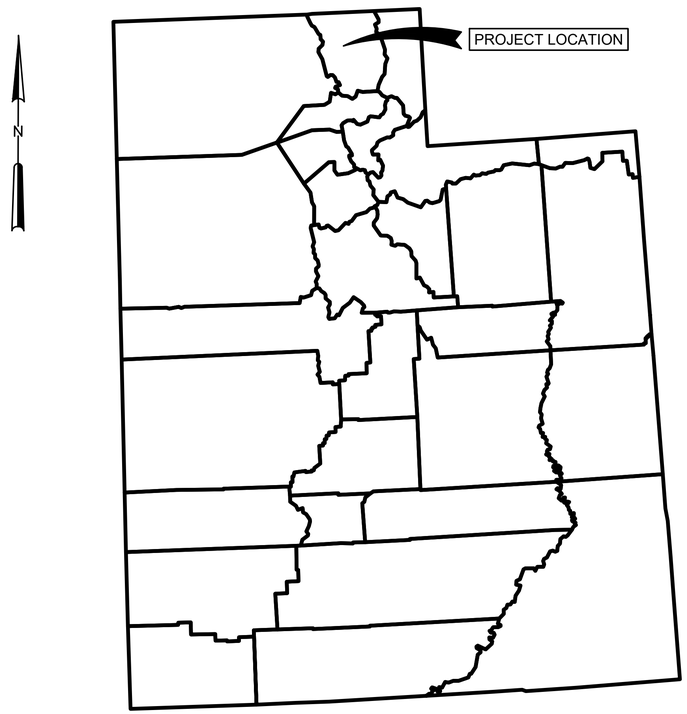
NORTH LOGAN
EST 1884

GREEN CANYON WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

VOL. 2 OF 2
HAZEN NO.: 70081-002



BID SET
SEPTEMBER 2024

LOCATION MAP
NOT TO SCALE

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

GENERAL

DRAWING NO.	SHEET NAME
COVER	COVER SHEET
G001	DRAWING INDEX AND DESIGN CRITERIA
G002	ABBREVIATIONS AND LEGEND
G003	PROCESS FLOW DIAGRAM
G004	HYDRAULIC PROFILE

CIVIL

DRAWING NO.	SHEET NAME
C001	TOPOGRAPHIC SURVEY AND SITE PLAN
C002	YARD PIPING PLAN
C003	SITE GRADING PLAN
C004	SECTIONS AND DETAILS
CD001	STANDARD DETAILS

PROCESS MECHANICAL

DRAWING NO.	SHEET NAME
M100	WATER TREATMENT BUILDING - PLAN VIEW
M101	WATER TREATMENT BUILDING - SECTIONS AND DETAILS
M200	DISINFECTION CONTACT BASIN - LOWER AND UPPER PLAN
M201	DISINFECTION CONTACT BASIN - SECTIONS AND DETAILS
M202	DISINFECTION CONTACT BASIN - MECHANICAL DETAILS
MD001	STANDARD DETAILS
MD002	STANDARD DETAILS

STRUCTURAL

DRAWING NO.	SHEET NAME
S001	GENERAL STRUCTURAL NOTES
S200	DISINFECTION CONTACT BASIN - PLANS
S201	DISINFECTION CONTACT BASIN - SECTIONS - SHEET 1
S202	DISINFECTION CONTACT BASIN - SECTIONS - SHEET 2
S203	DISINFECTION CONTACT BASIN - DETAILS
SD001	STANDARD DETAILS SHEET 1
SD002	STANDARD DETAILS SHEET 2

ELECTRICAL

DRAWING NO.	SHEET NAME
E001	LEGENDS & SYMBOLS
E002	GENERAL NOTES AND ABBREVIATIONS
E003	SITE PLAN
E004	METER VAULT
E100	FILTER BUILDING - MODIFICATIONS PLAN
E101	FILTER BUILDING - ONE LINE AND DETAILS
E102	PANEL SCHEDULES AND RISER DIAGRAMS
E103	CONTROLS ONE LINE DIAGRAM
E104	CONDUIT, WIRE, AND DUCTBANK SCHEDULES
E200	DISINFECTION CONTACT BASIN PLAN
ED001	ELECTRICAL DETAILS - SHEET 1
ED002	ELECTRICAL DETAILS - SHEET 2

INSTRUMENTATION

DRAWING NO.	SHEET NAME
I001	SYMBOLS, LEGEND, AND GENERAL NOTES - SHEET 1
I002	SYMBOLS, LEGEND, AND GENERAL NOTES - SHEET 2
I003	P&ID - RAW WATER AND FILTER BUILDING
I004	P&ID - DISINFECTION CONTACT BASIN
I005	STANDARD DETAILS

GENERAL

DESCRIPTION.	UNITS	EXISTING	NEW
PLANT FLOW (DESIGN)	MGD	2.0	2.0

DISINFECTION CONTACT BASIN

DESCRIPTION.	UNITS	NEW
BASIN INNER DIMENSIONS		
LENGTH	FEET - IN	70 - 0
WIDTH	FEET - IN	59 - 0
SIDEWALL DEPTH	FEET - IN	18 - 0
MINIMUM OPERATING DEPTH	FEET - IN	16 - 0
VOLUME	CF	59,500
	GAL	445,400
CELLS	NO	1
BAFFLES	NO	5
TOTAL CHANNEL LENGTH	FEET	364
CHANNEL WIDTH	FEET	9
PREDICTED BAFFLE FACTOR	T_{10}/T	0.7

CHLORINE CONTACT TIME

DESCRIPTION.	UNITS	NEW
PLANT TYPE	-	DIRECT FILTRATION
REQUIRED LOG REMOVAL	-	1 GIARDIA, 3 VIRUS
RESIDUAL CHLORINE CONCENTRATION	MG/L	0.375

MONTH	PEAK FLOW RATE[4] (MGD)	WATER TEMPERATURE[1] (°C)	PH[2] (SU)	REQUIRED CT[3] (MG MIN/L)	ACTUAL CT (MG MIN/L)	RATIO
JANUARY	0.7	5.1	8.5	82	243	3.0
FEBRUARY	1.2	5.6	7.8	61	147	2.4
MARCH	1.6	5.4	8.0	67	109	1.6
APRIL	1.7	5.8	8.2	70	104	1.5
MAY	2.0	6.7	8.2	65	88	1.4
JUNE	2.0	8.1	8.2	59	88	1.5
JULY	2.0	9.1	8.2	56	88	1.6
AUGUST	2.0	9.3	8.2	55	88	1.6
SEPTEMBER	2.0	8.4	8.3	61	88	1.5
OCTOBER	1.6	7.4	8.4	68	108	1.6
NOVEMBER	1.3	6.7	8.5	74	136	1.9
DECEMBER	1.0	5.4	8.5	80	176	2.2

NOTES:

1. MONTHLY 5TH PERCENTILE WATER TEMPERATURE BASED ON HISTORICAL PLANT DATA FROM 2017 TO 2019.
2. MONTHLY 90TH PERCENTILE PH BASED ON HISTORICAL PLANT DATA FROM 2017 TO 2019.
3. CALCULATIONS BASED ON EPA CT TABLE FOR GIARDIA INACTIVATION AND INTERPOLATED USING NORTON EQUATION.
4. MONTHLY PEAK FLOW IS THE 95TH PERCENTILE FLOW RATE BASED ON HISTORICAL DATA FROM 2017 TO 2019.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
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GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

GENERAL
DRAWING INDEX AND
DESIGN CRITERIA

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: G001

ABBREVIATIONS

GENERAL

A/C	AIR CONDITIONER
AB	ANCHOR BOLT
AC	ASBESTOS CEMENT
ACP	AIR COMPRESSOR
ACT-MR	ACOUSTICAL CEILING TILE, MOISTURE RESISTANT
AD	AREA DRAIN
ADH	ADHESIVE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AH	AIR HEATER
AHU	AIR HANDLING UNIT
AL, ALUM	ALUMINUM
ALLOW	ALLOWANCE/ALLOWABLE
ALT	ALTERNATE
APPROX	APPROXIMATE
AR	AIR RECEIVER
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
AT	ASPHALT TILE
ATF	AIR TERMINAL UNIT (FAN POWERED)
ATS	AUTOMATIC TRANSFER SWITCH
ATU	AIR TERMINAL UNIT
B	BORING
BC	BOILER CHEMICALS
BD	BOARD
BDD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFE	BOTTOM OF FITTING ELEV
BH	BASEBOARD HEATER
BITUM	BITUMINOUS
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLW	BLOWER
BM	BENCH MARK
BOC	BOTTOM OF CONCRETE
BOM	BOTTOM OF MASONRY
BOT	BOTTOM
BRC	BRIDGE CRANE
BRG	BEARING
BRK	BRICK
BRL	BUILDING RESTRICTION LINE
BRZ	BRONZE
BT	BOLT
CB	CATCH BASIN
CBD	COUNTERBALANCE BACKDRAFT DAMPER
CC	COOLING COIL
C/C	CENTER TO CENTER
CCP	CIRCULATING PUMP
CD	CONTROL DAMPER
CDWP	CONDENSER WATER PUMP
CE	CONSTRUCTION EASEMENT
CEM	CEMENT
CER	CERAMIC
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CHEM	CHEMICAL
CL	CENTERLINE
CLKG	CAULKING
CPLG	COUPLING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CON	CONCENTRIC
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUATION
CONTR	CONTRACTOR
CORP	CORPORATION
CP	CONCRETE PLANK OR CONTROL PANEL, OR CONTROL POINT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRS	COURSE
CT	CERAMIC TILE
CTJ	CONTROL JOINT
CU	COPPER OR CONDENSING UNIT
CY	CUBIC YARD
DAD	DESICCANT AIR DRYER
DD	DESICCANT DRYER
DEC	DECANT
DEG	DEGREE
DEH	DEHUMIDIFIER
DEM	DEMISTER
DET	DETAIL
DF	DUCT FAN OR DRINKING FOUNTAIN
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DIST	DISTRIBUTION
DJ	DISMANTLING JOINT
DKC	DOOR OPERATOR (ELECTRIC)
DL	DEAD LOAD
DN	DOWN
DOZ	DOZEN
DP	DISTRIBUTION PANEL
DS	DISCONNECT SWITCH
D/S	DOWNSTREAM
DWG(S)	DRAWING(S)
DWL	DOWEL
EA	EACH
ECC	ECCENTRIC
ECH	ELECTRIC CABINET HEATER
ED	EQUIPMENT DRAIN
EDH	ELECTRIC DUCT HEATER
EDP	EMERGENCY DISTRIBUTION PANEL
EE	EACH END
EEW	EMERGENCY EYE WASH
EF	EACH FACE OR EXHAUST FAN
EFF	EFFLUENT /EFFECTIVE
EHH	ELECTRICAL HANDHOLE
EL	ELEVATION
ELEC	ELECTRICAL
ELP	EMERGENCY LIGHTING PANEL
EMH	ELECTRICAL MANHOLE
ENGR	ENGINEER
ENT	ENTRANCE
EOG	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
EPP	EMERGENCY POWER PANEL
EPX	EPOXY
EQ	EQUAL
EQPT	EQUIPMENT
ERH	ELECTRIC WIRE ROPE HOIST
ES	EMERGENCY SHOWER OR EMERGENCY SWITCH
ES/EEW	EMERGENCY SHOWER AND EYEWASH
EUH	ELECTRIC UNIT HEATER
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST/EX	EXISTING
EXC	EXCAVATE
EXH	EXHAUST
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAN
FAB	FABRICATE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FC	FLUSHING CONNECTION
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER/FLOW ELEMENT
FEF	FUME EXHAUST FAN
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISH
FIX	FIXTURE
FL	FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FLXC	FLEXIBLE CONNECTION
FPM	FEET PER MINUTE
FM	FLOW METER
FOC	FIBER OPTICS CABLE
FPRF	FIREPROOF
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FT	FEET OR FIN TUBE HEATER
FTG	FITTING
FURR	FURRING OR FURRED
FWR	FINISHED WATER RESERVOIR
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GR	GRADE
GRTG	GRATING
GUH	GAS UNIT HEATER
GW	GUY WIRE
GWH	GAS WATER HEATER
GYP	GYPSUM
HB	HOSE BIBB
HC	HEATING COIL
HCP	HORIZONTAL END SUCTION CENTRIFUGAL PUMP
HDW	HARDWARE
HE	HEAT EXCHANGER
HEX	HEXAGONAL
HHRG	HYBRID HIGH RESISTANCE GROUNDING
HORIZ	HORIZONTAL
HP	HORSEPOWER OR HEAT PUMP
HPT	HIGH POINT
HR	HOUR
HRU	HEAT RECOVERY UNIT
HRG	HIGH RESISTANCE GROUNDING
HT	HEIGHT
HUM	HUMIDIFIER
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HEADWALL
HWB	HEATING WATER BOILER
HWCH	HEATING WATER CABINET HEATER
HWL	HIGH WATER LEVEL
HWP	HEATING WATER PUMP
HWY	HIGHWAY
HYD	HYDRAULIC
I	IRON
I&C	INSTRUMENTATION AND CONTROLS
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INCL	INCLUDED
INF	INFLUENT
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
IPP	INSTRUMENT POWER PANEL
JA	JORDAN AQUEDUCT
JB	JUNCTION BOX
JCT	JUNCTION
JNPL	JORDAN NARROWS PIPELINE
JT	JOINT
JVWTP	JORDAN VALLEY WATER TREATMENT PLANT
L	LENGTH/ANGLE
LA	LINE AHEAD
LAM	LAMINATED
LAT	LATERAL
LB	POUND OR LINE BACK
LD	COMBINATION LOUVER/DAMPER
LF	LINEAR FEET
LG	LONG
LI	LEVEL INDICATOR
LIP	LIGHTING INDICATING PANEL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LIGHTING PANEL /LIGHT POLE
LPT	LOW POINT
LRG	LOW RESISTANCE GROUNDING
LS	LEVEL SWITCH
LTG	LIGHTING
LVR	LOUVER
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MANUF	MANUFACTURER
MATL	MATERIAL
MAU	MAKE UP AIR HANDLING UNIT
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCLU	MOTOR CONTROL LINE-UP
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MFM	MAGNETIC FLOW METER
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MJ	MECHANICAL JOINT
MH	MANHOLE
MIN	MINIMUM /MINUTE
MISC	MISCELLANEOUS
MLDG	MOLDING
MO	MASONRY OPENING
MOD	MODIFY OR MODIFIED
MON	MONUMENT
MOPO	MAINTENANCE OF PLANT OPERATIONS
MOV	MOTOR OPERATED VALVE
MTD	MOUNTED
MTG	MOUNTING
MULT	MULTIPLE
N	NORTH
NA	NOT APPLICABLE
NAD '83	NORTH AMERICAN DATUM OF 1983
NAVD '88	NORTH AMERICAN VERTICAL DATUM OF 1988
NC	NORMALLY CLOSED
NF	NEAR FACE
NGVD '29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NIC	NOT IN CONTRACT
No.	NUMBER
NO	NORMALLY OPEN
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER OR OVERHEAD DOOR
OF	OUTSIDE FACE /OVERFLOW
OHE	OVERHEAD ELECTRIC
OML	OIL MIST LUBRICATOR
OPER	OPERATOR
OPNG	OPENING
OPP	OPPOSITE
ORF	OIL REMOVAL FILTER
ORIG	ORIGINAL
P&ID	PROCESS AND INSTRUMENTAION DIAGRAM
PAC	PACKAGED AIR CONDITIONING UNIT
PAR	PARALLEL
PC	POINT OF CURVE OR PIECE OR PERSONAL COMPUTER
PCC	POINT OF COMPOUND CURVE
PCF	POUNDS PER CUBIC FOOT
PE	PLAIN END
PERF	PERFORATED
PERP	PERPENDICULAR
PF	PROPELLER FAN
PI	POINT OF INTERSECTION
PL	PROPERTY LINE OR PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLMB	PLUMBING
PNL	PANEL
POTM	POINT OF THE MOUNTAIN
PP	POWER PANEL OR POWER POLE
PREFAB	PREFABRICATED
PROP	PROPOSED
PRVN	POWER ROOF VENTILATOR
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSU	POWER SUPPLY UNIT
PVMT	PAVEMENT
QTY	QUANTITY
RAD	RADIUS
RECIR	RECIRCULATION
RECT	RECTANGULAR
RED	REDUCER
REF	REFERENCE
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
REST	RESTRAINED
REV	REVISE
RFD	REFRIGERANT AIR DRYER
RH	ROOF HOOD
RIO	REMOTE INPUT/OUTPUT
RJ	RESTRAINED JOINT
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE ASSEMBLY
RT	RIGHT
RTU	REMOTE TERMINAL UNIT
R/W OR ROW	RIGHT OF WAY
S	SOUTH OR SLOPE
SB	SOIL BORING
SBL	SURVEY BASELINE
SCH	SCHEDULE
SCG	SLUICE GATE
SCR	SELECTIVE CATALYTIC REDUCTION
SDG	SLIDE GATE
SECT	SECTION
SERV	SERVICE
SF	SQUARE FEET
SG	SWITCH GEAR
SHT(S)	SHEET(S)
SI	SQUARE INCH
SIL	SILENCER
SIM	SIMILAR
SMH	STORM MANHOLE
SP	SUMP PUMP
SPEC	SPECIFICATION
SQ	SQUARE
SSP	SUBMERSIBLE SUMP PUMP
SST	STAINLESS STEEL
STA	STATION OR STACK
STD	STANDARD
STG	STORAGE OR STOP GATE (LOG)
STIR	STIRRUP
STL	STEEL
STRU	STRUCTURAL
SUB	SUBSTITUTE
SUCT	SUCTION
SUPT	SUPERINTENDENT
SUR	SURFACE
SUSP	SUSPENDED
SWA	SOUTHWEST AQUEDUCT
SWD	SIDE WATER DEPTH
SYM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TBA	TO BE ABANDONED
TBCN	TRAVELING BRIDGE CRANE
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TCP	TEMPERATURE CONTROL PANEL
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE
TG	TEMPERED GLASS
THD	THREADED
THK	THICK
THRU	THROUGH
TOC	TOP OF CONCRETE
TOD	TOP OF DECK
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY/MANHOLE
TOS	TOP OF SLAB/ TOP OF STEEL
TOW	TOP OF WALL
TOL	TOLERANCE
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGG	UNDERGROUND GAS
UH	UNIT HEATER
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
U/S	UPSTREAM
UTIL	UTILITY
VAC	VACUUM
VACP	VACUUM PUMP
VAP	VAPORIZER
VAV	VARIABLE AIR VOLUME UNIT
VCD	VOLUME CONTROL DAMPER
VEL	VELOCITY
VENT	VENTILATING OR VENTILATION
VERT	VERTICAL
VF	VANE AXIAL FAN
VOL	VOLUME
VTR	VENT THROUGH ROOF
W	WEST /WIDTH /WATER
W/	WITH
WF	WALL FAN
WG	WIRE GLASS
WH	WALL HYDRANT OR WALL HEATER
WL	WATER LEVEL
WM	WATER METER
W/O	WITHOUT
WP	WATERPROOF
WPFG	WATER PROOFING
WSE/WS EL	WATER SURFACE ELEVATION
WSP	WELDED STEEL PIPE
WT	WEIGHT
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
WWTP	WASTEWATER TREATMENT PLANT
XFMR	TRANSFORMER
XMH	EXISTING MANHOLE
YH	YARD HYDRANT
YI	YARD INLET
YD	YARD
YR	YEAR

