# SALT LAKE CITY CORPORATION

## THE DEPARTMENT OF PUBLIC UTILITIES

DRAWINGS FOR CONSTRUCTION OF

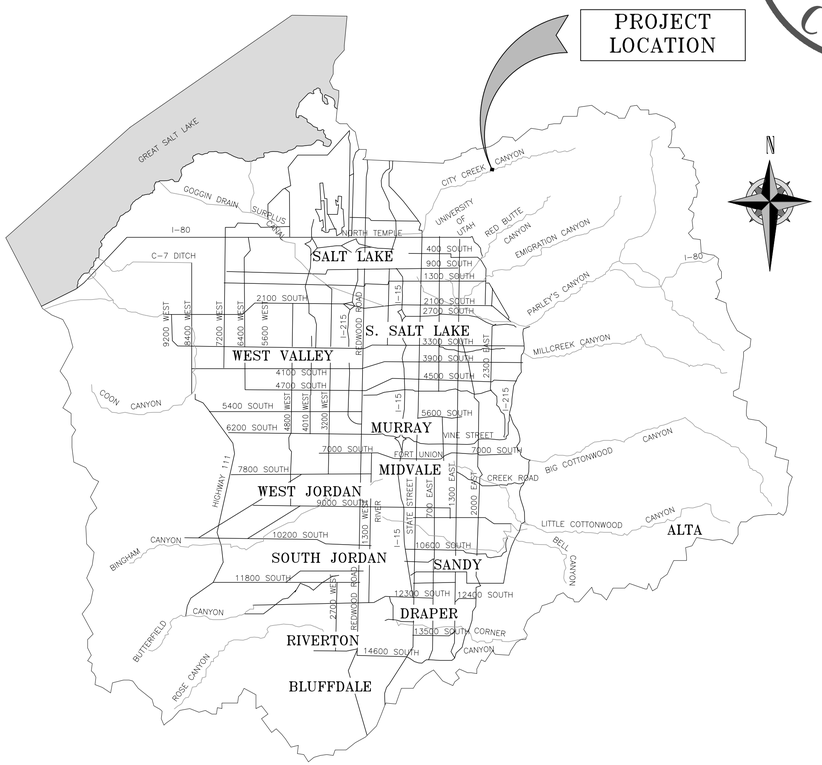
CITY CREEK TREATMENT PLANT
PLANT UPGRADES PACKAGE 2

PROJECT NO. 512260089
BC PROJECT NUMBER: 153020
FISCAL YEAR 2023–2024

Public Utilities

Brown AND Caldwell

90% REVIEW




PROJECT VICINITY MAP

ERIN MENDENHALL – MAYOR

CITY COUNCIL

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CHRIS WHARTON
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STEVEN BRENCHLEY, P.E.
PROJECT MANAGER

ADAM JONES, P.E.
PROJECT ENGINEER

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### VALVE SCHEDULE (4-INCHES AND LARGER)

| TAG NUMBER | LOCATION | VALVE NAME | SIZE (INCHES) | VALVE TYPE | VALVE ENDS | CLASS | OPERATOR | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| 50-FV-0331 | FLOCCULATION AND FILTER BUILDING | FLOC BASIN 1 INLET VALVE | 16" | BFV | FLANGED | 150 | O/C E | |
| 50-FV-0332 | FLOCCULATION AND FILTER BUILDING | FLOC BASIN 2 INLET VALVE | 16" | BFV | FLANGED | 150 | O/C E | |

Notes:

1. TYPE — BFV - BUTTERFLY VALVE, GV - GATE VALVE, PV - PLUG VALVE, GL - GLOBE VALVE, PRV - PRESSURE REDUCING VAVLE
2. OPERATOR — BVD = BURIED VALVE BOX WITH NUT; HLO = HAND LEVER OPERATOR; HWO = HAND WHEEL OPERATOR; NUT = OPERATING NUT WITH STEM EXTENSION;

   O/C E = OPEN / CLOSED (ELECTRIC ACTUATED); O/C P = OPEN / CLOSED (PNEUMATIC ACTUATED); MOD E (MODULATING ELECTRIC ACTUATED); MOD p (MODULATING PNEUMATIC ACTUATED)

   O/C H = OPEN / CLOSED (HYDRAULIC ACTUATED); MOD H (MODULATING HYDRAULIC ACTUATED)
3. DESIGN PRESSURE FOR VALVE SHALL BE THE SAME AS THE TEST PRESSURE LISTED IN THE PIPE SCHEDULE
4. REFER TO PIPE SCHEDULE AND CIVIL/MECHANICAL DRAWINGS TO DTERMINE VALVE MATERIAL.

### GENERAL NOTES:

1. 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:

PIPE SIZE
FLUID ABBREVIATION
PIPE MATERIAL

2" PW (2) — PIPE CALLOUT (SEE PIPING SCHEDULE THIS SHEET)

### DRAWING NOTES:

1. PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO REQUIREMENTS OF THE SPECIFICATIONS.
2. LEAKAGE ALLOWANCE IS AS FOLLOWS:
   (A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
   (B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.002 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
   (C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.
   (D) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT.
   (E) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OR MORE THAN 4 INCHES MERCURY COLUMN.
3. FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.
4. ANY DEVIATION FROM THE PIPING MATERIALS OR FIELD TEST REQUIREMENTS SHOWN WILL BE NOTED IN THE SPECIFICATIONS OR ON THE DRAWINGS.
5. PIPING GROUP NUMBER SHOWN THUS * SHALL BE INSULATED, SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.
6. INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.
7. NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.
8. INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
9. PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
10. FOR VALVES 4 INCHES AND LARGER SEE VALVE SCHEDULE. FOR SPECIAL VALVES SEE SPECIFICATIONS.
11. FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.
12. EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY ENGINEER.

| FLUID ABBREVIATION | FUNCTION (SEE NOTE 5) | PIPING MATERIAL (SEE SCHEDULE BELOW) | | | | FIELD TEST REQUIRMENTS (SEE NOTE 3 AND NOTE 4) | | |
|---|---|---|---|---|---|---|---|---|
| | | EXPOSED PIPING (SEE NOTES 13 & 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 | | | |
| OF | OVERFLOW | -- | 8 | -- | 8 | 11 | WATER | A |
| BYP | BYPASS | -- | -- | -- | 8, 11, 37 | 25 | WATER | A |

### PIPE MATERIAL SCHEDULE (SEE NOTE 4)

| GROUP NO. | PIPE | FITTINGS | VALVES |
|---|---|---|---|
| 8 | WELDED STEEL, AWWA C200. | WELDED STEEL, AWWA C200, FABRICATED. | AS INDICATED ON THE DRAWINGS |
| 11 | DUCTILE IRON (DIP), AWWA C151, CLASS 250, RESTRAINED PUSH ON (RPO) OR MECHANICAL JOINTS (RMJ), CEMENT LINING, ASPHALTIC COATING WITH DOUBLE POLYETHYLENE ENCASEMENT, PER SPECIFICATION 40_05_19. | DUCTILE IRON (DIP), AWWA C110 OR AWWA C153, CLASS 250, FLANGED WITH 125 PSI ANSI B16.1 FLANGES, RESTRAINED PUSH ON (RPO) OR MECHANICAL JOINTS (RMJ), CEMENT LINING, ASPHALTIC COATING WITH DOUBLE POLYETHYLENE ENCASEMENT, PER SPECIFICATION 40_05_19. | AS INDICATED IN THE DRAWINGS AND VALVE SCHEDULE |
| 37 | HIGH DENSITY POLYETHYLENE (HDPE), ASTM D3035, SDR 17, PE 4710, BUTT FUSION WELDED JOINTS, PER SPECIFICATION 40_05_33.13 | SAME MATERIAL, CONSTRUCTION AND JOINT DESIGN AS THE MAIN PIPE. | N/A |

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2
DRAWING INDEX, VALVE AND PIPE SCHEDULES

90% REVIEW

DRAWING NO.
G-02

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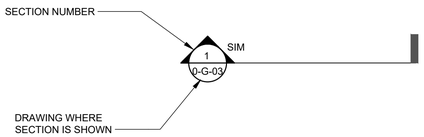
# PLAN, SECTION AND DETAIL IDENTIFICATION

1. PLAN TITLES:

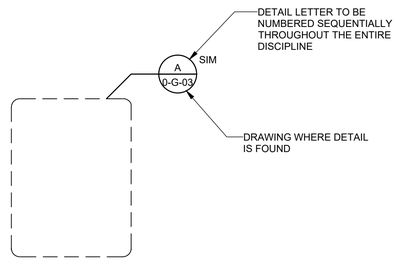
PLAN TITLE
SCALE: 1/8" = 1'-0"

2. SECTION CUTS:




3. DETAIL CALLOUT:

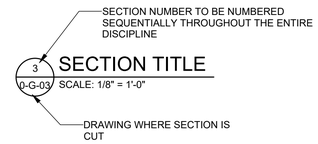
A. BY CALLOUT:



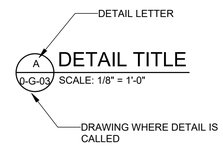

B. BY NOTE: "SEE DETAIL B/D-105"

B IS DETAIL REFERENCE LETTER
D-105 IS DRAWING WHERE DETAIL IS SHOWN

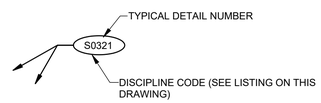
5. SECTIONS TITLES:




6. DETAIL TITLES:

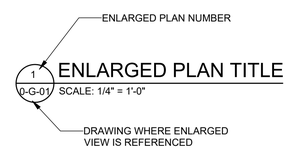



6. TYPICAL DETAIL REFERENCE:




6. TYPICAL DETAIL TITLES:

6. ENLARGED PLAN TITLES:




Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|
| | | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
DRAWING SYMBOLS

90% REVIEW

DRAWING NO.
G-03

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# GENERAL NOTES

| NOTES | REFERENCES |
|---|---|
| 1. ALL CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS, INCLUDING ALL APPLICABLE SECTIONS OF THE MANUAL OF STANDARD SPECIFICATIONS 2017 EDITION (INCLUDING AMENDMENTS) AND MANUAL OF STANDARD PLANS 2017 EDITION PUBLISHED BY THE UTAH CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA) AND THE UTAH CHAPTER OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA (AGC). THE SPECIFICATIONS AND THE STANDARD PLANS IN THE PROJECT MANUAL TAKE PRECEDENCE OVER THE MANUAL OF STANDARD SPECIFICATIONS AND STANDARD PLANS CURRENT EDITION. REFERENCE SPECIFICATION SECTIONS ARE GIVEN FOR INFORMATION ONLY AND MAY NOT BE INCLUSIVE OF ALL APPLICABLE SECTIONS. | |
| 2. COORDINATION:<br>CONTRACTOR TO NOTIFY AFFECTED AGENCIES, RESIDENTS, BUSINESSES, SCHOOLS, AND PROPERTY OWNERS 14 DAYS PRIOR TO CONSTRUCTION. | 01 31 13 |
| 3. SCHEDULE:<br>CONTRACTOR WILL PROVIDE AND UPDATE A CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REGULATIONS OF THE GOVERNING AGENCY FOR WORKING IN THE PUBLIC WAY PRIOR TO CONSTRUCTION. | 01 32 17 |
| 4. SOIL TESTING:<br>CONTRACTOR TO PROVIDE MARSHALL AND/OR PROCTOR TEST DATA 24 HOURS PRIOR TO USE, CERTIFIED IN WRITING FROM A LAB RECOGNIZED AND ACCEPTED BY SALT LAKE CITY AND THE RIGHT-OF-WAY GOVERNING AGENCY, AS APPLICABLE. | 01 45 00<br>31 23 00<br>32 11 23 |
| 5. UTILITY LOCATIONS:<br>• ALL UTILITY LOCATIONS ARE APPROXIMATE.<br>• CONTRACTOR TO VERIFY DEPTHS OF UTILITIES IN THE FIELD BY POTHOLING A MINIMUM OF TWO WEEKS TIME AHEAD OF PIPELINE CONSTRUCTION TO AVOID CONFLICTS WITH DESIGNED PIPELINE GRADE AND ALIGNMENT. IF A CONFLICT ARISES RESULTING FROM THE CONTRACTOR NEGLECTING TO POTHOLE UTILITIES, THE CONTRACTOR IS TO RESOLVE THE CONFLICT WITHOUT ADDITIONAL COST OR CLAIM TO THE OWNER.<br>• CONTRACTOR SHALL POTHOLE CRITICAL LOCATIONS AND OBTAIN ALL EXISTING PIPE O.D. PRIOR TO ORDERING OR OBTAINING MATERIALS REQUIRED FOR CONNECTIONS TO EXISTING PIPING. UTILITY SHUT-DOWNS AND OTHER WORK WILL NOT BE SCHEDULED OR ALLOWED UNTIL THIS IS ACCOMPLISHED AND MATERIALS ARE ON SITE AND APPROVED FOR USE BY THE SALT LAKE CITY PUBLIC UTILITIES REPRESENTATIVE. | 01 31 13<br>00 72 00 |
| 6. CHANGES:<br>NO CHANGE IN DESIGN LOCATION OR GRADE WILL BE MADE BY THE CONTRACTOR WITHOUT THE WRITTEN APPROVAL OF THE PROJECT ENGINEER. | 01 31 13<br>00 72 00 |
| 7. SURVEY CONTROL:<br>• CONTRACTOR TO PROVIDE ALL CONSTRUCTION SURVEY REQUIRED FOR THE PROJECT.<br>• CONTRACTOR SHALL PRESERVE AND PROTECT ALL MONUMENTS AND MONUMENT REFERENCE MARKS WITHIN THE PROJECT SITE. IF A MONUMENT MUST BE DISTURBED DURING CONSTRUCTION, CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 00 72 00 AND 01 32 23.<br>• THE CONTRACTOR SHALL NOT BURY ANY FITTINGS, BENDS, CONNECTIONS, OR COUPLINGS UNTIL THE SALT LAKE CITY PUBLIC UTILITIES SURVEYOR HAS COMPLETED THE RECORD SURVEY OF THE PIPELINE INSTALLATION TO HIS SATISFACTION. THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE AND EXPOSE ALL MATERIALS BURIED WITHOUT PRIOR AUTHORIZATION OF THE PROJECT ENGINEER OR SURVEYOR, AT HIS OWN COST. ALL COST OF RESTORATION OF EXCAVATED AREAS SHALL BE BORNE BY THE CONTRACTOR. | 00 72 00<br>01 32 23 |
| 8. ASPHALT GUARANTEE:<br>THE CONTRACTOR SHALL FURNISH AND PLACE PERMANENT ASPHALT, PER APWA STANDARDS, EQUAL TO THE THICKNESS REQUIREMENTS OF THE GOVERNING AGENCY. THE CONTRACTOR SHALL GUARANTEE ALL ASPHALT INSTALLATIONS FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF THE SUBSTANTIAL COMPLETION OR WHAT IS REQUIRED BY THE PERMIT. | 32 12 16 |
| 9. TEMPORARY ASPHALT:<br>IF THE CONTRACTOR CHOOSES TO WORK ON THE PROJECT IN COLD WEATHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL FROM THE APPROPRIATE GOVERNING AGENCY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY ASPHALT. WHEN WEATHER PERMITS, THE CONTRACTOR SHALL REMOVE THE TEMPORARY ASPHALT, FURNISH AND INSTALL THE PERMANENT ASPHALT AT NO ADDITIONAL COST TO THE OWNER. | |
| 10. CONTRACTOR RESPONSIBILITIES:<br>• CONTRACTOR SHALL NOT ALLOW GROUNDWATER OR DEBRIS TO ENTER THE NEW PIPE DURING CONSTRUCTION. THE OPEN END OF ALL PIPES TO BE COVERED AND SEALED AT THE END OF EACH DAY.<br>• CONTRACTOR TO INSTALL INVERT COVERS IN ALL SANITARY SEWER AND STORM DRAIN MANHOLES AFFECTED BY THE PROJECT PRIOR TO STARTING CONSTRUCTION.<br>• CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL ACCORDING TO GOVERNING AGENCY STANDARDS: WET DOWN DRY MATERIALS AND RUBBISH TO CONTAIN ALL LOOSE MATERIALS.<br>• CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS. ALL IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED AT THE EXPENSE OF THE CONTRACTOR TO ORIGINAL OR BETTER CONDITION TO THE SATISFACTION OF THE OWNER.<br>• THE CONTRACTOR SHALL BE REQUIRED TO KEEP ALL CONSTRUCTION ACTIVITIES WITHIN ESTABLISHED PUBLIC RIGHT-OF-WAYS, AND TEMPORARY CONSTRUCTION EASEMENTS AS SHOWN, IF ANY. THIS SHALL INCLUDE BUT NOT LIMITED TO VEHICLES AND EQUIPMENT, LIMITS OF TRENCH EXCAVATION, EXCAVATED MATERIAL AND BACKFILL STORAGE. IF THE CONTRACTOR REQUIRES ADDITIONAL CONSTRUCTION EASEMENTS, IT SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THESE EASEMENTS.<br>• THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION EQUIPMENT OFF OF THE SEDIMENTATION BASINS WHEN NOT ACTIVELY IN USE. STAGING ACTIVITIES SHALL NOT BE ON THE SEDIMENTATION BASINS. | 01 57 00 |

| NOTES | REFERENCES |
|---|---|
| 11. STORM WATER MANAGEMENT AND HOUSE KEEPING BEST MANAGEMENT PRACTICES PLAN:<br>CONTRACTOR TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), EROSION SEDIMENT CONTROL PLAN, CONCRETE WASHOUT PLAN, HOUSEKEEPING BEST MANAGEMENT PRACTICES PLAN, AND DEWATERING PLAN FOR REVIEW BEFORE CONSTRUCTION BEGINS. DISCHARGE OF CONSTRUCTION RELATED WASTE WATER (CONCRETE WASHOUT, ROADWAY CUTTING, ETC) TO THE CREEK IS NOT PERMITTED. ANY GROUNDWATER OR STORMWATER WATER THAT THE CONTRACTOR INTENDS TO SEND TO THE CREEK SHALL BE TREATED, TESTED, AND IN COMPLIANCE WITH THE CITY'S MS4 PERMIT PRIOR TO DISCHARGE. | 01 57 00 |
| 12. WATER AND SANITARY SEWER SEPARATION:<br>FOLLOW REQUIREMENTS OF THE DIVISION OF DRINKING WATER OF THE UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY. THE HORIZONTAL DISTANCE BETWEEN PRESSURE WATER MAINS AND SANITARY SEWER LINES SHALL BE AT LEAST TEN FEET. WHERE WATER MAINS AND SEWER LINES CROSS, THE OUTSIDE EDGES OF WATER MAIN SHALL BE AT LEAST 18-INCHES ABOVE THE OUTSIDE EDGES OF SEWER LINE. WATER LINES AND SEWER LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH. EXCEPTIONS TO THESE REQUIREMENTS MUST BE APPROVED BY THE CHIEF ENGINEER. | |
| 13. PIPELINE STATIONING:<br>• STATIONS AND LENGTHS SHOWN ON THE DRAWINGS ARE CENTERLINE OF PIPE FROM CENTER OF FITTING TO CENTER OF FITTING. PROFILE DRAWINGS ARE HORIZONTAL PROJECTIONS OF THE PIPE CENTERLINE, UNLESS OTHERWISE NOTED.<br>• WHERE CLEARANCES BETWEEN PIPELINES ARE DESIGNATED IN THE DRAWINGS, THE SPECIFIED DISTANCE SHALL REFER TO THE DISTANCE BETWEEN THE OUTSIDE EDGES OF THE PIPE. | |
| 14. WATER LINE COVER:<br>UNLESS OTHERWISE NOTED, CONTRACTOR TO PROVIDE A MINIMUM COVER OF 4.5 FEET FROM THE TOP OF THE WATER MAIN TO FINISHED GRADE. PIPING THAT CAN NOT BE PROVIDED THIS MINIMUM COVER WILL REQUIRE A SPECIAL DESIGN BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES. | |
| 16. SALVAGE:<br>ALL SALVAGED HYDRANTS, VALVES OR OTHER MATERIALS TO BE RETURNED TO THE SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES SHOP AT 4500 WEST 700 SOUTH, UNLESS NOTED OTHERWISE. | |
| 17. TRAFFIC DETECTOR LOOPS:<br>FOR TRAFFIC DETECTOR LOOP REPAIR OR REPLACEMENT REFER TO THE CURRENT UDOT STANDARD DRAWINGS TRAFFIC SIGNAL LOOP DETECTOR DETAILS (STD. DWG. NO. SL 9) AND TRAFFIC COUNTING LOOP DETECTOR DETAILS (STD. DWG. NO. SL 10) | |
| 18. AERIAL PHOTOS IN DRAWINGS:<br>THE AERIAL PHOTOS PROVIDED AS BACKGROUND IN THESE DRAWINGS ARE PROVIDED TO HELP CLARIFY THE WORK SITE. HOWEVER, THE PHOTOS DEPICT CONDITIONS AS THEY EXISTED IN 2018. 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. | |

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|
| | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
GENERAL NOTES

90% REVIEW

DRAWING NO.
G-04

C:\cad\temp\AcPublish_10680\G-04.dwg Jul 07, 2023 - 2:12pm

| | |
|---|---|
| A | AMPERE |
| AB | ANCHOR BOLT |
| AC | ASPHALTIC CONCRETE |
| A/C | AIR CONDITIONING |
| ACC | AREA CONTROL CENTER |
| ACP | ASBESTOS CEMENT PIPE |
| ACST | ACOUSTIC |
| ADD'L | ADDITIONAL |
| AF | AIR FILTER |
| AHU | AIR HANDLING UNIT |
| AL | ALUMINUM |
| AMD | AIR MONITORING DEVICE |
| ANC | ANCHOR |
| APPROX | APPROXIMATE |
| AR | AIR RETURN |
| AS | AIR SUPPLY |
| @ | AT |
| AV | ANGLE VALVE |
| BAC | BACTERIOLOGICAL |
| BC | BEGINNING OF CURVE |
| BCR | BEGINNING OF CURVE RETURN |
| BCOP | BARE COPPER |
| BGAT | BOOLEAN GATE |
| BF | BLIND FLANGE |
| BHP | BRAKE HORSEPOWER |
| BLDG | BUILDING |
| BOT | BOTTOM |
| BSN | BAR SCREEN |
| BTWM | BETWEEM |
| BUV | BUTTERFLY VALVE |
| BV | BALL VALVE |
| CAB | DIRECT BURIAL CABLE |
| CAF | COMBUSTION AIR FAN |
| CB | CATCH BASIN |
| CC | COOLING COIL |
| C-C | CENTER TO CENTER |
| CCP | CONCRETE CYLINDER PIPE |
| CCSP | CONCRETE LINED AND COATED STEEL PIPE |
| CD | CEILING DIFFUSER |
| CDR | CONDUCTOR |
| CDU | CONDENSING UNIT |
| CED | CEILING EXHAUST DIFFUSER |
| CER | CEILING EXHAUST REGISTER |
| CF | CUBIC FEET |
| CFH | CUBIC FEET PER HOUR |
| CFM | CUBIC FEET PER MINUTE |
| CFR | CODE OF FEDERAL REGULATIONS |
| CHR | CHILLER |
| CIP | CAST IRON PIPE |
| CIPP | CAST IN PLACE PIPE |
| CIRC | CIRCUMFERENCE |
| CK | CHECKER(ED) |
| CKPL | CHECKER PLATE |
| ℄\CL | CENTERLINE |
| CL | CLEARANCE |
| CLR | CLEAR, CLEARANCE |
| CL2 | CHLORINE |
| CM | MANUAL CONTROL STATION |
| CMA | MANUAL-AUTO CONTROL STATION |
| CMC | CEMENT MORTAR COATED |
| CML | CEMENT MORTAR LINED |
| CMP | CORRUGATED METAL PIPE |
| CMPA | ASBESTOS PROTECTED CORRUGATED METAL PIPE |
| CNTL | CONTROL |
| CO | CLEAN OUT BOX |
| CO2 | CARBON DIOXIDE |
| COD | CHEMICAL OXYGEN DEMAND |
| COF | COOLING AIR FAN |
| COM | COMMINUTOR |
| CON | CONVEYOR |
| CONC | CONCRETE |
| COND | CONDUCTIVITY |
| CONN | CONNECTION |
| CJ | CONSTRUCTION JOINT |
| CONST | CONSTRUCTION |
| CONT | CONTINUED, CONTINUOUS |
| CP | COMPRESSOR |
| CPLG | COUPLING |
| CPVC | CHLORINATED POLYVINYL CHLORIDE |
| CR | CONDUIT RACK |
| CRF | CHEMICAL FEEDER |
| CRN | CRANE |
| CREJ | CORRUGATED RUBBER EXPANSION JOINT |
| CSD | CEILING SUPPLY DIFFUSER |
| CTF | CENTRIFUGE |
| CTR | CONTRACTOR, CONTROL UNIT, CENTER |
| CTRD | CENTERED |
| CU FT | CUBIC FOOT |
| CV | CONTROL VALVE |
| DB | DUCT BANK |
| DE | DENSITY METER |
| DF | DRINKING FOUNTAIN |
| DFD | DUCT FIRE DAMPER |
| DG | DOOR GRILLE |
| DIP | DUCTILE IRON PIPE |
| DIA | DIAMETER |
| DM | DAMPER MOTOR |
| DR | DRAIN ROCK |
| DT | DRAIN TRAP |
| DWF | DRY WEATHER FLOW |
| DWG | DRAWING |
| DWL | DOWEL |
| EA | EACH, EXHAUST AIR |
| EAT | ENTERING AIR TEMPERATURE |
| EAU | ENGINE ALTERNATOR UNIT |
| EC | END OF CURVE |
| ED | EXTRACTOR DAMPER, EQUIPMENT DRAIN |
| EE | EACH END |
| EF | EACH FACE |
| EFF | EFFLUENT |
| EG | EXHAUST GRILLE |
| EJ | EXPANSION JOINT |
| EL | ELEVATION |
| ELB | ELBOW |
| EMBD | EMBEDDED |
| E/P | ELECTRIC/PNEUMATIC |
| EPR | EVAPORATOR |
| EQ | EQUAL |
| EQL SP | EQUALLY SPACED |
| EQUIP | EQUIPMENT |
| ES | EXISTING SURFACE |
| EW | EACH WAY |
| EWEF | EACH WAY EACH FACE |
| EWT | ENTERING WATER TEMPERATURE |
| EXG | EXHAUST GRILLE |
| EXIST | EXISTING |
| F | FAHRENHEIT, FACE, FUSE(D) |
| FAI | FRESH AIR INTAKE |
| FB | FLAT BAR, FLOOR BEAM |
| FC | FAIL CLOSED |
| FCL | FREE CHLORINE |
| FCR | FINE CRUSHED ROCK |
| FE | FILTER EFFLUENT |
| FF | FAR FACE |
| FG | FINISH GRADE |
| F-F | FACE TO FACE |
| FH | FIRE HYDRANT, FLATHEAD |
| FIN | FINISHED |
| FL | FLOW LINE, FIRE LINE |
| FLC | FLOCCULATOR |
| FLG | FLANGE |
| FLP | FLUID POWER UNIT |
| FLR | FLOOR |
| FLT | FILTER |
| FM | FORCE MAIN |
| FMH | FLEXIBLE METAL HOSE |
| FMX | FLASH MIXER |
| FNSH | FINISH |
| FO | FAIL OPEN, FIBER OPTIC |
| FP | FILTER PRESS |
| FPC | FLEXIBLE PIPE COUPLING |
| FPC-T | FPC TO TAKE TENSION |
| FRS | FREEZESTAT |
| FS | FLOW SWITCH, FIRESTAT |
| FT | FLASH TANK, FEET OR FOOT |
| FTG | FOOTING |
| FW | FILTERED WATER |
| G | POWER ACTUATED GATE, GAS |
| GA | GAGE OR GUAGE |
| GALV | GALVANIZED |
| GBV | GLOBE VALVE |
| GDR | GRINDER |
| GE | GROOVED END |
| GFI | GROUND FAULT INTERRUPTOR |
| GPD | GALLONS PER DAY |
| GPM | GALLONS PER MINUTE |
| GRDR | GRINDER |
| GRT | GROUT |
| GS | GAS SERVICE |
| GSP | GALVANIZED STEEL PIPE |
| GV | GATE VALVE |
| H/A | HAND AUTO |
| HC | HEATING COIL |
| HEX | HEAT EXCHANGER |
| HDOT | HEAVY DUTY OILTIGHT |
| HG | MERCURY, HAND GRADE |
| HHV | HEAT HOSE VALVE |
| HOA | HAND-OFF-AUTO |
| HORIZ | HORIZONTAL |
| HP | HIGH PRESSURE, HIGH POINT, HORSEPOWER |
| HR | HANDRAIL, HEAT RESERVOIR |
| HSS | HIGH SIGNAL SELECT |
| HTV | HIGH TEMPERATURE VENT |
| HV | HOSE VALVE |
| H/V | HEATING AND VENTILATING |
| HVAC | HEATING, VENTILATING AND AIR CONDITIONING |
| HWTR | HIGH WATER |
| HYDT | HYDRANT |
| ICN | INCINERATOR |
| IE | INVERT ELEVATION |
| IF | INSIDE FACE |
| IL | INDICATING LAMP |
| INF | INFLUENT |
| INS | INSULATE(D)(ION) |
| INTER | INTERMEDIATE |
| INT | INTERIOR |
| INVT | INVERT |
| IT | INSTRUMENT TAP |
| JST | JOIST |
| JT | JOINT |
| K | KIP (1000 POUNDS) |
| KV | KILOVOLT |
| KVA | KILOVOLT AMPERE |
| KVAR | KILOVAR |
| KW | KILOWATT |
| LAT | LEAVING AIR TEMPERATURE, LATERAL, LATITUDE |
| LEL | LOWER EXPLOSIVE LIMIT |
| LF | LINEAR FOOT |
| LOS | LOCKOUT STOP |
| LS | LIMIT SWITCH |
| MATL | MATERIAL |
| MAX | MAXIMUM |
| MBH | THOUSAND BTU'S PER HOUR |
| MCC | MOTOR CONTROL CENTER |
| MCM | THOUSAND CIRCULAR MILLS |
| MCU | MASTER CONTROL UNIT |
| MD | MOTORIZED DAMPER |
| MEE | MISCELLANEOUS ELECTRICAL EQUIPMENT |
| MFR | MANUFACTURER |
| MGD | MILLION GALLONS PER DAY |
| MG/l | MILLIGRAMS PER LITER |
| MH | MANHOLE |
| MIE | MISCELLANEOUS INSTRUMENTATION EQUIPMENT |
| MILSPEC | MILITARY SPECIFICATION |
| MIN | MINIMUM, MINUTE |
| MISC | MISCELLANEOUS |
| MJ | MECHANICAL JOINT |
| ML | MILLILITER |
| MME | MISCELLANEOUS MECHANICAL EQUIPMENT |
| MOP | MOTOR OPERATOR |
| MUL/DIV | MULTIPLY/DIVIDE |
| MV | MUD VALVE, MILLIVOLT |
| MX | MIXER |
| N | NEUTRAL, NORTH |
| NA | NONAUTOMATIC |
| NAOH | SODIUM HYDROXIDE |
| NEG | NEGATIVE |
| NF | NONFUSED |
| NOX | NITRATES AND NITRITES |
| NPSH | NET POSITIVE SUCTION HEAD |
| NRS | NONRISING STEM |
| NTS | NOT TO SCALE |
| OA | OUTSIDE AIR, OVERALL |
| OAI | OUTSIDE AIR INTAKE |
| OB | OPPOSED BLADE |
| OC | ON CENTER |
| OF | OVERFLOW |
| OL | OVERLOAD |
| O-O | OUT TO OUT |
| OPNG | OPENING |
| ORF | ODOR REMOVAL FILTER |
| ORP | OXIDATION REDUCTION POTENTIAL |
| ORT | ODOR REMOVAL TOWER |
| OSA | OUTSIDE AIR |
| OSC | ODOR SCRUBBER |
| P | PUMP |
| PAR | PARALLEL |
| PC | PLAIN CONCRETE, PIPE COUPLING |
| PCC | PLANT CONTROL CENTER |
| PCHV | PINCH VALVE |
| PCP | PLAIN CONCRETE PIPE |
| PC-T | PIPE COUPLING TO TAKE TENSION |
| PCU | PHOTOELECTRIC CONTROL UNIT |
| P/E | PNEUMATIC/ELECTRIC |
| PF | POWER FACTOR |
| PI | PROPORTIONAL PLUS INTEGRAL CONTROL |
| PID | PROPORTIONAL PLUS INTEGRAL PLUS DERIVATIVE CONTROL |
| PIVC | POINT OF INTERSECTION ON VERTICAL CURVE |
| PL | PROPERTY LINE, PIPELINE, PLATE |
| PLYWD | PLYWOOD |
| PNL | PANEL, PANELBOARD |
| PO4 | PHOSPHATE |
| POP | PNEUMATIC OPERATOR |
| PP | POWER POLE |
| PRES | PRESSURE |
| PRD | PRESSURE RELIEF DAMPER |
| PRV | PRESSURE REGULATING (REDUCING) (RELIEF) VALVE |
| PRS | PRESSURE REDUCING STATION |
| PS | PRESSURE SWITCH, PRESSURE SENSOR, PUMPED SEWER |
| PSIA | POUND PER SQUARE INCH ABSOLUTE |
| PSIG | POUNDS PER SQUARE INCH GAGE |
| PT | POINT |
| PV | PLUG VALVE, PROCESS VARIABLE |
| PVC | POLYVINYL CHLORIDE |
| PVL | PRESSURE VESSEL |
| PVT | PAVEMENT |
| PW | POTABLE WATER |
| Q | RATE OF FLOW |
| QCPLG | QUICK COUPLING |
| R | RADIUS |
| RA | RETURN AIR |
| RAF | ROLL TYPE AIR FILTER |
| RBC | REINFORCED BOX CULVERT |
| RCP | REINFORCED CONCRETE PIPE |
| RCR | RECORDER |
| RDCR | REDUCER |
| REC | RECEIVER |
| RECD | RECEIVED |
| RECP | RECEPTACLE |
| RED | REDUCE |
| REG | REGULATOR |
| REINF | REINFORCED, REINFORCING |
| REL | RELAY |
| REQD | REQUIRED |
| RT | RIGHT |
| RTP | REINFORCED THERMOSET PLASTIC |
| RTU | REMOTE TERMINAL UNIT |
| RGS | RIGID GALVANIZED STEEL |
| RL | REDUCED LEVEL |
| RWL | RAINWATER LEADER |
| S | SOUTH, SILENCER, SLOPE |
| SB | SIGNAL BOX |
| SCH | SCHEDULE |
| SCR | SCRUBBER |
| SD | SPLITTER DAMPER, SMOKE DETECTOR, STORM DRAIN |
| SEP | SEPARATOR |
| SG | SUPPLY GRILLE, SLUICE GATE |
| SI | SPEED INCREASER |
| SIM | SIMILAR |
| SL | SLOPE |
| SLC | SALT LAKE CITY (DEPARTMENT OF PUB. UTILITIES) |
| SLG | SLIDE GATE |
| SN | SCREEN |
| SP | SPACE, SET POINT, STATIC PRESSURE |
| SPD | SUMP PUMP DISCHARGE |
| SPEC | SPECIFICATION(S) |
| SPG | SPACING |
| SPT | SOUND POWERED TELEPHONE |
| SO2 | SULFUR DIOXIDE |
| SPL | SPLICE |
| SQ | SQUARE |
| SQ FT | SQUARE FOOT |
| SQ YD | SQUARE YARD |
| SR | SPEED REDUCER |
| SRV | SAFETY RELIEF VALVE |
| SRG | SPLIT-RANGING |
| SS | SANITARY SEWER, SPEED SELECTOR |
| SST | STAINLESS STEEL |
| SSC | SOLID STATE CONTROLLER |
| SSFH | STAINLESS STEEL FLAT HEAD |
| SSK | SERVICE SINK |
| ST | START |
| STA | STATION |
| STD | STANDARD |
| STGA | STARTING AIR |
| STL | STEEL |
| STRL | STRUCTURAL |
| STRUCT | STRUCTURE |
| SUB | SUBSTITUTE |
| SWB | SWITCHBOARD |
| SYM | SYMMETRICAL |
| TP | TANGENT POINT |
| TB | TERMINAL BOX |
| T&B | TOP AND BOTTOM |
| T/B | TOP OF BANK |
| TBN | TURBINE |
| T/C | TOP OF CURB |
| TCL | TOTALLY CLOSED |
| TCP | TEMPERATURE CONTROL PANEL |
| TD | TIME DELAY RELAY |
| TDH | TOTAL DEPTH IN HEAD |
| TFR | TRANSFORMER |
| THK | THICK OR THICKNESS |
| TOA | TEST-OFF-AUTO |
| TOC | TOTAL ORGANIC CARBON, TOP OF CONCRETE |
| TOG | TOP OF GRATE |
| TPG | TOPPING |
| TPLX | TRIPLEXED |
| TR | TIMING RELAY, STAIR TREAD |
| TRM | TRANSMITTER |
| TRN | TRANSDUCER |
| TRS | TRANSFER SWITCH |
| TS | TEMPERATURE SWITCH |
| TV | THERMOSTATIC VALVE |
| TYP | TYPICAL |
| UL | ULTIMATE LOAD |
| UN | UNION |
| UP | UTILITY POLE |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| URW | UPPER RECLAIM WATER |
| US | UTILITY STATION |
| USS | UNIT SUBSTATION |
| V | VALVE, VOLTS |
| VAC | VOLTS ALTERNATING CURRENT |
| VAR | VARIES, VARIABLE |
| VC | VERTICAL CURVE |
| VCP | VITRIFIED CLAY PIPE |
| VD | VOLUME DAMPER |
| VDC | VOLTS DIRECT CURRENT |
| VFT | VACUUM FILTER |
| VP | VAPOR PRESSURE, VACUUM PUMP |
| VSC | VARIABLE SPEED COUPLING |
| VTP | VENT PIPING |
| VTR | VENT THROUGH ROOF |
| VV | VARIABLE VOLUME BOX |
| W | WATER OR WEST |
| W/ | WITH |
| W/O | WITHOUT |
| WSTP | WATER STOP |
| WC | WATER CLOSET, WATER COLUMN |
| WCO | WALL CLEANOUT |
| WEG | WALL EXHAUST GRILLE |
| WER | WALL EXHAUST REGISTER |
| WF | WIDE FLANGE |
| WG | WASTE GAS |
| WSR | WALL SUPPLY REGISTER, WASHER |
| WSTP | WATERSTOP |
| WT | WATERTIGHT |
| WWF | WELDED WIRE FABRIC, WET WEATHER FLOW |
| X | SPARE CONDUIT |
| XLP | CROSS LINKED POLYETHYLENE |
| XP | EXPLOSIONPROOF |
| YCO | YARD CLEANOUT |
| ZS | POSITION SWITCH |

