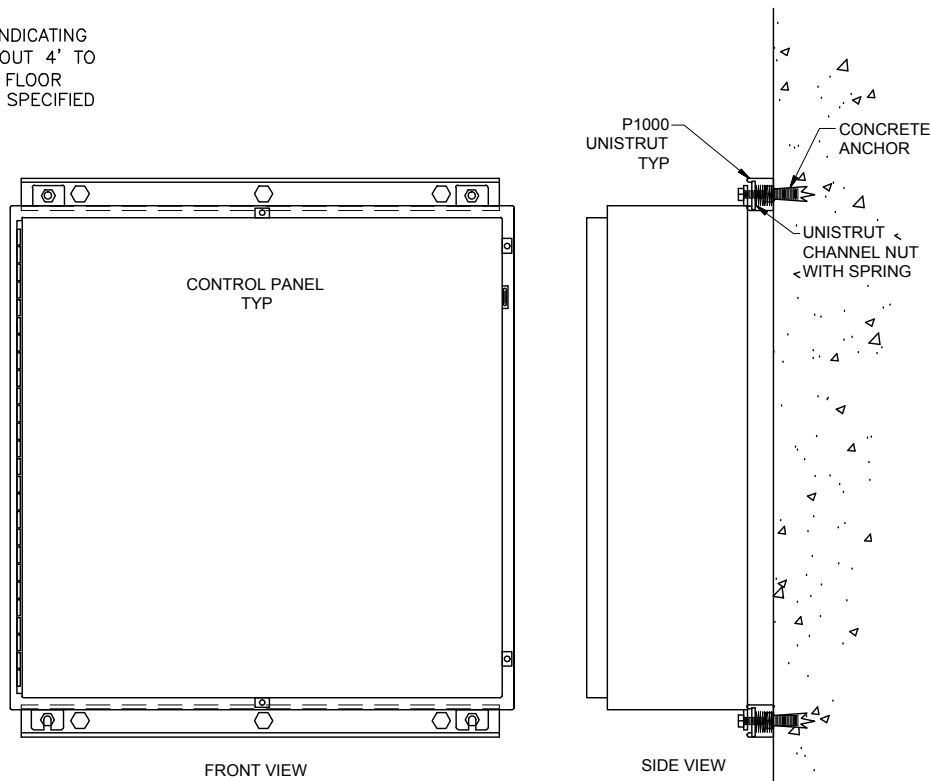
**STANDARD DETAILS - 1**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