PIPING MATERIALS

CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
CU	COPPER PIPE
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PIPE
GSP	GALVANIZED STEEL PIPE
HDPE	HIGH DENSITY POLYETHYLENE
PE LINING	POLYETHYLENE LINING
RCP	REINFORCED CONCRETE PIPE
SST	STAINLESS STEEL PIPE
IPS	IRON PIPE SIZE
PVC	POLYVINYLCHLORIDE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
VCP	VITRIFIED CLAY PIPE

PROCESS PIPING

AW	AIR WASH
BW	BACKWASH
BWR	BACKWASH RECYCLE
BWS	BACKWASH SUPPLY
BYP	BYPASS
CAR	CARRIER
CHEM	CHEMICAL
CL2	CHLORINE GAS
CLS	CHLORINE SOLUTION
DCW	DECANT WATER
DR	DRAIN
FW	FINISHED WATER
FE	FINISHED EFFLUENT
FMX	FLASH MIX
FSA	FLUOROSILICIC ACID
FTW	FILTER TO WASTE
FW	FINISHED WATER
NAOH	SODIUM HYDROXIDE
NG	NATURAL GAS
PACL	POLYALUMINUM CHLORIDE
PD	PLANT DRAIN
PEA	ANIONIC POLYMER
PEC	CATIONIC POLYMER
PO	PLANT OVERFLOW
PRD	PRIMARY ROOF DRAIN
PW	POTABLE WATER
RW	RAW WATER
RCW	RECYCLE WATER
SA	SAMPLE LINE
SD	STORM DRAIN
SL	SOLIDS
SW	SETTLED WATER
UW	UTILITY WATER
WBW	WASTE BACKWASH WATER
WW	WASTE WASHWATER

GENERAL NOTES:

1. EXISTING PIPING IS DESIGNATED BY SERVICE RATHER THAN MATERIAL TYPE. MATERIAL TYPES, IF KNOWN, APPEAR OUTSIDE THE PIPING CALLOUT BUBBLE, AND MAY NOT BE THE SAME MATERIAL TYPES SPECIFIED FOR NEW PIPING.
2. ABBREVIATIONS USED IN THIS CONTRACT DOCUMENT CONFORM TO ANSI Y1.1, UNLESS NOTED OTHERWISE ON DRAWINGS. SEE SPEC. SECTION 01 42 00 FOR ADDITIONAL ABBREVIATIONS.
3. ALL STANDARD DETAILS APPLY TO ALL THE CONTRACTORS WORK WHETHER SPECIFICALLY REFERENCED OR NOT.
4. SEE FRONT END SHEETS FOR EACH DISCIPLINES STANDARD SYMBOLS, ETC.
5. SEE ADDITIONAL DISCIPLINE SPECIFIC GENERAL NOTES THROUGHOUT DRAWING SET.

LEGEND

SYMBOLS

BALL VALVE
BALL CHECK VALVE
BUTTERFLY VALVE
CHECK VALVE
SWING CHECK VALVE
CONTROL VALVE
DIAPHRAGM VALVE
FLUSHING CONNECTION
GATE VALVE
GLOBE VALVE
MOTOR OPERATED VALVE
NEEDLE VALVE
PINCH VALVE
PLUG VALVE
PRESSURE GAUGE WITH/WITHOUT DIAPHRAGM SEAL
PRESSURE REDUCING VALVE
PRESSURE RELIEF VALVE
PRESSURE RELIEF/VACUUM BREAKER VALVE
QUICK CONNECT COUPLING
SOLENOID VALVE
STRAINER
THREE WAY VALVE
UNION
HOSE BIBB
REDUCER
WALL PENETRATION
FLEXIBLE HOSE
SINGLE LINE DRAWINGS
DOUBLE LINE DRAWINGS
MECHANICAL COUPLING
WELDED JOINT
FLANGED JOINT
MECHANICAL, PUSH-ON OR RESTRAINED JOINT
HARNESSED FLANGED ADAPTER
SLEEVE TYPE COUPLING
HARNESSED SLEEVE TYPE COUPLING
DISMANTLING JOINT
EXPANSION JOINT
FIRE EXTINGUISHER
ES/EEW
PARTITION TYPE
DOOR SCHEDULE
LOUVER TYPE

MATERIALS

GRADE OR EARTH
ASPHALT PAVING
CAST IRON
STEEL
INSULATION
WATER SURFACE
GRATING
CHECKERED PLATE
GLASS
WOOD BLOCKING
CONCRETE FILL OR GROUT
CONCRETE MASONRY UNIT
BRICK
GRAVEL
CONCRETE

SECTION AND DETAIL KEYING

DRAWINGS ARE CROSS REFERENCED IN THE FOLLOWING METHOD:

(A) A SECTION CUT ON DRAWING A3 IS IDENTIFIED AS FOLLOWS:

A — SECTION LETTER
A6 — DRAWING WHERE SECTION IS SHOWN

(B) THE SECTION SHOWN ON DRAWING A6 IS IDENTIFIED AS FOLLOWS:

A — SECTION LETTER
A3 — DRAWING FROM WHERE SECTION WAS TAKEN

DETAILS ARE CROSS REFERENCED IN A SIMILAR MANNER, EXCEPT DETAILS ARE IDENTIFIED BY A SQUARE WITH A NUMBER IN THE UPPER HALF.

STANDARD DETAILS ARE REFERENCED BY A UNIQUE SEVEN DIGIT NUMBER AND ARE SHOWN ON THE CONTRACT DRAWINGS BY ONE OF TWO METHODS:

M-40-0100 — REFERENCED ITEM

OR:

SEE M-40-0100 — REFERENCED ITEM

LINETYPES

PROPOSED ITEMS
EXISTING ITEMS
HIDDEN ITEMS
DEMOLITION ITEMS
CENTER LINE
MATCH LINE

ROOM NAME LABEL

ROOM NAME
###
ROOM NAME
ROOM NUMBER

ELEVATION CALL OUT

DIRECTION OF VIEW
#
A###
ELEVATION #
DRAWING #

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER — NO.8740929 — G. PARRY OSBORN, JR. — 9/19/2024 — STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

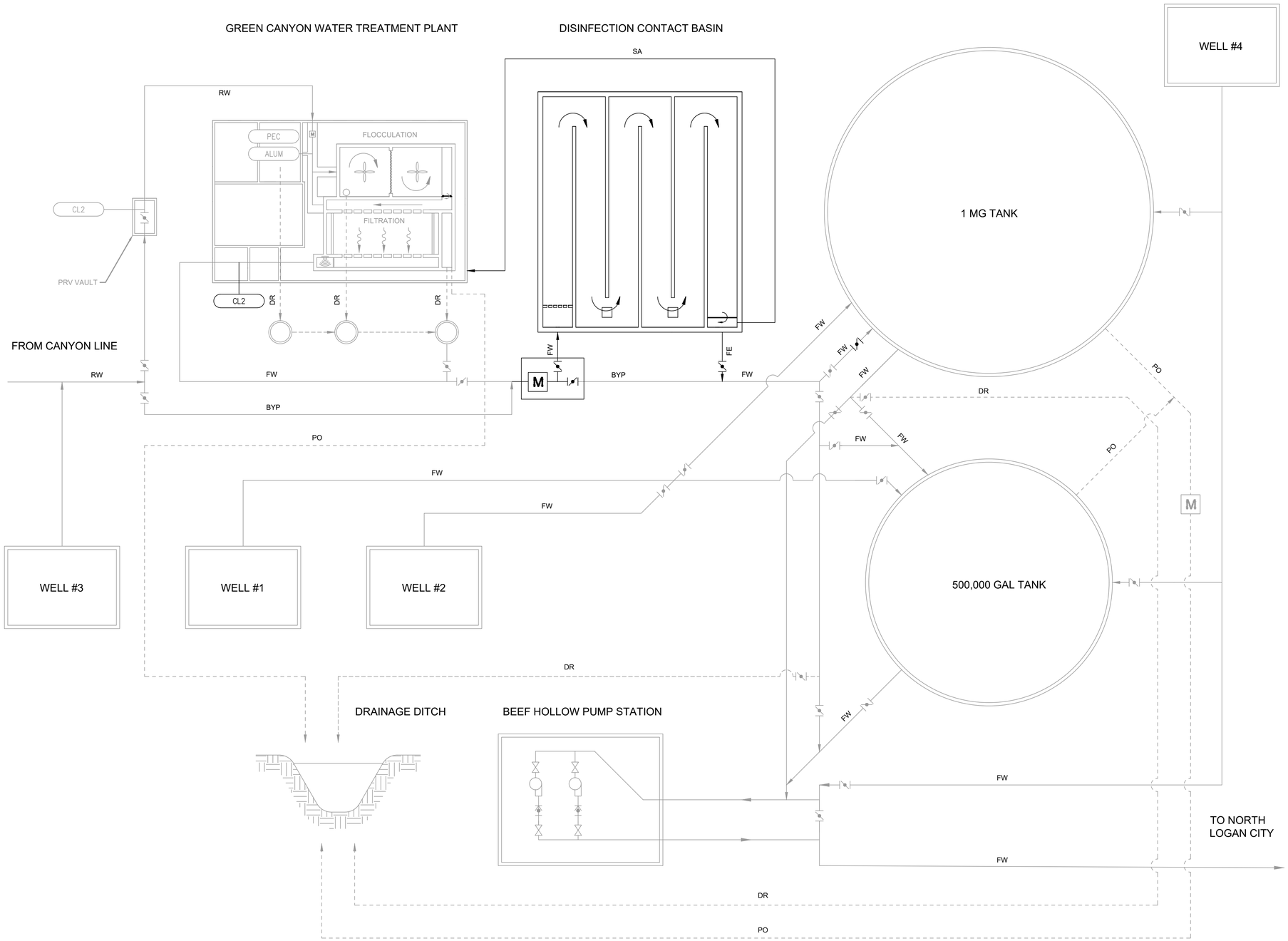
GENERAL
ABBREVIATIONS AND
LEGEND

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: G002

File: C:\USERS\NHALL\DCACDOCS\HAZEN AND SAWYER\70081-002_GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\GENERAL\70081-002-G002 Saved by NHALL Save date: 9/18/2024 3:41 PM
PLOT DATE: 9/19/2024 12:03 PM BY: NHALL

NOTES:

1. THIS PROCESS FLOW DIAGRAM WAS CREATED FROM PROVIDED RECORD DRAWINGS. FACILITIES NOT FOUND IN THE PROVIDED RECORD DRAWINGS ARE BASED ON A WORKING PROCESS FLOW DIAGRAM ESTABLISHED BY THE CLIENT.



REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	N. HALL
CHECKED BY:	T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

GENERAL
PROCESS FLOW DIAGRAM

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	G003

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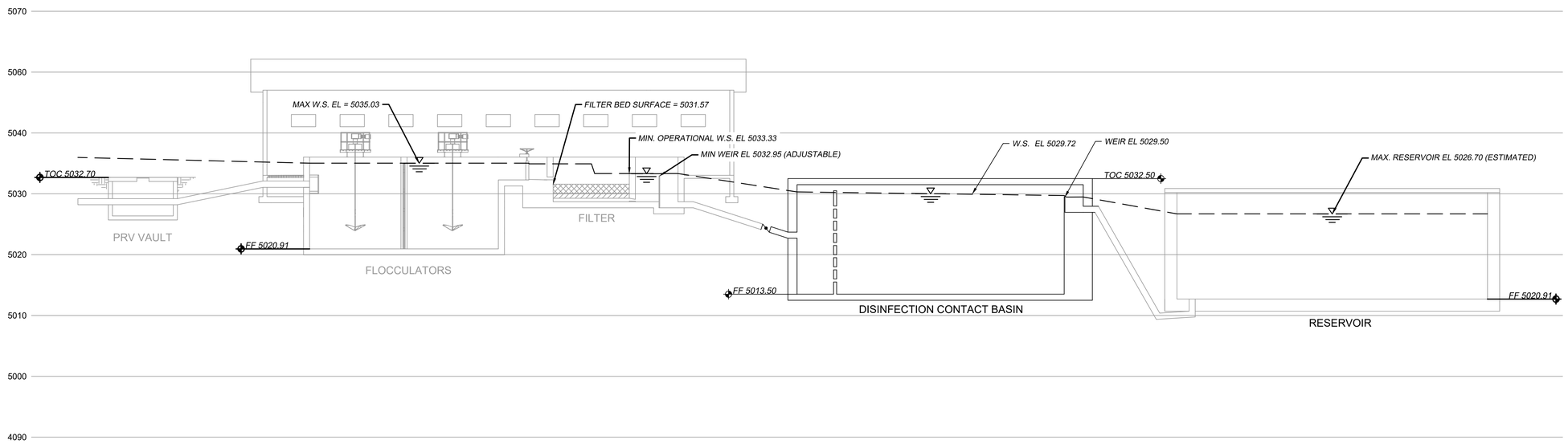


NOTES:

1. ELEVATIONS ARE MODELED AND CALIBRATED USING THE PROVIDED RECORD DRAWINGS AND ADJUSTED BASED ON SURVEY DATA. ELEVATIONS FOR FACILITIES NOT FOUND IN THE PROVIDED RECORD DRAWINGS WERE ESTIMATED BASED ON THE HYDRAULIC MODEL. SEE SUPPORTING CALCULATIONS FOR A MORE COMPLETE LIST OF ASSUMPTIONS.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	N. HALL
CHECKED BY:	T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

GENERAL
HYDRAULIC PROFILE

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	G004

NOTES:

1. EXISTING UTILITY AND FACILITY INFORMATION HAS BEEN PLOTTED FROM AVAILABLE RECORD DRAWINGS AND SURVEY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL THE UTILITIES AND FACILITIES. TAKE PRECAUTIONARY MEASURES AS NEEDED TO PROTECT EXISTING FACILITIES AND UTILITIES SHOWN AND NOT SHOWN THAT ARE TO REMAIN IN PLACE FROM DAMAGE. REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT FOR ALL SUBSURFACE UTILITIES AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TWELVE (12) WORKING DAYS PRIOR TO EXCAVATION.
2. RECORD AND PROVIDE THE ENGINEER WITH COORDINATES, ELEVATION OF TOP OF UTILITY, UTILITY SIZE, AND UTILITY MATERIAL OF ALL UTILITIES CROSSED AND ALL RELOCATED AND/OR ADJUSTED UTILITIES.
3. REMOVE AND REPLACE EXISTING FENCING AS NEEDED FOR SITE ACCESS. PROVIDE TEMPORARY FENCING AND MAINTAIN SITE SECURITY AT ALL TIMES DURING THE PROJECT.
4. SITE SURVEY WAS COMPLETED BY CACHE LANDMARK ENGINEERING, INC.

   CACHE LANDMARK ENGINEERING, INC.
   95 GOLF COURSE RD #101
   LOGAN, UTAH, 84321
5. SITE DATUM INFORMATION:

   VERTICAL DATUM:
   NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988

   HORIZONTAL DATUM:
   UTAH STATE PLANE NAVD 83, NORTH ZONE
   SCALE FACTOR 0.999759043274
   REFERENCE POINT:
   NORTHING: 792418.34
   EASTING: 548529.45
6. THIS TOPOGRAPHIC SURVEY IS NOT INTENDED TO BE A BOUNDARY SURVEY AND NO CORNERS WERE SET.
7. THE CONTROL POINTS SHOWN HEREIN WERE PLACED BY CACHE LANDMARK ENGINEERING, INC. FROM THE NORTH LOGAN CITY GREEN CANYON DISINFECTION CONTACT BASIN DESIGN PROJECT, TOPOGRAPHIC SURVEY AND SITE PLAN SHEET DATED JUNE 2024.
8. DO NOT STAGE EQUIPMENT OR MATERIALS ON THE ROOF OF THE DISINFECTION CONTACT BASIN OR THE EXISTING FINISHED WATER TANKS.