NOTES:

1. ADDITIONAL ABBREVIATIONS ARE DEFINED IN ASME Y14.38-2007 (REAFFIRMED 2013).
2. ABBREVIATIONS FOR PIPING SYSTEMS ARE SPECIFIED IN THE PIPING SCHEDULE ON G-02.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# GENERAL ABBREVIATIONS

90% REVIEW

DRAWING NO.
G-05

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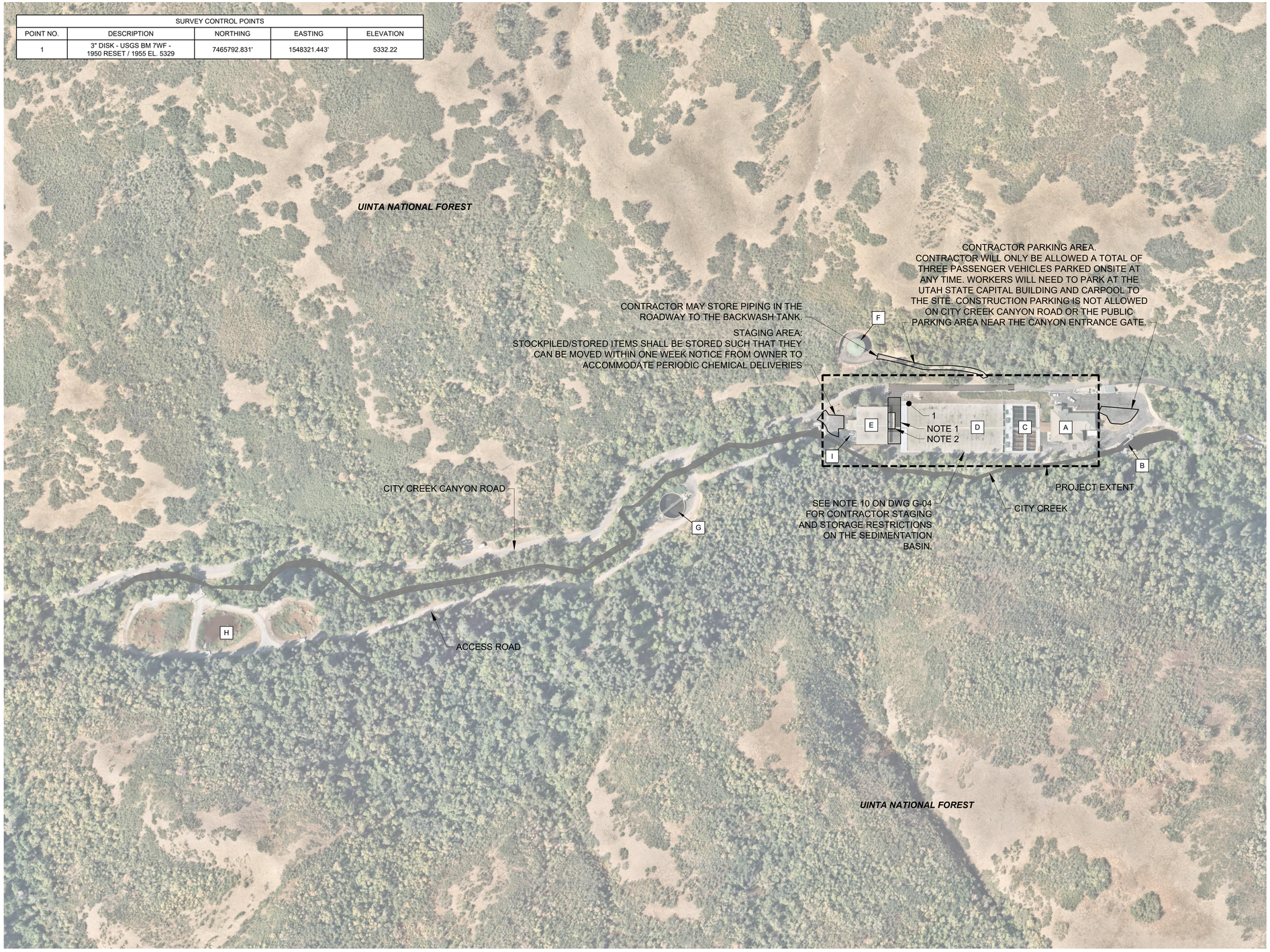
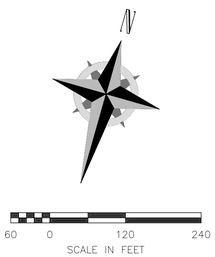
| SURVEY CONTROL POINTS | | | | |
|---|---|---|---|---|
| POINT NO. | DESCRIPTION | NORTHING | EASTING | ELEVATION |
| 1 | 3" DISK - USGS BM 7WF - 1950 RESET / 1955 EL. 5329 | 7465792.831' | 1548321.443' | 5332.22 |




SHEET KEY MAP




# FACILITIES INDEX

| | EXISTING FACILITIES | AREA NO |
|---|---|---|
| | SITE CIVIL | 01 |
| A | OPERATIONS BUILDING | 03 |
| B | INTAKE | 10 |
| C | EXISTING FLOCCULATION BASINS | 30 |
| D | SEDIMENTATION BASINS | 40 |
| E | FILTER AND NEW FLOC BUILDING | 50 |
| F | BACKWASH WATER STORAGE TANK | 55 |
| G | WASTE BACKWASH WATER CLARIFIER | 60 |
| H | SOLIDS DRYING BEDS | 65 |
| I | FLUORIDE BUILDING | 87 |

## SHEET NOTES

1. CONSTRUCTION VEHICLES AND EQUIPMENT WEIGHING MORE THAN 10,000 LBS (US GVWR CLASS 2B) ARE NOT ALLOWED WITHIN 15 FT OF THE EXISTING FLOCCULATION BASINS, SEDIMENTATION BASINS, AND FILTER BUILDING.
2. EXISTING CONCRETE DECK ABOVE THE CHEMICAL AREA AND ABANDONED COAL STORAGE SHALL NOT BE USED FOR CONSTRUCTION STAGING OR CONTRACTOR STORAGE.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Brown AND Caldwell

SCALE:

VERIFY SCALE
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DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|
| | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# SITE PLAN AND FACILITIES INDEX

90% REVIEW

DRAWING NO.
G-06

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| DESCRIPTION | UNITS | EXISTING | NEW (DIRECT FILTRATION MODE) |
|---|---|---|---|
| PLANT FLOW RATE | | | |
| PLANT PRODUCTION RATE | MGD | 15 | 4 |
| MAXIMUM PLANT FLOW (INCLUDES 10% RECYCLE) | MGD | 15 | 4.4 |
| MINIMUM PLANT FLOW | MGD | 2 | 2 |
| **COAGULATION** | | | |
| INLINE STATIC MIXERS | | | |
| NUMBER OF MIXERS | NO. | 2 | 1 |
| FLOW PER MIXER | MGD | 7.5 | 4.4 |
| MIXING ENERGY, G | SEC-1 | 408 | 191 |
| **FLOCCULATION** | | | |
| TYPE | | RECTANGULAR, HORIZONTAL PADDLE WHEEL | RECTANGULAR, HORIZONTAL PADDLE WHEEL |
| NUMBER OF BASINS | NO. | 2 | 2 |
| DESIGN FLOW PER BASIN | MGD | 7.5 | 2.2 |
| STAGES PER BASIN | NO. | 5 | 4 |
| COMPARTMENTS PER STAGE | NO. | - | - |
| MIXERS PER COMPARTMENT | NO. | - | - |
| TOTAL MIXERS PER BASIN | NO. | 5 | 2 |
| TOTAL MIXERS | NO. | 10 | 4 |
| COMPARTMENT DIMENSIONS | | | |
| LENGTH | FT | 54.5 | 29 |
| WIDTH | FT | 59.67 | 30 |
| AVERAGE SIDE WATER DEPTH | FT | 9.25 | 15 |
| VOLUME PER COMPARTMENT | GAL | - | |
| VOLUME PER STAGE | GAL | - | |
| VOLUME PER BASIN | GAL | 225,007 | 98,135 |
| TOTAL VOLUME | GAL | 450,014 | 196,269 |
| DETENTION TIME AT DESIGN FLOW | MIN | 43.2 | 64.2 |
| FLOW THROUGH VELOCITY | FPM | 6.90 | 0.93 |
| MIXING CRITERIA PER STAGE | | | |
| STAGE 1 | | | |
| MIXING ENERGY, G | SEC-1 | 64 | 25-70 |
| POWER | HP | 3 | 3 |
| STAGE 2 | | | |
| MIXING ENERGY, G | SEC-1 | 63 | 25-70 |
| POWER | HP | 3 | 3 |
| STAGE 3 | | | |
| MIXING ENERGY, G | SEC-1 | 45 | 25-70 |
| POWER | HP | 3 | 3 |
| STAGE 4 | | | |
| MIXING ENERGY, G | SEC-1 | 36 | 25-70 |
| POWER | HP | 2 | 3 |
| STAGE 5 | | | |
| MIXING ENERGY, G | SEC-1 | 27 | - |
| POWER | HP | 2 | - |
| **SEDIMENTATION** | | | |
| TYPE | | RECTANGULAR, TRADITIONAL | NONE |
| NUMBER OF BASINS | NO. | 2 | - |
| DESIGN FLOW PER BASIN | MGD | 7.5 | - |
| OVERALL BASIN DIMENSIONS | | | |
| LENGTH | FT | 250 | - |
| WIDTH | FT | 56 | - |
| LENGTH TO WIDTH RATIO | - | 4.5 | - |
| AVERAGE SIDE WATER DEPTH | FT | 12 | - |
| VOLUME PER BASIN | GAL | 1,256,640 | - |
| TOTAL VOLUME | GAL | 2,513,280 | - |
| DETENTION TIME AT DESIGN FLOW | MIN | 241.3 | - |
| | HR | 4.0 | - |
| FLOW THROUGH VELOCITY | FPM | 1.04 | - |
| NOMINAL SURFACE LOADING RATE | GPM/SQ-FT | 0.37 | - |
| SOLIDS COLLECTORS | | | |
| TYPE: CHAIN AND FLIGHT | | | |
| LONGITUDINAL COLLECTORS PER BASIN | NO. | 3 | - |
| CROSS COLLECTORS PER BASIN | NO. | 1 | - |

| DESCRIPTION | UNITS | EXISTING | NEW (DIRECT FILTRATION MODE) |
|---|---|---|---|
| **FILTERS** | | | |
| TYPE | | RATE OF FLOW CONTROL, GRAVITY, DUAL MEDIA | RATE OF FLOW CONTROL, GRAVITY, DUAL MEDIA |
| UNDERDRAIN TYPE | | BLOCK | BLOCK |
| FILTER LOADING AND CAPACITY | | | |
| NUMBER OF FILTERS | NO. | 4 | 2 |
| CELLS PER FILTER | NO. | 2 | 2 |
| CELL LENGTH | FT | 30 | 30 |
| CELL WIDTH | FT | 14.5 | 14.5 |
| CELL AREA | SQ-FT | 435 | 435 |
| FILTER AREA, EACH FILTER | SQ-FT | 870 | 870 |
| FILTER AREA, TOTAL | SQ-FT | 3,480 | 1,740 |
| FILTRATION RATE AT DESIGN FLOW (ALL FILTERS IN SERVICE) | GPM/SQ-FT | 3.0 | 1.8 |
| FILTRATION RATE AT DESIGN FLOW (W/ 1 FILTER IN BW) | GPM/SQ-FT | 4.0 | 3.5 |
| SAND MEDIA | | | |
| DEPTH | IN | 12 | 12 |
| EFFECTIVE SIZE | MM | 0.55 | 0.55 |
| UNIFORMITY COEFFICENT | D60/D10 | < 1.5 | < 1.4 |
| SPECIFIC GRAVITY | - | 2.6 | 2.6 |
| SAND L/D RATIO | - | 554 | 554 |
| ANTHRACITE MEDIA | | | |
| DEPTH | IN | 24 | 24 |
| EFFECTIVE SIZE | MM | 0.95 | 0.95 |
| UNIFORMITY COEFFICENT | - | < 1.4 | < 1.4 |
| ANTHRACITE L/D RATIO | - | 642 | 642 |
| TOTAL MEDIA L/D RATIO (SAND & ANTHRACITE) | - | 1,196 | 1,196 |
| FILTER BACKWASH PUMPS | | | |
| TYPE: MIXED FLOW VERTICAL TURBINE PUMP | | | |
| NUMBER OF PUMPS | NO. | 1.0 | 1.0 |
| CAPACITY (EACH) | GPM | 835 | 835 |
| TOTAL DYNAMIC HEAD | FT | 70 | 70 |
| MOTOR SPEED | RPM | 900 OR 1,200 | 900 OR 1,200 |
| POWER (EACH) | HP | 25 | 25 |
| FILTER SURFACE WASH | | | |
| TYPE: HORIZONTAL END SUCTION CENTRIFUGAL | | | |
| NUMBER OF PUMPS | NO. | 1.0 | 1.0 |
| CAPACITY (EACH) | GPM | | |
| TOTAL DYNAMIC HEAD | FT | | |
| MOTOR SPEED | RPM | 900 OR 1,200 | 900 OR 1,200 |
| POWER (EACH) | HP | 50 | 50 |
| **FINISHED WATER CLEARWELL** | | | |
| TYPE: | | INLINE | INLINE |
| NUMBER OF CELLS | NO. | 1 | 1 |
| DESIGN FLOW PER CELL | MGD | 15 | 4.4 |
| CELL DIMENSIONS | | | |
| LENGTH | FT | 6.5 | 6.5 |
| WIDTH | FT | 20 | 20 |
| AVERAGE SIDE WATER DEPTH | FT | 7.75 | 7.75 |
| VOLUME PER CELL | GAL | 7,536 | 7,536 |
| DETENTION TIME AT DESIGN FLOW | MIN | 0.7 | 2.5 |
| BAFFLING FACTOR (T10/T) | - | 0.5 | 0.5 |
| FREE CHLORINE RESIDUAL | MG/L | 0.8 | 0.9 |
| CT REQUIRED AT 5 DEG. C FOR 0.5-LOG GIARDIA (pH OF 8.1) | MG-MIN/L | 37.5 | - |
| CT REQUIRED AT 5 DEG. C FOR 1.0-LOG GIARDIA (pH OF 8.1) | MG-MIN/L | - | 79.2 |
| CT REQUIRED AT 5 DEG. C FOR 2-LOG VIRUS | MG-MIN/L | 4.0 | - |
| CT REQUIRED AT 5 DEG. C FOR 3-LOG VIRUS | MG-MIN/L | - | 6.0 |
| CT PROVIDED AT 5 DEG. C AT DESIGN FLOW | MG-MIN/L | 125.9 (1) | 100.4(2) |
| (1) ENTIRE PLANT VOLUME USED FOR DISINFECTION CALCULATIONS | | | |
| (2) ENTIRE PLANT VOLUME AND PART OF CONVEYANCE PIPELINE USED FOR DISINFECTION CALCULATIONS | | | |
| CT COMPLIANCE RATIO | | 3.4 | 1.3 |
| **BACKWASH STORAGE AND SUPPLY** | | | |
| TYPE: | | ELEVATED STEEL TANK | ELEVATED STEEL TANK |
| NUMBER OF TANKS/BASINS | NO. | 1 | 1 |
| TANK DIMENSIONS | | | |
| SHAPE | - | CYLINDRICAL | CYLINDRICAL |
| DIAMETER | FT | 40 | 40 |
| AREA | SQ-FT | 1,257 | 1,257 |
| AVERAGE SIDE WATER DEPTH | FT | 20.33 | 20.33 |
| VOLUME PER TANK/BASIN | GAL | 191,095 | 191,095 |
| FILTER BACKWASH VOLUME REQUIRED PER WASH | GAL | 191,095 | 191,095 |
| NUMBER OF FILTER BACKWASH VOLUMES HELD | NO. | 1.0 | 1.0 |

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: D. ROTH
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# DESIGN CRITERIA

90% REVIEW

DRAWING NO.

G-07

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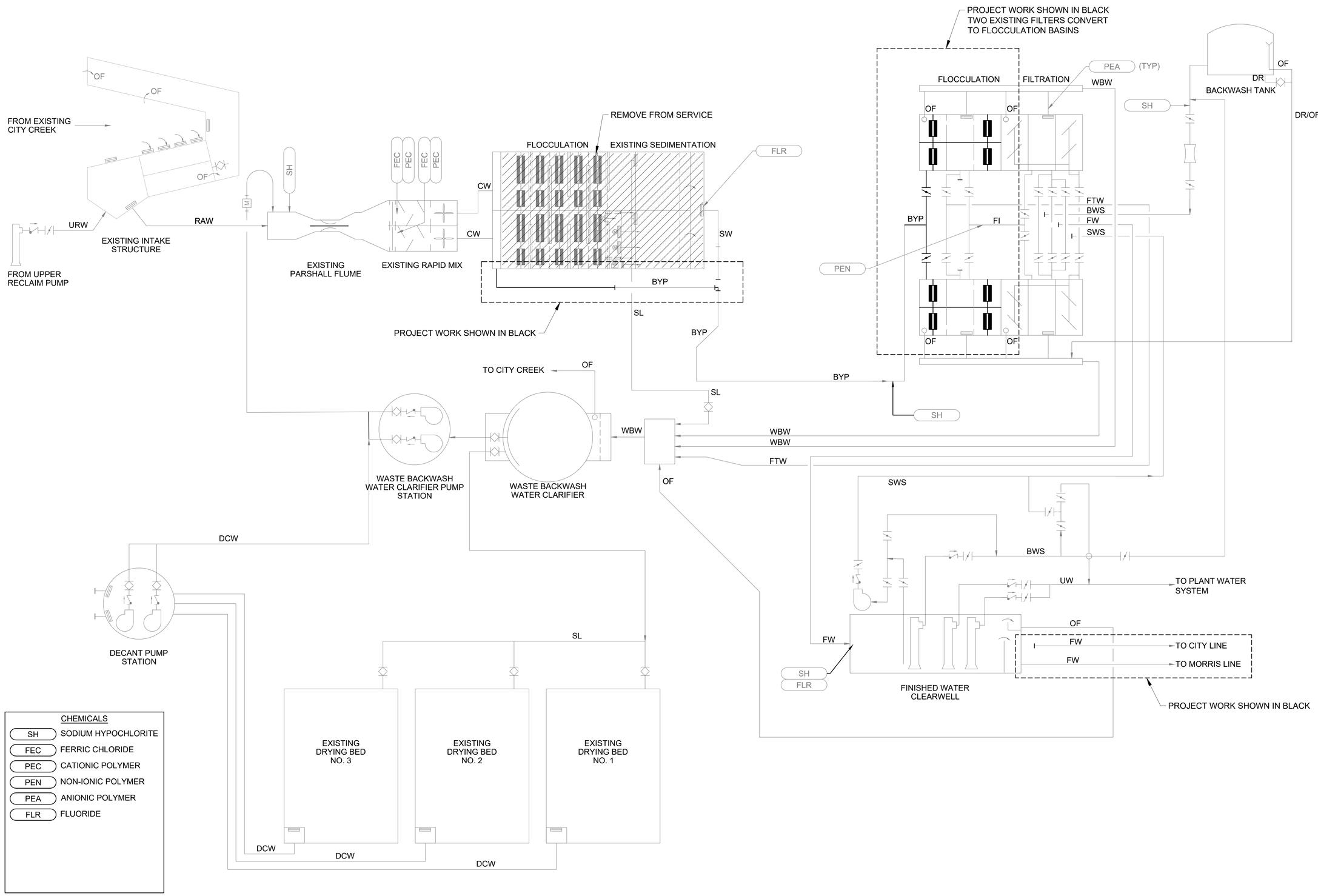


Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE:
EWO NO: --
ACCOUNT NO:

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|---|---|---|---|

REVISIONS

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# PROCESS FLOW DIAGRAM

90% REVIEW

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G-08

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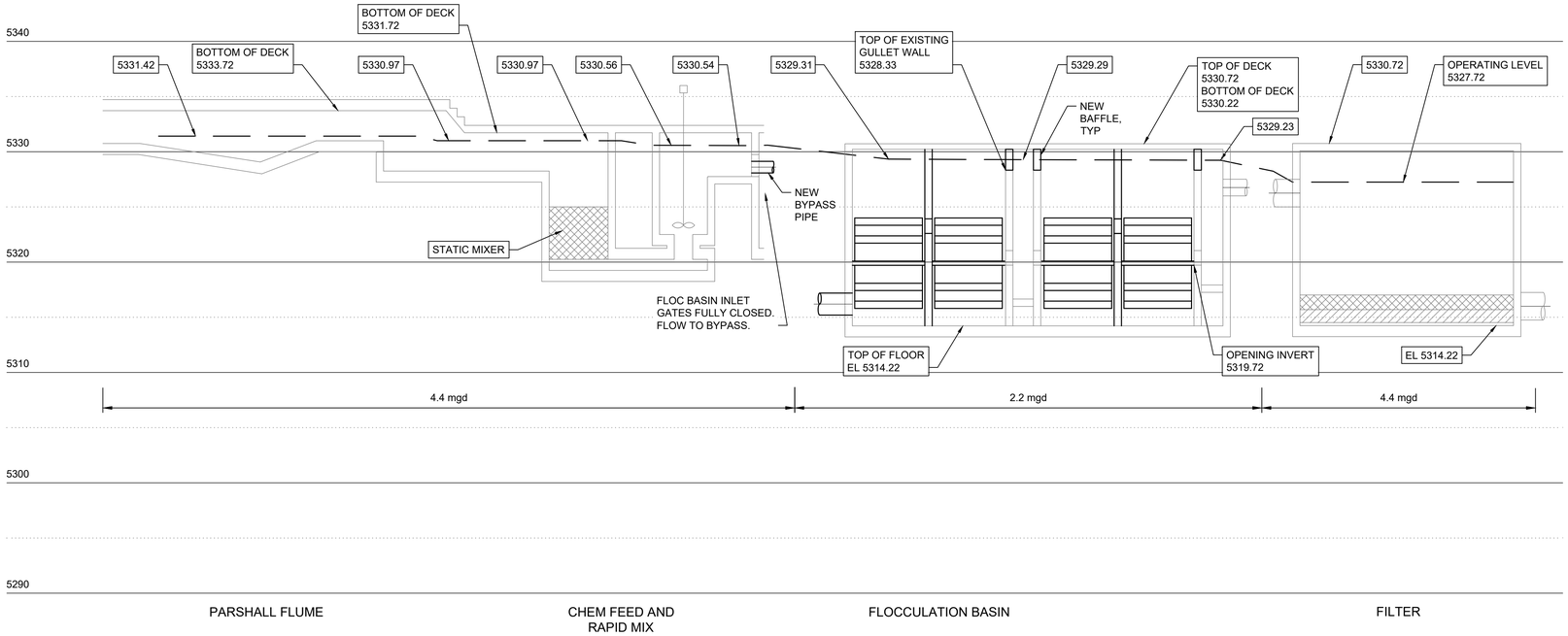