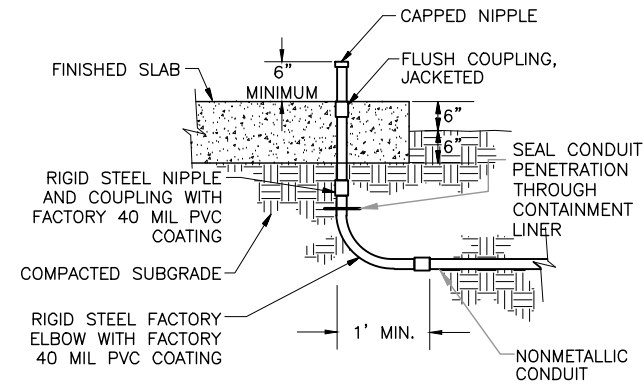
DRAWING NO. ESD-1  
SHEET 49 OF 50

**GENERAL NOTES**

1. MOUNT PANEL OR INDICATING TRANSMITTER AT ABOUT 4' TO 5' ABOVE FINISHED FLOOR UNLESS OTHERWISE SPECIFIED IN DRAWINGS.



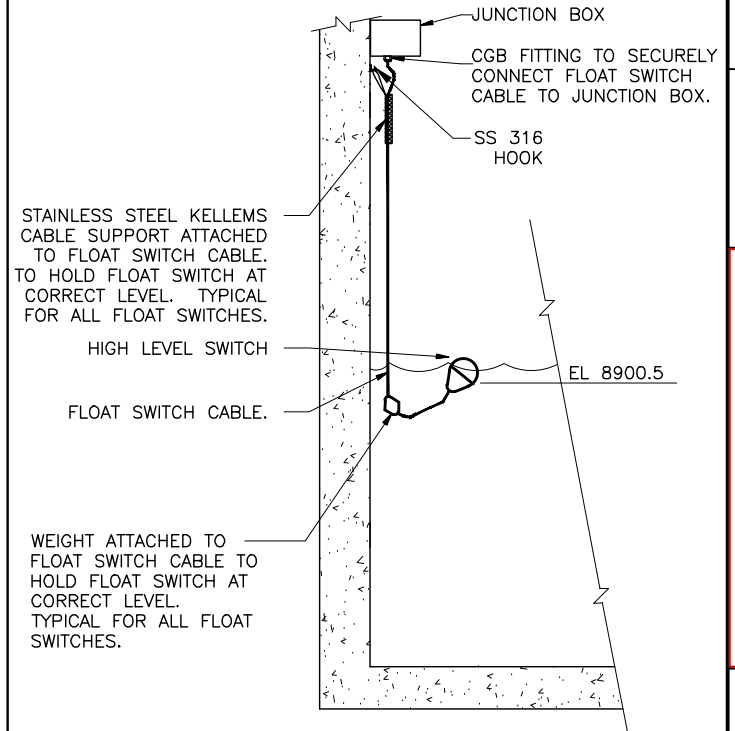
**TYPICAL PANEL MOUNTING DETAIL ON WALL** E 5008  
SCALE: NTS



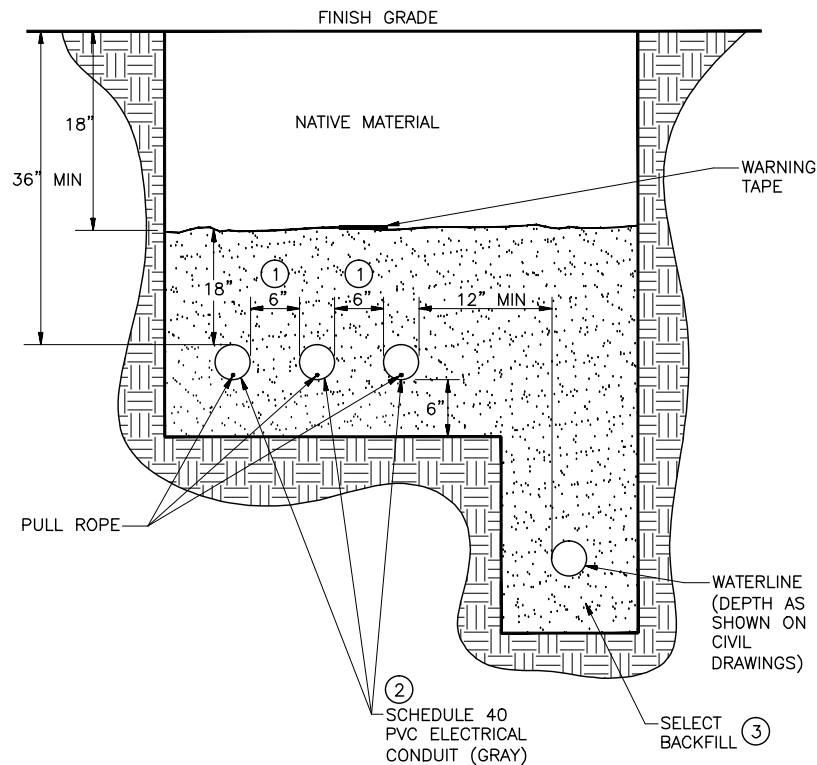
**CONDUIT PLACEMENT DETAIL** E 5009  
SCALE: NTS

**NOTES**

1. DO NOT USE MERCURY FLOAT SWITCHES.



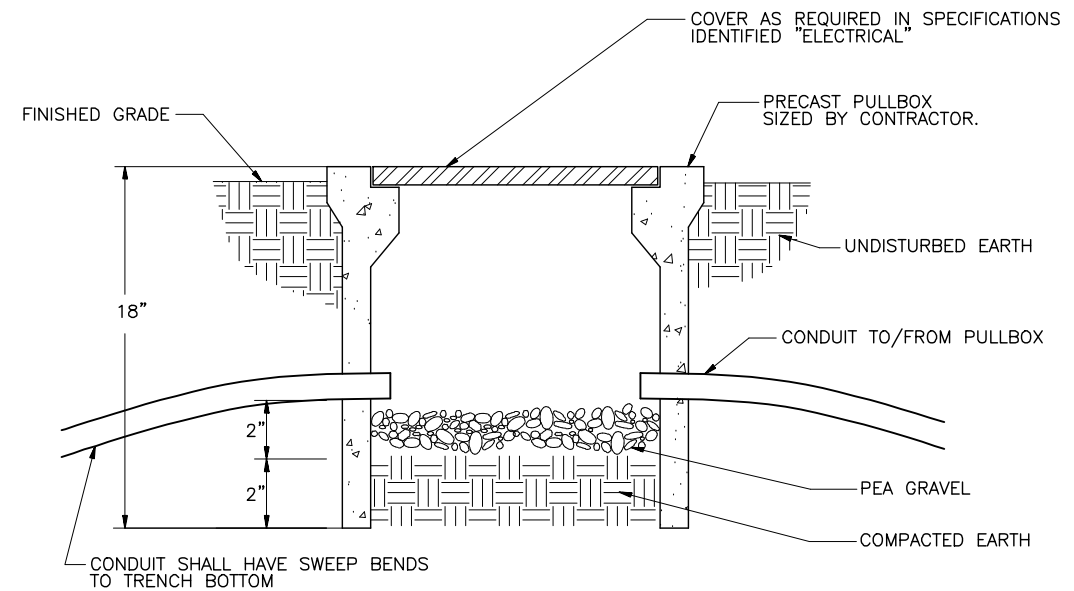
**TYPICAL FLOAT LEVEL SWITCHES INSTALLATION DETAIL** E 5010  
SCALE: NTS



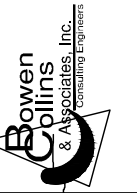
**NOTES:**

- ① TYPICAL SPACING FOR CONDUITS OF SAME VOLTAGE.
- ② REFER TO ONE-LINE DIAGRAMS FOR CONDUIT SIZE.
- ③ BACKFILL MATERIAL, USE SPECIFICATIONS.

**CONDUIT TRENCH DETAIL** E 5011  
SCALE: NTS



**TYPICAL ELECTRICAL PULLBOX DETAIL** E 5012  
SCALE: NTS



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SUMMIT MOUNTAIN HOLDING GROUP, LLC.  
**EARL'S PEAK WATER PROJECT**  
WEBER COUNTY, UTAH

DESIGN: D. STEWART  
DRAWN: D. LAMPH

REVIEW: CHECKED: G. LOSCHER  
APPROVED: J. BECKMAN

**STANDARD DETAILS - 2**

DATE: MARCH 2013  
PROJECT NUMBER: 347-12-01

DRAWING NO. **ESD-2**  
SHEET 50 OF 50