CONTRACTOR STAGING AND PARKING AREAS

CONTROL POINTS

POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION
4	5034.86	803578.77	564602.76	NEED LEVEL_WP RC BM 0.9FT S F EW
5	5011.46	803515.56	564095.95	NEED LEVEL_WP RC BM 3.9FT E. SIGN
3000	5028.46	803436.58	564268.79	CHECK WP3VRS 240301_VRS
3001	5047.31	803623.91	564858.57	CHECK WP1VRS 240301_VRS
3002	5044.82	803732.70	564789.81	CHECK WP2VRS 240301_VRS

PLAN
SCALE: 1" = 40'

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740029
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

CIVIL
TOPOGRAPHIC SURVEY
AND SITE PLAN

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: C001

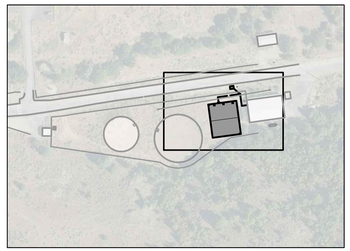
File: C:\USERS\NHALL\DCACDCDCS\HAZEN AND SAWYER\70081-002_GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\CIVIL\70081-002-C001 Saved by: NHALL Save date: 9/19/2024 11:01 AM
PLOT DATE: 9/19/2024 12:03 PM BY: NHALL

NOTES:

1. EXISTING UTILITY AND FACILITY INFORMATION HAS BEEN PLOTTED FROM AVAILABLE RECORDS AND SURVEY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UTILITIES AND FACILITIES ON SITE. TAKE PRECAUTIONARY MEASURES AS NEEDED TO PROTECT ALL EXISTING FACILITIES AND UTILITIES SHOWN AND NOT SHOWN FROM DAMAGE. REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT FOR ALL SUBSURFACE UTILITIES AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TWELVE (12) WORKING DAYS PRIOR TO EXCAVATION.
2. CUT EXISTING 12" CLASS 51 DI PIPE TO INSTALL A FLANGED 12" X 12" X 12" TEE. INSTALL TEE BETWEEN TWO US PIPE TR FLEX BY FLANGE CONNECTION PIECES. FIELD INSTALL TR FLEX RETAINER RINGS ON EXISTING PIPE AS REQUIRED. PROVIDE A THRUST BLOCK PER DETAIL C-01-0110. PROVIDE SUBMITTAL WITH DETAILED DESIGN OF THE THRUST BLOCK PRIOR TO INSTALLATION.
3. FIELD CUT EXISTING 12" CLASS 51 DI PIPE. INSTALL TR FLEX RETAINER RING ON EXISTING PIPE PLAIN END AND TIE INTO NEW NEW FINISHED WATER PIPING.
4. REMOVE AND RELOCATE EXISTING CAT5 COPPER CABLE FROM EXISTING CONDUIT. INTERCEPT EXISTING CONDUIT AND INSTALL NEW PULL BOX. ROUTE NEW CONDUIT AROUND NEW DISINFECTION CONTACT BASIN. SEE SHEET E003.
5. INSTALL 2 RESTRAINED FLEXIBLE STEEL COUPLINGS STARTING 3 FT FROM THE OUTER FACE OF THE DISINFECTION CONTACT BASIN WITH SEPERATION OF 7 LINEAR FEET. INSTALL PIPES STRAIGHT WITHOUT VERTICAL OR HORIZONTAL OFFSET. DO NOT USE JOINT ANGULAR DEFLECTION TO MAKE UP FOR MISALIGNED PIPE.
6. LOCATE AND TEMPORARILY REMOVE 6" FINISHED WATER PIPING AS NECESSARY FOR EXCAVATION. AFTER CONSTRUCTING THE DISINFECTION CONTACT BASIN, REINSTALL 6" FW PIPING. COORDINATE SHUTDOWN OF WELL NO. 1 WITH THE OWNER WITH A MINIMUM OF 30 DAYS NOTICE PRIOR TO COMMENCING EXCAVATION.
7. POTHOLE FOUR LOCATIONS ALONG EXISTING EXISTING 12" FW PIPE. PROVIDE ENGINEER WITH TOP OF PIPE ELEVATIONS AND CONFIRM PIPE MATERIAL AND SIZE. PROTECT PIPE IN PLACE FOR DURATION OF CONSTRUCTION.
8. CONTRACTOR TO POTHOLE EXISTING FW LINE AT APPROXIMATE LOCATIONS OF CONNECTION POINTS TO VERIFY PIPE ELEVATIONS (MINIMUM OF TWO LOCATIONS). PROVIDE ENGINEER WITH TOP OF PIPE ELEVATIONS AND LOCATIONS OF POTHOLES PRIOR TO MAKING CONNECTIONS.
9. PROVIDE INSERTA VALVE NEAR TANK TO ALLOW SHUTOFF OF LINE WITHOUT HAVING TO DRAIN THE TANK. AFTER VALVE IS INSTALLED, CONTRACTOR TO CUT AND REMOVE LINE BETWEEN NEW AND EXISTING VALVES. PROVIDE RESTRAINED PIPE CAPS ON OPEN ENDS OF PIPE.

XXX COORDINATES

KEY MAP:



COORDINATE TABLE

POINT NO.	INVERT ELEVATION	NORTHING	EASTING	DESCRIPTION
101	5021.86	803522.42	564496.48	12" DI 11.25 DEG BEND
102	5021.36	803521.95	564492.84	12" DI 11.25 DEG BEND
103	5021.17	803496.92	564437.83	12" DI 22.5 DEG BEND
104	5018.91	803503.70	564436.92	12" DI 22.5 DEG BEND
105	5018.91	803512.98	564435.68	12"X12"X12" DI TEE
106	5023.00	803475.73	564432.58	1" CPVC 90 DEG BEND
107	5023.50	803487.50	564431.01	1" CPVC 90 DEG BEND
108	5028.00	803499.07	564517.66	1" CPVC 90 DEG BEND
109	5018.91	803507.76	564436.38	12" DI BFV

PLAN
SCALE: 1:10

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	N. HALL
CHECKED BY:	T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

CIVIL
YARD PIPING PLAN

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	C002

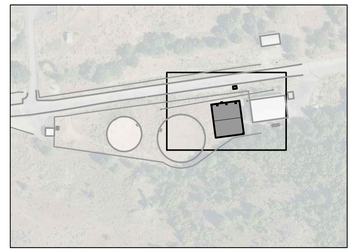
PLAN
SCALE: 1:10

NOTES:

1. EXISTING UTILITY AND FACILITY INFORMATION HAS BEEN PLOTTED FROM AVAILABLE RECORDS AND SURVEY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UTILITIES AND FACILITIES ON SITE. TAKE PRECAUTIONARY MEASURES AS NEEDED TO PROTECT ALL EXISTING FACILITIES AND UTILITIES SHOWN AND NOT SHOWN FROM DAMAGE. REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT FOR ALL SUBSURFACE UTILITIES AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TWELVE (12) WORKING DAYS PRIOR TO EXCAVATION.
2. REMOVE AND REPLACE EXISTING FENCE AS REQUIRED FOR EXCAVATION AND SITE ACCESS. PROVIDE TEMPORARY FENCING AND MAINTAIN SITE SECURITY FOR THE DURATION OF CONSTRUCTION ACTIVITIES.
3. FIELD LOCATE AND REROUTE EXISTING STORM DRAINAGE AROUND NEW DISINFECTION CONTACT BASIN AND TIE BACK INTO EXISTING DRAINAGE NEAR EXISTING GAS TANK.
4. RESEED DISTURBED AREAS WITH GRASS SEED PER SPECIFICATION 32 90 00.

XXX COORDINATES

KEY MAP:



COORDINATE TABLE

POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION
201	5032.50	803416.40	564442.52	TOC DCB SW CORNER
202	5032.50	803496.96	564494.32	TOC DCB NE CORNER
203	5028.00	803517.46	564481.49	TOC METER VAULT SW CORNER
204	5028.00	803524.44	564488.66	TOC METER VAULT NE CORNER

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD
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LICENSED PROFESSIONAL ENGINEER
NO. 8740029
C. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

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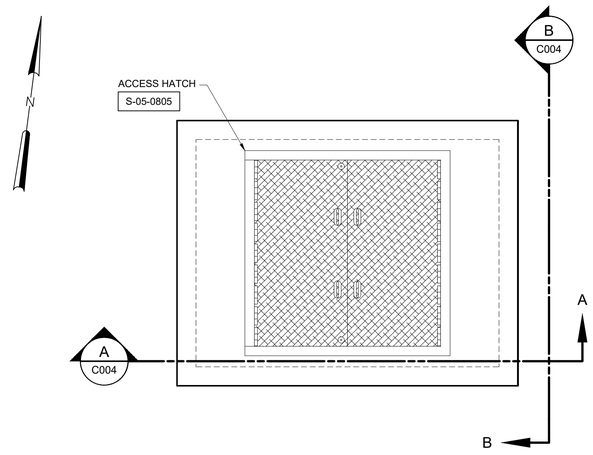
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

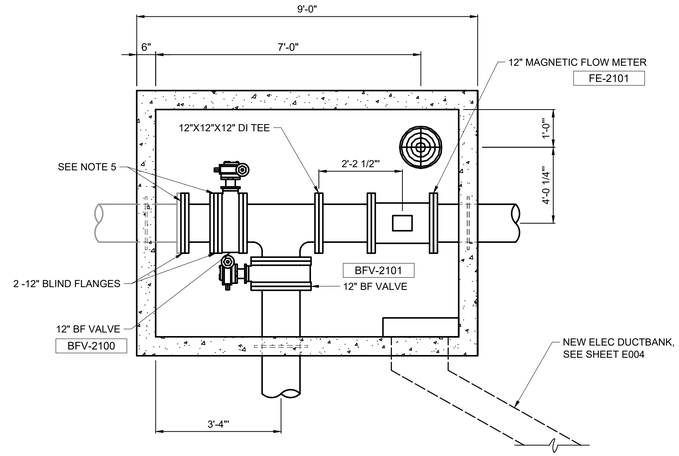
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

CIVIL
SITE GRADING PLAN

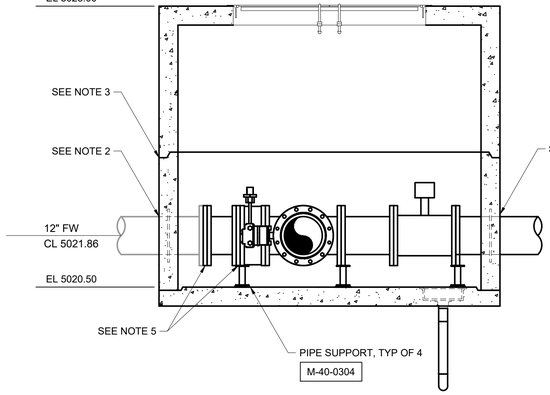
DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: C003



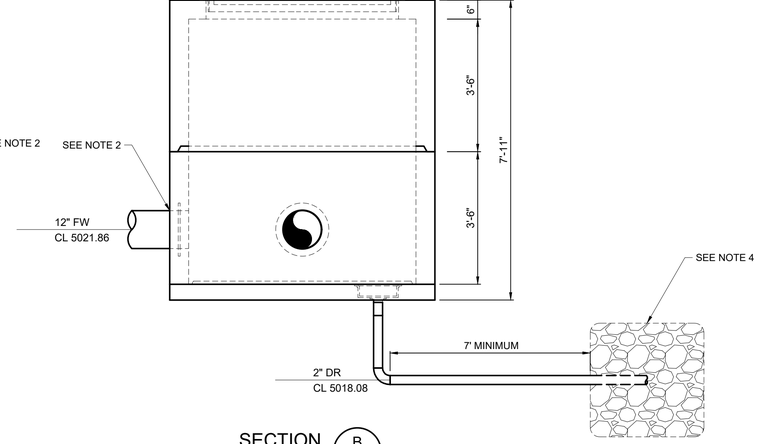
UPPER PLAN



LOWER PLAN



SECTION A C004



SECTION B C004

PRECAST CONCRETE METER VAULT

DETAIL 1

SCALE: 1/2" = 1' C002

NOTES:

1. INSTALL PRECAST CONCRETE 6'X8'X7' METER VAULT WITH DOUBLE LEAF DROP ACCESS HATCH.
2. MANUFACTURER TO PROVIDE KNOCKOUTS SIZED TO FIT SELECTED LINK SEAL. PROVIDE ENGINEER WITH LINK SEAL INFORMATION AT A MINIMUM 14 DAYS PRIOR TO SUBMITTING PRECAST CONCRETE VAULT SUBMITTAL.
3. SEAL JOINTS PER MANUFACTURERS RECOMMENDATION.
4. PROVIDE 2" FLOOR DRAIN TERMINATING IN A DRAINAGE WITH 1 CY OF #55 ROCK WRAPPED IN FILTER FABRIC.
5. INSTALL 12" MECHANICALLY RESTRAINED FLANGE ADAPTOR ON EXISTING 12" DI CLASS 51 PIPE AND TIE INTO NEW 12" FW PIPE WITH A FLG X FLG SPOOL. AFTER ADJUSTMENTS ARE MADE, REMOVE SPOOL AND INSTALL FIELD SIZED SPOOL WITH 2-12-INCH BLIND FLANGES ON EACH END. DELIVER FLG X FLG SPOOL TO OWNER.
6. CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE PIPE SUPPORTS PER REQUIREMENTS DETAILED IN SPECIFICATIONS AND PER SHEET MD-001. PIPE SUPPORTS ARE SHOW ILLUSTRATIVELY ONLY. FINAL PIPE SUPPORT DESIGN TO BE SUBMITTED TO ENGINEER FOR APPROVAL.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	N. HALL
CHECKED BY:	T. BIRD

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0 — 1/2" — 1")

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LICENSED PROFESSIONAL ENGINEER — NO. 8740029 — C. PARRY OSBORN, JR. — 9/19/2024 — STATE OF UTAH

Hazen
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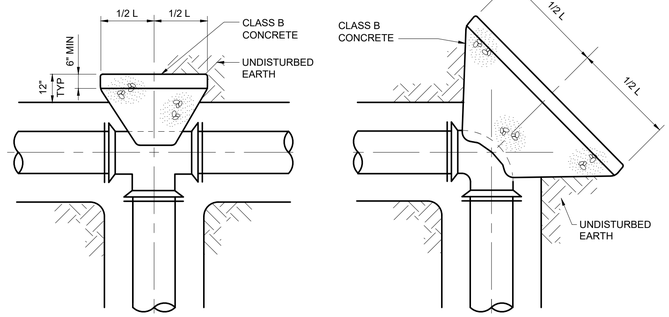
NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

CIVIL
SECTIONS AND DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	C004

NOTES:



PLAN - TEE PLAN - BEND

THRUST BLOCKS

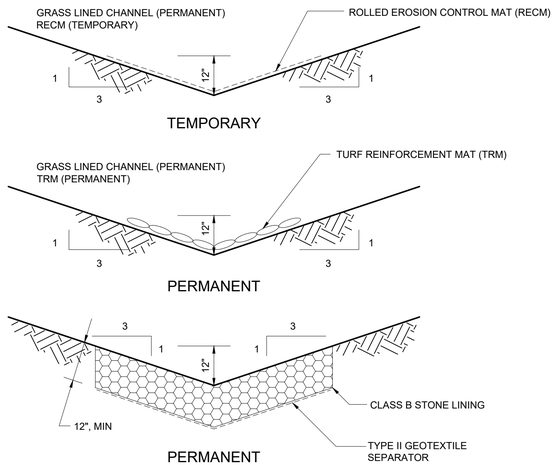
(SEE DETAIL C-01-0112 FOR DIMENSIONS)

C-01-0110

CONCRETE THRUST BLOCK SCHEDULE*									
PIPE SIZE	BEND								DESIGN PRESSURE
	90°/TEE		45°		22 1/2°		11 1/4°		
(IN)	H	L	H	L	H	L	H	L	(PSI)
12	2.7	5.4	2.0	4.0	1.4	2.8	1.0	2.0	100

* BASED ON AVERAGE SOIL PASSIVE BEARING STRENGTH OF 2000 PSF US SF OF 1.5. DIMENSIONS FOR BLOCKS IN FEET.

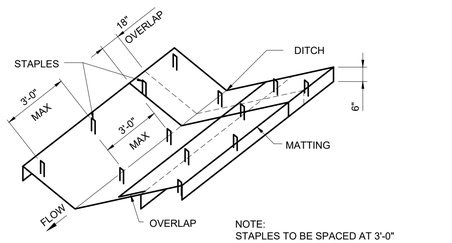
C-01-0112



TYPICAL DITCH DETAIL

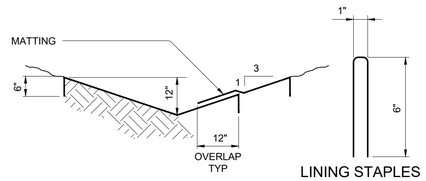
SEE DETAIL C-31-0470 FOR INSTALLATION DETAIL

C-31-0450



PERSPECTIVE VIEW

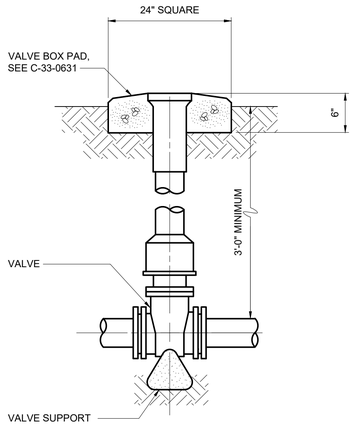
NOTE:
STAPLES TO BE SPACED AT 3'-0" MAX IN ALL DIRECTIONS.



LINING STAPLES

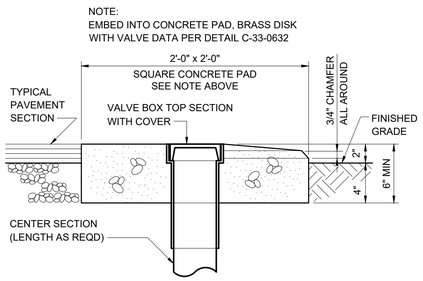
RECM AND TRM INSTALLATION

C-31-0470



VALVE BOX

C-33-0630



VALVE BOX PAD

C-33-0631

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	N. HALL
CHECKED BY:	T. BIRD

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

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9/19/2024
STATE OF UTAH

Hazen

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SOUTH JORDAN, UTAH 84095

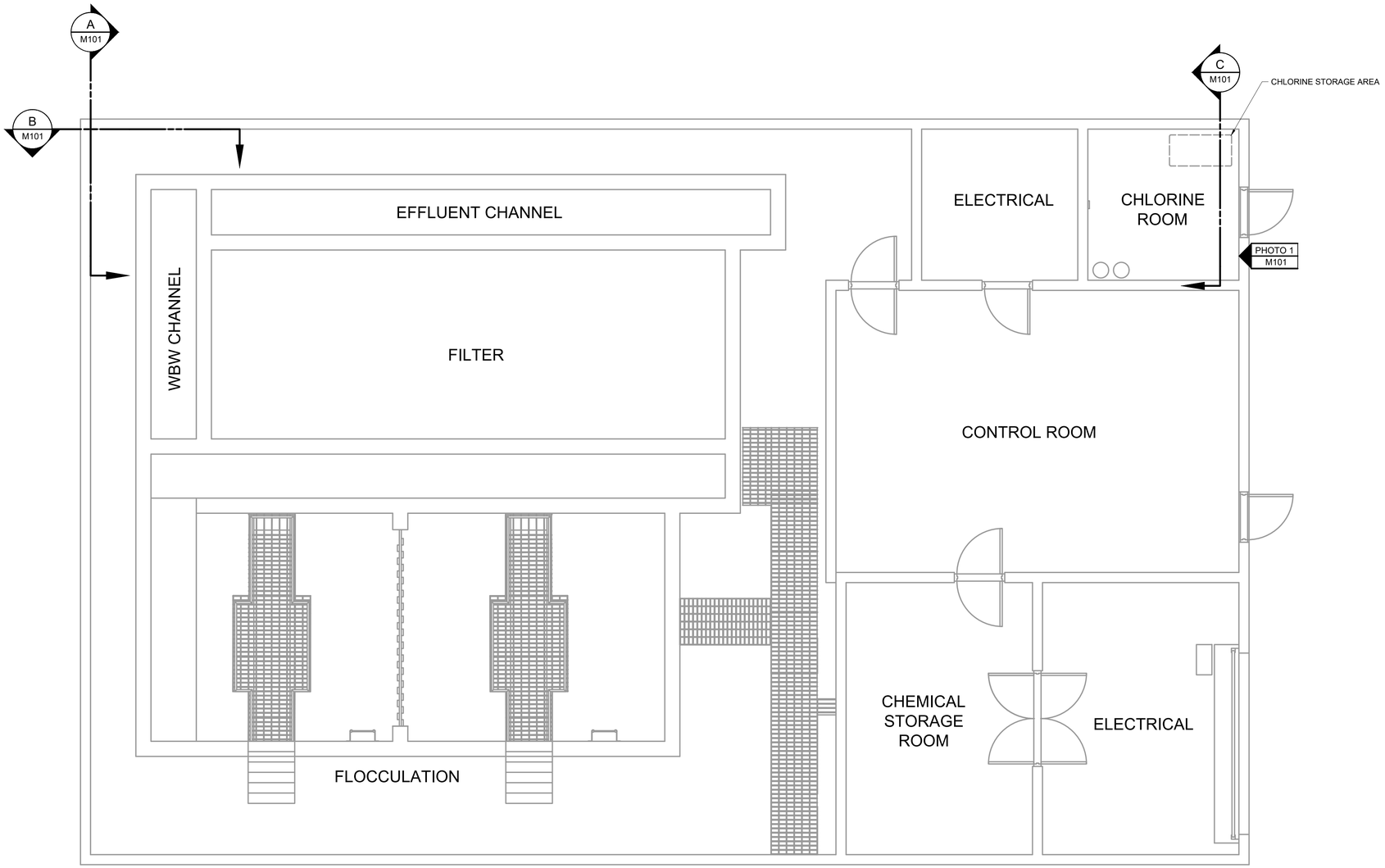
NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