HYDRAULIC PROFILE AT 4.4 MGD - MAIN PROCESS THROUGH BYPASS (DIRECT FILTRATION)

*USES NAVD 88 DATUM (ADD 3.22' TO NGVD DATUM)

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. STOUDT
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
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ACCOUNT NO: 512260089

REVISIONS

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

HYDRAULIC PROFILE

90% REVIEW

DRAWING NO.
G-09

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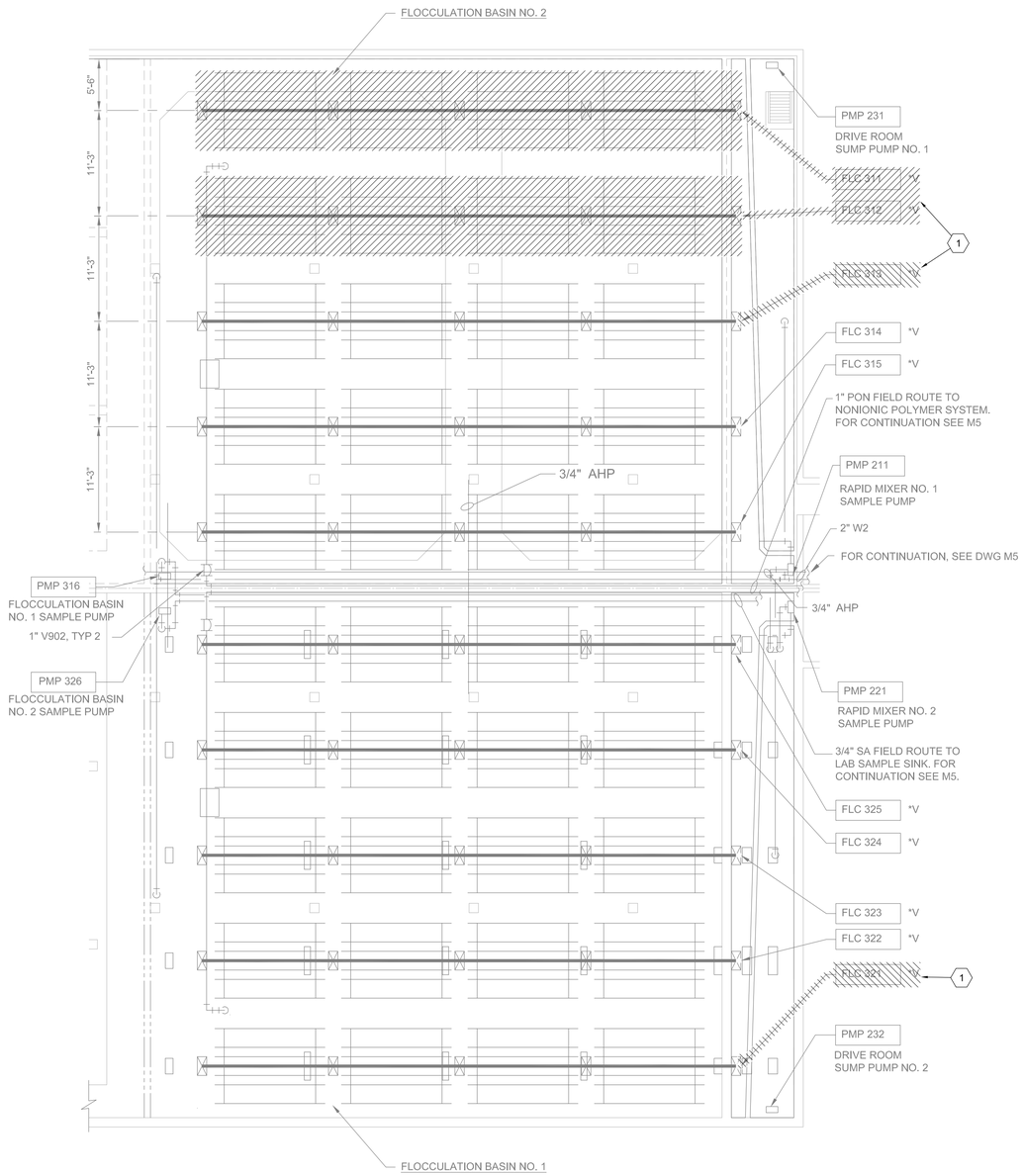


## PLAN

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

## KEY NOTES

1. DISCONNECT POWER TO FLOCCULATORS AND REMOVE CONDUIT AND CABLE FROM FLOCULATOR MOTOR TO LOCAL DISCONNECT. RELOCATE EXISTING FLOCCULATORS, MOTORS, GEARBOXES, ETC. TO NEW FLOCULATION BASINS. SEE SHEET 50-M-01.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51226089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FLOCCULATION BASIN – DEMOLITION PLAN

90% REVIEW

DRAWING NO.
30-D-01

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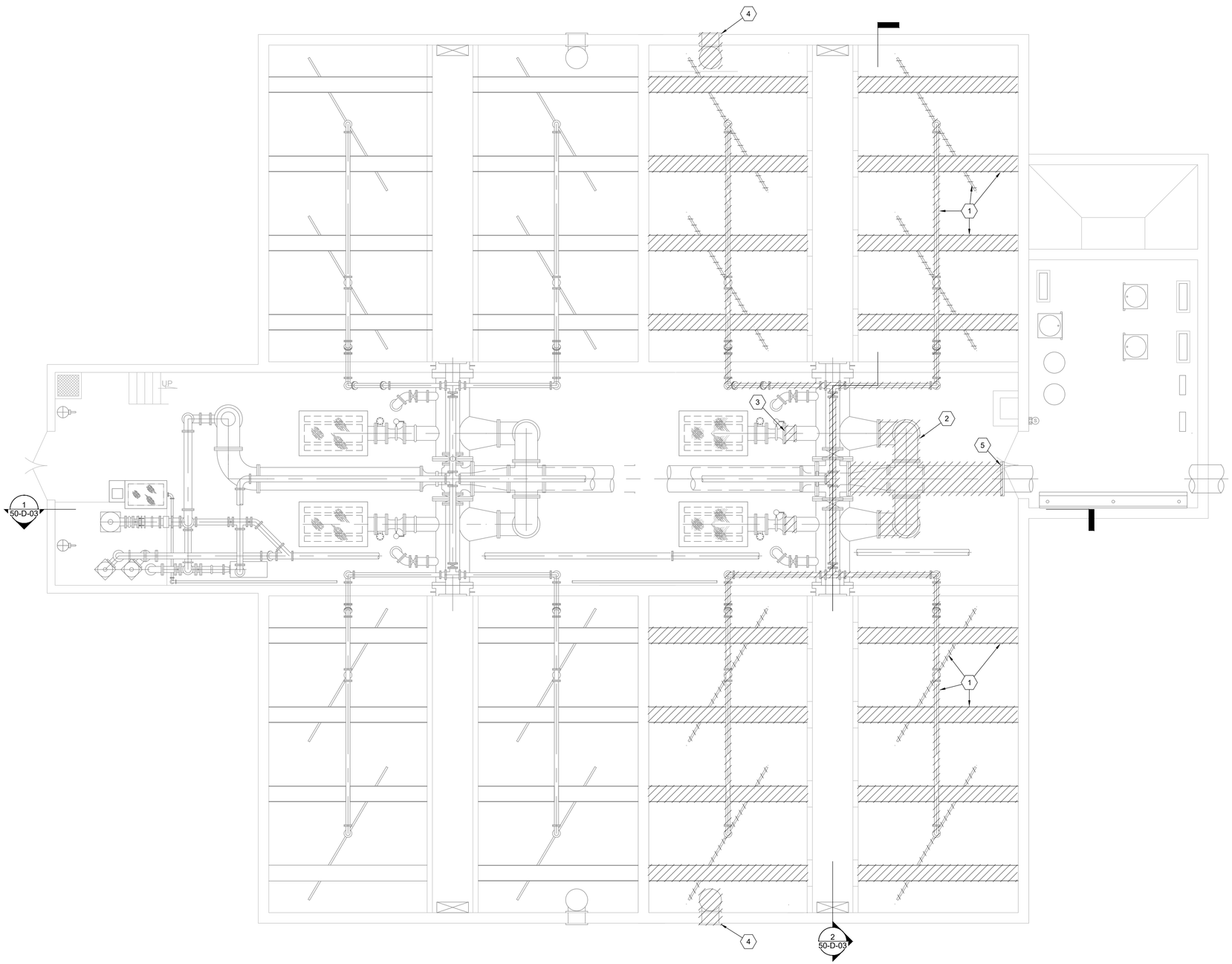
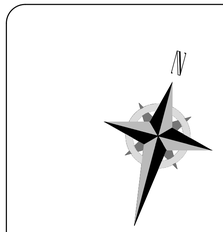



PLAN

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




## KEY NOTES

1. REMOVE EXISTING SURFACE WASH SYSTEM, TROUGHS, FILTER MEDIA, AND BLOCK UNDERDRAINS (TYP 2 FILTERS). CAP LINE WITH BLIND FLANGE. MATCH EXISTING PIPE MATERIAL.
2. REMOVE EXISTING BACKWASH SUPPLY PIPING AND MOTORIZED VALVES BETWEEN FILTER OUTLET TEE AND BACKWASH HEADER. CAP END WITH BLIND FLANGE. MATCH EXISTING PIPE MATERIAL. (TYP 2 FILTERS).
3. REMOVE EXISTING FINISHED WATER PIPING AND DISCONNECT MOTORIZED VALVES. PROVIDE BLIND FLANGES TO CAP ENDS. MATCH EXISTING PIPE MATERIAL. (TYP 2 FILTERS).
4. DEMO EXISTING FILTER OVERFLOW PIPE TO FLANGE AGAINST INSIDE WALL. CAP WITH BLIND FLANGE. SEAL MUST BE WATER TIGHT. MATCH EXISTING PIPE MATERIAL. (TYP 2 FILTERS).
5. REMOVE EXISTING 30" FILTER INLET PIPE SPOOL PIECE BETWEEN FILTER INLET TEE AND FLANGE NEAR EAST WALL. CAP TEE WITH BLIND FLANGE. MATCH EXISTING PIPE MATERIAL.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
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DATE: July 2023
EWO NO: --
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| | | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FILTER BUILDING – DEMOLITION PLAN

90% REVIEW

DRAWING NO.
50-D-01

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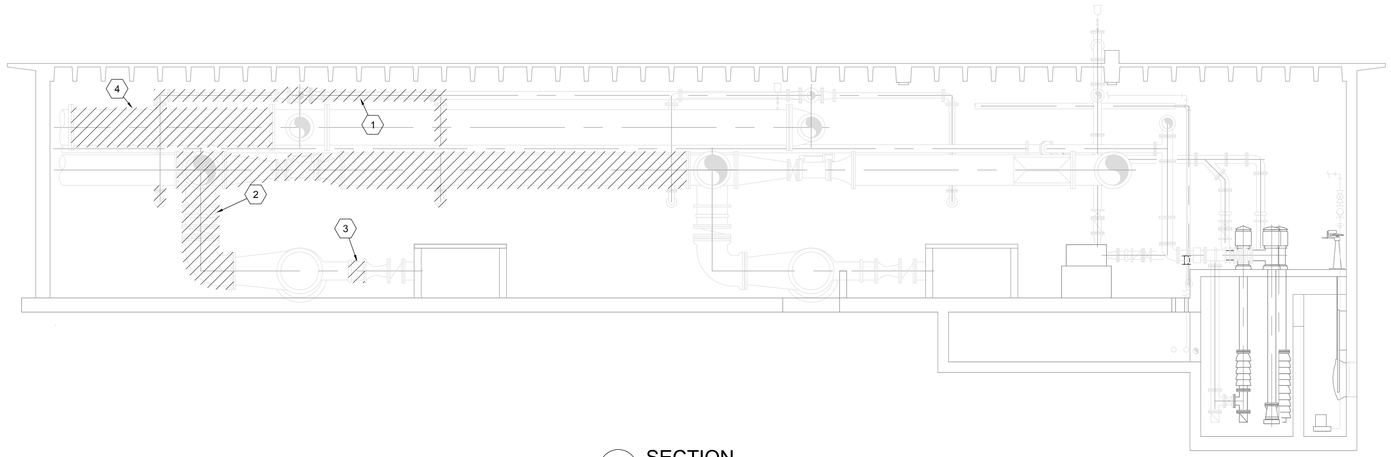
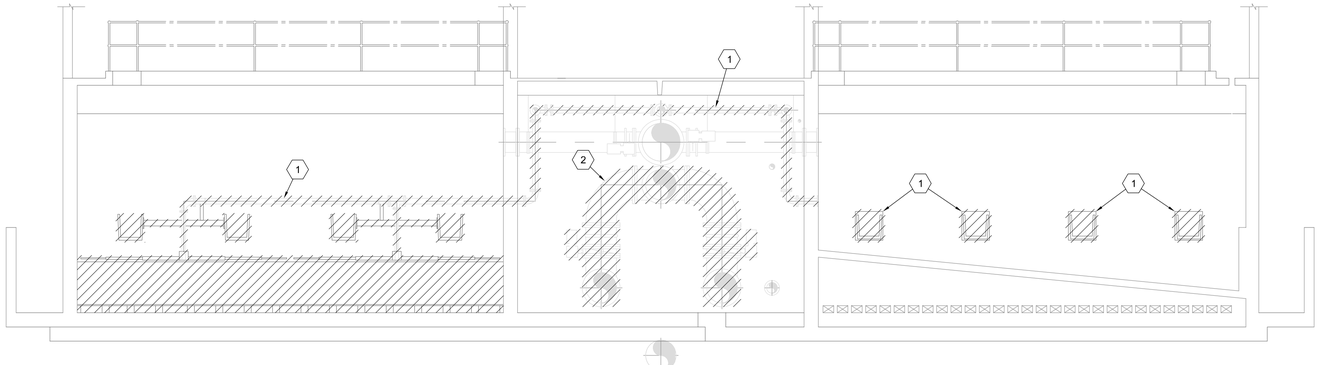



1 / 50-D-01 SECTION
SCALE: 3/16"=1'-0"




2 / 50-D-01 SECTION
SCALE: 3/16"=1'-0"

## KEY NOTES

1. REMOVE EXISTING SURFACE WASH SYSTEM, TROUGHS, FILTER MEDIA, AND BLOCK UNDERDRAINS (TYP 2 FILTERS).
2. REMOVE EXISTING BACKWASH SUPPLY PIPING AND MOTORIZED VALVES. CAP END WITH BLIND FLANGE. MATCH EXISTING PIPE MATERIAL. (TYP 2 FILTERS).
3. REMOVE EXISTING FINISHED WATER PIPING AND DISCONNECT MOTORIZED VALVES. PROVIDE BLIND FLANGES TO CAP ENDS. MATCH EXISTING PIPE MATERIAL. (TYP 2 FILTERS).
4. REMOVE EXISTING 30" FILTER INLET PIPE SPOOL PIECE BETWEEN FILTER INLET TEE AND FLANGE NEAR EAST WALL. CAP TEE WITH BLIND FLANGE. MATCH EXISTING PIPE MATERIAL.

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. JONES
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 512260089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
FILTER BUILDING – DEMOLITION SECTIONS

90% REVIEW

DRAWING NO.
50-D-02

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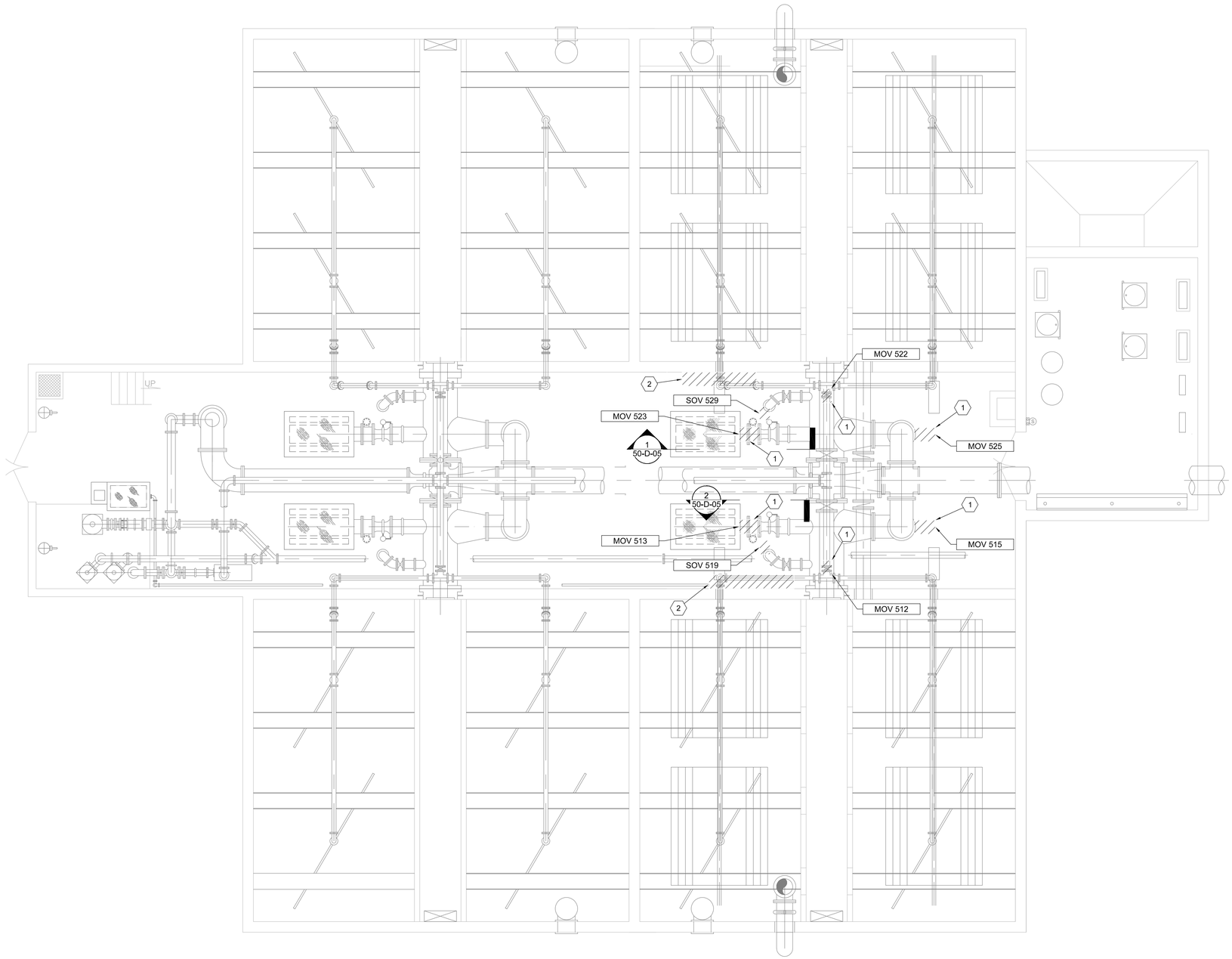


## PLAN

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

## KEY NOTES

1. DISCONNECT POWER AND CONTROL CABLES CONNECTED TO VALVE ACTUATOR. REMOVE POWER CABLE FROM ACTUATOR TO POWER PANEL. REMOVE CONTROL CABLE FROM ACTUATOR TO PLC CABINET.
2. FOR DEMO DETAILS SEE SHEET 50-D-05.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 512260089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FILTER BUILDING – ELECTRICAL DEMO PLAN

90% REVIEW

DRAWING NO.
50-D-03

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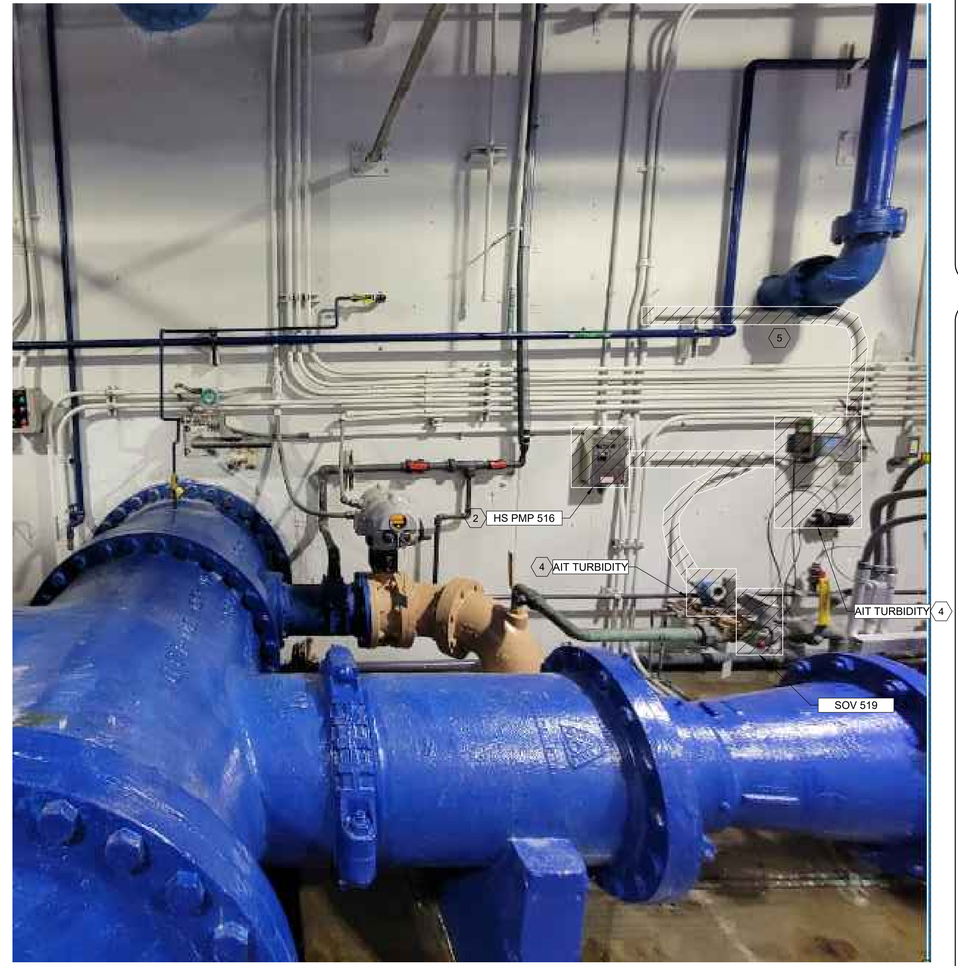
1 SECTION
50-D-03 NTS




2 SECTION
50-D-03 NTS

## KEY NOTES

1. DISCONNECT POWER AND CONTROL CABLES CONNECTED TO VALVE ACTUATOR. REMOVE POWER CABLE FROM ACTUATOR TO POWER PANEL. REMOVE CONTROL CABLE FROM ACTUATOR TO PLC CABINET.
2. DISCONNECT AND REMOVE POWER CABLES FROM SAMPLE PUMP TO CONTROL PANEL BACK TO SOURCE. REMOVE POWER CONDUIT FROM SAMPLE PUMP TO CONTROL PANEL. DEMOLISH CONTROL PANEL.
3. DISCONNECT AND REMOVE CONTROL CABLES FOR SOLENOID VALVE BACK TO PLC. DEMOLISH CONDUIT FROM SOLENOID VALVE BACK TO NEAREST JUNCTION BOX.
4. DISCONNECT AND REMOVE SIGNAL CABLES FOR AE/AIT BACK TO PLC. DEMOLISH AE/AIT CONDUIT FROM AE TO AIT. DEMOLISH CONDUIT FROM AIT BACK TO NEAREST JUNCTION BOX.
5. DEMOLISH RECEPTACLE AND CONDUIT AND WIRE BACK TO NEAREST JUNCTION BOX.

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|
| | | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
FILTER BUILDING –
ELECTRICAL DEMO SECTIONS

90% REVIEW

DRAWING NO.
50-D-04

C:\users\dstar\bcpw\d2399796\50-D-04.dwg Jul 12, 2023 – 4:52pm

## CIVIL SITE DESIGNATIONS

- E — ELECTRIC (DUCTBANK)
- FO — FIBEROPTICS
- G — GAS (NATURAL, NG)
- CHAINLINK FENCE
- EDGE OF PAVEMENT
- RETAINING WALL
- PERMANENT SHORING
- TO BE DEMOLISHED
- UTILITY POLE
- LIGHT POLE
- SIGN
- BOLLARD
- HYDRANT
- TREE / GROUND COVER

NOTE: FOR UTILITY LINE DESIGNATIONS AND CALLOUTS, SEE INCLUDED PIPE SCHEDULE.

## UTILITY INFRASTRUCTURE SYMBOLS

- MH — MANHOLE (UTILITY SERVICES)
- PIPING THRUST BLOCK
- W — WATER HANDHOLE
- FIRE HYDRANT
- SS — SANITARY SEWER MANHOLE
- CO — SANITARY CLEANOUT
- DRAINAGE CATCH BASIN
- D — STORM DRAIN MANHOLE
- G — NATURAL GAS MANHOLE
- G — NATURAL GAS METER
- UTILITY POLE GUY WIRE
- T — TELEPHONE MANHOLE
- C — COMMUNICATION MANHOLE
- E — ELECTRICAL MANHOLE
- VALVE

## EARTHWORK SYMBOLS

- CONCRETE
- EARTH
- EARTH, CUT SLOPE
- EARTH, FILL SLOPE
- EL:xxxx.00 — SPOT ELEVATION

## GENERAL NOTES

1. ALL UTILITIES SMALLER THAN 12" OR DEPICTED AS SINGLE LINES. ALL UTILITUES 12" OR GREATER ARE DEPICTED AS DOUBLE CONTINUOUS LINES.
2. EXISTING LINEWORK SHALL BE INDICATED IN GRAY. ALL NEW LINEWORK SHALL BE BLACK AND BOLD.
3. UTILITY LOCATIONS ON WERE OBTAINED FROM AVAILABLE RECORD DRAWINGS. VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PROVIDE CLSM PIPE ZONE BACKFILL WHERE VERTICAL SEPARATION BETWEEN OTHER PIPING IS LESS THAN 12 INCHES.
5. SEE SHEET G-03 FOR ADDITIONAL NOTES AND PIPING REQUIREMENTS.

Brown AND Caldwell

SCALE: NONE

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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DRAWN BY: D. DAVIDSE
CHECKED BY: M. KOBE
APPROVED BY: S. BRENCHLEY
DATE: July 2023
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ACCOUNT NO: 51226089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# GENERAL CIVIL NOTES AND SYMBOLS

90% REVIEW

DRAWING NO.