CIVIL
STANDARD DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	CD001

File: C:\USERS\NHALL\DOCACCDOCS\HAZEN AND SAWYER\70081-002_ GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\CIVIL\70081-002-CD001 Saved by NHALL Save date: 9/19/2024 11:49 AM
PLOT DATE: 9/19/2024 12:04 PM BY: NHALL



PLAN VIEW
SCALE: 1/4" = 1'

NORTH

NOTES:

1. COORDINATE WATER TREATMENT FACILITY IMPROVEMENTS WITH OWNER. PROVIDE A MINIMUM OF 14 DAYS NOTICE BEFORE COMMENCING CONSTRUCTION ACTIVITIES INSIDE THE FACILITY.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
G. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
WATER TREATMENT BUILDING
SITE PLAN

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: M100

File: C:\USERS\NHALL\DOCACCDOCS\HAZEN AND SAWYER\70081-002_ GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\MECH\70081-002-M100 Saved by NHALL Save date: 9/19/2024 11:50 AM
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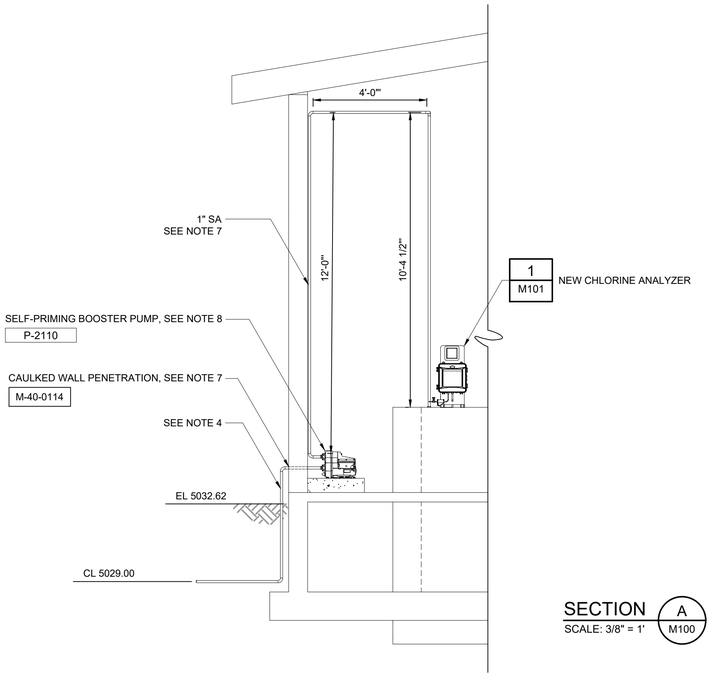
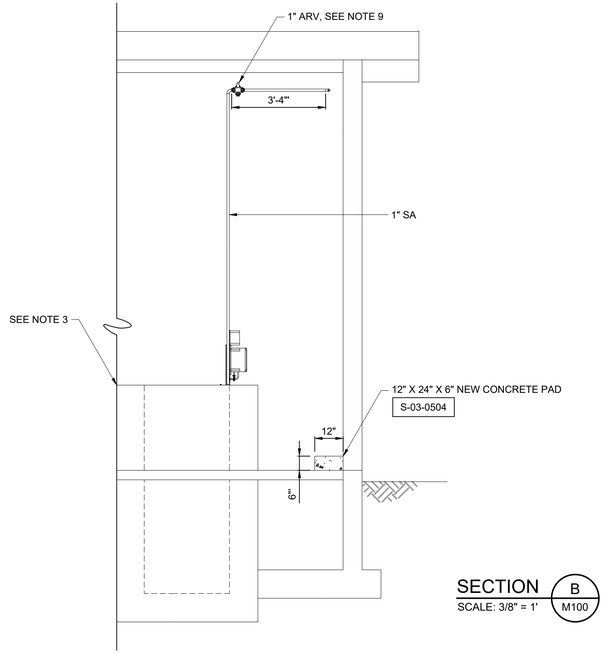


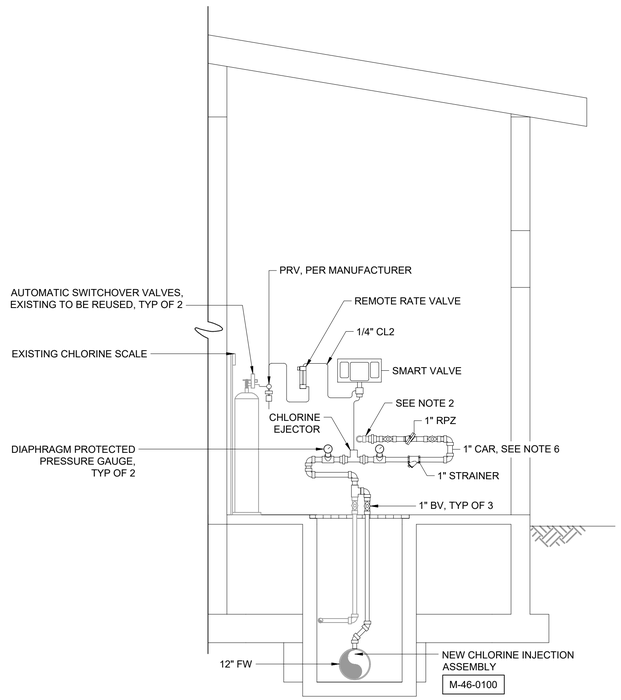
SECTION A
SCALE: 3/8" = 1' — M100



SECTION B
SCALE: 3/8" = 1' — M100

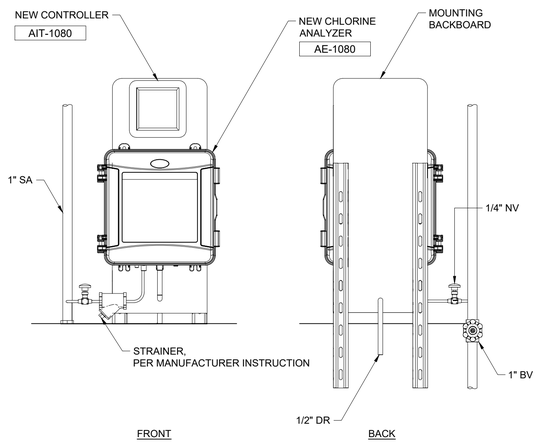
NOTES:

1. DEMOLISH EXISTING CARRIER WATER PIPING INCLUDING VALVES, STRAINER, AND GAUGES.
2. TIE INTO EXISTING COPPER PLANT WATER LINE WITH A COPPER TO PVC TRANSITION COUPLING. FIELD VERIFY EXISTING COPPER TUBING DIAMETER AND MATCH APPROPRIATE TRANSITION COUPLING.
3. PROTECT IN PLACE EXISTING CHLORINE ANALYZER. INSTALL NEW CHLORINE ANALYZER ADJACENT TO THE EXISTING ANALYZER. PIPE RESIDUAL WASTE STREAM INTO THE WBW CHANNEL.
4. INSTALL HEAT TRACING ALONG 1" SA PIPE STARTING AT THE OUTER FACE OF THE BUILDING AND CONTINUE UNTIL BELOW THE FROST LINE.
5. REPLACE IN KIND REGAL SMARTVALVE, REGAL SWITCHOVER REGULATOR HEAD, GAS SENSOR, AND PRESSURE RELEASE VALVE.
6. CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE PIPE SUPPORTS AND PIPE RACKS PER REQUIREMENTS DETAILED IN SPECIFICATIONS. SUBMIT FINAL PIPE SUPPORT DESIGN TO ENGINEER FOR APPROVAL.
7. CORE DRILL HOLE THROUGH EXISTING WALL. FILL ANULAR SPACE WITH GROUT PER DETAIL M-40-0114.
8. GRUNDFOS SCALA2 3-45 OR APPROVED EQUAL SELF PRIMING PUMP. TRANSISTION FROM CPVC TO FLEXIBLE HOSING APROXIMATELY 1' UPSTREAM AND DOWNSTREAM OF THE NEW SELF-PRIMING BOOSTER PUMP.
9. ROUTE PRV DRAIN LINE TO DRAIN INTO WBW CHANNEL.



SECTION C
SCALE: 3/8" = 1' — M101

PHOTO 1
NO SCALE — M100



CHLORINE ANALYZER
DETAIL 1
NTS — M101

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER — NO. 8740029 — C. PARRY OSBORN, JR. — 9/19/2024 — STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
WATER TREATMENT BUILDING
SECTIONS AND DETAILS

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: M101

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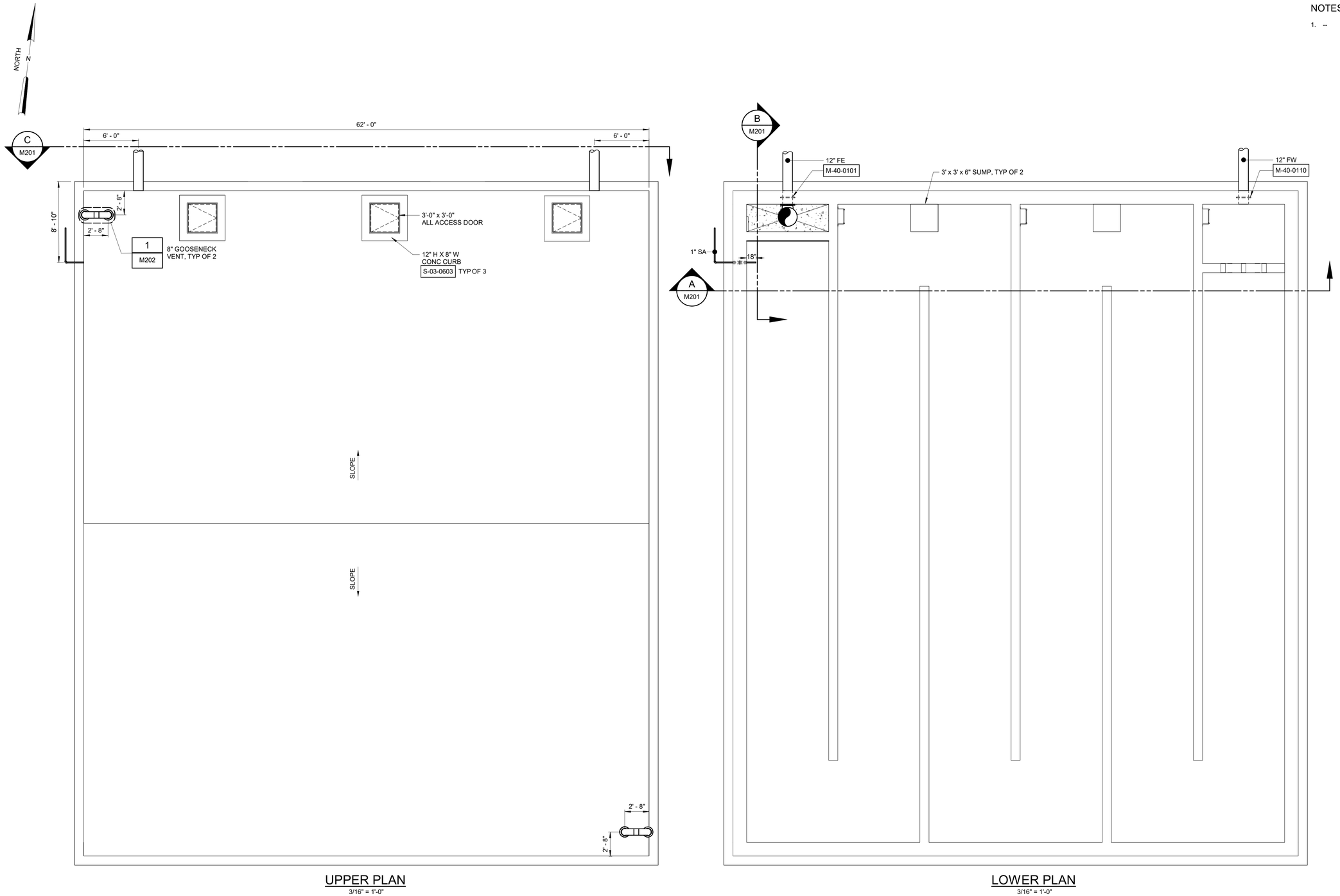
PLOT DATE: 9/19/2024 12:04 PM BY: NHALL

NOTES:

1. --



UPPER PLAN
3/16" = 1'-0"

LOWER PLAN
3/16" = 1'-0"

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	A. TREJO
CHECKED BY:	P. OSBORN

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
C. PARRY OSBORN, JR.
9/19/2024
STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
DISINFECTION CONTACT BASIN LOWER AND UPPER PLAN

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	M200

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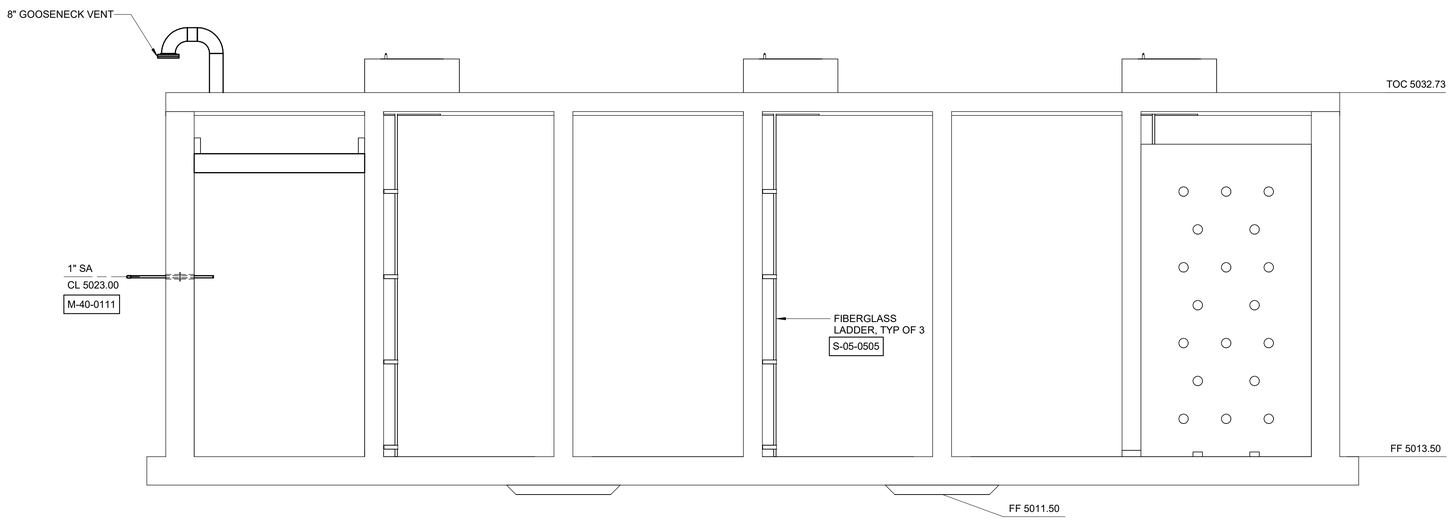
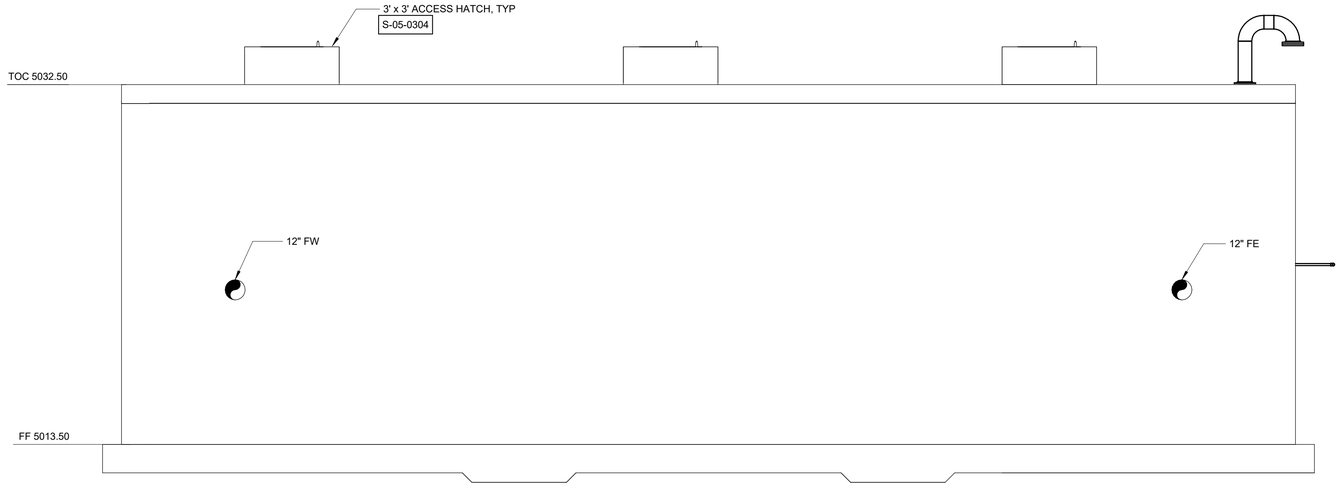
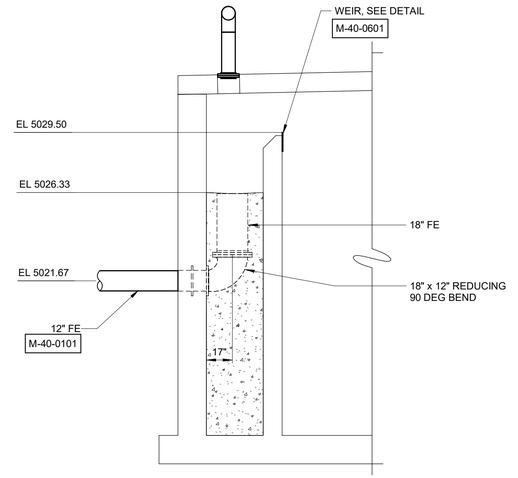


SECTION A
1/4" = 1'-0"
M200



SECTION C
1/4" = 1'-0"
M200



SECTION B
1/4" = 1'-0"
M200

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	A. TREJO
CHECKED BY:	P. OSBORN
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 8740929
C. PARRY OSBORN, JR
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GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
DISINFECTION CONTACT BASIN SECTIONS AND DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	M201

Autodesk Docs://70081-002_Green Canyon DCB Design/70081-002-200-GC-M.rvt
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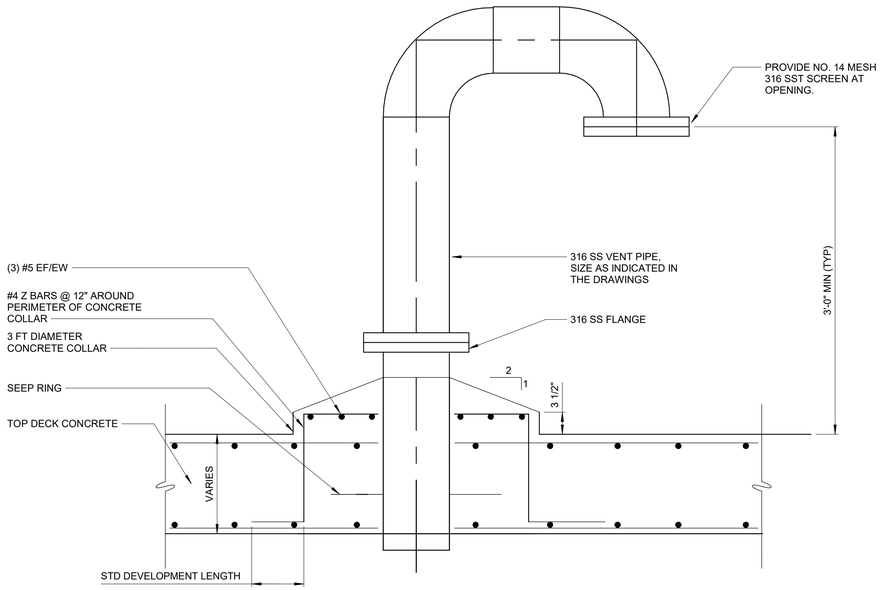

DETAIL 1

1" = 1'-0" M200

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	P. OSBORN
DRAWN BY:	A. TREJO
CHECKED BY:	P. OSBORN

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

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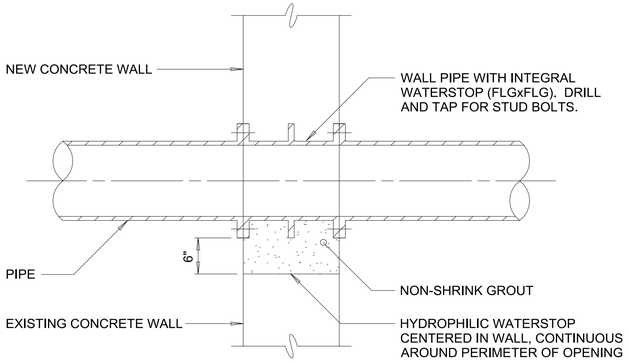
EST 1884

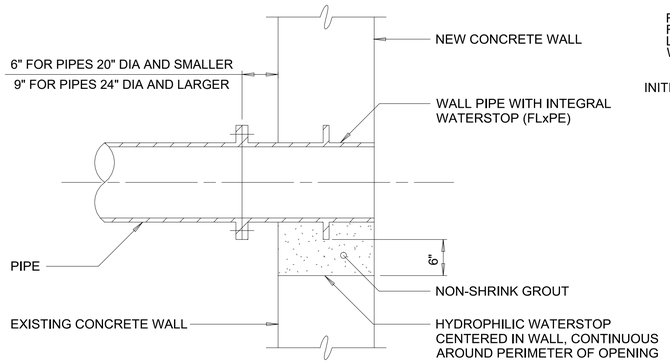
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
DISINFECTION CONTACT BASION DETAILS

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: M202



M-40-0101



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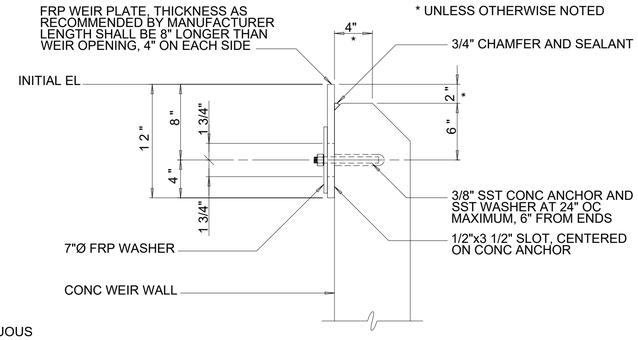
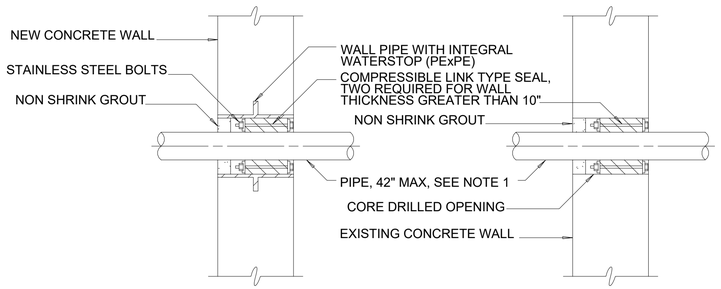


WEIR PLATE
M-40-0601

PIPE WALL SUPPORT AND SUPPORT RACK SHALL BE ASSEMBLED W/ CHANNEL FRAMES AND ACCESSORIES AS MANUFACTURED BY UNISTRUT CORP OR EQUAL

PIPE WALL SUPPORT

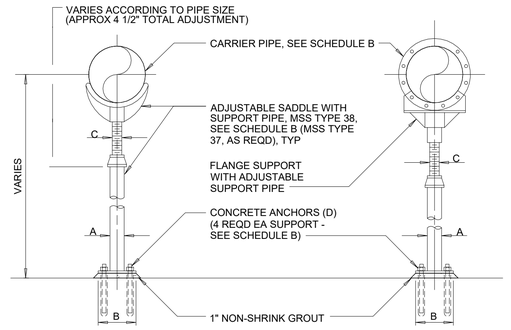
M-40-0301



NOTE:

1. THE USE OF COMPRESSIBLE TYPE LINK SEALS ON PIPES LARGER THAN 42" REQUIRES ENGINEER'S APPROVAL.
2. PRIOR TO INSTALLATION OF LINK SEAL, BURN BACK REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND FILL VOIDS CREATED WITH EPOXY RESIN BINDER.

M-40-0111



ADJUSTABLE SADDLE FLANGE SUPPORT

SCHEDULE B				
ADJUSTABLE SADDLE (DIM IN INCHES)				
PIPE SIZE	A	B	C	D DIA
3	2 1/2	7	1 1/2	5/8
4-12	3	7 1/2	2 1/2	5/8
14-16	4	9	3	5/8
18-20	6	11	3 1/2	3/4
24-48	6	11	4	3/4

M-40-0304

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: P. OSBORN
DRAWN BY: N. HALL
CHECKED BY: T. BIRD

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER NO.8740929 C. PARRY OSBORN, JR. 9/19/2024 STATE OF UTAH

Hazen
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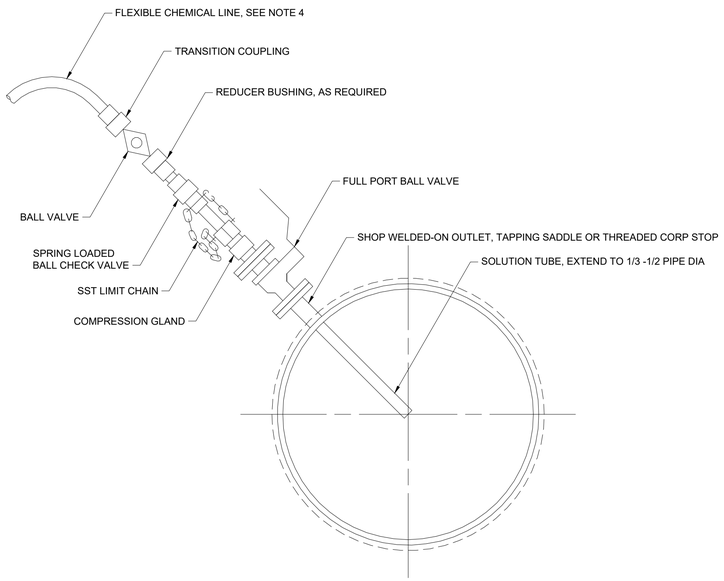
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
STANDARD DETAILS

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: MD001



CHEMICAL INJECTION QUILL
M-46-0100

NOTES:

1. CHEMICAL INJECTION QUILL SHALL BE INSTALLED IN INTERIOR SPACES OR IN A MANHOLE BUILT AROUND THE PROCESS PIPE. ORIENTATION WILL VARY TO SUIT THE INTSTALLATION, TAKING INTO ACCOUNT CHEMICAL CONSIDERATIONS AND REQUIRED CLEARANCE FOR RETRACTION AND INSERTION.
2. ALL WETTED COMPONENTS OF INECTION QUILL SHALL BE COMPLETELY RESISTANT OT CORROSION BY THE SPECIFIED CHEMICAL.
3. CHEMICAL INJECTION QUILL SHALL BE PROVIDED AS SPECIFIED IN SPECIFICATION 46 41 42.
4. PIPE SUPPORTS SHALL BE PROVIDED FOR FLEXIBLE CHEMICAL LINE AND RIGID CHEMICAL PIPING UPSTREAM OF THE INJECTION QUILL TO PREVENT FATIGUE AT THE TRANSITION COUPLING, RIGID AND FLEXIBLE CHEMICAL PIPING SHALL NOT BE SUPPORTED BY THE INJECTION QUILL.

REV	ISSUED FOR	DATE	BY

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G. PARRY OSBORN, JR.
9/19/2024
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EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

PROCESS MECHANICAL
STANDARD DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	MD002

GENERAL STRUCTURAL NOTES

G-1 THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.

G-2 STANDARD DETAILS SHALL BE USED WHEN REFERRED TO OR WHEN NO MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

G-3 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE 2021 INTERNATIONAL BUILDING CODE. THE DESIGN LOADS AND OTHER DESIGN VALUES GIVEN IN NOTES G-4 THROUGH G-8 WERE USED FOR DESIGN OF STRUCTURES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

G-4 LIVE LOADS:

STRUCTURE \ LEVEL	ROOF	TOP / FIRST FLOOR	BOTTOM / GROUND FLOOR
CHLORINE CONTACT BASIN	30 PSF	N/A PSF	N/A PSF

-ALL STAIRWAYS, LANDINGS AND PLATFORMS ARE DESIGNED FOR A LIVE LOAD = 100 PSF UNLESS NOTED OTHERWISE.

G-5 SNOW LOAD:

GROUND SNOW LOAD (Pg) = 61 PSF
FLAT-ROOF SNOW LOAD (Pf) = 46.5 PSF
SNOW EXPOSURE FACTOR (Ce) = 0.9
SNOW LOAD IMPORTANCE FACTOR (Is) = 1.10
THERMAL FACTOR (Ct) = 1.0

G-6 SEISMIC LOAD:

RISK CATEGORY = III
SEISMIC IMPORTANCE FACTOR (Ie) = 1.25
SITE CLASS = D
MAPPED SPECTRAL RESPONSE ACCELERATIONS (Ss/S1) = 0.977/0.326
SPECTRAL RESPONSE ACCELERATIONS (SMS) = 1.173
SPECTRAL RESPONSE COEFFICIENTS (SDS) = 0.782
SEISMIC DESIGN CATEGORY = D

G-7 RAIN LOAD:
RAIN INTENSITY (i) = 4.4 IN/HR

G-8 ALL DIMENSIONS INDICATED FOR EXISTING STRUCTURES SHALL BE VERIFIED BY FIELD MEASUREMENT. ALL DIMENSIONS THAT ARE CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER SHOP DRAWINGS PRIOR TO CONSTRUCTION.

G-9 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.

G-10 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.

G-11 EQUIPMENT ANCHOR SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE DESIGNED BY THE MANUFACTURER OF THE EQUIPMENT. IF EQUIPMENT MANUFACTURER IS UNABLE TO PROVIDE DESIGN OF ANCHOR EMBEDMENT, DESIGN SHALL BE BY ENGINEER RETAINED BY CONTRACTOR BASED ON LOADS PROVIDED BY EQUIPMENT MANUFACTURER. CONTRACTOR SHALL SUBMIT SIZE, PLACEMENT, AND EMBEDMENT REQUIREMENTS. ALL ANCHOR PATTERNS SHALL BE TEMPLATED TO ENSURE ACCURACY OF PLACEMENT.

G-12 STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.

G-13 STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

G-14 IF CONTRACTOR DESIRES TO TEMPORARILY PLACE OR MOVE LOADS ON OR ADJACENT TO EXISTING STRUCTURES OR UTILITIES DURING CONSTRUCTION PROCESS, CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR MAINTAINING STRUCTURAL INTEGRITY AND AVOIDING OVERSTRESSING AND DAMAGING EXISTING STRUCTURES AND UTILITIES. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS AND DRAWINGS VERIFYING THAT PROPOSED CONSTRUCTION (INCLUDING APPLICATION OF TEMPORARY CONSTRUCTION LOADS) WILL NOT OVERSTRESS OR DAMAGE EXISTING STRUCTURES AND UTILITIES. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF UTAH.

G-15 NO BACKFILL SHALL BE PLACED AGAINST ANY SUBSTRUCTURE WALLS UNLESS ALL ADJACENT SUPPORTING ELEMENTS HAVE ACHIEVED DESIGN STRENGTH, OR WALLS HAVE BEEN PROPERLY BRACED, AND IN ANY CASE NOT SOONER THAN 28 DAYS AFTER THE PLACING OF CONCRETE UNLESS APPROVED BY THE ENGINEER. SUPPORTING ELEMENTS SHALL INCLUDE ADJACENT WALLS, SLABS, BEAMS AND COLUMNS.

G-16 LEAKAGE TESTING OF HYDRAULIC STRUCTURES SHALL NOT BEGIN UNTIL ALL STRUCTURAL ELEMENTS HAVE REACHED THE SPECIFIED MINIMUM CONCRETE STRENGTH. BACKFILL SHALL NOT BE PLACED AROUND ANY HYDRAULIC STRUCTURE UNTIL THE LEAKAGE TEST HAS BEEN COMPLETED UNLESS APPROVED BY THE ENGINEER.

FOUNDATIONS

F-1 CONCRETE (CAST-IN-PLACE) NOTES APPLY TO FOUNDATIONS.

F-2 ALLOWABLE SOIL BEARING PRESSURE

STRUCTURE \ PARAMETER	ALLOWABLE SOIL BEARING PRESSURE
CHLORINE CONTACT BASIN	3000 PSF

F-3 MINIMUM DEPTH FROM ADJACENT FINISHED GRADE TO BOTTOM OF FOUNDATION = 19 FT

NONSTRUCTURAL COMPONENT ANCHORAGE AND BRACING

A-1 ANCHORAGE AND BRACING SHALL BE PROVIDED FOR NONSTRUCTURAL COMPONENTS IN ACCORDANCE WITH SPECIFICATION 01 73 23 - ANCHORAGE AND BRACING OF NONSTRUCTURAL COMPONENTS. "NONSTRUCTURAL COMPONENTS" INCLUDES ALL ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING ELEMENTS OR SYSTEMS (AND THEIR SUPPORTS OR ATTACHMENTS) WHICH ARE PERMANENTLY ATTACHED TO A SUPPORTING STRUCTURE. DESIGN OF ANCHORAGE AND BRACING SHALL BE PROVIDED BY CONTRACTOR'S ENGINEER UNLESS SPECIFICALLY DETAILED ON THE CONTRACT DRAWINGS.

A-2 ANCHORAGE AND BRACING OF ALL NONSTRUCTURAL COMPONENTS SHALL BE DESIGNED AND INSTALLED TO RESIST THE CONTROLLING LOAD COMBINATION OF GRAVITY LOADS, OPERATIONAL FORCES, WIND FORCES, SEISMIC FORCES, AND ANY OTHER APPLICABLE FORCES IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. WIND AND SEISMIC FORCES SHALL BE AS PER ASCE 7. COMPONENTS SHALL BE BOLTED, WELDED, OR OTHERWISE POSITIVELY FASTENED WITHOUT CONSIDERATION OF FRICTIONAL RESISTANCE PRODUCED BY THE EFFECTS OF GRAVITY. A CONTINUOUS LOAD PATH OF SUFFICIENT STRENGTH AND STIFFNESS TO RESIST REQUIRED FORCES SHALL BE PROVIDED BETWEEN THE COMPONENT AND THE SUPPORTING STRUCTURE. ANCHORAGE AND BRACING SHALL BE DESIGNED TO RESIST LOADS IN BOTH ORTHOGONAL DIRECTIONS (TRANSVERSE AND LONGITUDINAL) AND SHALL BE DESIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER CURRENTLY REGISTERED IN THE STATE OF UTAH.

A-3 COMPONENT REACTION FORCES AT THE POINT OF ATTACHMENT TO THE STRUCTURE SHALL BE SUBMITTED TO AND COORDINATED WITH THE ENGINEER FOR CONFIRMATION THAT SUPPORTING STRUCTURE IS ADEQUATE TO RESIST REQUIRED REACTION FORCES.

A-4 CONTRACTOR SHALL PROVIDE SPECIAL SEISMIC CERTIFICATION (SSC) FROM MANUFACTURER OF EQUIPMENT FOR ALL SYSTEMS REQUIRED BY SPECIFICATIONS. SPECIAL SEISMIC CERTIFICATION SHALL BE IN COMPLIANCE WITH ASCE 7.

CONCRETE (CAST-IN-PLACE)

C-1 DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 350 (CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES).