GC-01

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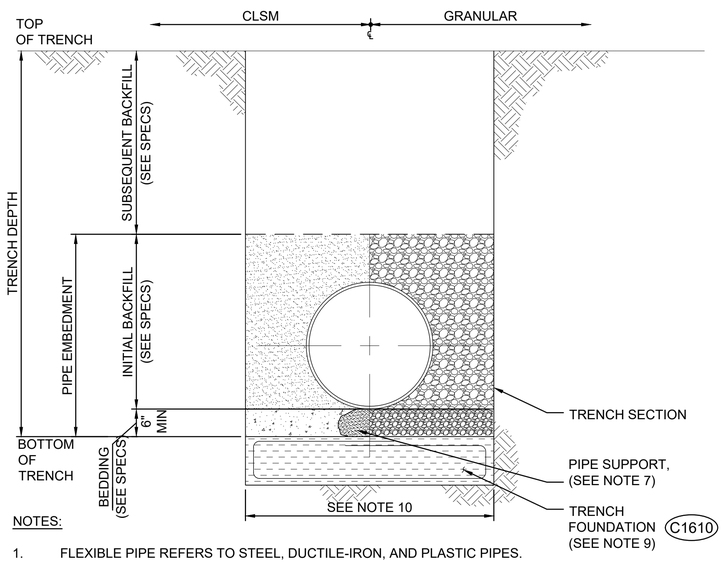
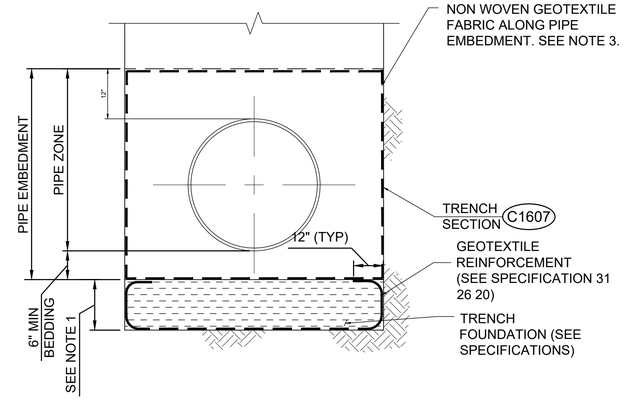



NOTES:

1. FLEXIBLE PIPE REFERS TO STEEL, DUCTILE-IRON, AND PLASTIC PIPES.
2. TYPICAL TRENCH SECTIONS ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDER OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY NEED TO BE DEEPER OR WIDER THAN SHOWN. IF THIS OCCURS NOTIFY THE ENGINEER.
3. DESIGN AND BUILD PROTECTIVE SYSTEMS AND EXCAVATE SLOPES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DESIGN SHALL BE BY A LICENSED STATE OF UTAH STRUCTURAL ENGINEER.
4. CONSTRUCT UNSUPPORTED TRENCH WALLS IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND PER RECOMMENDATIONS IN THE GEOTECHNICAL REPORT, WHICHEVER IS MORE STRINGENT.
5. CONTRACTOR SHALL PROTECT PIPE PER CONTRACT DOCUMENTS
6. IF THE WATER TABLE IS DISCOVERED ABOVE THE TRENCH BOTTOM NOTIFY ENGINEER AND IMPLEMENT DEWATERING EFFORTS TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. .
7. WHERE CLSM PIPE EMBEDMENT IS INDICATED, SET PIPE TO FINAL GRADE BY PLACING SAND BAGS WITHIN 30" OF EACH JOINT AND EVERY 15' O.C., MINIMUM. CENTERED ON PIPELINE CENTERLINE. PLACE CLSM IN LIFTS TO PREVENT FLOATING THE PIPE.
8. TRENCH FOUNDATION REQUIRED FOR WET OR SOFT AREAS AS DETERMINED BY THE CONSTRUCTION MANAGER, OR AS SHOWN ON DRAWINGS.
9. TRENCH BOTTOM AND PIPE ZONE WIDTH:
   - 9.1. OD + 30" + TRENCH PROTECTION: FOR MECHANICAL COMPACTION OF GRANULAR PIPE EMBEDMENT.
   - 9.2. OD + 12" + TRENCH PROTECTION: FOR CLSM PIPE EMBEDMENT.
10. SEE PLANS FOR BACKFILL TYPE (GRANULAR OR CLSM). WHERE NOT SHOWN ON THE PLANS, SEE SPECIFICATIONS.
11. REMOVAL OF THE SUPPORT SYSTEM SHALL BE PERFORMED IN A MANNER THAT WILL NOT DISTURB OR HARM ADJACENT CONSTRUCTION FACILITIES, INSTALLED MATERIALS OR COMPACTED FILLS. ALL VOIDS CREATED BY REMOVAL OF THE SUPPORT SYSTEM SHALL BE IMMEDIATELY FILLED WITH CRUSHED ROCK AGGREGATES, GROUT, OR LEAN CONCRETE AND RECOMPACTED AS APPROVED BY THE ENGINEER. TRENCH PROTECTION SUPPORT SYSTEM NOT SHOWN IN DETAIL FOR CLARITY.
12. PIPE BEDDING, PIPE ZONE, TRENCH ZONE, AND FINAL BACKFILL MATERIAL SHALL BE GRANULAR PER SPEC 31 23 00 EXCEPT FOR WHERE CLSM BACKFILL IS IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR MAY CHOOSE TO SUBSTITUTE CLSM FOR GRANULAR MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

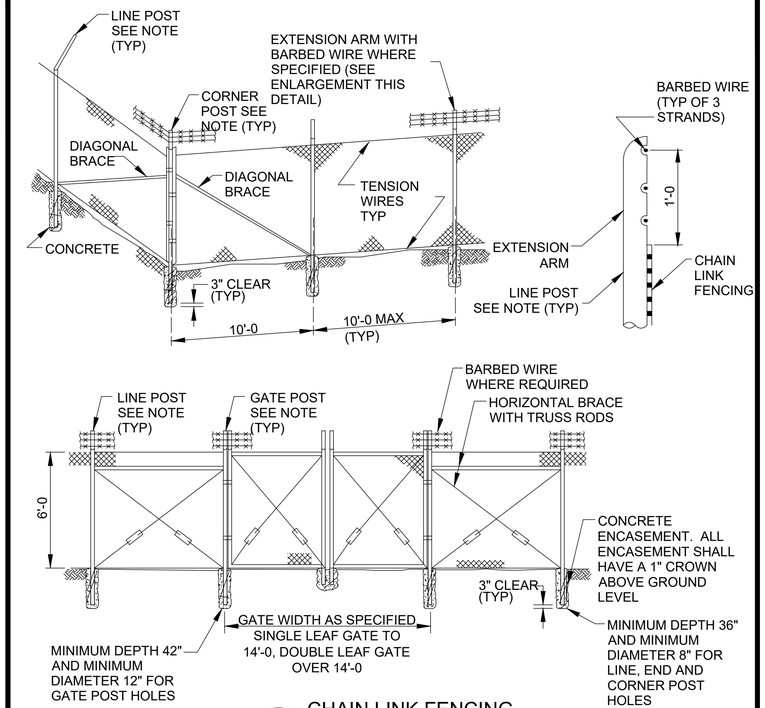
C1607 FLEXIBILE TRENCH SECTION
SCALE: N.T.S.



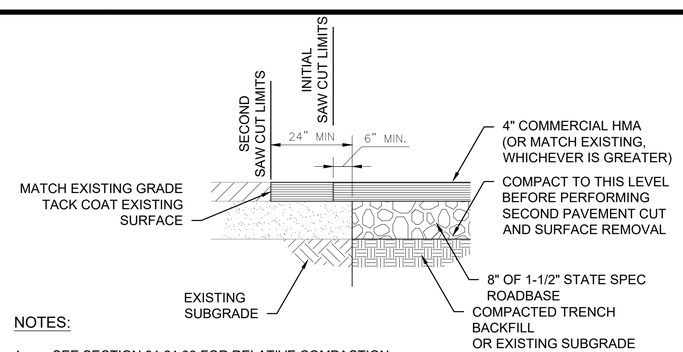

NOTES:

1. 12" MIN OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE TO OBTAIN STABILIZATION IN WET AND/OR SOFT AREAS. SEE SPECIFICATIONS FOR LOCATIONS OF REQUIRED USE.
2. TRENCH FOUNDATION REQUIRED FOR WET OR SOFT AREAS OR AS CALLED OUT ON DRAWINGS OR IDENTIFIED BY THE OWNER'S REPRESENTATIVE.
3. NON WOVEN GEOTEXTILE REQUIRED IN AREAS OF WET OR WEAK NATIVE SOILS AS INDICATED ON THE DRAWINGS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. GEOTEXTILE NOT REQUIRED WITH CLSM.

C1610 TRENCH FOUNDATION
SCALE: N.T.S.




C1710 CHAIN LINK FENCING
SCALE: N.T.S.




NOTES:

1. SEE SECTION 31 21 33 FOR RELATIVE COMPACTION
2. ALL TRENCH AND PAVEMENT CUTS SHALL BE MADE BY SAWCUTTING ONLY.
3. SAWCUTS SHALL BE VERTICAL FULL DEPTH CUTS THAT PROVIDE A CLEAN EDGE TO THE EXISTING PAVEMENT THAT REMAINS.
4. TACK COAT SHALL BE APPLIED TO EXISTING PAVEMENT AND EDGE OF CUT, AND AT COLD JOINTS AND GUTTER PRIOR TO PAVING.
5. PATCHES SHALL BE FEATHERED AND SHIMMED TO AN EXTENT THAT PROVIDES A SMOOTH-RIDING CONNECTION AND EXPEDITIOUS DRAINAGE FLOW.
6. THE MINIMUM WIDTH FOR ANY PAVEMENT REPAIR SHALL BE 4-FEET UNLESS OTHERWISE NOTED.
7. WHERE A PAVEMENT JOINT OR EDGE OF PAVEMENT IS LESS THAN 4-FEET FROM A SAWCUT JOINT, THE PAVEMENT SHALL BE REMOVED TO THAT JOINT OR EDGE.
8. SOIL RESIDUAL HERBICIDE SHALL BE PLACED PRIOR TO PAVING.
9. PAVEMENT SHALL HAVE A MINIMUM SLOPE OF 2%.

C2013 HSA PAVED ROAD
SCALE: N.T.S.

Brown AND Caldwell

SCALE: NONE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: N. OLTEAN
DRAWN BY: D. DAVIDSE
CHECKED BY: M. KOBE
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

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|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
STANDARD CIVIL DETAILS

90% REVIEW

DRAWING NO.
GC-02

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N

15 0 30 60

SCALE IN FEET

## SHEET NOTES

1. EXACT ROUTE OF NATURAL GAS PIPING IS UNKNOWN. FIELD LOCATE PRIOR TO EXCAVATION.
2. LOCATION OF EXISTING PIPING SHOWN IS BASED ON BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY TIE IN POINT.

## KEY NOTES

1. REPLACE EXISTING FENCING AS REQUIRED FOR BYPASS PIPE INSTALLATION. INSTALL NEW FENCE PER DETAIL C1710. PROJECT SITE SHALL REMAIN SECURE AT ALL TIMES. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AS REQUIRED TOO MAINTAIN SITE SECURITY.
2. EXISTING FENCE GATE TO REMAIN IN PLACE. CONTRACTOR SHALL PROTECT THE GATE DURING CONSTRUCTION AND REPAIR ANY DAMAGE TO THE GATE AT NO ADDITIONAL COST TO THE OWNER.
3. REPLACE ASPHALT AS REQUIRED FOR BYPASS PIPE INSTALLATION. INSTALL NEW ASPHALT PER DETAIL C2103.
4. INSTALL BYPASS PIPING PER TRENCHING DETAIL C1607. MAINTAIN MAXIMUM TRENCH WIDTHS AS SHOWN IN THE DETAILS.
5. PROVIDE RIGID BOARD INSULATION PER SECTION 07 21 00 6-INCHES ABOVE ALL BYPASS PIPING THAT DOES NOT HAVE 3 FT OF COVER. EXTEND INSULATION 3 FT PAST EDGE OF PIPE.

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SCALE: 1" = 30'

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: N. OLTEAN
DRAWN BY: D. DAVIDSE
CHECKED BY: M. KOBE
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: ---
ACCOUNT NO: 512260089

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# OVERALL SITE PLAN

90% REVIEW

DRAWING NO.
01-C-01

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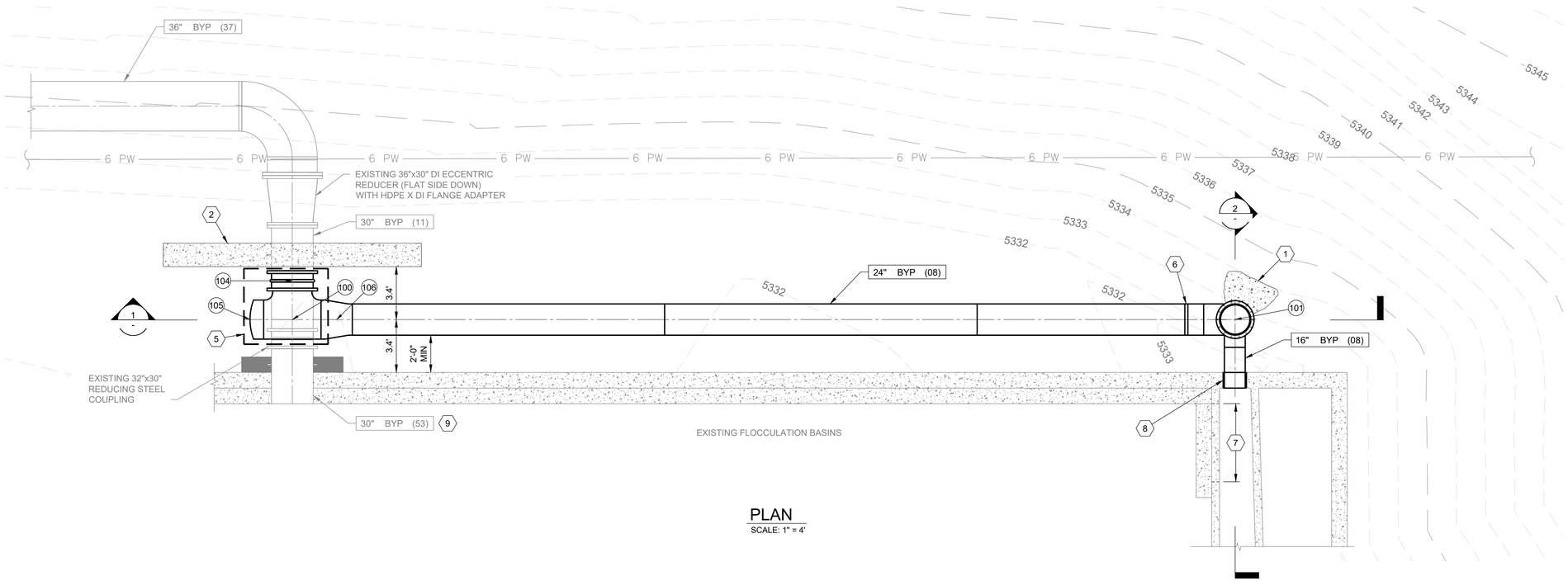
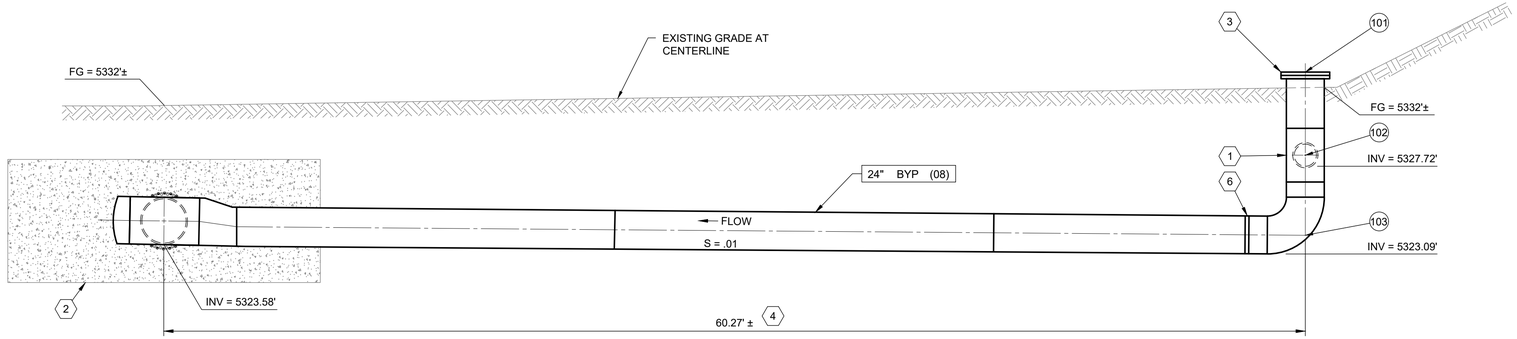
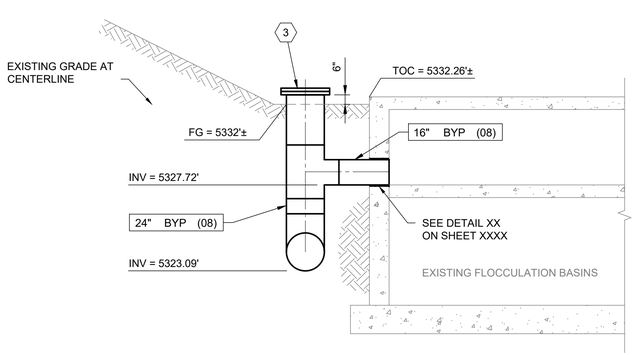



## PLAN
SCALE: 1" = 4'



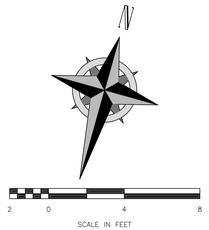

## SECTION
SCALE: 1" = 4'




## SECTION
SCALE: 1" = 4'

## FITTING POINT TABLE

| # | NORTHING | EASTING | DESCRIPTION |
|---|---|---|---|
| 100 | 7465862.88 | 1548552.81 | 30"X30"X24" STEEL TEE W/ CAPPED RUN |
| 101 | 7465879.25 | 1548610.83 | 24" STEEL BLIND FLANGE |
| 102 | 7465879.25 | 1548610.83 | 24"X24"X16" STEEL REDUCING TEE |
| 103 | 7465879.25 | 1548610.83 | 24" STEEL 90° BEND |
| 104 | 7465865.27 | 1548552.13 | 32"X30" STEEL REDUCING COUPLING |
| 105 | 7465862.15 | 1548550.20 | 30" WELD STEEL CAP |
| 106 | 7465863.65 | 1548555.54 | 30"X24" STEEL ECCENTRIC REDUCER (FLAT SIDE DOWN) |




## SHEET NOTES

1. CONTRACTOR MAY SUBSTITUTE BACKFILL WITH CLSM TO MEET RELATIVE COMPACTION OUTLINED IN SPECIFICATION 31 21 33.
2. LOCATION OF EXISTING PIPING SHOWN IS BASED ON BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY TIE IN POINT.
3. SEE G-03 FOR PIPING SCHEDULE AND ABBREVIATIONS.

## KEY NOTES

1. PROVIDE DIRECT BURY THRUST BLOCK MINIMUM 74 SF OF BEARING AREA.
2. WALL.
3. MINIMUM 6" ABOVE EXISTING GRADE.
4. CONTRACTOR TO FIELD VERIFY LENGTH REQUIRED, FIELD FIT BETWEEN EXISTING PIPE AND CHANNEL WALL CORE.
5. CONTRACTOR TO DEMOLISH EXISTING BYPASS LINE BETWEEN THE EXISTING 32"x30" REDUCER STEEL COUPLING AND THE ADDITIONAL REINFORCING AT THE OPENING. REMOVE EXISTING STEEL REDUCING COUPLING AND REPLACE EXISTING STEEL COUPLING WITH NEW STEEL REDUCING COUPLING.
6. CONTRACTOR TO INSTALL BUTT STRAP JOINT ON UNMODIFIED PIPE ENDS WITH AN END GAP AND EXTERIOR STRAP SPANNING THE END GAP. PIPE CYLINDER SHALL BE JOINED TO STRAP WITH CIRCUMFERENTIAL FILLET WELDS ON THE EXTERIOR OF THE PIPE CYLINDER.
7. PROVIDE STRUCTURAL INFILL ON FLOCCULATION INLET CHANNEL PER C/50-S-01.
8. CONTRACTOR TO INSTALL WALL PENETRATION PER A/50-M-03. PENETRATION DIAMETER SHALL BE AS RECOMMENDED BY MECHANICAL SEAL MANUFACTURER. ENSURE FLUSH TRANSITION TO 16" PIPE PENETRATION AND CHANNEL FLOOR. PROVIDE DOUBLE MODULAR MECHANICAL EXPANDING RUBBER SEAL INSIDE AND OUTSIDE WALL WITH THRU BOLT.
9. CONTRACTOR TO FILL OPENING WITH CONCRETE SLURRY.

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SCALE: 1" = 4'

VERIFY SCALE
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DRAWN BY: D. DAVIDSE
CHECKED BY: M. KORE
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: ---
ACCOUNT NO: 512260089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# BYPASS PLAN AND SECTION

90% REVIEW

DRAWING NO.
01-C-02

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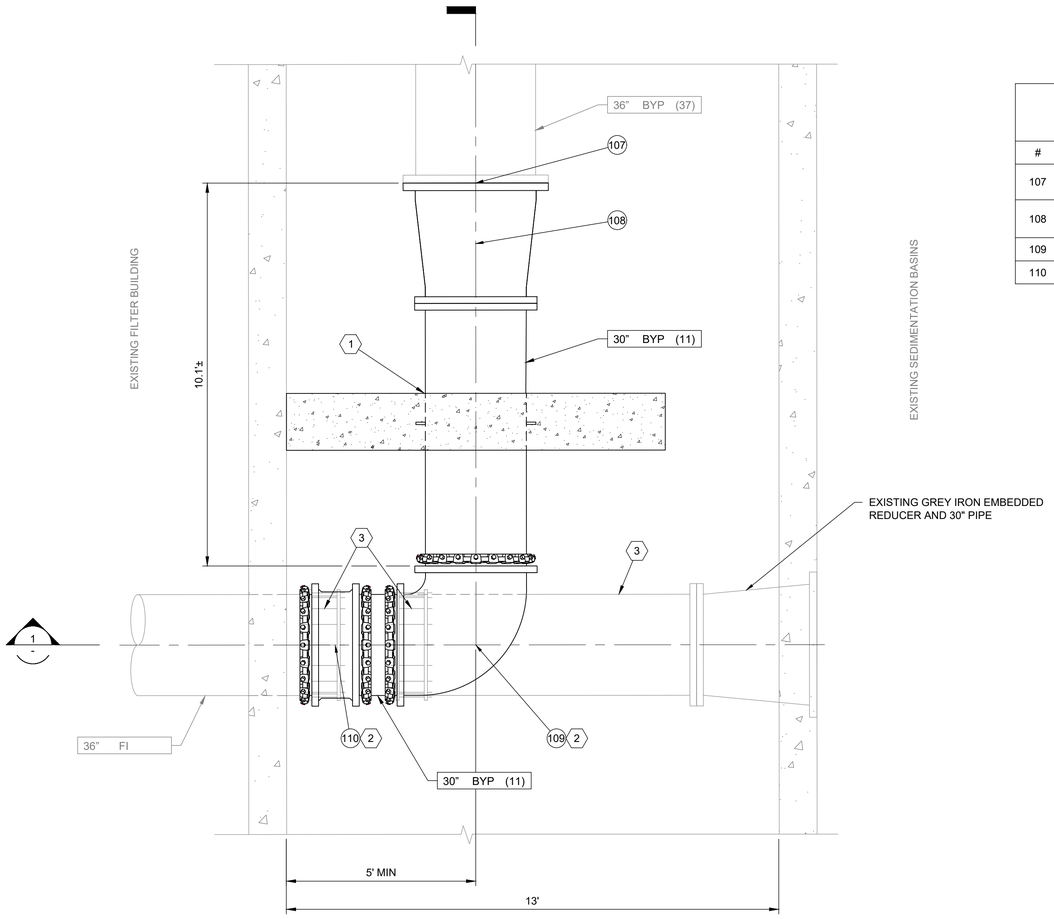
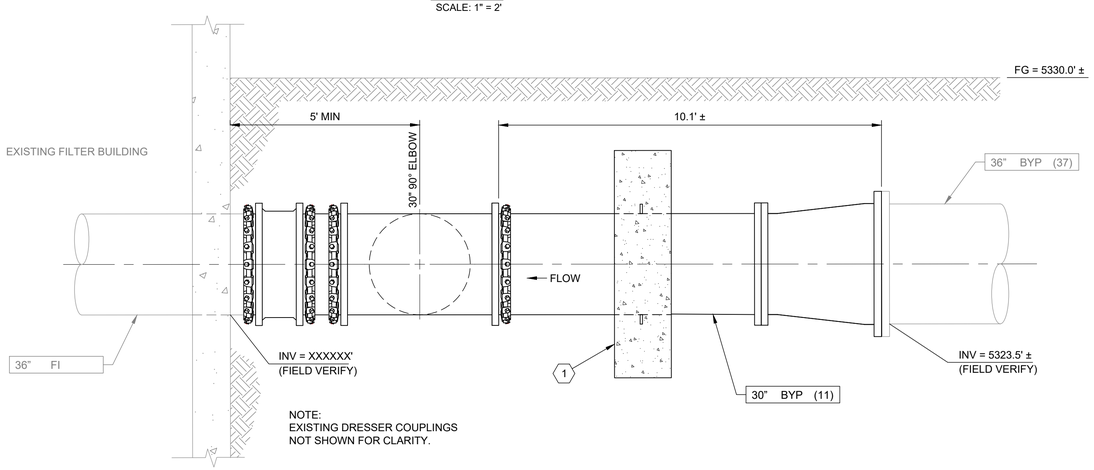



## PLAN

SCALE: 1" = 2'



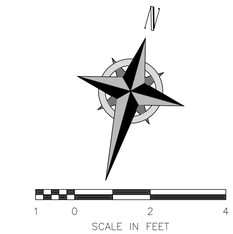

NOTE:
EXISTING DRESSER COUPLINGS
NOT SHOWN FOR CLARITY.

## 1 SECTION

SCALE: 1" = 2'

# FITTING POINT TABLE

| # | NORTHING | EASTING | DESCRIPTION |
|---|---|---|---|
| 107 | 7465748.20 | 1548305.76 | 36" DIXHDPE FLANGE ADAPTOR AND BACKUPRING |
| 108 | 7465746.66 | 1548306.19 | 36"X30" DI REDUCER (ECCENTRIC-FLAT SIDE UP) |
| 109 | 7465736.47 | 1548309.07 | 30" RMJ DI 90%5D ELBOW |
| 110 | 7465735.46 | 1548305.50 | 30"X15" RMJ DI SHORT SLEEVE |




## SHEET NOTES

1. CONTRACTOR MAY SUBSTITUTE BACKFILL WITH CLSM TO MEET RELATIVE COMPACTION OUTLINED IN SPECIFICATION 31 21 33.
2. LOCATION OF EXISTING PIPING SHOWN IS BASED ON BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY TIE IN POINT.
3. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND FIELD POTHOLE. AS SHOWN DIMENSIONS ARE APPROXIMATE.

## KEY NOTES

1. CONTRACTOR TO INSTALL 10' X 6' X 1.5' ANCHOR BLOCK WITH CLASS 3000 CONCRETE. CONTRACTOR TO CENTER PIPE IN MIDDLE OF ANCHOR BLOCK. CONTRACTOR TO WELD WALL ANCHOR TO DI BYPASS PIPE AS SHOWN.
2. RESTRAIN MECHANICAL JOINTS WITH MEGALUG OR APPROVED EQUAL LUG STYLE PIPE RESTRAINT.
3. CONTRACTOR TO DISMANTLE OR CUT EXISTING STEEL DRESSERS AND REMOVE PIPE SECTION BETWEEN EMBEDDED REDUCER AND 1-FOOT MINIMUM FROM THE FILTER BUILDING WALL.

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SCALE: 1" = 2'

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: N. OLTEAN
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|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
# BYPASS CONNECTION AT FILTER BUILDING

90% REVIEW

DRAWING NO.
01-C-03

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## 1. Design Criteria

1.1. Governing Building Code..... 2021 International Building Code (IBC)
A. Risk Category..... IV

1.2. Earthquake
A. Seismic Design Category..... D
B. Spectral Response Accelerations
$S_S$ = 1.23 g $S_{DS}$ = 0.74 g
$S_1$ = 0.46 g $S_{D1}$ = 0.24 g
C. Soil Site Class..... B
$F_a$ = 0.90 $F_v$ = 0.80
D. Component Importance Factor, $I_P$..... 1.5
E. Seismic Coefficients,$a_p/R_p$ ..... 1.0/2.5
F. Analysis Procedure..... Equivalent Lateral Force (Static)
G. Seismic Design Coefficient, $C_s$ ..... 0.22

## 2. Concrete

2.1. Materials shall comply with the Standards specified in American Concrete Institute (ACI) 318-19, "Building Code Requirements for Structural Concrete" and ACI 350-20, "Code Requirements for Environmental Engineering Concrete Structures."
A. Concrete mix design requirements shall be as follows (see Spec. Section 03 30 00):

| Location | f'c at 28 days (psi) | Max W/C Ratio | Air Content (%) | Max Aggregate Size | Exposure Classes* | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | F | S | C | W |
| Class B Non-structural Concrete | 4500 | 0.45 | 4-6 | 3/4" | F1 | S0 | C2 | W0 |
| Class C-1 Typical Concrete, including Beams, Columns, Suspended Slabs, Shear Walls and Interior Slabs on Grade | 4500 | 0.40 | 4-6 | 3/4" | F2 | S0 | C2 | W0 |

* Exposure Classes are per ACI 318, Section 19.3.1.1, where F, S, W, and C are exposure categories for freezing and thawing, sulfate, water contact, and corrosion protection of reinforcement, respectively.

B. Cementitious Materials:
1. Portland Cement (ASTM C595):
a. Type IL (MS)
b. Type IL (HS) where sulfate exposure class is above S0.
2. Fly Ash (ASTM C618, Class F): maximum fly ash content as a percentage of total weight of cementitious materials shall be as indicated in Specification Section 03 30 00.
C. Concrete Density (Maximum Air Dry Weight):
1. Normal weight concrete shall be approximately 145 to 155 pounds per cubic foot. Aggregate shall be ASTM C33.
D. Steel Reinforcement:
1. All detailing, fabrication, and erection of reinforcing bars, unless otherwise noted, shall be in accordance with ACI detailing manual (ACI SP-66), latest edition.
2. All reinforcing to be welded shall conform to ASTM A706. Rebar welding shall be in accordance with AWS D1.4.
3. ASTM A615 Grade 60, fy = 60,000 psi min. unless noted otherwise.
E. Vapor Barrier, where noted on drawings, shall be 10 mil minimum class A or B plastic water vapor retarder per ASTM E1745. Install be ASTM E1643. Lap joints 6" and seal with manufacturer's recommended tape or adhesive.
F. Curing compounds and other surface treatments, concrete admixtures, and sub-slab drainage shall be reviewed by contractor and certified compatible with finishes to be applied later in the construction sequence.
G. Admixtures:
1. Air-entraining admixtures, comply with ASTM C260 (when used).
a. Tolerance on air content as delivered shall be +/- 1.5%.
b. When air content of a trowel finished floor slab exceeds 3%, there is an increased risk for delaminations and blistering to occur. When this situation is present, the Contractor shall pay special attention to the finishing procedures to help minimize such risks. Refer to ACI 302.1R-15 "Guide for Concrete Floor and Slab Construction" for proper finishing guidelines.
2. Corrosion Inhibiting admixture, comply with ASTM C1582 (when used):
a. Corrosion inhibiting additive containing a minimum of 30 percent calcium nitrite dosed at 3 gallons per cubic yard shall be added to all reinforced concrete with exposure class C2.
3. Waterproofing Admixture: Add waterproofing admixture in concrete placed at locations as specified in Specification Section 03 30 00. Add Penetron International "PENETRON ADMIX SB", Xypex "Admix C-Series", Kryton "Krystol Internal Membrane (KIM)", or approved equivalent admixture to the concrete mix at the dosing rate recommended by the manufacturer. Alternate equal products may be submitted for review and consideration by the architect/enginneer.
4. The use of super plasticizers and water reducers is allowed, but not required.
5. Calcium chloride or admixtures containing calcium chloride shall not be added to the concrete mix.
H. Chloride Ion: Maximum water soluble chloride ion concentrations in hardened concrete at age between 28 and 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures shall not exceed a maximum, by weight of cement, of 1.00% for concrete with exposure class C0, 0.30% for concrete with exposure class C1, and 0.15% for concrete with exposure class C2.
I. Slump Limit: As indicated in Specification Section 03 30 00. The concrete supplier shall indicate the final slump of each concrete mix in the submitted mix design.
J. Shrinkage Limit:
1. Liquid containing structures using Class C-2 concrete mix are intended to be watertight. Provide test results for Class C-2 concrete mix meeting the following requirement: drying shrinkage limit of 0.032 percent tested in accordance with ASTM C157. Drying shrinkage test results shall be submitted with mix designs.
K. Only one grade or type of concrete shall be poured on the site at any given time.
L. Plastic coated tie wires and chairs shall be used to support reinforcing bars, tie bars and tendons.