C-2 CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH):

A) CLASS A1 CONCRETE (4,500 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE TO BE USED IN ALL STRUCTURES QUALIFYING AS ENVIRONMENTAL CONCRETE STRUCTURES THAT ARE DESIGNED IN ACCORDANCE WITH ACI 350 INCLUDING PUMP STATIONS, TANKS, BASINS, PROCESS STRUCTURES, AND ANY STRUCTURES CONTAINING FLUID OR PROCESS CHEMICALS OR OTHER MATERIALS USED IN TREATMENT PROCESS.

B) CLASS B CONCRETE (3,000 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE USED FOR DUCT BANK ENCASEMENTS, CATCH BASINS, FENCE AND GUARD POST EMBEDMENT, CONCRETE FILL, AND OTHER AREAS WHERE SPECIFICALLY NOTED ON CONTRACT DRAWINGS.

C-3 ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064.

C-4 CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):

A) CONCRETE DEPOSITED DIRECTLY AGAINST SOIL:	3"
B) CONCRETE DEPOSITED AGAINST PLASTIC SHEETING:	2"
C) SLABS:	2"
D) BEAMS AND COLUMNS (TO MAIN REINFORCEMENT):	2 1/2"
BEAMS AND COLUMNS (TO COLUMN TIES OR STIRRUPS):	2"
E) WALLS 12" OR MORE:	2"

C-5 SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 350 UNLESS NOTED OTHERWISE. SPLICE LENGTH FOR TWO DIFFERENT SIZED BARS TO BE LAP SPLICED TOGETHER SHALL BE THE LENGTH OF THE LARGER BAR UNLESS NOTED OTHERWISE.

C-6 CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS NOT SHOWN SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER PRIOR TO SUBMITTING REBAR SHOP DRAWINGS.

C-7 ALL JOINTS WHICH ARE IN MEMBERS IN CONTACT WITH LIQUID OR BELOW GRADE SHALL HAVE A WATERSTOP. CONSTRUCTION JOINTS SHALL HAVE A 6" PVC RIBBED WATERSTOP. EXPANSION JOINTS SHALL HAVE A 9" PVC CENTER BULB RIBBED WATERSTOP. IN VERTICAL JOINTS, WATERSTOPS SHALL TERMINATE NO LESS THAN 18" ABOVE THE MAXIMUM WATER SURFACE OR 18" ABOVE GRADE, WHICHEVER IS HIGHER.

C-8 UNLESS SPECIFICALLY NOTED OTHERWISE, WALLS ABOVE INTERSECTING SLABS OF ALL LIQUID CONTAINING AND BELOW GRADE STRUCTURES SHALL HAVE HORIZONTAL REINFORCEMENT SPACING OF 6" MAXIMUM IN THE 6'-0" ZONE ABOVE THE CONSTRUCTION JOINT, SEE STANDARD DETAIL S-03-0115.

C-9 ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER.

C-10 EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE INSTALLED PRIOR TO PLACING CONCRETE.

C-11 REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.

C-12 CONDUITS AND OTHER SIMILAR ITEMS EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2" CLEAR. WHEN SUCH ITEMS ARE EMBEDDED IN WALLS OR SLABS, THEY SHALL NOT OCCUPY MORE THAN 1/3 OF THE MEMBER THICKNESS.

C-13 AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH ADHESIVE DOWELS AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.

C-14 ADJUST THE LOCATION OF DOWELS OR ANCHORS PLACED INTO HARDENED CONCRETE AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT PRIOR TO DRILLING HOLES FOR DOWELS OR ANCHORS.

C-15 CLEAR DISTANCE FROM ANCHOR RODS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.

EXISTING INFORMATION

X-1 ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM THE 1986 CONTRACT DRAWINGS AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.

X-2 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR DEMOLITION AND MODIFICATIONS.

SPECIAL INSPECTIONS

SI-1 SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND THE 2021 INTERNATIONAL BUILDING CODE.

DELEGATED STRUCTURAL DESIGN ITEMS

DSD-1 THE FOLLOWING ITEMS SHALL BE SUBMITTED AS DELEGATED STRUCTURAL DESIGNS DURING CONSTRUCTION, IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

A. EXCAVATION SUPPORT SYSTEMS
B. ANCHORAGE AND BRACING OF NONSTRUCTURAL COMPONENTS NOT SPECIFICALLY DESIGNED AND DETAILED ON THE CONTRACT DRAWINGS (INCLUDING, BUT NOT LIMITED TO, PIPE SUPPORTS AND EQUIPMENT)

DSD-2 DRAWINGS AND CALCULATIONS FOR EACH ITEM SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF UTAH.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER — NO. 12062210 — SAWYER K. INGRAM — 9/19/24 — STATE OF UTAH

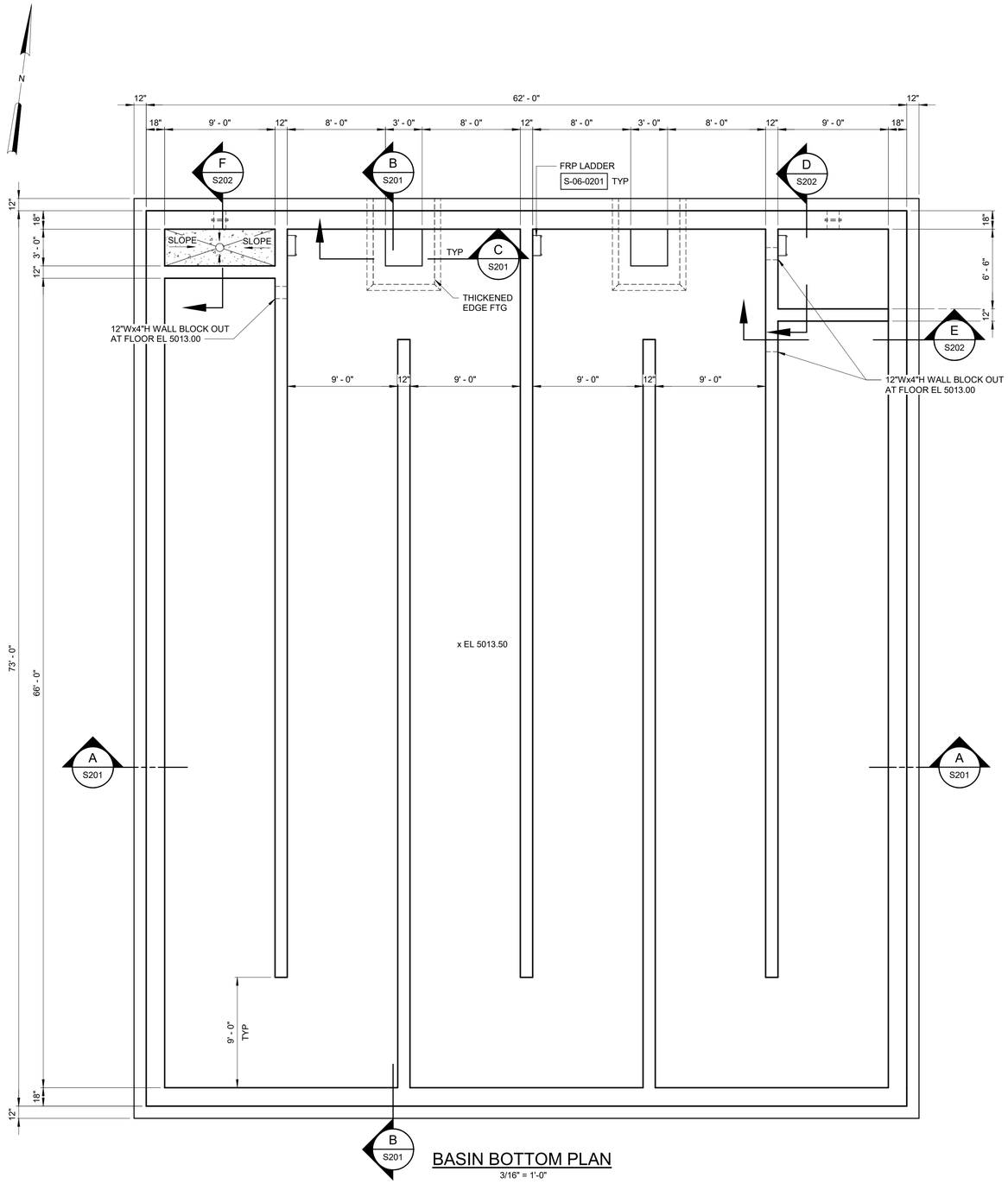
Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

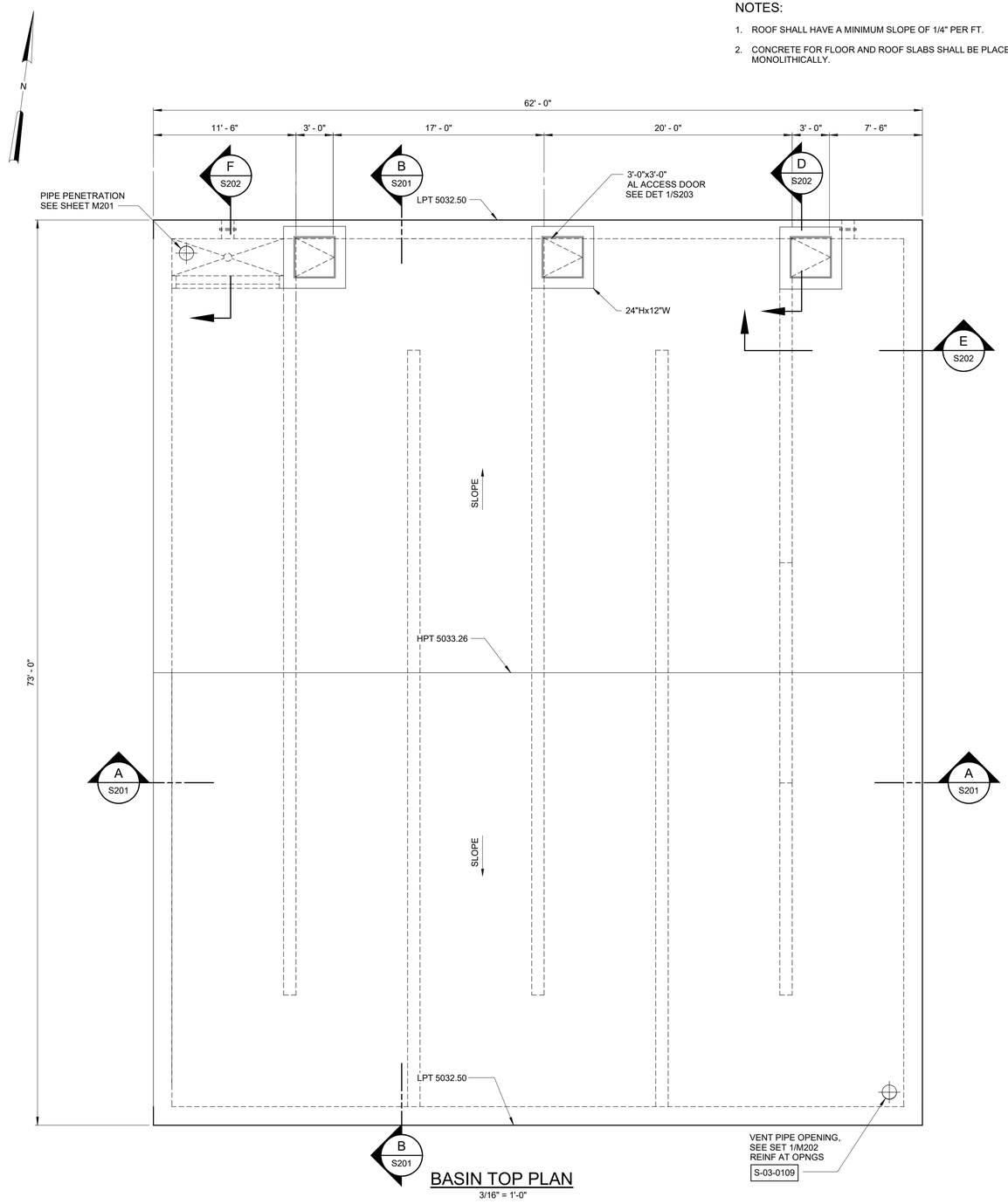
GENERAL
STRUCTURAL NOTES

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	S001



BASIN BOTTOM PLAN

3/16" = 1'-0"



BASIN TOP PLAN

3/16" = 1'-0"

NOTES:

1. ROOF SHALL HAVE A MINIMUM SLOPE OF 1/4" PER FT.
2. CONCRETE FOR FLOOR AND ROOF SLABS SHALL BE PLACED MONOLITHICALLY.

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 13202210
SAMUEL K. INGRAM
9/19/2024
STATE OF UTAH

Hazen

HAZEN AND SAWYER
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SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

STRUCTURAL
DISINFECTION CONTACT BASIN
PLANS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	S200

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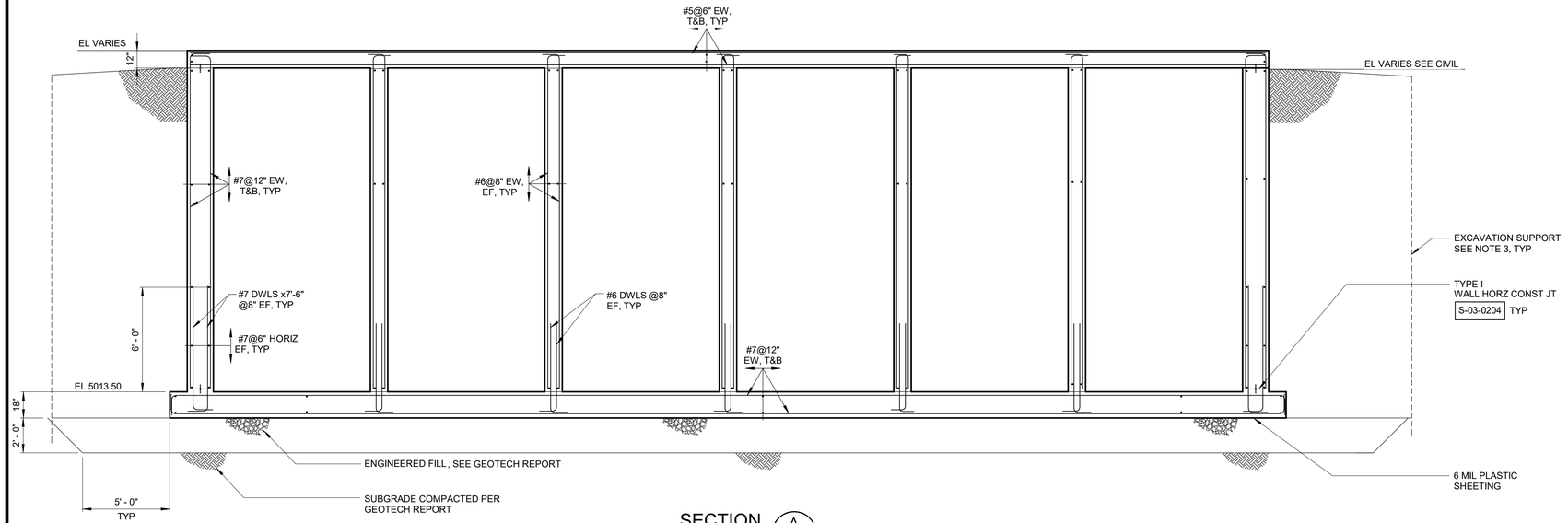
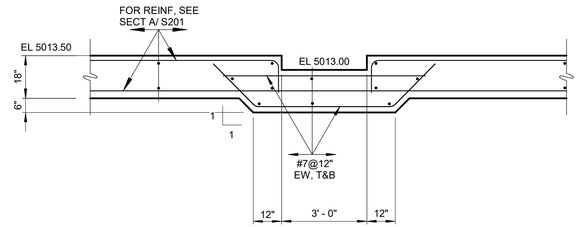


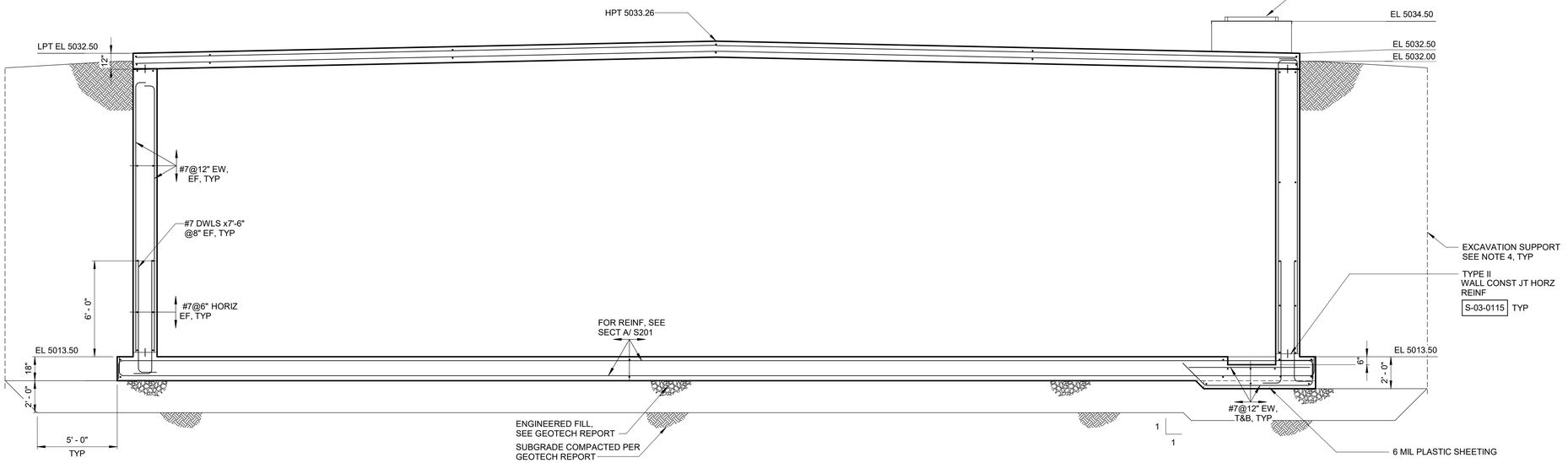
SECTION A
1/4" = 1'-0"
S200

NOTES:

1. FIELD OBSERVATIONS AND TESTING OF OPEN FOUNDATION EXCAVATIONS SHALL BE PERFORMED BY A QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO BACKFILL AND CONCRETE PLACEMENT TO VERIFY SUITABILITY OF SUBGRADE CONDITIONS.
2. LIMITS OF OVER-EXCAVATION VERTICALLY AND HORIZONTALLY BEYOND EACH EDGE OF FOUNDATION AND ENGINEERED SELECT FILL MATERIAL SHALL BE AS RECOMMENDED BY THE GEOTECHNICAL INVESTIGATION AND SPECIFICATION SECTION 30 00 01 - EARTHWORK.
3. CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR EXCAVATION SUPPORT SYSTEM. EXCAVATION SUPPORT SYSTEM SHALL BE DESIGNED SUCH THAT VIBRATIONS ARE MINIMIZED. VIBRATION MONITORING WILL BE REQUIRED DURING EXCAVATION SUPPORT SYSTEM INSTALLATION. DRIVEN EXCAVATION SUPPORT WILL NOT BE ALLOWED. PROPOSED EXCAVATION SUPPORT SYSTEM SHALL BE DESIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER CURRENTLY LICENSED IN THE STATE OF UTAH. CONTRACTOR SHALL SUBMIT EXCAVATION SUPPORT SYSTEM DESIGN CALCULATIONS AND ERECTION DRAWINGS SEALED BY A PROFESSIONAL ENGINEER CURRENTLY LICENSED IN THE STATE OF UTAH. EXCAVATION SUPPORT SYSTEMS DEPICTED ON DRAWINGS DO NOT NECESSARILY DEPICT FULL EXTENT OF EXCAVATION SUPPORT REQUIRED TO PERFORM CONSTRUCTION. CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR ADDING EXCAVATION SUPPORT SYSTEMS WHEREVER NEEDED TO FACILITATE CONSTRUCTION. CONTRACTOR SHALL REFERENCE CONTRACT SPECIFICATION SECTION 31 00 01 - EARTHWORK
4. CONTRACTOR SHALL SUBMIT DETAILS AND ANCHORAGE FOR ALL ACCESS DOORS. ACCESS DOORS SHALL BE BILCO ALUMINUM TYPE S CONSTRUCTION OR APPROVED EQUAL WITH TYPE 316 SS HARDWARE AND ENGINEERED LIFT ASSISTANCE FOR EASY ONE HANDED OPERATION. ACCESS DOORS SHALL BE LOCKABLE WITH A SEALED CHANNEL FRAME TO PREVENT WATER FROM SEEPING INTO THE CHLORINE CONTACT BASIN. FOR ADDITIONAL DETAILS REFER TO SPECIFICATION 05 53 00 GRATINGS, CHECKERED FLOOR PLATES AND ACCESS DOORS.
5. CONTRACTOR SHALL SUBMIT DETAILS AND ANCHORAGE FOR ALL FRP LADDERS. LADDERS SHALL BE STRUCTURAL FIBERGLASS INCOPERATED FRP FIXED LADDER WITH RETRACTABLE WALKTHROUGH OR APPROVED EQUAL.