2.2. Formwork shall comply with ACI Standards Publication 347 and the project specifications. The Contractor shall be responsible for the design, detailing, care, placement and removal of the formwork and shores.

2.3. Exposed ends of reinforcing bars at sawcut openings in existing concrete: Contractor shall remove reinforcing bars 1 1.2 inches back from face of opening by flame gouging. Fill hole and repair surface with concrete repair mortar.

2.4. All pipe penetrations 6" diameter and above shall be cast in place. Coordinate with mechanical and electrical drawings for location and type. Core drilling for pipe penetrations smaller than 6" diameter shall be allowed, however, contractor must coordinate location and layout with Engineer prior to installation.

2.5. Except as otherwise required, exposed concrete corners and edges shall have ¾" chamfers. Re-entrant corners shall not have fillets.

2.6. Concrete cover requirements for deformed bar reinforcing steel shall comply with ACI 318, "Building Code Requirements for Structural Concrete".
A. Cast-in-place Concrete: Specified Cover
1. Cast against and permanently exposed to earth: ..... 3"
2. Concrete exposed to earth, wastewater, chemicals, or weather:..... 2"
3. Concrete exposed to or above any liquid ..... 2"
4. Concrete not in the above categories unless noted otherwise on the design drawings: 1.1/2"

2.7. Detailing: All reinforcing, including welded wire fabric, shall be detailed, bolstered & supported to comply with ACI 315, "Details and Detailing of Concrete Reinforcement" and the Concrete Reinforcing Steel Institute (CRSI) recommendations. Reinforcing bars shall not be welded unless specifically shown on drawings.
A. All embedded elements and dowels shall be securely tied to formwork or to adjacent reinforcing prior to the placement of concrete.
B. Use chairs or other support devices recommended by CRSI to support and tie reinforcement bars and welded wire fabric prior to placing concrete. Welded wire fabric shall be continuously supported at 36" o.c. maximum.
C. See typical details for column cross-ties. The 90-degree hooks of two successive crossties engaging the same longitudinal bars shall be alternated end for end.
D. Contractor shall coordinate placement of all openings, curbs, dowels, sleeves, conduits, bolts, inserts and other embedded items prior to concrete placement.
E. All reinforcement shall be bent cold, and shall be bent only once at the same location. All reinforcement shall be shop bent, unless otherwise permitted by the Engineer.

2.8. No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.

## 3. Aluminum

3.1. Material:
A. All Aluminum Plate and Sheet: ASTM B209, Alloy 6061-T6.

3.2. Fabrication and construction shall comply with the following Codes and Standards:
A. Aluminum Association, 2015 Aluminum Design Manual.

3.3. Aluminum in contact with concrete surfaces shall have the contact surfaces coated with an alkali-resistant bituminous paint.

3.4. Aluminum in contact with steel and/or stainless steel shall use neoprene, EPDM, or bonding washers/gaskets to ensure separation of dissimilar materials. Submit proposed products to Engineer for review.

3.5. Welding:
A. It is recommended the aluminum erection contractor and aluminum fabricator contact the Quality Assurance Agency prior to beginning any welds. A program of joint preparation and welding procedures should be worked out between the two parties before the welding is started so that correct welds will be made from the beginning.
B. Certification of Welders: All shop and field welding shall be executed by AWS certified welders who have been specifically certified for the process of welding being performed. The welder's certification will be considered as being current unless the welder is not engaged in the process of welding being performed for a period exceeding six months or there is a specific reason to question a welder's ability as required by AWS. Certification and records must comply with AWS Standards. Certification and appropriate records must be provided to the Engineer prior to beginning work.
C. Electrodes
1. Aluminum: 4043 Alloy

## 4. Miscellaneous

4.1. Post-Installed Anchors in Concrete
A. All post-installed anchors shall be Type 316 Stainless Steel unless noted otherwise.
B. Anchorage to hardened concrete and grout-filled masonry shall include all mechanical and adhesive anchors and epoxy doweled reinforcing bars of size, quantity, spacing, and embedment as shown on the drawings. Additional anchors shall not be used without approval from the Engineer prior to installation.
C. Special inspection is required during the installation of all post-installed anchors. Refer to applicable code evaluation reports and the Quality Assurance and Statement of Special Inspections sections of the General Structural Notes.
D. Anchorage to Concrete:
1. All post-installed anchors into hardened concrete shall be selected from the pre-approved products identified in the Specification Section 05 05 20, unless noted otherwise.
2. Adhesive anchors shall be installed into concrete having a minimum age of 21 days. For installations sooner than 21 days, consult the adhesive manufacturer.
E. Expansion anchors shall be stainless steel "Kwik Bolt TZ" by Hilti Inc. or equivalent approved by Owner.
F. Alternate anchors or adhesives are permitted with approval of the Engineer. The Contractor shall submit the proposed anchor product data and code evaluation report demonstrating the anchor is equivalent to or exceeds the capacity of the specified anchor.
G. Installation of adhesive anchors horizontally or upwardly inclined to support sustained tension loads shall be performed by personnel certified by an applicable certification program. Certification shall include written and performance tests in accordance with the ACI/CRSI Adhesive Anchor Installer Certification program, or equivalent. Proof of current certification shall be submitted to the Engineer for approval prior to commencement of installation.
H. Anchors shall be installed according to the Manufacturer's Printed Installation Instructions and applicable code evaluation reports including:
1. Hole diameter, depth, and cleaning procedure
2. Adhesive mixing, preparation, and placement
3. Installation torque
I. Locate all existing reinforcement and embedded items prior to drilling into concrete or masonry elements. Do not damage rebar or embeds while drilling or installing anchors.
J. Grout all defective or abandoned holes with non-shrink grout or an injectable epoxy adhesive matching the surrounding concrete compressive strength. Consult the Architect for additional requirements at architecturally exposed concrete.
K. Drilled anchors are not allowed in post-tensioned concrete without approval of the Architect and Engineer.
Holes for post-installed anchors may not be core drilled unless specifically allowed by the manufacturer's installation instructions and the code evaluation report.

## 5. Special Instructions

5.1. The project specifications are not superseded by the General Structural Notes but are intended to be complementary to them. Consult the specifications for additional requirements in each section. Notes and specific details on the drawings shall take precedence over General Structural Notes and typical details.

5.2. All omissions or conflicts, including dimensions, between the various elements of the consultants' drawings and/or specifications shall be brought to the attention of the Engineer before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the Engineer without additional cost to the Owner. Any work done by the Contractor after discovery of such discrepancy shall be done at the Contractor's risk.

5.3. The structural drawings shall be used in conjunction with the other drawings. Primary structural elements and overall structural layout are indicated within the structural plans and details. Some secondary elements, architectural layouts, alcoves, elevations, slopes, depressions, curbs, mechanical equipment and electrical equipment, are not indicated within the structural drawings. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in the structural and/or other consultants' drawings.

5.4. Structural Dimensions controlled by or related to the mechanical or electrical equipment and dimensions related to the existing facilities shall be verified by the contractor prior to construction. Contractor is responsible for coordinating all construction dimensions and notifying construction manager of discrepancies in a timely fashion.

5.5. Mechanical and electrical equipment supports, anchorages, openings, recesses, and embedments not specified on the structural drawings, but specified on other contract drawings shall be provided prior to casting concrete.

5.6. Contract Drawings and specifications represent the finished structure. Contractor is responsible for means, methods, and sequence of construction, and shall make adequate provision to maintain the integrity of all structures at all stages of construction. Determination of and provisions for construction loading shall be provided by the contractor.

5.7. Contractor shall take adequate precautions to ensure the safety of workers and visitors to the site, including but not limited to, shoring, bracing, and access restriction. Comply with all Federal, State, and local safety codes and standards.

5.8. Slope drainage surfaces uniformly to drain. Slope shall be 1/8" to 1/4" per foot except where noted otherwise on the plans.

5.9. Openings through new and existing walls and slabs for pipes, ducts, conduits, etc., are not all shown on the structural drawings. The contractor shall coordinate with other disciplines and provide these openings in accordance with the other contract documents.

5.10. Submittals: A copy of all shop drawings that have been submitted for review must be kept at the construction site for reference. These drawings must bear the appropriate review stamps. The shop drawing review shall not relieve the Contractor of the responsibility of completing the project according to the contract documents. The General Contractor shall review and mark all shop drawings prior to submitting them to the Engineer for review. Shop Drawings made from reproductions of (these) contract drawings will be rejected.

5.11. Project Coordination: It shall be the responsibility of the General Contractor to coordinate with all trades any and all items that are to be integrated into the structural system. Openings or penetrations through, or attachments to the structural system that are not indicated on these drawings shall be the responsibility of the General Contractor and shall be coordinated with the Engineers. The order of construction is the responsibility of the General Contractor. It is the Contractor's obligation to provide all items necessary for the chosen procedure.

5.12. Contractor shall field verify all dimensions, and conditions. If the contract drawings do not represent actual conditions, Contractor shall notify Engineer prior to fabrication or construction within that area.

5.13. Notice of Copyright: The structural drawings, plans, schedules, notes and details are hereby copyrighted by Reaveley Engineers. Submission or distribution of documents to meet official regulatory requirements or for similar purposes in connection with the project is not to be construed as publication in derogation of Reaveley Engineers' reserved rights. The documents defining the structure are instruments of service prepared by Reaveley Engineers for one use only. Furthermore, these documents shall not be reproduced, or copied, in whole or in part by the Contractor or subcontractors for preparation of shop drawings or other submittals.

## 6. Quality Assurance

6.1. Quality Assurance Agency Requirements:
A. The Owner shall engage a qualified Quality Assurance Agency (QAA) to provide all special inspection and quality assurance testing for the project. The QAA shall provide all information necessary for the building official to determine that the agency meets the applicable requirements.
1. The QAA shall be objective, competent and independent from the Contractor responsible for the work being inspected. The agency shall disclose to the building official and the registered design professional in responsible charge possible conflicts of interest so that objectivity can be confirmed.
2. The QAA shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.
3. The QAA shall employ experienced personnel educated in conducting, supervising and evaluating tests and special inspections. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of special inspection or testing activities for projects of similar complexity and material qualities.
4. The QAA shall send copies of all inspection and testing reports to the building official, Owner, Architect, Engineer and Contractor. Reports shall indicate that the work inspected was or was not completed in conformance to the approved construction documents. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the, Architect and Engineer.
5. The QAA shall submit a final report documenting required special inspections and tests, and correction of any discrepancies noted in the inspections or tests. The final report shall be distributed to the building official, Owner, Architect and Engineer in a timely manner prior to the completion of the project.

6.2. Contractor Responsibilities:
A. The Contractor shall submit a written statement of responsibility to the building official and the Owner or the owner's authorized agent prior to the commencement of work on the systems or components listed in the statement of special inspections. The Contractor's statement of responsibility shall contain acknowledgement or awareness of the special requirements contained in the statement of special inspections.
B. Notification of QAA: The Contractor shall notify the QAA in a timely manner so that inspection and testing may be performed as outlined in the statement of special inspections.

6.3. Structural Observations by the Engineer of Record.
A. The Engineer of Record may perform structural observations at critical phases of the project as listed needed. Observations will be made on a periodic basis throughout the construction of the structural system. Copies of the Engineer's report will be distributed to the Architect, Contractor, Owner, and QAA.
B. The contractor shall notify the Structural Engineer at least 24 hours in advance before any of the following actions.
1. Placing concrete in any pier/column.
C. Observation visits to the site by the Engineer's field representatives shall not be construed as inspection or approval of construction.

## 7. Statement of Special Inspections

7.1. The following materials, systems and components require special inspection or testing per Chapter 17 of the International Building Code (IBC).

7.2. For items requiring continuous inspection, a special inspector must be present onsite during the performance of that task. In most cases, periodic inspections/tests shall be performed prior to commencing the task, intermittently during the task, and at the completion of the task. Frequency marked with (E) designates periodic inspections that must be performed prior to or upon completion of every task.

**Concrete Construction per IBC Sections 1705.3 & 1705.12**

| Item | Frequency | Detailed Instructions |
|---|---|---|
| Reinforcing steel | Periodic | Verify prior to placing concrete that reinforcing is of specified type, grade and size; that it is free of oil, dirt and rust; that it is located and spaced properly; that hooks, bends, ties, stirrups and supplemental reinforcement are placed correctly; that lap lengths, stagger and offsets are provided; that all mechanical connections are installed per the manufacturer's instructions and/or evaluation report, and that minimum clear spacing requirements between bars and lap splices are in accordance with the Detailing provisions of the General Structural Notes. |
| Cast-in bolts & embeds | Periodic | Inspection of anchors or embeds cast in concrete is required when allowable loads have been increased or where strength design is used. |
| Post-installed mechanical anchors and adhesive anchors not defined above | Periodic | |

| Item | Frequency | Detailed Instructions |
|---|---|---|
| Use of required mix design | Periodic | Verify that all mixes used comply with the approved construction documents; ACI 318: Ch. 19, 26.4.3-26.4.4; and IBC 1904.1, 1908.2, 1908.3. |
| Concrete sampling for strength tests, slump, air content, and temperature | Continuous | Samples for strength tests shall be taken in accordance with ASTM C172, cured per ASTM C31 and tested in accordance with ASTM C39 by a testing agency complying with ASTM C1077. Acceptance criteria for strength tests shall be per ACI 318 Section 26.12.3. For each mix placed, samples shall be taken not less than once a day, nor less than once for each 150 $yd^3$ of concrete, nor less than once for each 5000 $ft^2$ of surface area for slabs or walls. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete. |
| Curing temperature and techniques | Periodic | Verify that the ambient temperature for concrete is kept at > 50°F for at least 7 days after placement. High-early-strength concrete shall be kept at > 50°F for at least 3 days. Accelerated curing methods may be used (see ACI 318: 26.4.7-26.4.9). The ambient temperature for shotcrete shall be > 40°F for the same period of time as noted for concrete. Shotcrete shall be kept continuously moist for at least 24 hours after shotcreting. All concrete materials, reinforcement, forms, fillers, and ground shall be free from frost. In hot weather conditions ensure that appropriate measures are taken to avoid plastic shrinkage cracking and that the specified water/cement ratio is not exceeded. |
| In-situ strength verification | Periodic | Verify that adequate strength has been achieved prior to the removal of shores and forms or the stressing of post-tensioned tendons. |
| Formwork | Periodic | Verify that the forms are placed plumb and conform to the shapes, lines, and dimensions of the members as required by the approved construction documents. |

REAVELEY Engineers
675 East 500 South, Suite 400
Salt Lake City, UT 84102
P 801 486 3883
F 801 485 0911
www.reaveley.com

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: C. PRICE
DRAWN BY: S. SHEPHERD
CHECKED BY: D. HENSHAW
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 512260089

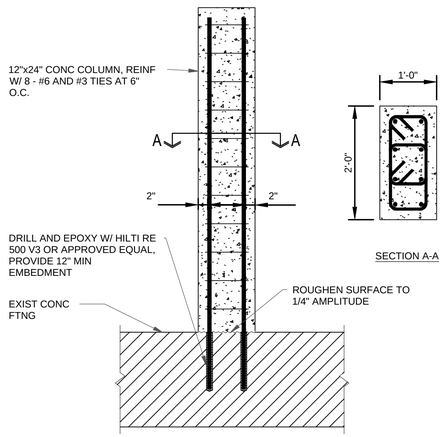
| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
GENERAL NOTES AND SPECIAL INSPECTIONS

90% REVIEW

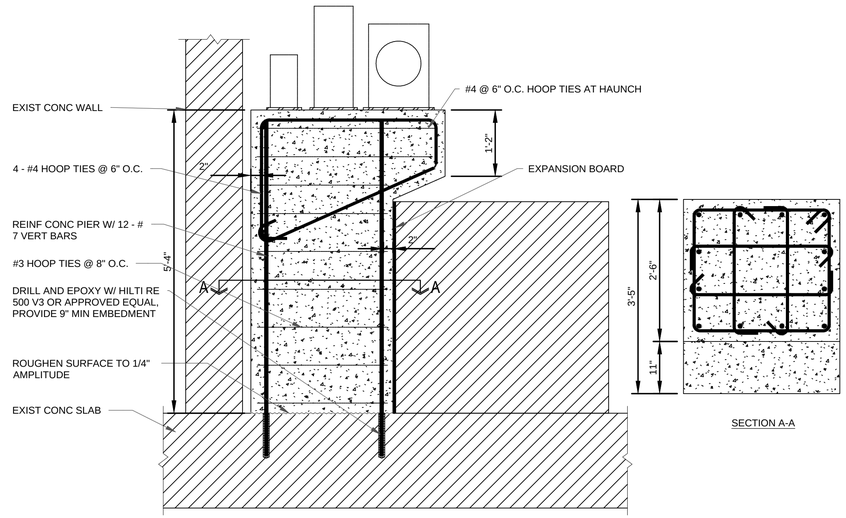
DRAWING NO.
GS-01

C:\bcpw\d3271015\GS-01.dwg Jul 10, 2023 - 7:48pm



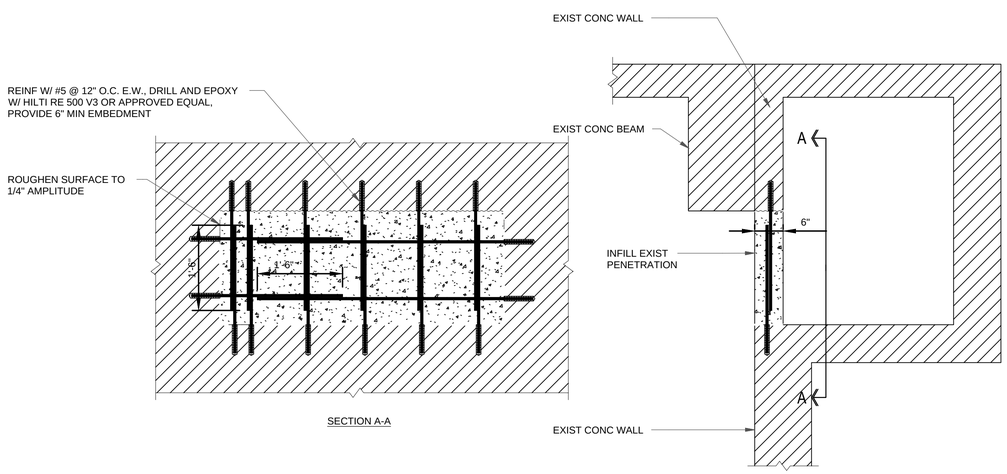

## A NEW WALL TO EXISTING FOUNDATION

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



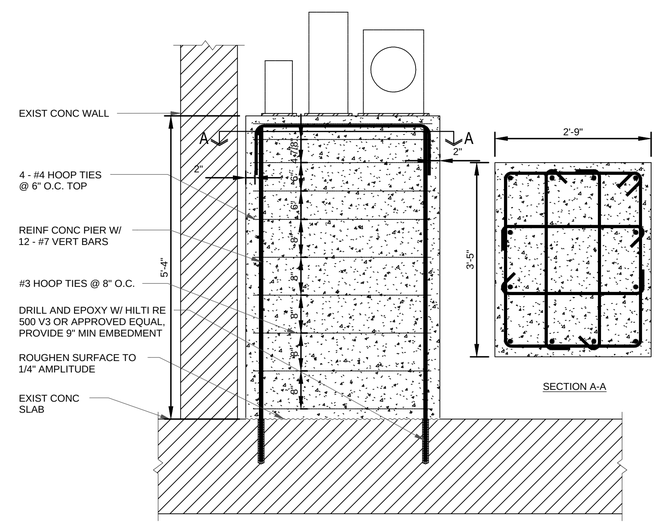

## B NEW CONC PEDESTAL

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




## C NEW WALL PENETRATION INFILL

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




## D NEW CONC PEDESTAL

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

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675 East 500 South, Suite 400
Salt Lake City, UT 84102
P 801 486 3883
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www.reaveley.com

SCALE:

VERIFY SCALE
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DESIGNED BY: C. PRICE
DRAWN BY: S. SHEPHERD
CHECKED BY: D. HENSHAW
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: ---
ACCOUNT NO: 51226089

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FILTER BUILDING – DETAILS

90% REVIEW

DRAWING NO.
50-S-01

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## VALVES

| 3D PLAN OR ELEVATION | SCHEMATIC OR 2D | VALVE TYPE |
|---|---|---|
| | | THREE WAY VALVE |
| | | GATE VALVE (FLANGED) |
| | | GATE VALVE (THREADED) |
| | | PLUG VALVE (GEAR OPERATOR) |
| | | PLUG VALVE (LEVER HANDLE) |
| | | BALL VALVE (THREADED) |
| | | BALL VALVE (FLANGED) |
| | | BUTTERFLY VALVE (LUGGED/WAFER) |
| | | BUTTERFLY VALVE (AWWA W/ HANDWHEEL ACTUATOR) |
| | | GLOBE VALVE (FLANGED) |
| | | GLOBE VALVE (THREADED) |
| | | DIAPHRAGM VALVE (FLANGED) |
| | | DIAPHRAGM VALVE (THREADED) |
| | | CHECK VALVE |
| | | PUMP DISCHARGE VALVE |
| | | DOUBLE LEAF CHECK VALVE |
| | | ANGLE VALVE |
| | | FLOAT VALVE |
| | | PINCH VALVE |
| | | FUSIBLE LINK VALVE |
| | | NEEDLE VALVE |
| | | BALL CHECK VALVE |

| 3D PLAN OR ELEVATION | SCHEMATIC OR 2D | VALVE TYPE |
|---|---|---|
| | | GAUGE OR ROOT VALVE |
| | | KNIFE GATE VALVE |
| | | FLAP GATE |
| | | BALANCING COCK |
| | | CIRCUIT SETTER |
| | | THERMOSTATICALLY CONTROLLED VALVE |
| | | PRESSURE AND VACUUM RELIEF VALVE |
| | | VACUUM RELIEF VALVE |
| | | PRESSURE RELIEF VALVE |
| | | IN-LINE, SPRING LOADED RELIEF VALVE |
| | | PRESSURE REGULATING VALVE |
| | | BACK PRESSURE REGULATING VALVE |
| | S | SOLENOID VALVE |
| | | DIAPHRAGM OPERATED VALVE |
| | | PRESSURE BALANCE OPERATED VALVE |
| | M | MOTOR OPERATED VALVE |
| | | PISTON OPERATED VALVE |
| | | CHLORINE INSTITUTE CONTAINER VALVE |
| | | MUD VALVE |
| | | WALL HYDRANT |
| | | TELESCOPING VALVE |

## MECHANICAL PIPE AND FITTINGS

| 2D SINGLE LINE | 2D DOUBLE LINE | 3D DOUBLE LINE | |
|---|---|---|---|
| | | | FLANGED JOINT |
| | | OR | PLAIN OR GROOVED END MECHANICAL COUPLING |
| | | | PUSH ON OR BALL AND SOCKET JOINT |
| | | | MECHANICAL JOINT |
| | | | WELDED JOINT |
| | | | GROOVED END ADAPTER FLANGE x FLANGE |
| | | | UNION |
| | | | SLEEVE TYPE MECHANICAL COUPLING |
| | | | RESTRAINED SLEEVE TYPE MECHANICAL COUPLING |
| | | | FLANGED COUPLING ADAPTER |
| | | | RESTRAINED FLANGED COUPLING ADAPTER |
| | | | ELASTOMER AND FABRIC EXPANSION JOINT |
| | | | EXPANSION JOINT (SEE SPECS FOR TYPE) |
| | | | FLEXIBLE METAL HOSE |
| | | | ELBOW (PLAN) |
| | | | ELBOW UP |
| | | | ELBOW DOWN |
| | | | TEE (PLAN) |
| | | | TEE UP |
| | | | TEE DOWN |
| | | | LATERAL (PLAN) |
| | | | LATERAL UP |
| | | | LATERAL DOWN |
| | | | CONCENTRIC REDUCER |
| | | | ECCENTRIC REDUCER |
| | | | EQUIPMENT CONNECTION FITTING |
| | | | BLIND FLANGE OR CAP |

## MISCELLANEOUS DEVICES

| | |
|---|---|
| A | UTILITY STATION (LETTER, IF ANY, DESIGNATES TYPE) |
| | HOSE RACK |
| | FLOOR DRAIN |
| XCO | CLEANOUT; X=DESIGNATION IF ANY |
| XKIP | RECOMMENDED MAIN ANCHOR POINT WITH ALLOWABLE FORCE ON STRUCTURE |
| | PIPE ANCHOR |
| W | SEAL WATER CONTROL UNIT |
| | QUICK COUPLING |
| | IN LINE PRESSURE SENSOR |

| XX | INSTRUMENT |
|---|---|
| DE | DENSITY ELEMENT |
| FE | FLOW ELEMENT |
| LE | LEVEL ELEMENT |
| PE | PRESSURE ELEMENT |
| PI | PRESSURE INDICATOR (GAUGE) |
| TE | TEMPERATURE ELEMENT |
| TI | TEMPERATURE INDICATOR |

| | |
|---|---|
| | CALIBRATION TUBE |
| | PULSATION DAMPENER |

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. STOUDT
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# GENERAL NOTES AND SYMBOLS

90% REVIEW

DRAWING NO.

GM-01

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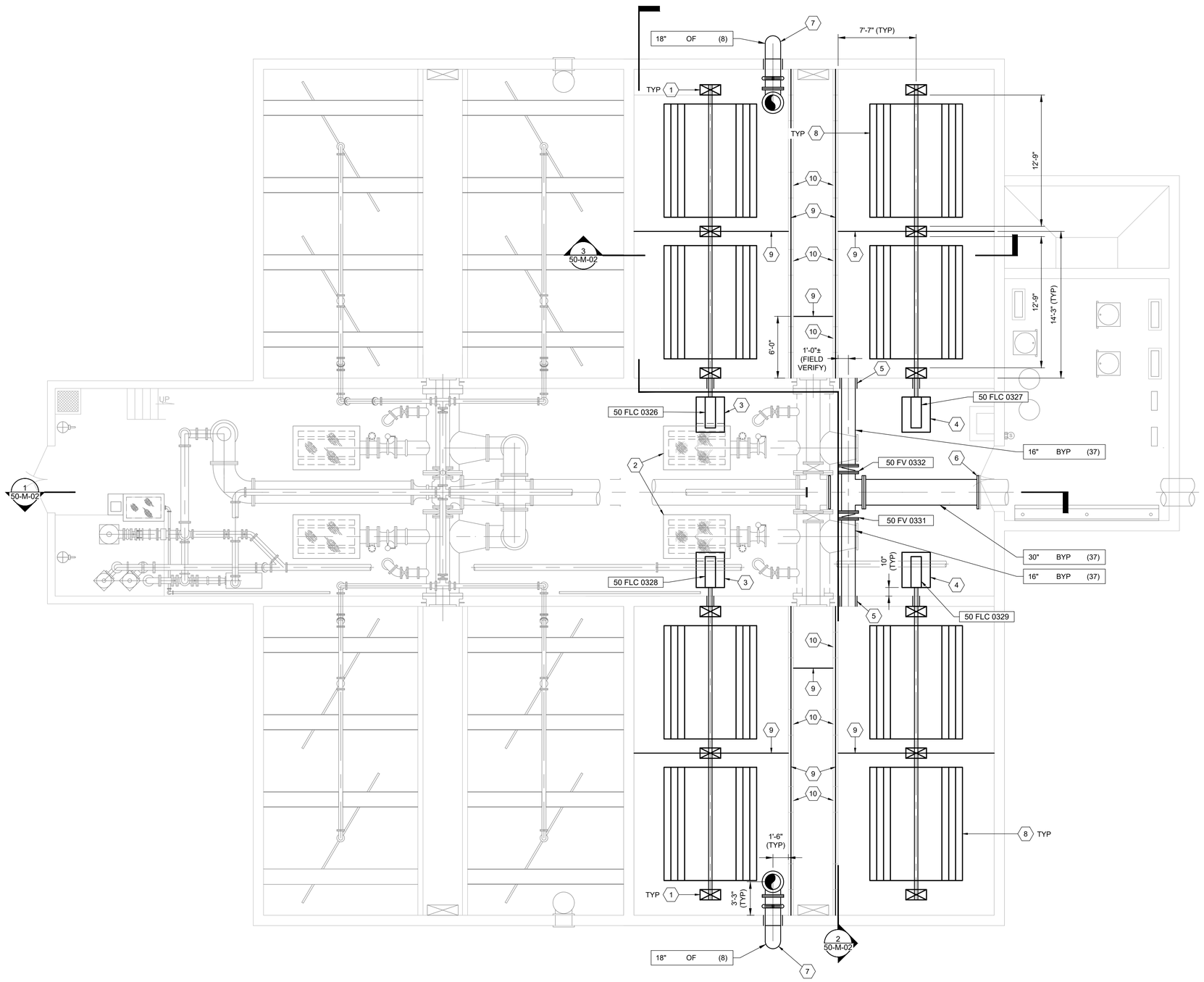
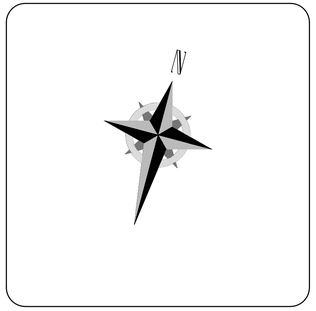



## PLAN

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




## SHEET NOTES

1. PIPING SHOWN IS FROM THE BEST AVAILABLE INFORMATION AND MAY NOT REPRESENT WHAT IS PRESENT. CONTRACTOR SHOULD VERIFY PIPING TO BE REMOVED WITH CONSTRUCTION MANAGER BEFORE DEMOLITION.

## KEY NOTES

1. INSTALL BEARING SUPPORTS IN LOCATIONS SHOWN PER DETAIL A, 50-S-01. TYPICAL TWELVE LOCATIONS.
2. REPLACE EXISTING ACCESS HATCH WITH 1/4" THICK CARBON STEEL PLATE. COAT PLATE WITH AN NSF-61 CERTIFIED COATING SUCH AS TNEMIC SERIES 22 OR EQUAL. TYPICAL TWO LOCATIONS.
3. INSTALL FLOCCULATOR DRIVE PEDESTALS IN LOCATIONS SHOWN PER DETAIL B, 50-S-01. TYPICAL TWO LOCATIONS.
4. INSTALL FLOCCULATOR DRIVE PEDESTALS IN LOCATIONS SHOWN PER DETAIL D, 50-S-01. TYPICAL TWO LOCATIONS.
5. CORE DRILL AND INSTALL WALL PENETRATIONS PER DETAIL A-50-M-03. TYPICAL TWO LOCATIONS.
6. CONNECT NEW 30" BYP PIPE TO EXSTING 30" DI PIPE FLANGE. PROVIDE 30" X 16" REDUCING TEE. CONTRACTOR TO PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR THE DESIGN AND INSPECTION OF PIPING SYSTEMS WORK ACCORDING TO SECTION 40 05 07.
7. INSTALL NEW OVERFLOW PIPE. CONTRACTOR TO PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR THE DESIGN AND INSPECTION OF PIPING SYSTEMS WORK ACCORDING TO SECTION 40 05 07.
8. SALVAGE AND RELOCATE FLOCCULATORS FROM EXISTING CCWTP FLOC BASIN TO NEW FLOC BASIN. INSTALL PER MANUFACTURER'S INSTRUCTIONS. TYP 4 BASINS.
9. INSTALL BAFFLE WALLS IN LOCATIONS SHOWN USING SALVAGED FRP BAFFLE WALLS FROM EXISTING CCWTP FLOC BASINS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. TYPICAL 10 LOCATIONS.
10. COVER THROUGH OPENINGS WITH 3/16" 304 STAINLESS STEEL PLATES AND HARDWARE. TYPICAL TWO FILTERS.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. STOUDT
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FLOCCULATION AND FILTER BUILDING – PLAN

90% REVIEW

DRAWING NO.
50-M-01

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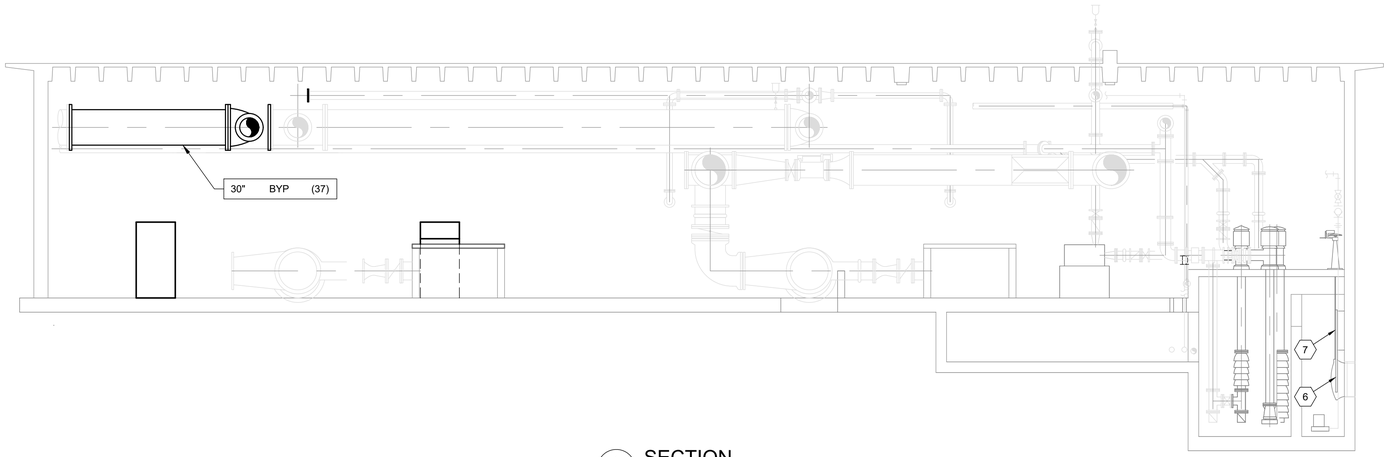
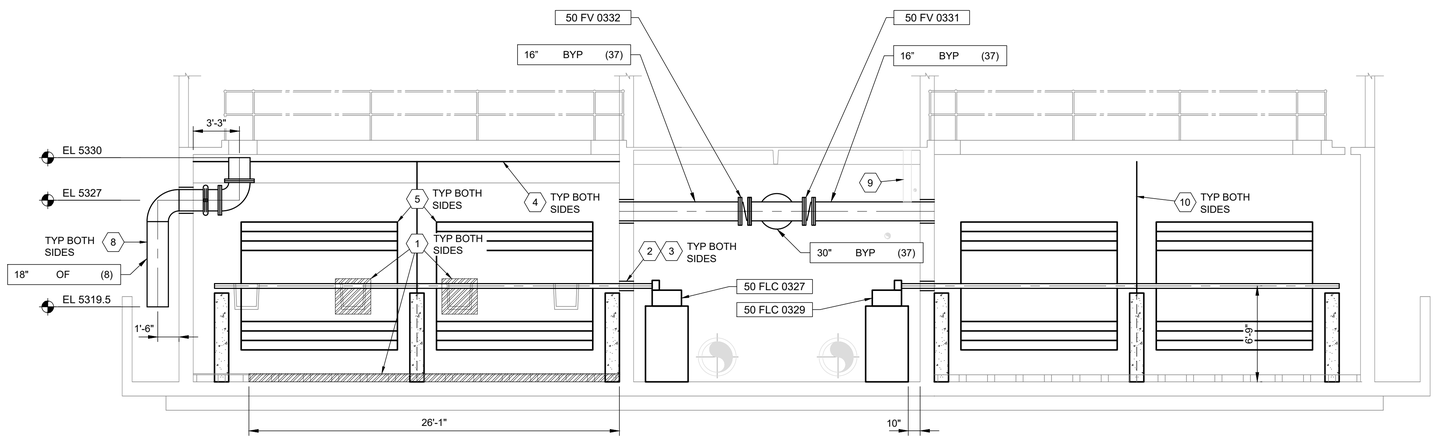
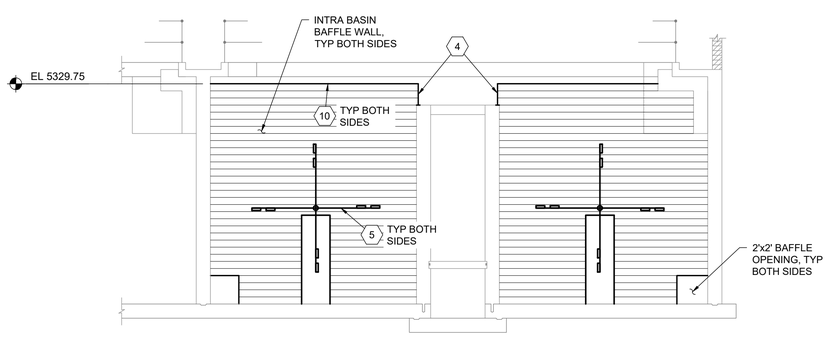



1 / 50-M-01 SECTION
SCALE: 3/16"=1'-0"




2 / 50-M-01 SECTION
SCALE: 3/16"=1'-0"




3 / 50-M-01 SECTION
SCALE: 3/16"=1'-0"

# SHEET NOTES

1. PIPING SHOWN IS FROM THE BEST AVAILABLE INFORMATION AND MAY NOT REPRESENT WHAT IS PRESENT. CONTRACTOR SHOULD VERIFY PIPING TO BE REMOVED WITH CONSTRUCTION MANAGER BEFORE DEMOLITION.
2. PIPE SUPPORTS NOT SHOWN. CONTRACTOR TO PROVIDE PIPE SUPPORTS, INCLUDING PROFESSIONAL ENGINEERING SERVICES FOR DESIGN AND INSPECTION, FOR ALL NEW PIPING ACCORDING TO SECTION 40 05 07.

# KEY NOTES

1. COVER TROUGH AND BLOCK UNDERDRAIN OPENINGS WITH 3/16" 304 STAINLESS STEEL PLATES. TYPICAL TWO FILTERS.
2. CORE DRILL AND INSTALL FLOCCULATOR PENETRATION PER DETAIL B/50-M-03. TYPICAL FOUR LOCATIONS.
3. INSTALL STUFFING BOX ACCORDING TO MANUFACTURER'S INSTRUCTIONS. TYPICAL FOUR LOCATIONS.
4. EXTEND GULLET WALLS USING SALVAGED EXISTING FRP BAFFLE WALLS FROM EXISTING CCWTP FLOC BASINS, PROVIDE NEW HARDWARE. INSTALL PER MANUFACTURER'S INSTRUCTIONS. TYPICAL FOUR LOCATIONS.
5. RELOCATE EXISTING FLOCCULATORS AND BEARINGS TO NEW FLOCCULATION BASINS. TYP FOUR BASINS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. REPLACE FLOCCULATOR ARMS WITH NEW 4.5 FOOT LONG ARMS. TYP 32 PLACES. INSTALL 8 WOOD PADDLES PER FLOCCULATOR WHEEL. LOCATE PADDLES AT 3.25 AND 4.25 FEET FROM CL OF FLOCCULATOR SHAFT TO CL OF PADDLE.
6. DISCONNECT MORRIS PIPIELINE SLIDE GATE ACTUATOR. LOCK GATE INTO OPEN POSITION.
7. DISCONNECT CITY PIPIELINE SLIDE GATE ACTUATOR. LOCK GATE INTO CLOSED POSITION.
8. INSTALL 18" OVERFLOW PIPE WITH STAINLESS STEEL BUG SCREEN ON OUTLET (20 X 20 MESH). PROVIDE RIGID, GROOVED COUPLING (VICTAULIC STYLE 77, OR EQUAL). PENETRATE WALL PER DETAIL A/50-M-03.
9. REROUTE STILLING WELL CONNECTION PIPE TO NEW LOCATION ON 30" FILTER INLET PIPE THAT IS DOWNSTREAM FROM NEW FLOCCULATION BASIN OUTLET PIPES. MATCH EXISTING PIPE MATERIAL AND DIAMETER. PROVIDE STAINLESS STEEL TAPPING SADDLE.
10. INSTALL BAFFLE WALLS IN LOCATIONS SHOWN USING SALVAGED FRP BAFFLE WALLS FROM EXISTING CCWTP FLOC BASINS, PROVIDE NEW HARDWARE. INSTALL PER MANUFACTURER'S INSTRUCTIONS. TYPICAL SIX LOCATIONS.

Brown AND Caldwell

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

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: A. STOUDT
DRAWN BY: D. DAVIDSE
CHECKED BY: J. HESBY
APPROVED BY: S. BRENCHLEY
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51226089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|
| | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FLOCCULATION AND FILTER BUILDING – SECTIONS

90% REVIEW

DRAWING NO.
50-M-02

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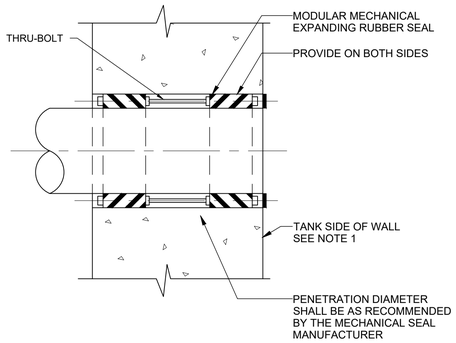
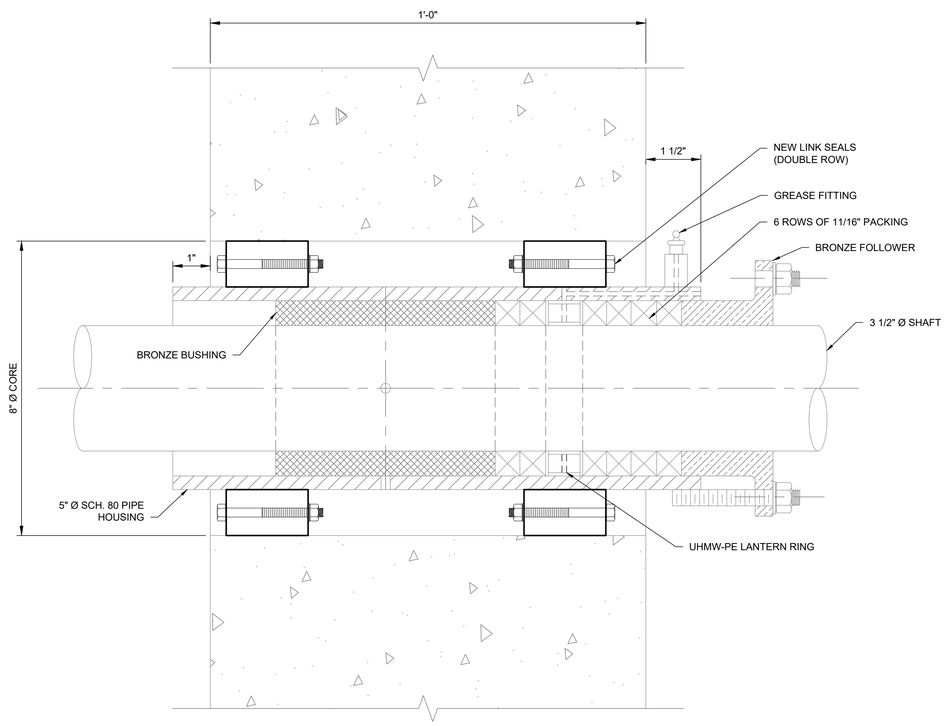



NOTES:

1. SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR HAZARDOUS (CLASSIFIED) AREA.

A
-
## PIPE PENETRATION
NOT TO SCALE




B
-
## FLOCCULATOR SHAFT PENETRATION AND STUFFING BOX
NOT TO SCALE

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

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DATE: July 2023
EWO NO: --
ACCOUNT NO: 51226089

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
# FLOCCULATION AND FILTER BUILDING – DETAILS

90% REVIEW

DRAWING NO.
50-M-03

C:\cad\temp\AcPublish_15668\50-M-03.dwg Jul 10, 2023 – 2:09pm

## RACEWAYS

HH23 — MANHOLE (MH), HANDHOLE (HH), PULLBOX (PB)

JB1900 — JUNCTION BOX. OPTIONAL IDENTIFIER

TB-1301 — TERMINAL BOX. OPTIONAL IDENTIFIER

PBD-1900-1,3,5 — HOME RUN EXPOSED – SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

PBD-1900-1,3,5 — HOME RUN CONCEALED – SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION.

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

CABLE TRAY MODIFIERS:
CTS – 24VDC OR LESS
CTC – 120V CONTROL CONDUCTORS
CTP – 600V POWER CONDUCTORS

CABLE #4/0 AND LARGER SHALL NOT BE STACKED VERTICALLY

WHEN TWO TRAY MODIFIERS IDENTIFY A SINGLE TRAY, THE CONTRACTOR MAY USE DIVIDER OR INSTALL SEPARATE TRAYS (CTC/CTS)

CABLE TRAY WITH COVER MODIFIER, AS ABOVE

RP70P00010 — RACEWAY TAG

RACEWAY EXPOSED
MODIFIERS FOR RACEWAY TAG:
P – POWER
C – CONTROL
S – SIGNAL, FIBER
X – SPARE

RACEWAY CONCEALED

RACEWAY TURNED TOWARD THE THE VIEWER

RACEWAY TURNED DOWN

CONDUIT CAPPED

DB 05P1100 — DUCT BANK IDENTIFIER (OPTIONAL)

DB — DUCT BANK, DIRECT BURIED

CDB — DUCT BANK, CONCRETE ENCASED

RC — RC — DUCTBANK, REINFORCED CONCRETE ENCASED

OH — OVERHEAD POWER LINE

## DISTRIBUTION EQUIPMENT

APPROXIMATE SHAPE AND SCALE REPRESENTED WHERE POSSIBLE. HOWEVER, EXACT SIZE AND NUMBER OF SECTIONS IS ESTIMATED

FLOOR-STANDING DISTRIBUTION ASSEMBLY, SUCH AS A SWITCHBOARD, TRANSFORMER, OR MOTOR CONTROL CENTER

MCC-001 — EQUIPMENT DESIGNATION (EXAMPLE)

WALL-MOUNTED DISTRIBUTION ASSEMBLY, SUCH AS PANELBOARD, MOTOR STARTER PANEL, OR TERMINAL CABINET

LCP-0001 — EQUIPMENT DESIGNATION (EXAMPLE)

## MOTORS AND EQUIPMENT

MOTOR STARTER, INDIVIDUAL. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

COMBINATION MOTOR STARTER. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

DISCONNECT SWITCH, NON-FUSED EXAMPLE: 30 AMP

F — DISCONNECT SWITCH, FUSED EXAMPLE: 100 AMP, 2P, 80 AMP FUSES

M — MOTOR

SV — SOLENOID VALVE

H — HEATER

T — THERMOSTAT

WH — WATER HEATER

FIELD INSTRUMENT

LOCAL CONTROL STATION

LCP-0001 — EQUIPMENT DESIGNATION

CONTROL PANEL, VFD, RVSS, APPROXIMATE SHAPE AND SCALE.

## CABLE TAG

MODIFIER

EQUIPMENT TAG

X– XXXXXXXXX

NOTE:
MODIFIERS FOR CABLE TAG:
P – POWER
C – CONTROL
S – SIGNAL, FIBER
V – VENDOR

## GENERAL NOTES:

1. IN AREAS WHERE THERE ARE OVERHEAD CRANES, HOISTS, ETC., OR WHERE EQUIPMENT IS LIFTED AND MOVED FOR MAINTENANCE OR REPLACEMENT, NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT OR ACCESS TO EQUIPMENT. COORDINATE OVERHEAD RACEWAY ROUTING WITH OWNER'S REPRESENTATIVE.
2. THE LOCATION OF THE CONTROL STATIONS, LOCAL DISCONNECTS, RECEPTACLES, LIGHTING, ETC., SHOWN ON THE PLAN DRAWINGS ARE DIAGRAMMATIC ONLY. THE ACTUAL LOCATION SHALL BE COORDINATED IN THE FIELD WITH THE OWNER'S REPRESENTATIVE AND ADJACENT EQUIPMENT SUCH AS PIPING, PROCESS EQUIPMENT, ETC.
3. ALL DETAILS AND DIMENSIONS ASSOCIATED WITH THESE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO PERFORMING THE WORK THAT RELIES ON THIS INFORMATION. FINAL LOCATIONS SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
4. ALL ELECTRICAL RACEWAY FLOOR AND WALL PENETRATIONS SHALL BE SEALED TO MAKE THEM WEATHER TIGHT AND FIRE RESISTANT, ALL SEALANTS SHALL BE UL LISTED.
5. UNLESS OTHERWISE NOTED, LIQUID-TIGHT FLEXIBLE METAL CONDUIT WITH LISTED FITTINGS SHALL BE USED IN CLASS 1, DIVISION 2 AND UNCLASSIFIED LOCATIONS WHERE CONNECTIONS TO EQUIPMENT ARE SUBJECT TO VIBRATION.
6. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EQUIPMENT MOUNTING, VENTILATION, AND CONNECTION REQUIREMENTS.
7. COORDINATE THE ELECTRICAL AND COMMUNICATION INSTALLATION WITH ALL OTHER TRADES PRIOR TO START OF ANY WORK.
8. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE APPROVED BY UNDERWRITERS LABORATORIES (UL) INC. FOR THE PURPOSE OF WHICH THEY ARE USED AND SHALL BEAR THEIR LABEL.
9. ALL NEW EQUIPMENT SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES. LETTERS SHALL BE BLACK ON WHITE UNLESS ASSOCIATED WITH EMERGENCY CIRCUITS OR SHUTDOWN, IN WHICH CASE THE BACKGROUND SHALL BE RED.
10. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PROVIDE AND INSTALL ALL ELECTRICAL EQUIPMENT AND MATERIALS.
11. ALL ELECTRICAL INDUSTRIAL CONTROL PANELS SHALL BEAR THE LABEL OF A UL 508A APPROVED PANEL SHOP. THE PANELS SHALL BE PROVIDED IN ACCORDANCE WITH NEC ARTICLE 409.
12. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
13. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.
14. IDENTIFICATIONS (ID), SIZES, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL; EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY.

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# GENERAL NOTES AND SYMBOLS 1

90% REVIEW

DRAWING NO.
GE-01

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# CONTROL DIAGRAM SYMBOLS

## GENERAL

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- TERMINAL POINT FOR EXTERNAL CONNECTIONS
- EXISTING EQUIPMENT (SCREENED)

## INDICATING LIGHTS

- L — DIRECT CONNECTION
- L, X1 — PUSH TO TEST. TEST VOLTAGE TERMINAL SHOWN

LENS COLOR: (L = LENS COLOR)
A = AMBER
B= BLUE
G= GREEN
R= RED
W= WHITE

## PUSHBUTTONS

- HS-XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN
- HS-XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED
- HS-XXXX — PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP

## SELECTOR SWITCHES

- HS-XXXXX, 1, 2, XO — 2 POSITION MAINTAINED CONTACT X = CONTACTS CLOSED O = CONTACTS OPEN
- HS-XXXXX, 1, 2, XO, OX — 2 POSITION SPRING RETURNED TO RIGHT O = CONTACTS OPENED X = CONTACTS CLOSED
- HS-XXXXX, 3, 1, 2, OXO, OX — 3 POSITION MAINTAINED CONTACT X = CONTACTS CLOSED O = CONTACTS OPENED

## CONTROL RELAYS

- CR 1 FUNCTION — OPERATION COIL: CR = CONTROL RELAY
- L U 8 LR — MECHANICALLY LATCHED RELAY WITH UNLATCHED COIL
- CR1 LINE 30, CR2 LINE 30 — OUTPUT CONTACTS. LINE NUMBER OF RELAY COIL SHOWN (OPTIONAL)
  OPERATING COIL FUNCTIONS:
  L = LATCH
  U = UNLATCH
  TR = TIMER RELAY
  LR = LATCH RELAY
- OL — OVERLOAD RELAY

## INPUT SWITCHES

| NORMALLY OPEN | NORMALLY CLOSED | INITIATING VARIABLE |
|---|---|---|
| SS | SS | SPEED |
| TS | TS | TEMPERATURE |
| WS | WS | FORCE OR TORQUE |
| ZS | ZS | POSITION (LIMIT) |
| FS | FS | FLOW |
| LS | LS | LEVEL |
| PS | PS | PRESSURE |

## TIMING RELAYS

- TR 1 SEC / MIN — OPERATING COIL

FUNCTION:
ON OR OFF DELAY
RANGE: SEC / MIN
SET: SEC / MIN

| NORMALLY OPEN | NORMALLY CLOSED | |
|---|---|---|
| TR3 LINE 50 OR TR3 TC | TR3 LINE 50 OR TR3 TO | DELAY ON COIL ENERGIZATION (ON DELAY) |
| TR3 LINE 50 OR TR3 TC | TR3 LINE 50 OR TR3 TO | DELAY ON COIL DE-ENERGIZATION (ON DELAY) |

LINE = ID OF LINE OR RUNG NUMBER
(LINE OR RUNG NUMBER 50 SHOWN)

## CONTACTORS

- ID — OPERATING COIL:
  C = CONTACTOR, LIGHTING, OR GENERAL USE
  F = FAST OR FORWARD
  M = MAIN OR LINE
  1M = FIRST MAIN OR WYE
  2M = SECOND MAIN OR DELTA
  R = RUN OR REVERSE
  S = SLOW OR START
  IC = ISOLATION CONTROL
- ID, SIZE X — MAIN CONTACTS:
  MAIN CONTACTS AIR BREAK, NEMA SIZE OPTIONAL
  MODIFIERS:
  FVR = FULL VOLTAGE REVERSING
  RVS = REDUCED VOLTAGE STARTER
  RVSS = REDUCED VOLTAGE SOLID STATE STARTER
  RVAT = REDUCED VOLTAGE AUTOTRANSFORMER STARTER
  2S2W = TWO SPEED, TWO WINDING STARTER
- M, SIZE 1 — VACUUM CONTACTOR, NEMA SIZE OPTIONAL

## MISCELLANEOUS

- FU 30, 30A — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION
- FU 30, 30A — FUSE WITH BLOWN FUSE INDICATOR
- 480 VAC, 250VA — CONTROL TRANSFORMER PRIMARY AND SECONDARY SIZE AS SHOWN OR AS SPECIFIED
- 250/5, 3 — CURRENT TRANSFORMER PRIMARY/SECONDARY TURNS RATIO SHOWN (OPTIONAL)
- 250 OHM RES — RESISTOR
- RECTIFIER
- SURGE OR ARC SUPPRESSION
- 55 KVAR — CAPACITOR
- CONNECTOR
- XX — INCOMING LINE POWER SUPPLY
- DRAWOUT MECHANISM
- CV-1000 — SOLENOID VALVE: DEVICE ID 'CV-1000' SHOWN
- BUS DUCT
- GROUND CONNECTION
- POTENTIOMETER
- H — METER W/ ALPHA IDENTIFIER:
  A = AMMETER
  H = ELAPSED TIME
  V = VOLTMETER
- BATTERY
- CABLE ID — SHIELDED CABLE
- LOCATED IN FIELD
- AC TERMINAL BLOCK
- DC TERMINAL BLOCK
- DO — PLC I/O POINTS
  DI = DIGITAL INPUT
  DO = DIGITAL OUTPUT
  AI = ANALOG INPUT
  AO = ANALOG OUTPUT

# ONE LINE DIAGRAM SYMBOLS

- TRIP FRAME, 52 — POWER CIRCUIT BREAKER (AIR, OIL, OR GAS) FRAME AND TRIP SETTING AND OPTIONAL I.D. SHOWN
- 3P, 100AT 100AF, LSIG — CIRCUIT BREAKER W/ ADJUSTABLE ELECTRONIC TRIP OVER BREAKER FRAME SIZE.
  SOLID STATE TRIP FEATURES SHOWN:
  L = LONG DELAY
  S = SHORT DELAY
  I = INSTANTANEOUS
  G = GROUND FAULT
- 100AT 100AF, LSIG, 3P
- AMPS, MCP — CIRCUIT BREAKER
  MCP = MOTOR CIRCUIT PROTECTOR
  3P = 3 POLE THERMAL MAGNETIC TRIP
- AMPS
- 30A 3P, CLF — FUSED SWITCH:
  FUSE RATING AND POLES SHOWN
  MODIFIERS:
  CLF = CURRENT LIMITING FUSE
  DE = DUAL ELEMENT
  F = CLASS 'F'
  E = E RATED
- FU 30, 30A — FUSE:
  100A CLASS 'F' SHOWN
- ATS# 100A, 3P — POWER TRANSFER SWITCH:
  DESIGNATION, AMP RATING, AND CONFIGURATION SHOWN
  ATS = AUTOMATIC TRANSFER SWITCH
  MTS = MANUAL TRANSFER SWITCH
  SUSE = SUITABLE FOR USE AS SERVICE ENTRANCE
- 1 FVR — AIR BREAK CONTACTOR, FVNR UNLESS OTHERWISE NOTED, NEMA SIZE 1 INDICATED
  FVR = FULL VOLTAGE, REVERSING STARTER
  2S2W = TWO SPEED, TWO WINDING STARTER
- METERING (ANSI / IEEE FUNCTIONS SPECIFIED)
  POWER MONITOR (PM)
  POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM)
  MOTOR MONITOR AND PROTECTION RELAY (MPR)
  FEEDER PROTECTION RELAY (FPR)
- 5 KVA — PACKAGED EQUIPMENT OR NON-MOTOR LOAD. KVA, KW, AMPS, AS NOTED.
- VFD — VARIABLE FREQUENCY DRIVE (VFD)
  NORMAL DUTY
  HP IS INDICATED IF DIFFERENT THAN DRIVEN LOAD HP
- RVSS — REDUCED VOLTAGE SOLID STATE STARTER
- SPD — SURGE PROTECTION DEVICE
- 64 N 3 — ANSI C37.2 DEVICE & QUANTITIES SHOWN
- 600kW, 480V, G, 60 Hz, 3P, 4W — GENERATOR WITH WINDING CONFIGURATION VOLTAGE, POWER, FREQUENCY SHOWN.
  POWER FACTOR OPTIONAL
- 500 — MOTOR, HORSE POWER SHOWN
- 55 KVAR — POWER FACTOR CORRECTIONS CAPACITOR KVAR RATING SHOWN
- POTHEAD
- STRESS CONE
- PORTABLE CABLE
- CABLE BUS
- BUS CONDUCTOR
- CABLE CONDUCTOR
- SURGE ARRESTOR
- LIGHTNING ARRESTOR
- TEST DEVICE
- 200A — DISCONNECT OR ISOLATING SWITCH
  30A MINIMUM. SIZE AS INDICATED. 200 AMP SHOWN.
- 480 VAC, 30KVA, 5% Z, 208/120V — POWER TRANSFORMER, VOLTAGES, SIZE, AND IMPEDANCE SHOWN
- 1.5 KVA, 480 VAC, 2.5% Z, 480 VAC — ISOLATION TRANSFORMER, VOLTAGES, SIZE, AND IMPEDANCE SHOWN
- 3, 480VAC – 120VAC — POTENTIAL TRANSFORMER, PT QUANTITY SHOWN (3) AND VOLTAGES SHOWN
- 250/5, 3 — CURRENT TRANSFORMER, CT QUANTITY AND 250:5 TURNS RATIO SHOWN
- WINDING CONFIGURATIONS:
- DELTA
- WYE (GROUNDED)
- K — KIRK KEY INTERLOCK
- 50 AMP / 30 SEC, GDR — NEUTRAL GROUNDING RESISTOR. AMPS/TIME RATING SHOWN
- 1 — NEMA MINIMUM SIZE 1

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51260089

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|
| | | | |

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# GENERAL NOTES AND SYMBOLS 2

90% REVIEW

DRAWING NO.
GE-02

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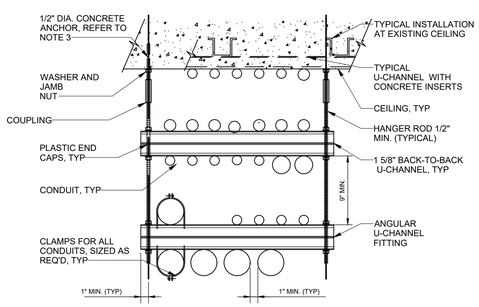
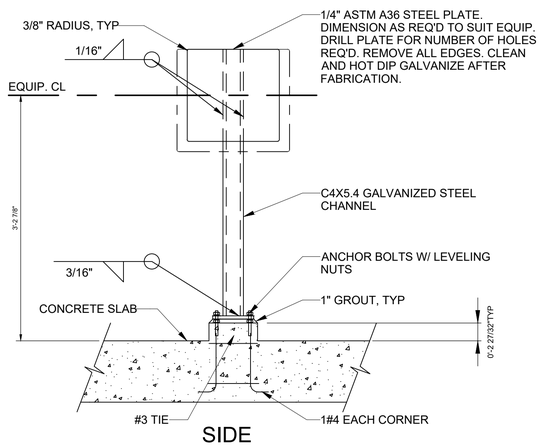


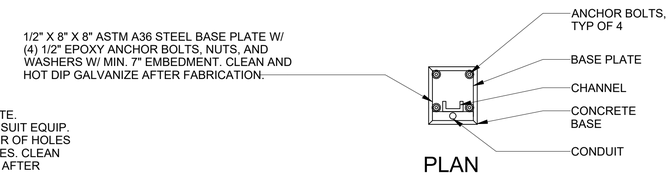

FRONT VIEW

NOTES:
1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 26 REQUIREMENTS.
2. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIAMETER WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRINT WASHER.
3. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS.
4. MAXIMUM UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS.
5. SEE SPECIFICATION 01900 FOR SEISMIC ANCHORAGE AND BRACING REQUIREMENTS. SEISMIC CHANNEL BRACING REQUIRED AT INTERVALS OF 60'-0" MAX. FOR ZONE 3 AND 40'-0" MAX. FOR ZONE 4.