SECTION C
3/8" = 1'-0"
S200



SECTION B
1/4" = 1'-0"
S200

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 12063210
SAMUEL K. INGRAM
9/19/24
STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

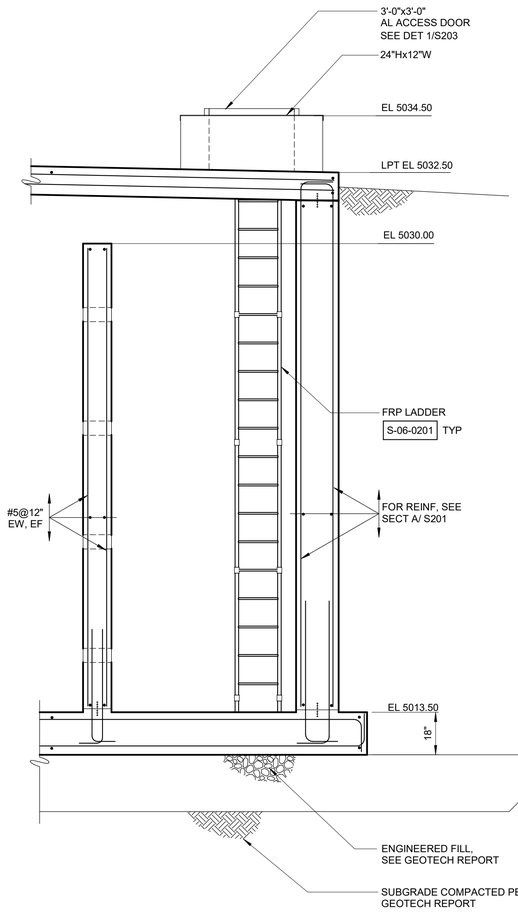
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

STRUCTURAL
DISINFECTION CONTACT BASIN
SECTIONS - SHEET 1

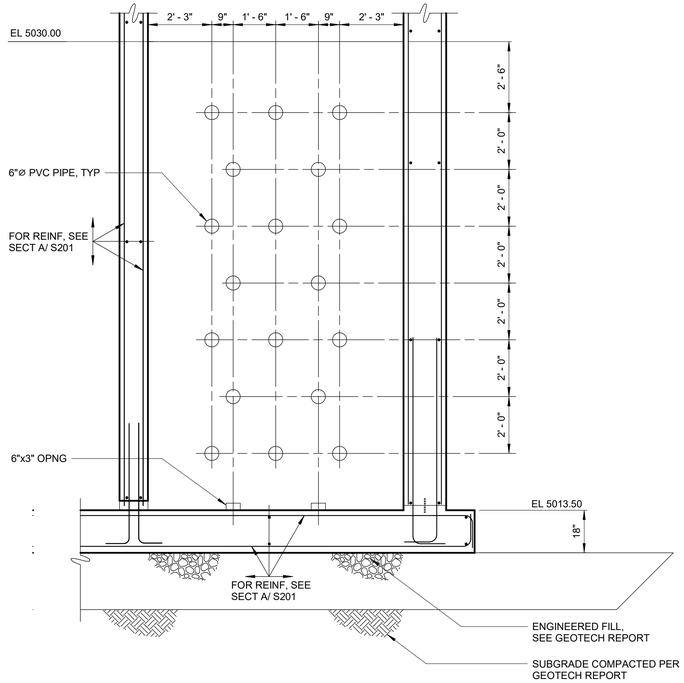
DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	S201

NOTES:

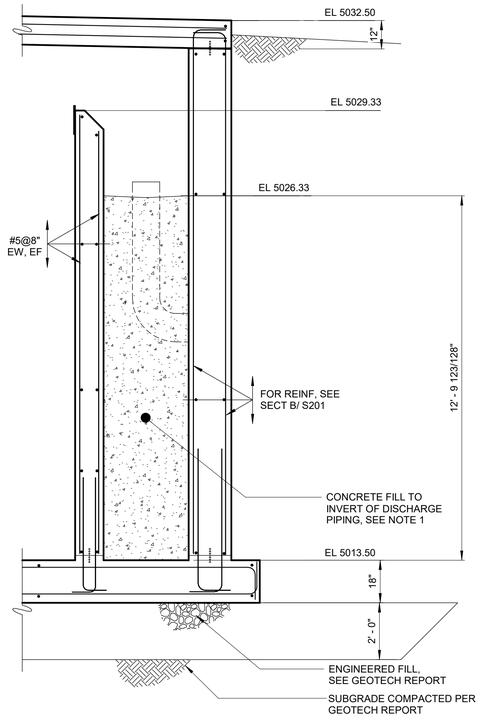
1. REINFORCED CONCRETE FILL MATERIAL IS REQUIRED FOR HYDRAULIC PURPOSES. THE OUTSIDE FACES OF THE CONCRETE FILL SHALL BE REINFORCED WITH #5 BARS @ 12" MAXIMUM SPACING. CONCRETE FILL SHALL SLOPE TOWARDS DISCHARGE PIPING AS SHOWN ON SHEET S2.



SECTION D
3/8" = 1'-0" S200



SECTION E
3/8" = 1'-0" S200



SECTION F
3/8" = 1'-0" S200

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER NO. 12067210 SAWYER K. INGRAM 9/19/2024 STATE OF UTAH

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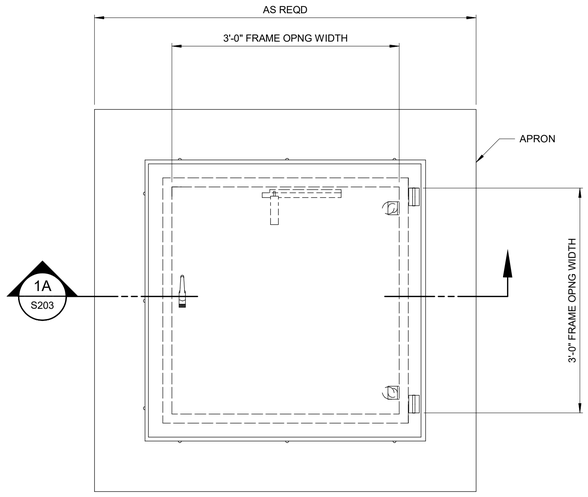
NORTH LOGAN EST 1884

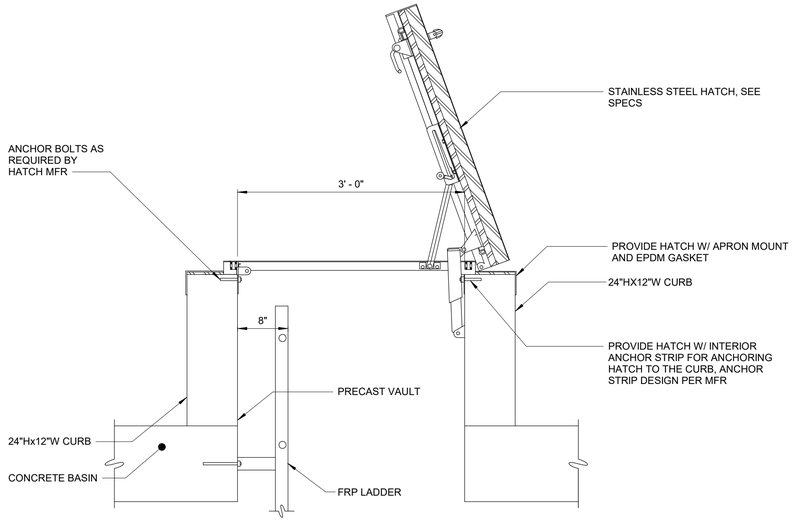
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

STRUCTURAL
DISINFECTION CONTACT BASIN
SECTIONS - SHEET 2

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	S202



PLAN



SECTION

DETAIL 1 (S4) — 1" = 1'-0"

SECTION 1A (S203) — 1" = 1'-0"

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER — NO.12062210 — SAMUEL K. INGRAM — 9/19/24 — STATE OF UTAH

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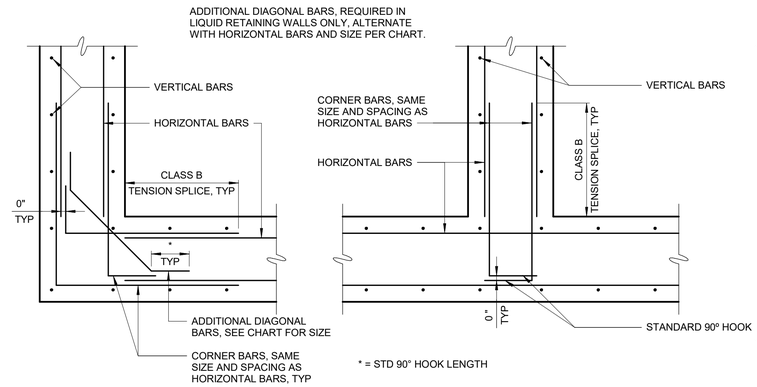
DISINFECTION CONTACT BASIN DESIGN

STRUCTURAL
DISINFECTION CONTACT BASIN
DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	S203

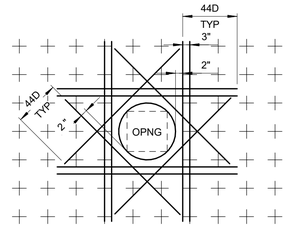


DIAGONAL BAR SIZE CHART	
BAR SIZE - HORIZONTAL REINFORCEMENT	BAR SIZE - DIAGONAL REINFORCEMENT
# 3	# 3
# 4	# 3
# 5	# 4
# 6	# 5
# 7	# 5
# 8	# 6
# 9	# 7
# 10	# 8
# 11	# 9
AT LOCATIONS WHERE DIFFERENT SIZE HORIZONTAL BARS CONVERGE, THE LARGER BAR SIZE SHALL CONTROL	

CORNER INTERSECTION

WALL REINFORCING

S-03-0108



NOTES:

1. THIS DETAIL APPLIES FOR OPENINGS 8"∅ AND LARGER. FOR SMALLER OPENINGS, BEND BARS OR ADJUST SPACING OF REINFORCEMENT TO AVOID OPENING.
2. PLACE EXTRA BARS OF THE SAME SIZE AS THE INTERRUPTED BARS AT EACH SIDE OF OPENING. QUANTITY OF EXTRA BARS AT EACH SIDE SHALL EQUAL HALF THE QUANTITY OF INTERRUPTED BARS EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE ONE DIAGONAL BAR EACH SIDE OF OPENING WITH SIZE EQUAL TO MAIN REINFORCEMENT, TYPICAL EACH FACE.
4. WHERE INVERT OF OPENING IN WALL IS LESS THAN 44 BAR DIAMETERS FROM TOP OF SLAB, EXTRA REINFORCEMENT ON EACH SIDE SHALL INCLUDE DOWELS EMBEDDED INTO SLAB WITH STANDARD 90 DEGREE HOOKS TO SPLICE WITH EXTRA VERTICAL REINFORCEMENT. DOWELS SHALL ALSO STILL BE PROVIDED BELOW OPENING.
5. WHERE INVERT OF OPENING IN WALL OR SLAB IS CLOSER THAN 44 BAR DIAMETERS TO EDGE OF SLAB OR BOTTOM OF WALL, EXTRA DIAGONAL BARS MAY BE TERMINATED TWO INCHES FROM EDGE OF SLAB OR BOTTOM OF WALL. DOWELS DO NOT HAVE TO BE PROVIDED TO SPLICE WITH DIAGONAL BARS.

REINFORCING AT OPENINGS

S-03-0109

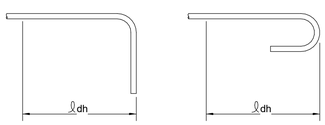
DEVELOPMENT LENGTH OF STANDARD HOOKS

FOR UNCOATED BARS IN TENSION

fy = 60,000 psi fc' = 4000 psi OR GREATER

BAR SIZE	DEVELOPMENT LENGTH, ℓdh	
	BASIC	W/ CONC COVER *
#3	8"	6"
#4	10"	7"
#5	1'-0"	9"
#6	1'-3"	11"
#7	1'-5"	1'-0"
#8	1'-7"	1'-2"
#9	1'-10"	1'-4"
#10	2'-1"	1'-6"
#11	2'-3"	1'-7"

* SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2 1/2"; AND FOR 90° HOOK, END COVER BEYOND OUTSIDE END OF HOOK AT LEAST 2".



BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH

FOR UNCOATED BARS IN TENSION

** BASED ON MATERIALS AND CONDITIONS AS FOLLOWS:

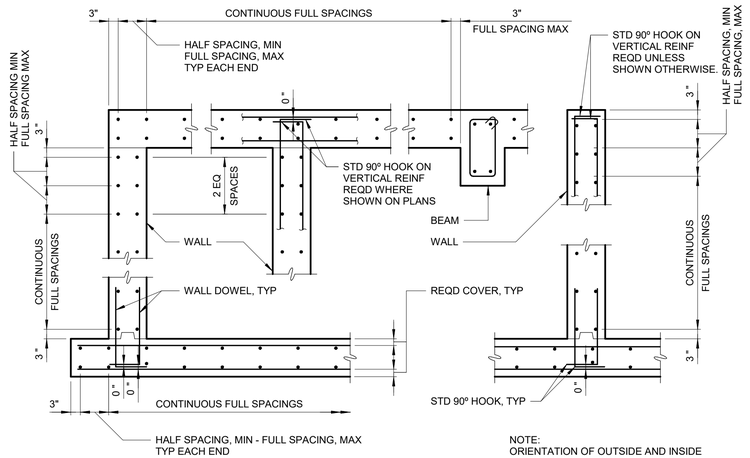
fy = 60,000 psi fc' = 4000 psi OR GREATER

CLEAR COVER≥ 1.5 INCHES NORMAL WEIGHT CONCRETE

BASIC DEVELOPMENT LENGTH ℓd				BAR SIZE	CLASS B SPLICE LENGTH 1.3 x ℓd			
CLEAR SPACING≥ 3"		CLEAR SPACING <3"			CLEAR SPACING≥ 3"		CLEAR SPACING <3"	
BASIC	TOP *	BASIC	TOP *		BASIC	TOP *	BASIC	TOP *
1'-0"	1'-0"	1'-0"	1'-4"	# 3	1'-0"	1'-3"	1'-4"	1'-8"
1'-0"	1'-3"	1'-7"	2'-1"	# 4	1'-3"	1'-8"	2'-1"	2'-9"
1'-3"	1'-7"	2'-4"	3'-0"	# 5	1'-7"	2'-0"	3'-0"	3'-11"
1'-6"	1'-11"	3'-1"	4'-0"	# 6	1'-11"	2'-5"	4'-0"	5'-2"
2'-5"	3'-1"	4'-11"	6'-4"	# 7	3'-1"	4'-0"	6'-4"	8'-3"
3'-0"	3'-11"	6'-0"	7'-9"	# 8	3'-11"	5'-1"	7'-9"	10'-1"
3'-8"	4'-9"	6'-9"	8'-9"	# 9	4'-9"	6'-3"	8'-9"	11'-4"
4'-6"	5'-10"	7'-7"	9'-10"	# 10	5'-10"	7'-7"	9'-10"	12'-9"
5'-5"	7'-0"	8'-5"	10'-11"	# 11	7'-0"	9'-1"	10'-11"	14'-2"

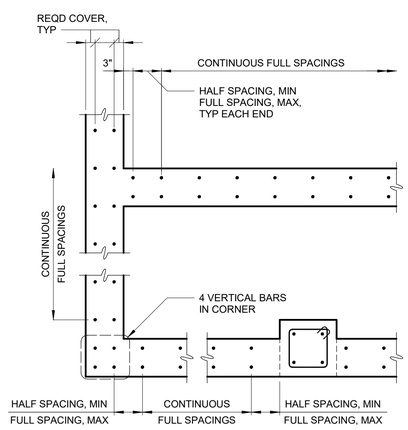
* TOP REINFORCEMENT IS ANY HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.

** FOR MATERIALS OR CONDITIONS DIFFERENT FROM THOSE STATED, LENGTHS SHOWN IN CHART SHALL BE MODIFIED TO CONFORM TO THE PROVISIONS OF ACI 318-14, SECTION 25.3.