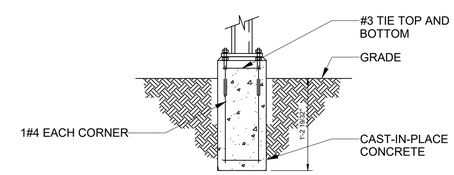
E23002 RACEWAY SUPPORTS SUSPENDED
NTS



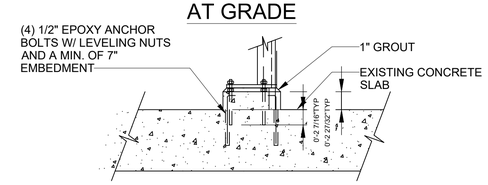

SIDE
AT NEW CONCRETE




PLAN




SIDE
AT GRADE




SIDE
AT EXISTING CONCRETE SLAB

NOTE:
1. CONTROL STATION MOUNTING STAND SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING:
   A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT LESS THAN 150 IN. SQ.
   B. TWO EQUIPMENT ITEMS WITH MOUNTING FOOTPRINT LESS THAN 130 IN. SQ.
2. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANCHORAGE MATERIALS AND METHOD REQUIREMENTS.

E25002 TYPICAL CONTROL STATION MOUNTING STAND
NTS

Brown AND Caldwell

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51226089

SCALE:

VERIFY SCALE
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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
STANDARD ELECTRICAL DETAILS

90% REVIEW

DRAWING NO.
GE-03

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## RACEWAY SCHEDULE

| CONDUIT NUMBER | DWG | TYPE | SIZE | CABLE/CONDUCTOR NUMBER | DESCRIPTION | |
|---|---|---|---|---|---|---|
| P-DP226301 | 50-E-01 | GRS | 3/4" | P-DP2263-01 | FR:<br>TO: | DP-2263<br>50-VFD-326 |
| P-DP226313 | 50-E-01 | GRS | 3/4" | P-DP2263-13 | FR:<br>TO: | DP-2263<br>50-VFD-327 |
| P-DP226319 | 50-E-01 | GRS | 3/4" | P-DP2263-19 | FR:<br>TO: | DP-2263<br>50-VFD-328 |
| P-DP226325 | 50-E-01 | GRS | 3/4" | P-DP2263-25 | FR:<br>TO: | DP-2263<br>50-VFD-329 |
| P-DP226331 | 50-E-01 | GRS | 3/4" | P-DP2263-31 | FR:<br>TO: | DP-2263<br>50-FV-331 |
| P-DP226337 | 50-E-01 | GRS | 3/4" | P-DP2263-37 | FR:<br>TO: | DP-2263<br>50-FV-332 |
| P-50VFD0326 | 50-E-01 | GRS | 3/4" | P-50VFD0326 | FR:<br>TO: | 50-VFD-0326<br>50-FLC-326 |
| P-50VFD0327 | 50-E-01 | GRS | 3/4" | P-50VFD0327 | FR:<br>TO: | 50-VFD-0327<br>50-FLC-327 |
| P-50VFD0328 | 50-E-01 | GRS | 3/4" | P-50VFD0328 | FR:<br>TO: | 50-VFD-0328<br>50-FLC-328 |
| P-50VFD0329 | 50-E-01 | GRS | 3/4" | P-50VFD0329 | FR:<br>TO: | 50-VFD-0329<br>50-FLC-329 |
| | | | | | | |
| C-ACC220001 | 50-E-01 | GRS | 3/4" | C-ACC2200-01 | FR:<br>TO: | ACC-2200<br>50-VFD-0326 |
| C-ACC220002 | 50-E-01 | GRS | 3/4" | C-ACC2200-02 | FR:<br>TO: | ACC-2200<br>50-VFD-0327 |
| C-ACC220003 | 50-E-01 | GRS | 3/4" | C-ACC2200-03 | FR:<br>TO: | ACC-2200<br>50-VFD-0328 |
| C-ACC220004 | 50-E-01 | GRS | 3/4" | C-ACC2200-04 | FR:<br>TO: | ACC-2200<br>50-VFD-0329 |
| C-ACC220005 | 50-E-01 | GRS | 3/4" | C-ACC2200-05 | FR:<br>TO: | ACC-2200<br>50-FV-0331 |
| C-ACC220006 | 50-E-01 | GRS | 3/4" | C-ACC2200-06 | FR:<br>TO: | ACC-2200<br>50-FV-0332 |
| | | | | | | |
| S-ACC220001 | 50-E-01 | GRS | 1" | S-ACC2200-01 | FR:<br>TO: | ACC-2200<br>50-VFD-0326 |
| S-ACC220002 | 50-E-01 | GRS | 1" | S-ACC2200-02 | FR:<br>TO: | ACC-2200<br>50-VFD-0327 |
| S-ACC220003 | 50-E-01 | GRS | 1" | S-ACC2200-03 | FR:<br>TO: | ACC-2200<br>50-VFD-0328 |
| S-ACC220004 | 50-E-01 | GRS | 1" | S-ACC2200-04 | FR:<br>TO: | ACC-2200<br>50-VFD-0329 |
| S-50CP0331 | 50-E-01 | GRS | 1" | S-50CP0331 | FR:<br>TO: | 50-CP-0331<br>50-FV-0331 |
| S-50CP0332 | 50-E-01 | GRS | 1" | S-50CP0332 | FR:<br>TO: | 50-CP-0332<br>50-FV-0332 |

## CABLE/CONDUCTOR SCHEDULE

| CABLE/CIRCUIT TAG | DWG | CONDUCTORS # | CONDUCTORS SIZE | CONDUCTORS TYPE | GROUND # | GROUND SIZE | GROUND TYPE | DESCRIPTION | |
|---|---|---|---|---|---|---|---|---|---|
| P-DP2263-01 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-VFD-326 |
| P-DP2263-13 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-VFD-327 |
| P-DP2263-19 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-VFD-328 |
| P-DP2263-25 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-VFD-329 |
| P-DP2263-31 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-FV-331 |
| P-DP2263-37 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | DP-2263<br>50-FV-332 |
| P-50VFD0326 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | 50-VFD-0326<br>50-FLC-326 |
| P-50VFD0327 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | 50-VFD-0327<br>50-FLC-327 |
| P-50VFD0328 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | 50-VFD-0328<br>50-FLC-328 |
| P-50VFD0329 | 50-E-01 | 3 | #12 | XHHW | 1 | #12 | XHHW | FR:<br>TO: | 50-VFD-0329<br>50-FLC-329 |
| | | | | | | | | | |
| C-ACC2200-01 | 50-E-01 | 10 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-VFD-0326 |
| C-ACC2200-02 | 50-E-01 | 10 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-VFD-0327 |
| C-ACC2200-03 | 50-E-01 | 10 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-VFD-0328 |
| C-ACC2200-04 | 50-E-01 | 10 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-VFD-0329 |
| C-ACC2200-05 | 50-E-01 | 14 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-FV-0331 |
| C-ACC2200-06 | 50-E-01 | 14 | #14 | XHHW | 1 | #14 | XHHW | FR:<br>TO: | ACC-2200<br>50-FV-0332 |
| | | | | | | | | | |
| S-ACC2200-01 | 50-E-01 | 2PR | #16S | SIC | - | - | - | FR:<br>TO: | ACC-2200<br>50-VFD-0326 |
| S-ACC2200-02 | 50-E-01 | 2PR | #16S | SIC | - | - | - | FR:<br>TO: | ACC-2200<br>50-VFD-0327 |
| S-ACC2200-03 | 50-E-01 | 2PR | #16S | SIC | - | - | - | FR:<br>TO: | ACC-2200<br>50-VFD-0328 |
| S-ACC2200-04 | 50-E-01 | 2PR | #16S | SIC | - | - | - | FR:<br>TO: | ACC-2200<br>50-VFD-0329 |
| S-50CP0331 | 50-E-01 | 1 | | VENDOR | - | - | - | FR:<br>TO: | 50-CP-0331<br>50-FV-0331 |
| S-50CP0332 | 50-E-01 | 1 | | VENDOR | - | - | - | FR:<br>TO: | 50-CP-0332<br>50-FV-0332 |

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 512260089

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# CONDUIT AND CABLE SCHEDULE

90% REVIEW

DRAWING NO.
GE-04

C:\users\dstar\bcpw\d2399802\GE-04.dwg Jul 10, 2023 - 3:53pm

# FILTER DP 2263

**PANEL:** DP 2263 (EXISTING) **SCCR:** 65 KA
**LOCATION:** **MAINS:** 60A CB **BUS** 225A
**MOUNTING:** WALL **VOLTS:** 480, 3Ø, 3W
**NOTES:** NOTE 1 NEW LOAD ON EXISTING PANEL BREAKER

| CKT | TRIP / POLE | CIRCUIT DESCRIPTION | WIRE SIZE | LOAD KVA | PHASE A | PHASE B | PHASE C | LOAD KVA | WIRE SIZE | CIRCUIT DESCRIPTION | TRIP / POLE | CKT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15/3 | 50-FLC-326 NOTE 1 VIA 50-VFD-326 | #12 | 1.30 | 1.33 | | | 0.00 | | SPACE | | 2 |
| | | | | 1.30 | | 1.33 | | 0.00 | | | | |
| | | | | 1.30 | | | 1.33 | 0.00 | | | | |
| 3 | 30/3 | FILTER GALLERY UH-2 (EXISTING) | #10 | 0.00 | 0.00 | | | 0.00 | | SPACE | | 4 |
| | | | | 9.00 | | 9.00 | | 0.00 | | | | |
| | | | | 9.00 | | | 9.00 | 0.00 | | | | |
| 5 | 15/3 | 50-FLC-327 NOTE 1 VIA 50-VFD-327 | #12 | 1.30 | 1.33 | | | 0.00 | | SPACE | | 6 |
| | | | | 1.30 | | 1.33 | | 0.00 | | | | |
| | | | | 1.30 | | | 1.33 | 0.00 | | | | |
| 7 | 15/3 | 50-FLC-328 NOTE 1 VIA 50-VFD-328 | #12 | 1.30 | 1.33 | | | 0.00 | | SPACE | | 8 |
| | | | | 1.30 | | 1.33 | | 0.00 | | | | |
| | | | | 1.30 | | | 1.33 | 0.00 | | | | |
| 9 | 15/3 | 50-FLC-329 NOTE 1 VIA 50-VFD-329 | #12 | 1.30 | 1.33 | | | 0.00 | | SPACE | | 10 |
| | | | | 1.30 | | 1.33 | | 0.00 | | | | |
| | | | | 1.30 | | | 1.33 | 0.00 | | | | |
| 11 | 15/3 | 50-FV-331 NOTE 1 | #12 | 1.30 | 1 | | | 0.00 | | SPACE | | 12 |
| | | | | 1.30 | | 1 | | 0.00 | | | | |
| | | | | 1.30 | | | 1 | 0.00 | | | | |
| 13 | 15/3 | 50-FV-332 NOTE 1 | #12 | 1.30 | 1 | | | 0.00 | | SPACE | | 14 |
| | | | | 1.30 | | 1 | | 0.00 | | | | |
| | | | | 1.30 | | | 1 | 0.00 | | | | |
| | | | | TOTALS KVA | 7.32 | 16.32 | 16.32 | | | | | |
| | | | | TOTALS AMPS | 8.8 | 19.6 | 19.6 | | | | | |

**CONNECTED LOAD:** 40.00 KVA
**DEMAND LOAD:** 32.00 KVA = 38.51 A
**FED FROM:**

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: D.STAR
DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
EWO NO: --
ACCOUNT NO: 512260089

REVISIONS

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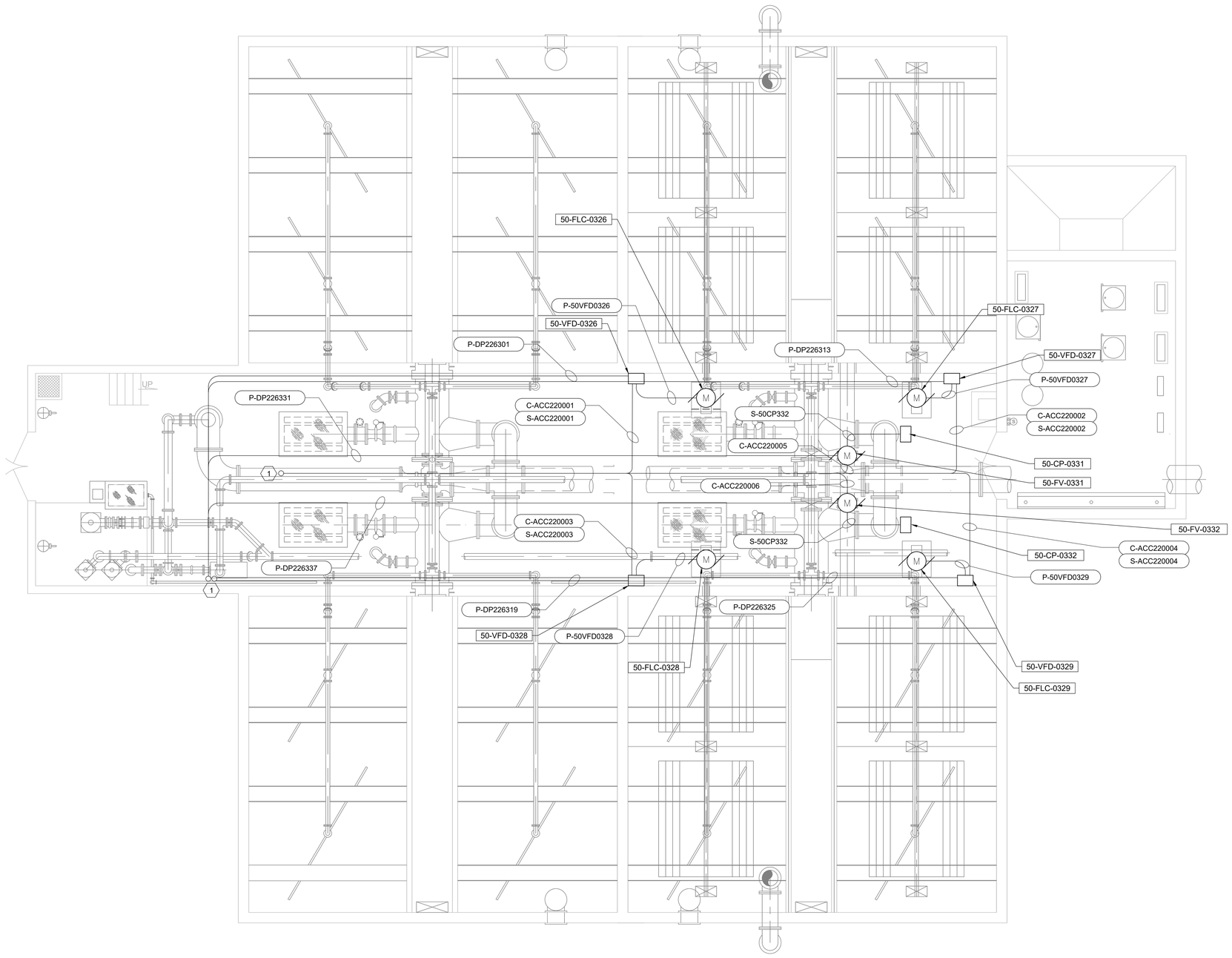
SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
PANEL SCHEDULE

90% REVIEW

DRAWING NO.
GE-05

C:\users\dstar\bcpw\d2399802\GE-05.dwg Jul 10, 2023 - 3:50pm




## PLAN

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

## KEY NOTES

1. TO FLOOR ABOVE SEE SHEET 50-E-02 FOR CONTINUATION.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
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ACCOUNT NO: 512260089

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# FILTER BUILDING – LOWER LEVEL POWER PLAN

90% REVIEW

DRAWING NO.

50-E-01

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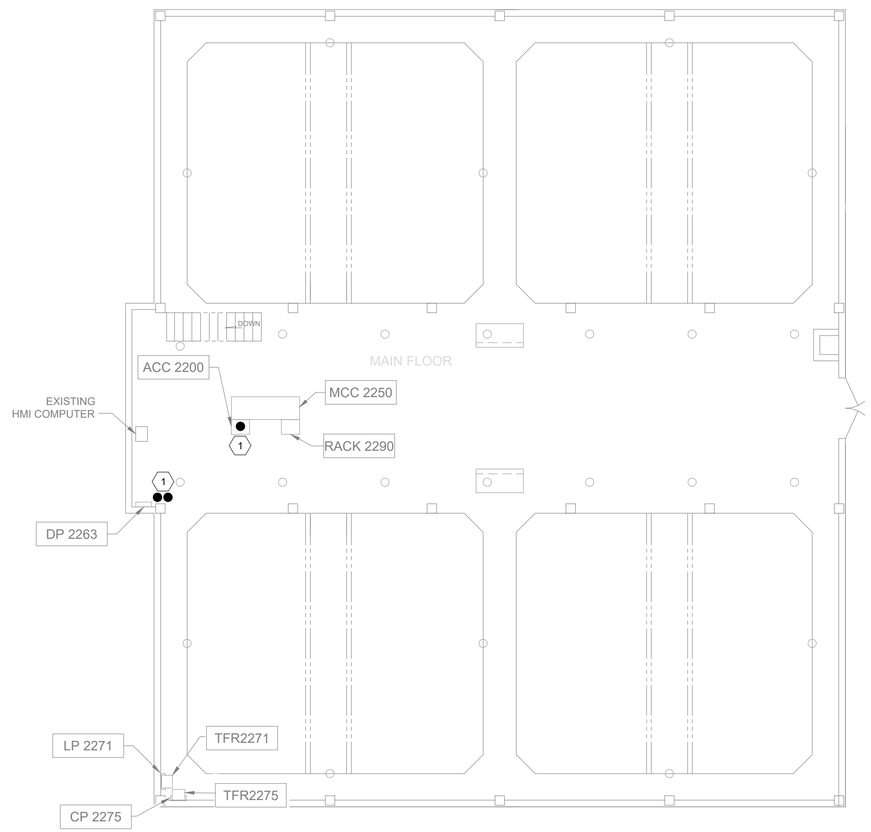


## PLAN

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

## KEY NOTES

1. TO FLOOR BELOW SEE SHEET 50-E-01 FOR CONTINUATION.

Brown AND Caldwell

SCALE:

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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DRAWN BY: D.STAR
CHECKED BY: J.PRIESTLEY
APPROVED BY: D.STAR
DATE: July 2023
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ACCOUNT NO: 51226089

| NO. | DATE | REVISIONS | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FILTER BUILDING - UPPER LEVEL POWER PLAN

90% REVIEW

DRAWING NO.
50-E-02

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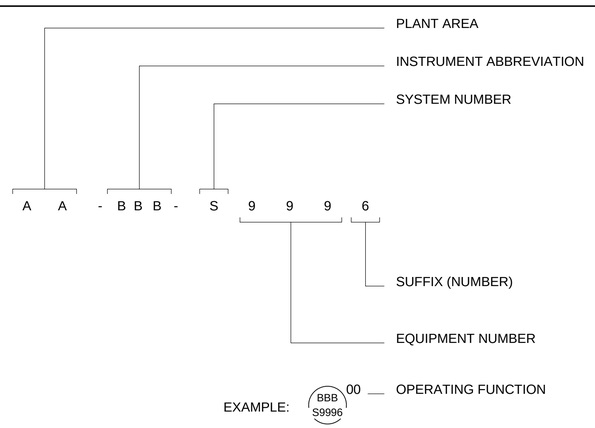
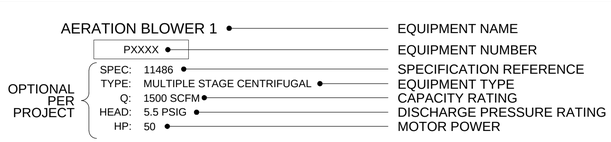
## FUNCTIONAL IDENTIFICATION

| VARIABLE | MEASURED OR INITIATING VARIABLE DESCRIPTION | MODIFIER | READOUT OR PASSIVE FUNCTION | OUTPUT FUNCTION | MODIFIER |
|---|---|---|---|---|---|
| A | ANALYSIS | | ALARM | | |
| B | BURNER, COMBUSTION | | | | |
| C | CONDUCTIVITY | | | CONTROL | CLOSE |
| D | DENSITY, SPECIFIC GRAVITY | DIFFERENTIAL | | | DEVIATION |
| E | VOLTAGE, SOLENOID | | PRIMARY ELEMENT | | |
| F | FLOW, FLOW RATE | RATIO | | | |
| G | FIRE, SMOKE | | GLASS | | |
| H | HAND | | | | HIGH |
| I | CURRENT | | INDICATE | | |
| J | POWER | | SCAN | | |
| K | TIME, SCHEDULE | TIME RATE OF CHANGE | | CONTROL STATION | |
| L | LEVEL | | LIGHT | | LOW |
| M | MOISTURE, HUMIDITY, MOTION | MOMENTARY | | | MIDDLE, INTERMEDIATE |
| N | EQUIPMENT STATUS | | | | |
| O | DISSOLVED OXYGEN | | ORIFICE | | OPEN |
| P | PRESSURE, VACUUM | | POINT (TEST) CONNECTION | | |
| Q | QUANTITY | INTEGRATE, TOTALIZE | | | |
| R | RADIATION | | RECORD | | RUN |
| S | SPEED, FREQUENCY | SAFETY | | SWITCH | STOP |
| T | TEMPERATURE | | | TRANSMIT | |
| U | MULTIVARIABLE | | MULTIFUNCTION | MULTIFUNCTION | MULTIFUNCTION |
| V | VIBRATION, MECHANICAL ANALYSIS | | | VALVE, DAMPER, LOUVER | |
| W | WEIGHT, FORCE, TORQUE | | WELL, PROBE | | |
| X | UNCLASSIFIED | X AXIS | | | |
| Y | EVENT, STATE OR PRESENCE | Y AXIS | | AUXILIARY DEVICES | |
| Z | POSITION, DIMENSION | Z AXIS | | DRIVER, ACTUATOR, FINAL CONTROL ELEMENT | |

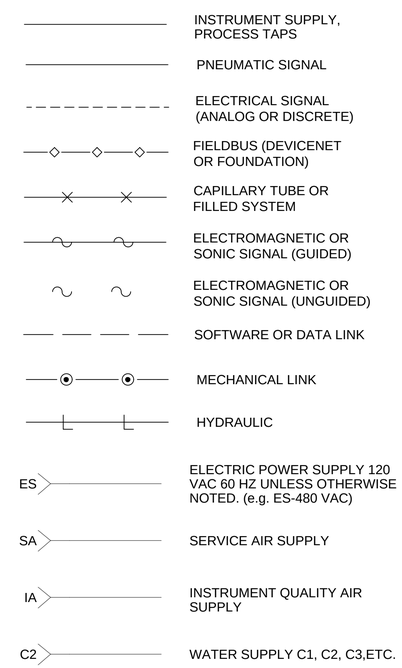
## INSTRUMENT TAG AND LOOP IDENTIFICATION



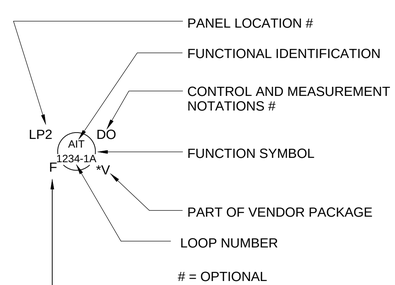

## EQUIPMENT IDENTIFICATION SYSTEM




## INSTRUMENT SIGNAL LINES

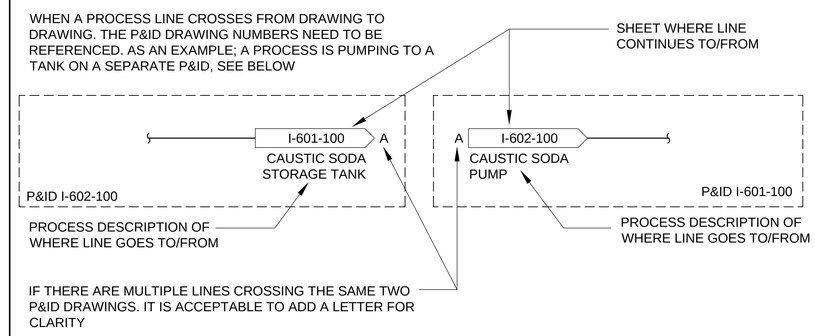



## TYPICAL INSTRUMENT IDENTIFICATION

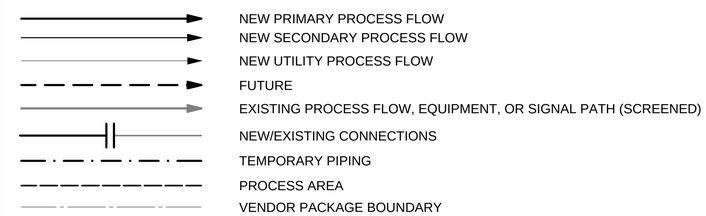



| NETWORK TYPE | |
|---|---|
| F | FOUNDATION FIELDBUS |
| D | DEVICENET |
| E | ETHERNET |
| P | PROFIBUS |
| PN | PROFINET |
| M-RTU | MODBUS RTU |
| M-TCP | MODBUS TCP |
| CIP | CONTROL INDUSTRIAL PROTOCOL |
| E-SNMP | SIMPLE NETWORK MANAGEMENT PROTOCOL |

## PROCESS AND SIGNAL CROSS REFERENCE SYSTEM




## PROCESS LINES




## CONTROL AND MEASUREMENT NOTATIONS

| | |
|---|---|
| ACK | ACKNOWLEDGE |
| AM | AUTO/MAN |
| BYP | BYPASS |
| CL | CLOSE |
| CL2 | CHLORINE |
| CMAT | COMPUTER/MANUAL/AUTO/TRACKING |
| COMB | COMBUSTIBLE GAS |
| CP | CONTROL POWER |
| COND | CONDUCTIVITY |
| DEC | DECREASE |
| DO | DISSOLVED OXYGEN |
| ESP | EMERGENCY STOP |
| FWD | FORWARD |
| F/R | FORWARD/REVERSE |
| F/S | FAST/SLOW |
| HLOA | HIGH/LOW/OFF/AUTO |
| HOA | HAND/OFF/AUTO |
| HOAL | HAND/OFF/AUTO/LOCAL |
| HOR | HAND/OFF/REMOTE |
| INC | INCREASE |
| JOA | JOG/OFF/AUTO |
| LL | LEAD/LAG |
| LOR | LOCAL/OFF/REMOTE |
| LOS | LOCKOUT STOP |
| L/R | LOCAL/REMOTE |
| M/A LS | MAN/AUTO LOADING STATION |
| OCA | OPEN/CLOSE/AUTO |
| OCP | PURGE VALVE OP/CL/PC |
| OL | OVERLOAD |
| OP | OPEN |
| OSC/LP | OPEN/STOP/CLOSE WITH LOCAL/REMOTE SELECT |
| PA | PAUSE |
| PAL | LOW PRESSURE |
| PB | PUSH BUTTON |
| pH | pH |
| POT | POTENTIOMETER |
| RDY | READY |
| REV | REVERSE |
| RNG | RUNNING |
| ROF | REVERSE/OFF/FORWARD |
| RST | RESET |
| SO2 | SULFUR DIOXIDE |
| SP | STOP |
| ST | START |
| TCP | TEST/CLOSE/PC |
| T/S | TEST/NORMAL/SILENCE |
| TBL | TROUBLE |

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS AND IDENTIFICATIONS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGNED BY: BTO
DRAWN BY: AAL
CHECKED BY: RSG
APPROVED BY: BTO
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51xxxxxxx

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# LEGEND AND SYMBOLS 1

90% REVIEW

DRAWING NO.
GI-01

C:\Users\alapierre\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\153020-SLCDPU_City_Creek_WTP-V2021\PID DWG\PCK2_GI-01.dwg Jul 10, 2023 - 5:19pm

## MISCELLANEOUS SYMBOLS

- M — MCC (MOTOR CONTROL/STARTER)
- P — PURGE OR FLUSHING DEVICE
- R — RESET FOR LATCH-TYPE OPERATOR
- C — SEAL WATER CONTROL UNIT
- I — INTERLOCKING OR CONTROL FUNCTION
- IS — INTRINSIC SAFETY BARRIER
- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- CAMERA (CCTV)
- VFD — VARIABLE FREQUENCY DRIVE
- VSD — VARIABLE SPEED DRIVE

## ACTUATORS/MOTORS/POWER

- ASD — ADJUSTABLE SPEED DRIVE (MECHANICAL)
- ROTARY PISTON ACTUATORS, VALVE OR GATE
- LINEAR PISTON ACTUATORS, VALVE OR GATE
- S — SOLENOID ACTUATOR, VALVE
- MANUAL OR HAND ACTUATOR, VALVE OR GATE (OR BLANK)
- M — MOTOR (ACTUATOR, VALVE , GATE OR EQUIPMENT)
- E D — ELECTRIC DISCRETE ACTUATOR
- E M — ELECTRIC MODULATING ACTUATOR
- ENGINE
- EJECTOR, PNEUMATIC
- GENERATOR

## PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- NOZZLE FLOW
- PITOT TUBE
- PROPELLER OR TURBINE METER
- FLUME
- WEIR
- VARIABLE AREA FLOW INDICATOR (ROTAMETER) — OR — FI
- DIAPHRAGM SEAL
- IN-LINE ANNULAR SEAL
- M — MAGNETIC FLOWMETER
- SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)
- POSITIVE DISPLACEMENT METER
- ΔT — THERMAL FLOW ELEMENT
- VORTEX FLOW ELEMENT
- CORIOLIS FLOW ELEMENT
- FLOAT LEVEL ELEMENT
- ULTRASONIC LEVEL ELEMENT
- BUBBLER LEVEL TUBE
- SUBMERSIBLE LEVEL TRANSMITTER
- HYDROSTATIC LEVEL PROBE
- RADAR OR ULTRASONIC LEVEL ELEMENT
- ANNUBAR, PITOT TUBE
- AVERAGING PITOT TUBE

## VALVES

| NORMALLY OPEN | | NORMALLY CLOSED |
|---|---|---|
| | GATE VALVE | |
| | PLUG VALVE | |
| | BALL VALVE | |
| | GLOBE VALVE | |
| | NEEDLE VALVE | |
| | KNIFE GATE VALVE | |
| | DIAPHRAGM VALVE | |
| | BUTTERFLY VALVE | |
| | ANGLE VALVE | |
| | THREE WAY VALVE | |
| | FOUR WAY VALVE | |
| | FLOAT VALVE | |
| | PINCH VALVE | |
| | BALANCING COCK | |
| | THERMOSTATICALLY CONTROLLED VALVE | |

- DOUBLE LEAF CHECK VALVE
- CHECK VALVE
- BALL CHECK VALVE
- PUMP DISCHARGE VALVE
- GAUGE OR ROOT VALVE
- PRESSURE AND VACUUM RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE RELIEF VALVE
- IN-LINE SPRING LOADED RELIEF VALVE
- PRESSURE REGULATING VALVE (SELF-CONTAINED)
- BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
- FUSIBLE LINK
- S — SOLENOID VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE BALANCE OPERATED VALVE
- M — MOTOR OPERATED VALVE
- M — MOTOR OPERATED VALVE, MODULATING

NOTE: USE VALVE BODY SYMBOL TO MATCH TYPE OF VALVE.

- PISTON OPERATED VALVE
- TELESCOPING VALVE
- MUD VALVE
- ANTI SIPHON VALVE
- LIFT CHECK VALVE
- BRAIDED FLEX CONNECTOR

## FUNCTION SYMBOLS

- SHARED DISPLAY, PROCESS CONTROL SYSTEM
- SOFTWARE FUNCTIONALITY
- FIELD OR PANEL DEVICE

LOCATION AND ACCESSIBILITY MODIFIERS FOR FUNCTION SYMBOLS

- STAND ALONE DEVICE, OPERATOR ACCESSIBLE
- LOCATED ON FRONT OF PANEL OR CONSOLE, OPERATOR ACCESSIBLE
- LOCATED IN REAR OF PANEL OR CONSOLE, OPERATOR INACCESSIBLE

## INSTRUMENTATION SYMBOLS

- INTEGRAL INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL
- CLOSE COUPLED INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL
- MULTI VARIABLE INSTRUMENT — XXX XXX XXX XXX XXX XXX
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL — FLANGE OR ELEMENT TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL — PIPE TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — XXX XXX — PRIMARY ELEMENT SYMBOL — COMBINATION TAPS
- SINGLE VARIABLE INSTRUMENT — XXX XXX

## SLIDE AND SLUICE GATES

| NORMALLY OPEN | | NORMALLY CLOSED |
|---|---|---|
| | FLAP GATE | |
| NO | BUTTERFLY GATE | NC |
| | STOP GATE | |
| | SLIDE GATE | |
| | SLUICE GATE | |

GENERAL NOTES:

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Brown AND Caldwell

SCALE:

VERIFY SCALE

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DESIGNED BY: BTO
DRAWN BY: AAL
CHECKED BY: RSG
APPROVED BY: BTO
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51xxxxxx

REVISIONS

| NO. | DATE | MADE BY | AUTH. BY |
|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# LEGEND AND SYMBOLS 2

90% REVIEW

DRAWING NO.
GI-02

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## PUMPS

- PUMP, CENTRIFUGAL
- PUMP, DIAGHRAGM
- PUMP, GEAR
- PUMP, METERING
- PUMP, PERISTALTIC
- PUMP, PROGRESSING CAVITY
- PUMP, ROTARY LOBE
- PUMP, SUBMERSIBLE
- PUMP, JET
- PUMP, VERTICAL

## BLOWERS/COMPRESSORS

- BLOWER OR CENTRIFUGAL FAN
- BLOWER OR COMPRESSOR, LIQUID RING
- BLOWER OR COMPRESSOR, ROTARY LOBE
- COMPRESSOR, ROTARY SCREW
- COMPRESSOR, ROTARY SLIDING VANE
- COMPRESSOR, PISTON

## PIPE LINE DEVICES

- TRAP
- AIR RELIEF VALVE
- SEDIMENT TRAP
- GAS DRIP TRAP
- SEPARATOR/ DRYER
- PIPELINE FILTER
- RUPTURE DISK (VACUUM RELIEF)
- RUPTURE DISK (PRESSURE RELIEF)
- CONNECTION BETWEEN NEW AND EXISTING PIPING
- UNION
- QUICK CONNECTOR
- CAP OR PLUG
- BLIND FLANGE
- FLEX CONNECTOR
- FABRIC EXPANSION JOINT
- VENT TO ROOF
- VENT
- STEAM VENT
- AUTOMATIC VENT
- MANUAL VENT
- STRAINERS
- FOOT VALVE
- AIR SEPARATOR
- DRAIN
- DRAIN VALVE
- CALIBRATION CHAMBER
- PULSATION DAMPENER
- INJECTOR
- FLAME TRAP
- FLAME TRAP WITH THERMO SHUTOFF ASSEMBLY
- FLAME CHECK
- SAMPLING AND FLUSHING CONNECTIONS
- SUCTION DIFFUSER
- TEMPERATURE WELL
- FLOW STRAIGHTENING VANES
- PRESSURE REDUCING ASSEMBLY
- AMMONIA UNION
- DAMPER
- SIGHT GLASS
- PIG LAUNCHER/ RECEIVER
- REDUCER
- FLEX COUPLING

## HVAC RELATED

- FAN, INLINE
- CHILLER
- FILTER OR FILTER-SILENCER INLET AIR
- INLET AIR FILTER
- BOILER
- CHILLER

## MIXERS

- MIXER
- DRAFT TUBE MIXER
- MIXER, INLINE STATIC

## MISCELLANEOUS SYMBOLS

- HIM

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ACCOUNT NO: 51xxxxxxx

REVISIONS

| NO. | DATE | | MADE BY | AUTH. BY |
|---|---|---|---|---|

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# LEGEND AND SYMBOLS 3

90% REVIEW

DRAWING NO.
GI-03

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## PIPING SYSTEMS

| ABBREVIATION | SERVICE |
|---|---|
| A | AERATION AIR |
| AA | AGITATION AIR |
| AFE | AIR FLOTATION EFFLUENT |
| AL | ALUM |
| AW | APPLIED WATER |
| B | BRINE |
| BA | BACKWASH AIR |
| BC | BIOFILTER CIRCULATION |
| BCTL | BOILER CHEMICAL TREATMENT, LOW PRESSURE |
| BCTM | BOILER CHEMICAL TREATMENT, MEDIUM PRESSURE |
| BDL | BOILER BLOWDOWN, LOW PRESSURE |
| BDM | BOILER BLOWDOWN, MEDIUM PRESSURE |
| BFE | BIOFILTER EFFLUENT |
| BFL | BIOFILTER FEEDWATER, LOW PRESSURE |
| BFM | BIOFILTER FEEDWATER, MEDIUM PRESSURE |
| BW | BACKWASH WATER |
| CCW | CONDENSER COOLING WATER |
| CD | CHEMICAL DRAIN |
| CEN | CENTRATE |
| CF | CENTRIFUGE FEED |
| CL | CONDENSATE, LOW PRESSURE |
| CLG | CHLORINE GAS |
| CLL | CHLORINE LIQUID |
| CLS | CHLORINE SOLUTION |
| CLV | CHLORINE VACUUM |
| CM | CONDENSATE, MEDIUM PRESSURE |
| CS | CIRCULATING SLUDGE |
| CSO | CAUSTIC SODA |
| CWR | CHILLED WATER RETURN |
| CWS | CHILLED WATER SUPPLY |
| D | DRAIN |
| DIW | DEIONIZED WATER |
| DS | DIGESTED SLUDGE |
| DSF | DIESEL FUEL |
| DSS | SCREENED DIGESTED SLUDGE |
| DW | DISTILLED WATER |
| EE | ENGINE EXHAUST |
| ES | EQUALIZED SLUDGE |
| F | FLOAT |
| FA | FOUL AIR |
| FC | FERRIC CHLORIDE |
| FLT | FILTRATE |
| FS | FLOTATION SLUDGE |
| FW | FILTERED WATER |

| ABBREVIATION | SERVICE |
|---|---|
| GAS | GASOLINE |
| GAV | GAS VAPOR RETURN |
| GC | GAS CIRCULATION |
| GR | GRIT |
| HOH | HIGH PRESSURE HYDRAULIC OIL |
| HRR | HEAT RESERVOIR RETURN |
| HRS | HEAT RESERVOIR SUPPLY |
| HRW | RECIRCULATING POTABLE HOT WATER |
| HSG | HIGH PRESSURE SLUDGE GAS |
| HW | POTABLE HOT WATER |
| HWR | LOW TEMPERATURE HEATING RETURN |
| HWS | LOW TEMPERATURE HEATING SUPPLY |
| IA | INSTRUMENT AIR |
| JWR | JACKET WATER RETURN |
| JWS | JACKET WATER SUPPLY |
| LOR | LUBE OIL RETURN |
| LOS | LUBE OIL SUPPLY |
| LOW | LUBE OIL WASTE |
| LSG | LOW PRESSURE SLUDGE GAS |
| MG | MIXED GAS |
| ML | MIXED LIQUOR |
| MS | MIXED SLUDGE |
| MSG | MEDIUM PRESSURE SLUDGE GAS |
| MTWR | MEDIUM TEMPERATURE HEATING RETURN |
| MTWS | MEDIUM TEMPERATURE HEATING SUPPLY |
| NG | NATURAL GAS |
| OF | OVERFLOW |
| OLP | OXYGEN LOW PRESSURE |
| PD | PUMPED DRAINAGE |
| PE | PRIMARY EFFLUENT |
| POL | POLYMER |
| PS | PRIMARY SLUDGE |
| PSC | PRIMARY SCUM |
| RAS | RETURN ACTIVATED SLUDGE |
| RS | RAW SEWAGE |
| RW | RAW WATER |
| RWP | RAINWATER PIPE |
| RWR | RECLAIMED WATER |
| SA | SERVICE AIR |
| SCR | STEAM CLEAN RINSE |

| ABBREVIATION | SERVICE |
|---|---|
| SCR | STEAM CLEAN RINSE |
| SCS | STEAM CLEAN SUPPLY |
| SD | SANITARY DRAIN |
| SDG | SULFUR DIOXIDE GAS |
| SDL | SULFUR DIOXIDE LIQUID |
| SDS | SULFUR DIOXIDE SOLUTION |
| SDV | SULPHUR DIOXIDE VACUUM |
| SE | SECONDARY EFFLUENT |
| SEP | SEPTAGE |
| SN | SUPERNATANT |
| SS | SECONDARY SLUDGE |
| SSC | SECONDARY SCUM |
| STA | STARTING AIR |
| STD | STORM DRAIN |
| STML | STEAM, LOW PRESSURE |
| STMM | STEAM, MEDIUM PRESSURE |
| TD | TANK DRAIN |
| TE | THICKENER EFFLUENT |
| THS | THICKENED SLUDGE |
| TO | THICKENER OVERFLOW |
| TS | TRANSFER SLUDGE |
| TSC | THICKENED SCUM |
| TWAS | THICKENED WASTE ACTIVATED SLUDGE |
| V | VENT |
| VA | VACUUM |
| VC | CHEMICAL VENT |
| VP | PETROLEUM VENT |
| VSL | STEAM VENT, LOW PRESSURE |
| VSM | STEAM VENT, MEDIUM PRESSURE |
| WAS | WASTE ACTIVATED SLUDGE |
| WML | WASTE MIXED LIQUOR |
| 1W | POTABLE WATER (CITY WATER) |
| 1WS | POTABLE SOFT WATER |
| 2W | NONPOTABLE CITY WATER |
| 2WHP | NO. 2 WATER HIGH PRESSURE |
| 2WL | LANDSCAPE IRRIGATION |
| 2WS | SOFTENED NONPOTABLE CITY WATER |
| 3W | NO.3 WATER (SECONDARY EFFLUENT) |
| 3WHP | NO. 3 WATER HIGH PRESSURE |
| 3WLC | NO. 3 WATER LOW PRESSURE CHLORINATED |
| 3WLP | NO. 3 WATER LOW PRESSURE |
| 3WS | NO. 3 SPRAY WATER |

## AREA NUMBER ASSIGNMENTS

| NUMBER | AREA DESCRIPTION |
|---|---|
| 1 | PROJECT SITE |
| 2 | ADMINISTRATION/CHEMICAL BUILDING |
| 3 | FLOCCULATION BASINS |
| 3.5 | TREATMENT BUILDING |
| 4 | SEDIMENTATION BASIN |
| 5 | FILTER BUILDING |
| 6 | FLUORIDE BUILDING |
| 7 | WBW EQUALIZATION BASIN |
| 7.5 | WBW CLARIFIER |
| 8 | SOLIDS DRYING BEDS |
| 8.5 | |
| 9 | CLEARWELL |
| 50 | TEMP. FILTER BUILDING |

## EQUIPMENT PREFIXES

| | |
|---|---|
| A | AERATOR |
| ACC | AIR CONDITION COIL |
| ACU | AIR CONDITIONING UNIT |
| AD | AIR DRYER |
| AF | AIR FILTER |
| AHC | AIR HANDLING UNIT W/COIL |
| AHU | AIR HANDLING UNIT |
| ASC | ADJUSTABLE SPEED CONTROL |
| ASD | ADJUSTABLE SPEED DRIVE |
| ATS | AUTOMATIC TRANSFER SWITCH |
| B | BLOWER |
| BFP | BELT FILTER PRESS |
| BLR | BOILER |
| BNR | BURNER |
| BP | BACKFLOW PREVENTER |
| BSN | BAR SCREEN |
| C | COIL |
| CDR | CONDENSOR |
| CFR | CHEMICAL FEEDER |
| CHR | CHILLER |
| COL | COLLECTOR |
| COM | COMMINUTOR |
| CON | CONVEYOR |
| CP | COMPRESSOR |
| CRN | CRANE |
| CTF | CENTRIFUGE |
| CV | CONTROL VALVE |
| CYL | CYLINDER |
| DIS | DISTRIBUTOR |
| DPR | DAMPER |
| DS | DISCONNECT SWITCH |
| DU | DRIVE UNIT |
| E | ENGINE |

| | |
|---|---|
| EB | ENGINE BLOWER MODULE |
| EG | ENGINE GENERATOR MODULE |
| EPR | EVAPORATOR |
| F | FAN |
| FLC | FLOCCULATOR |
| FLT | FILTER |
| FP | FILTER PRESS |
| FPU | FLUID POWER UNIT |
| FUR | FURNACE |
| GEN | GENERATOR |
| GDR | GRINDER |
| GT | GATE |
| H | HOIST |
| HEX | HEAT EXCHANGER |
| HOP | HYDRAULIC OPERATOR |
| HP | HEAT PUMP |
| HPU | HYDRAULIC POWER UNIT |
| HTR | HEATER |
| HTT | HEAT TRACER TAPE |
| HV | HAND OPERATED VALVE |
| INJ | INJECTOR |
| LVR | LOUVER |
| M | MOTOR |
| MCC | MOTOR CONTROL CENTER |
| MEE | MISCELLANEOUS ELECTRICAL EQUIPMENT |
| MIE | MISCELLANEOUS INSTRUMENTATION EQUIPMENT |
| MME | MISCELLANEOUS MECHANICAL EQUIPMENT |
| MOP | MOTOR OPERATOR |

| | |
|---|---|
| MSP | MOTOR STARTER PANEL |
| MUX | MULTIPLEXER |
| MX | MIXER |
| MZ | MULTIZONE UNIT |
| ORT | ODOR REMOVAL TOWER |
| P | PUMP |
| PBD | PANELBOARD, ELECTRICAL LIGHTING AND BRANCH CIRCUIT |
| PC | PROCESS OR PERSONAL COMPUTER |
| PEJ | PNEUMATIC EJECTOR |
| PLC | PROGAMMABLE LOGIC CONTROLLER |
| PNL | PANEL |
| POP | PNEUMATIC OPERATOR |
| PVL | PRESSURE VESSEL |
| REC | RECEIVER |
| SCN | SCREEN (BAR, ETC.) |
| SCR | SCRUBBER |
| SEP | SEPARATOR |
| SLR | SILENCER |
| SMP | SAMPLER |
| SS | SAND SEPARATOR |
| ST | STEAM TRAP |
| SUB | SUBSTATION |
| SWBD | SWITCHBOARD |
| SWGR | SWITCHGEAR |
| T | TANK |
| TBN | TURBINE |
| TCV | TEMPERATURE CONTROL VALVE |
| TFR | TRANSFORMER |

| | |
|---|---|
| TM | TIMER |
| TRS | TRANSFER SWITCH |
| UH | UNIT HEATER |
| US | UTILITY STATION |
| VEN | VENTILATOR |
| VP | VACUUM PUMP |
| WH | WATER HEATER |
| WHR | WASHER |
| WSR | WATER SOFTENER UNIT |

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS AND IDENTIFICATIONS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.

Brown AND Caldwell

SCALE:

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

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DRAWN BY: AAL
CHECKED BY: RSG
APPROVED BY: BTO
DATE: July 2023
EWO NO: --
ACCOUNT NO: 51xxxxxx

REVISIONS

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES
CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2
# ABBREVIATIONS

90% REVIEW

DRAWING NO.
GI-04

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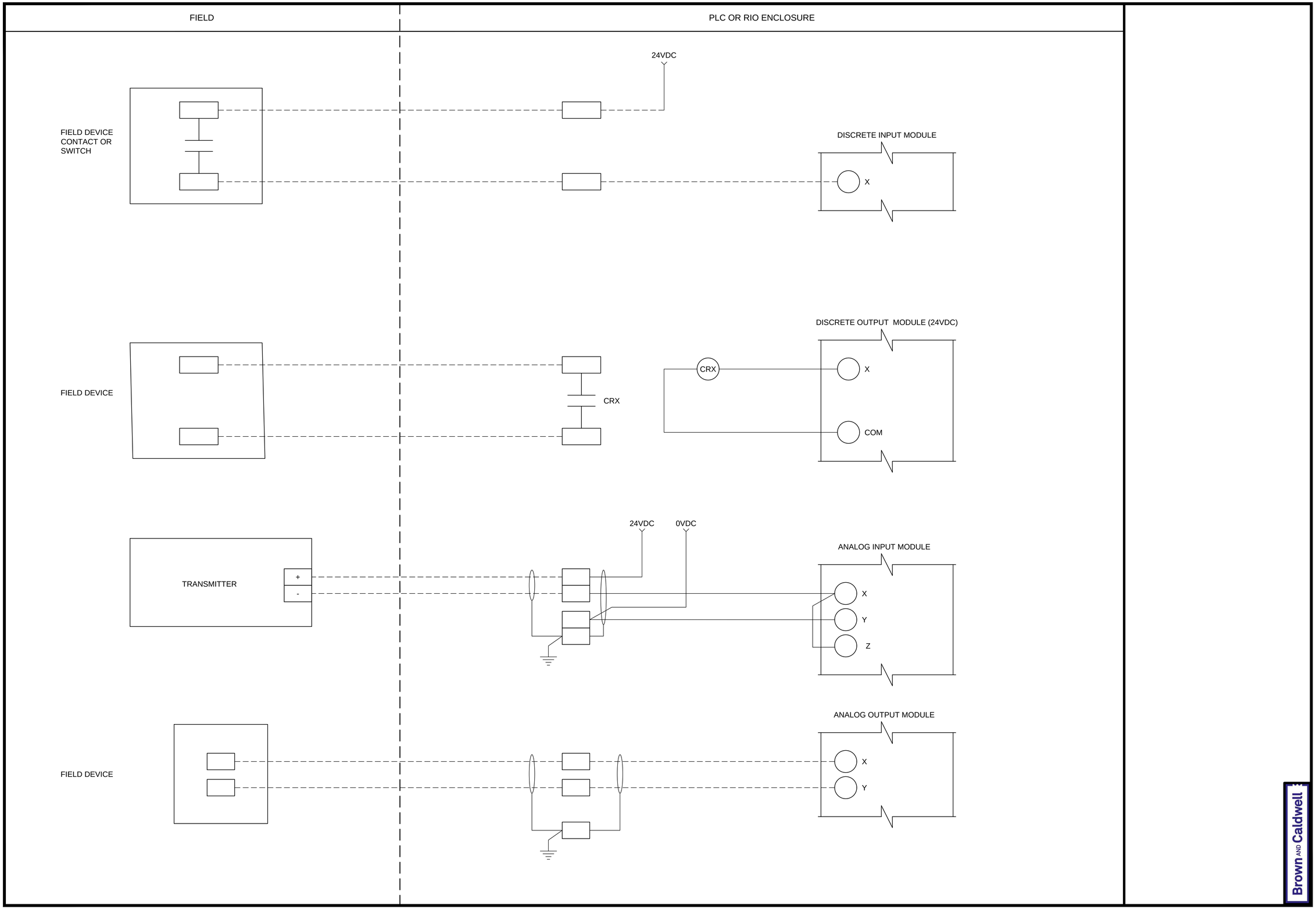


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CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# TYPICAL IO WIRING

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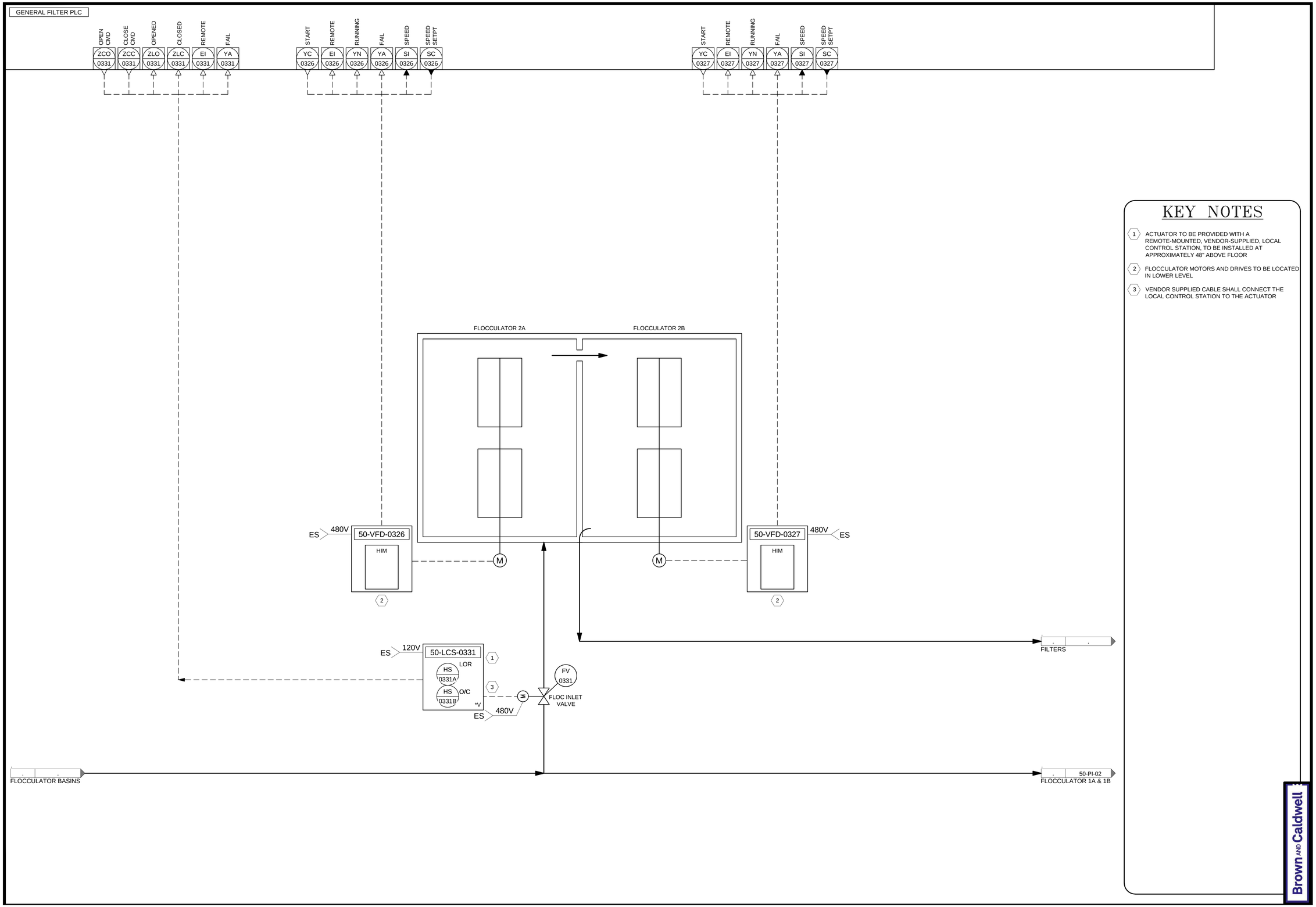


## KEY NOTES

1. ACTUATOR TO BE PROVIDED WITH A REMOTE-MOUNTED, VENDOR-SUPPLIED, LOCAL CONTROL STATION, TO BE INSTALLED AT APPROXIMATELY 48" ABOVE FLOOR
2. FLOCCULATOR MOTORS AND DRIVES TO BE LOCATED IN LOWER LEVEL
3. VENDOR SUPPLIED CABLE SHALL CONNECT THE LOCAL CONTROL STATION TO THE ACTUATOR

Brown AND Caldwell

SCALE:

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CITY CREEK TREATMENT PLANT UPGRADES
PACKAGE 2

# FLOCCULATOR 2A AND 2B

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50-PI-01

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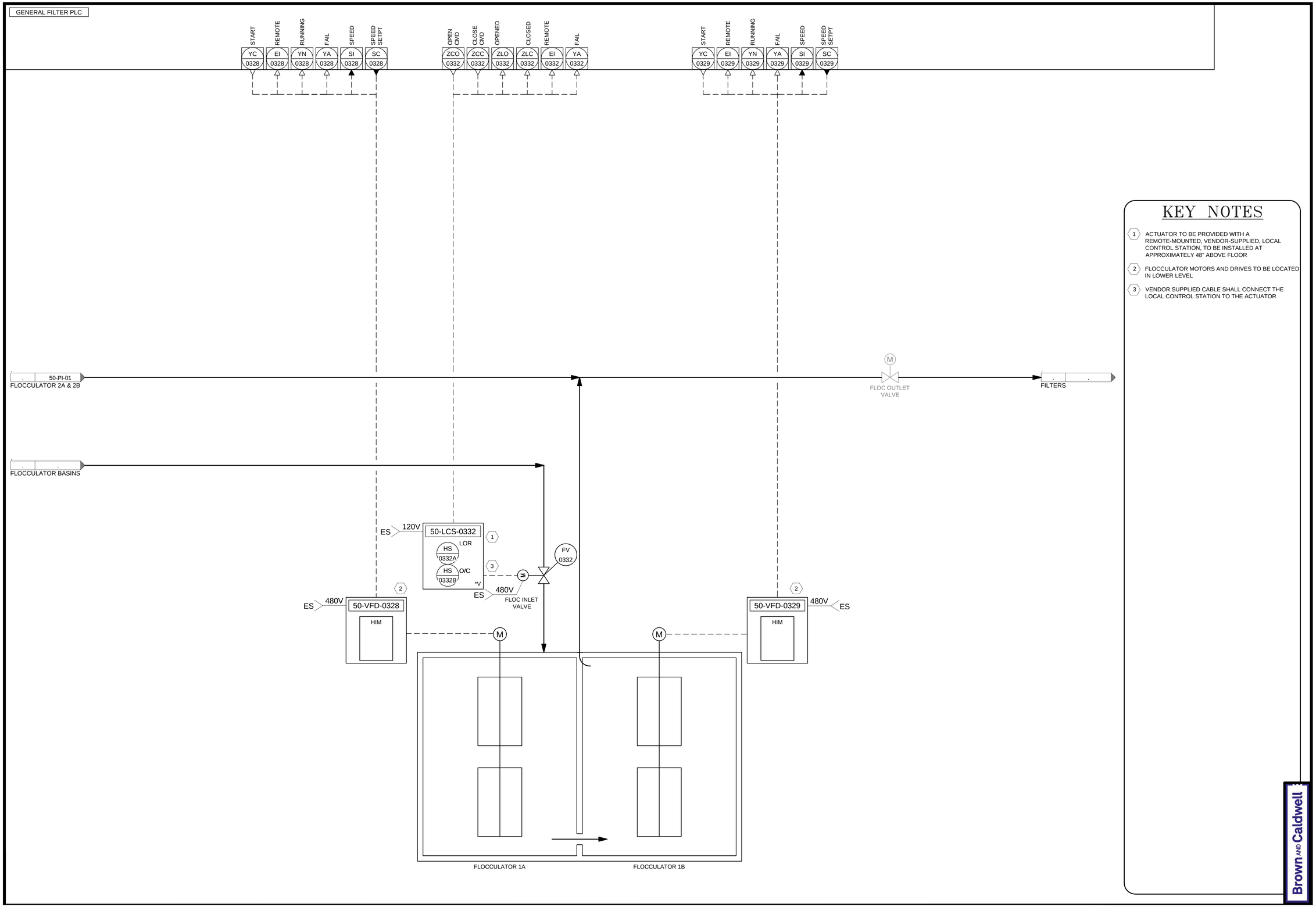


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Brown AND Caldwell

SCALE:

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SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

CITY CREEK TREATMENT PLANT UPGRADES PACKAGE 2

# FLOCCULATOR 1A AND 1B

90% REVIEW

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50-PI-02

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