SECTION - WALLS AND SLABS

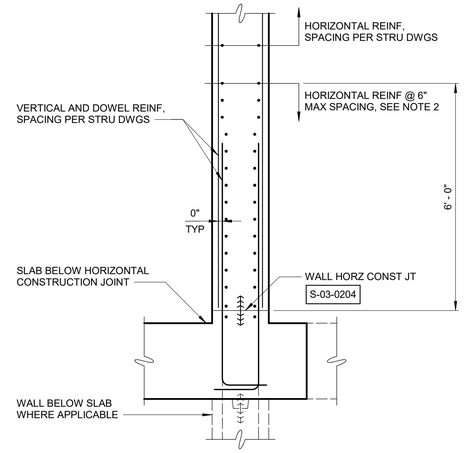
NOTE:
ORIENTATION OF OUTSIDE AND INSIDE LAYERS OF REINF SHALL BE AS SHOWN ON PLANS. "FULL SPACING" IS BAR SPACING CALLED OUT ON PLANS.



PLAN - WALLS

BAR PLACEMENT

S-03-0110



NOTES:

1. THIS DETAIL APPLIES TO WALLS OF ALL LIQUID RETAINING AND BELOW-GRADE STRUCTURES UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS.
2. HORIZONTAL REINFORCEMENT IN THE 6'-0" ZONE ABOVE HORIZONTAL CONSTRUCTION JOINTS SHALL MATCH THE BAR SIZE INDICATED FOR HORIZONTAL REINFORCEMENT ON THE STRUCTURAL DRAWINGS UNLESS NOTED OTHERWISE.
3. THE ADDITIONAL DIAGONAL REINFORCEMENT DEPICTED IN DETAIL S-03-0108 IS NOT REQUIRED IN THE BOTTOM 6'-0" OF WALL ABOVE AN INTERSECTING SLAB.

WALL CONSTRUCTION JOINT HORIZONTAL REINFORCING

S-03-0115

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: S. INGRAM
DRAWN BY: A. RIGAU
CHECKED BY: T. GALTERIO
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE 0 1/2" 1"

100% SUBMITTAL DRAWING ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER NO. 13202210 SAMUEL K. INGRAM 9/19/2024 STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

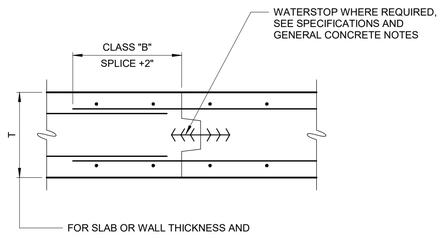
NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

STRUCTURAL STANDARD DETAILS
SHEET 1

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: SD001

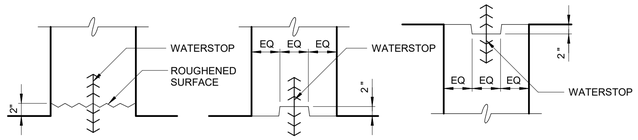
Autodesk Docs://70081-002_Green Canyon DCB Design/70081-002-General-Stru.rvt
9/18/2024 9:34:04 AM



NOTE:
THIS DETAIL APPLIES TO CONSTRUCTION JOINT IN SLABS AND VERTICAL CONSTRUCTION JOINTS IN WALLS. FOR HORIZONTAL CONSTRUCTION JOINTS IN WALLS, SEE S-03-0204.

CONSTRUCTION JOINT

S-03-0203

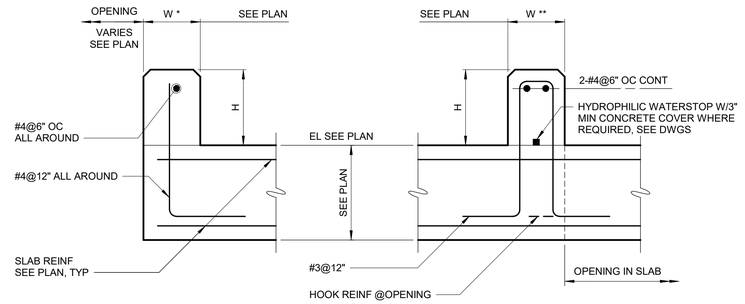


TYPE I - STARTER WALL TYPE II - KEYWAY TYPE III - INVERTED KEYWAY

NOTES:
1. TYPE I - STARTER WALL IS REQUIRED FOR ALL BASE OF WALLS 18 INCHES OR LESS IN THICKNESS WHERE WATERSTOPS ARE REQUIRED.
2. TYPE I - STARTER WALL IS PREFERRED, BUT TYPE II - KEYWAY IS ACCEPTABLE FOR BASE OF WALLS GREATER THAN 18 INCHES IN THICKNESS WHERE WATERSTOPS ARE REQUIRED.
3. TYPE III - INVERTED KEYWAY IS REQUIRED AT TOP OF WALLS WHERE WATERSTOPS ARE REQUIRED.

WALL HORIZONTAL CONSTRUCTION JOINTS

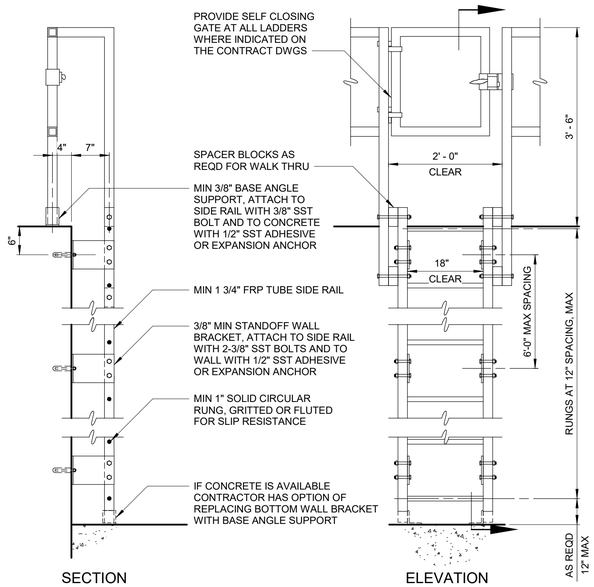
S-03-0204



NOTE:
W* DENOTES CURBS LESS THAN 8"
W** DENOTES CURBS EQUAL TO OR GREATER THAN 8" DOWELS MAY BE CAST IN OR ANCHORED WITH D0WEL ADHESIVE SYSTEM WITH A 6" MINIMUM EMBEDMENT. WHERE FLOOR IS 8" THICK OR LESS, USE DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.

CONCRETE CURB

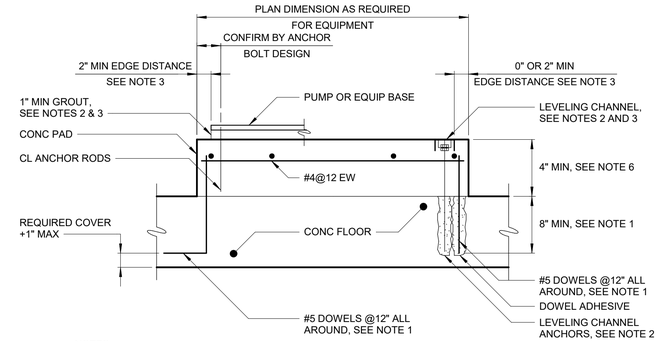
S-03-0603



NOTE:
SEE SPECIFICATION SECTION 05 51 33 FOR SAFETY LADDER SYSTEM AND RETRACTABLE SAFETY EXTENSION REQUIREMENTS.

FRP LADDER

S-06-0201



NOTES:
1. DOWELS MAY BE CAST IN WITH 90° HOOK OR ANCHORED WITH DOWEL ADHESIVE AT CONTRACTORS OPTION. WHERE FLOOR IS LESS THAN 10" THICK, USE #4 DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.
2. THE CONTRACTOR SHALL PROVIDE LEVELING CHANNELS AND LEVELING CHANNEL ANCHORS FOR SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S LEVELING TOLERANCES. THE CONTRACTOR SHALL PROVIDE 1" MINIMUM GROUT FOR PUMPS AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S UNIFORM BEARING AND LEVELING REQUIREMENTS. GROUT BELOW BASE PLATE SHALL BE AS STIPULATED IN SPECIFICATION 03 60 00, UNLESS OTHERWISE RECOMMENDED BY MANUFACTURER OF EQUIPMENT.
3. PRIOR TO PLACING CONCRETE PAD, LEVELING CHANNEL SIZE AND MEANS OF INSTALLATION, ANCHORAGE, GROUT, CONCRETE EDGE DISTANCE, AND CONCRETE BLOCKOUTS REQUIREMENTS SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER.
4. COAT DISSIMILAR MATERIALS PER THE CONTRACT DOCUMENTS.
5. STAGGER CHANNEL ANCHORS AND PAD DOWELS.
6. FOR PADS 24" OR GREATER IN DEPTH, PROVIDE #4@8" HORIZONTAL SKIN REINFORCING AROUND PERIMETER OF PAD.

EQUIPMENT PAD

S-03-0504

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	S. INGRAM
DRAWN BY:	A. RIGAU
CHECKED BY:	T. GALTERIO
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
NO. 12002210
SAMUEL K. INGRAM
9/19/24
STATE OF UTAH

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STRUCTURAL STANDARD DETAILS
SHEET 2

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
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DRAWING NUMBER:	SD002

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LIGHTING

X DENOTES FIXTURE TYPE (TYP.)
SEE SPECIFICATION 26 50 00 FOR FIXTURE SCHEDULE
# DENOTES CIRCUIT NUMBER (TYP.)

- RECTANGULAR FIXTURE
- LEFT: CEILING MOUNTED FIXTURE
  RIGHT: WALL MOUNTED FIXTURE
- EMERGENCY WALL-MOUNTED FIXTURE:
  LEFT: STANDARD
  RIGHT: REMOTE-HEAD
- LEFT: CEILING MOUNTED EXIT SIGN
  RIGHT: WALL MOUNTED EXIT SIGN
  SHADED PORTION DENOTES SIGN FACE
- POLE-MOUNTED FIXTURE
- PHOTOCELL
- LEFT: CEILING MOUNTED OCCUPANCY SENSOR
  RIGHT: WALL MOUNTED OCCUPANCY SENSOR
  X DENOTES TYPE

RECEPTACLES

X DENOTES RECEPTACLE TYPE (TYP.):
GFCI DENOTES GROUND FAULT CIRCUIT INTERRUPT
UPS DENOTES UNINTERRUPTIBLE POWER SUPPLY
WPCR DENOTES WEATHERPROOF CORROSION RESISTANT
# DENOTES CIRCUIT NUMBER (TYP.)

- RECEPTACLES:
  LEFT: SIMPLEX
  MIDDLE: DUPLEX
  RIGHT: QUADRUPLEX
- MULTI-OUTLET RECEPTACLE:
  LEFT: SIMPLEX
  RIGHT: DUPLEX
- OTHER RECEPTACLES:
  LEFT: 240 VOLT
  RIGHT: SPECIAL PURPOSE
- FLOOR-MOUNTED RECEPTACLES:
  LEFT: SIMPLEX
  MIDDLE: DUPLEX
  RIGHT: QUADRUPLEX

HVAC AND FIRE ALARM

- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNUNCIATOR PANEL
- FIRE ALARM PULL STATION
- FIRE ALARM INDICATOR:
  X DENOTES ALERT TYPE (TYP.):
  A DENOTES AUDIBLE
  V DENOTES VISIBLE (# DENOTES STROBE INTENSITY)
- FIRE ALARM INDICATOR MOUNTED ABOVE A FIRE ALARM PULL STATION
- DUCT DETECTOR
- SMOKE DETECTOR:
  X DENOTES TYPE:
  Z DENOTES IONIZATION
  P DENOTES PHOTOELECTRIC
  T DENOTES THERMAL
- HEAT DETECTOR
- THERMOSTAT
- AMBIENT TEMPERATURE TRANSMITTER

SWITCHES

- WALL SWITCH:
  X DENOTES TYPE:
  NO SUBSCRIPT DENOTES SINGLE-POLE SWITCH
  3 DENOTES 3-WAY SWITCH
  4 DENOTES 4-WAY SWITCH
  M DENOTES MANUAL MOTOR STARTER
  # DENOTES CIRCUIT NUMBER
  WPCR DENOTES WEATHERPROOF CORROSION RESISTANT
- COMBINATION MOTOR STARTER
- DISCONNECT SWITCH
- LOCAL CONTROL STATION
- LOCAL CONTROL STATION WITH LOCKABLE COVER

SINGLE-LINE DIAGRAMS

- ATS 480V, 800A 3Ø 4W 4P 65kA OPEN TRANSITION — CONTACTOR-STYLE ATS OR MTS
- ATS 480V, 800A 3Ø 4W 4P 65kA OPEN TRANSITION — CONTACTOR-STYLE ATS OR MTS WITH OFF POSITION
- ETU 800AF 800AP 800AT LSIG — ATS 480V, 800A 3Ø 4W 4P 65kA OPEN TRANSITION — CONTACTOR-STYLE ATS OR MTS, SERVICE-ENTRANCE RATED
- ATS 480V, 800AF/800AT 3Ø 4W 4P 65kA OPEN TRANSITION — MCCB-STYLE ATS OR MTS
- ATS 480V, 800AF/800AT 3Ø 4W 4P 65kA OPEN TRANSITION — DRAWOUT CB-STYLE ATS OR MTS

MISC PLAN VIEW SYMBOLS

- EQUIPMENT CONNECTION
- GROUND RODS:
  LEFT: BURIED
  RIGHT: IN TESTWELL
- DBXX / EXX — DUCTBANK SECTION CUT IDENTIFIER:
  DBXX DENOTES DUCTBANK ID
  EXX DENOTES DRAWING NUMBER WHERE SECTION CUT IS LOCATED
- DB X — DUCTBANK TAG:
  X DENOTES DUCTBANK ID
- TRAY X Y — CABLE TRAY TAG:
  X DENOTES CABLE TRAY ID
  Y DENOTES SCHEDULE REFERENCE
- X # — INSTRUMENT TAG:
  X DENOTES INSTRUMENT TYPE
  # DENOTES INSTRUMENT NUMBER
  SEE DRAWING I1 FOR INSTRUMENT ABBREVIATIONS
- P-XXXX / P-XXX-XXX — CONDUIT TAGS:
  P DENOTES POWER
  C DENOTES CONTROL
  I DENOTES INSTRUMENTATION
  XXXX DENOTES CONDUIT ID
  XXX-XXX DENOTES CONDUIT ID

COMMUNICATIONS

- TELEPHONE OR NETWORK DROP
- FLOOR-MOUNTED TELEPHONE OR NETWORK DROP
- PAGER RECEPTACLE
- HORN/LIGHT DEVICE
- PA UNIT

WIRING

- FLEXIBLE CONDUIT
- CONDUIT EXPOSED
- CONDUIT CONCEALED
- CONCRETE ENCASED DUCTBANK
- CONCRETE ENCASED CONDUIT
- DIRECT BURIED CONDUIT
- LEFT: CONDUIT RISE (TURN UP)
  RIGHT: CONDUIT DROP (TURN DOWN)

SINGLE-LINE DIAGRAMS, CONT'D.

- 500kW 480V,3Ø,4W — GENERATOR
- XFMR kVA 480-120/208V Y 3P/4W DRY TRANS — TRANSFORMER
- # — PROTECTIVE RELAY:
  NUMBER DENOTES IEEE DEVICE FUNCTION
- 100A — FUSE
- 100A 3P / 100A — FUSED LOADBREAK SWITCH
- 30A 3P / 30A 3P 20A — DISCONNECT SWITCH
  LEFT: NON-FUSED
  RIGHT: FUSED
  "MFR." INSTEAD OF FUSE SIZE: REFERENCE SECTION 26 28 16.16
- N.C. 800AF 800AP 800AT LSIGZ CTR — LOW VOLTAGE POWER CIRCUIT BREAKER:
  LEFT: FIXED-MOUNT
  RIGHT: DRAWOUT
  E.O. DENOTES ELECTRICALLY OPERATED
  LSIG DENOTES INSTALLED TRIP FUNCTIONS:
  L DENOTES LONG-TIME
  S DENOTES SHORT-TIME
  I DENOTES INSTANTANEOUS
  G DENOTES GROUND FAULT
  Z DENOTES ZONE-SELECTIVE INTERLOCKING
  CTR DENOTES BREAKER-SPECIFIC CT AND RATIOS
- 52 1200A N.C. E.O. BATT. — MEDIUM VOLTAGE DRAWOUT POWER CIRCUIT BREAKER:
  E.O. DENOTES ELECTRICALLY OPERATED
  BATT. DENOTES BATTERY BACKUP POWER
- 100AF 100AT ETU 800AF 800AP 800AT LSIG — LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER
  LEFT: THERMAL-MAGNETIC TRIP UNIT
  RIGHT: ELECTRONIC TRIP UNIT
- MCP — MOTOR CIRCUIT PROTECTOR
- GROUND
- 600:5 (3) — CT:
  NUMBERS DENOTE CT WINDING RATIO AND CT QUANTITY
- 50:5 (1) — GFCT:
  NUMBERS DENOTE GFCT WINDING RATIO AND GFCT QUANTITY
- 480:120 (3) — PT:
  NUMBERS DENOTE PT WINDING VOLTAGES AND PT QUANTITY
- DRAW-OUT ELEMENT
- X / X — LEFT: PANELBOARD
  RIGHT: COMBINATION POWER UNIT
  X DENOTES PANEL ID
- SURGE ARRESTOR

SINGLE-LINE DIAGRAMS, CONT'D.

- #% — LEFT: RESISTOR
  RIGHT: LINE REACTOR
  #% DENOTES IMPEDANCE
- CAPACITOR
- ST — SHUNT TRIP
- SPD XXXkA — SURGE PROTECTIVE DEVICE
- K — KIRK-KEY INTERLOCK
- HP RPM TSH CF TE ME — MOTOR AND TYPICAL ADDITIONAL DEVICES:
  MOTOR SPACE HEATER
  TSH: TEMPERATURE SWITCH
  CF: COOLING FAN
  TE: TEMPERATURE ELEMENT
  ME: MOISTURE DETECTOR
- XXXXXX — INSTRUMENT TAG:
  X DENOTES INSTRUMENT TYPE
  Y DENOTES INSTRUMENT NUMBER
  SEE DRAWING I1 FOR INSTRUMENT ABBREVIATIONS
- MCP X — LEFT: FVNR STARTER:
  X DENOTES NEMA SIZE
  DP DENOTES DEFINITE PURPOSE CONTACTOR
  RIGHT: FVR STARTER
- MCP 6P VFD — LEFT: VFD
  MIDDLE: VFD WITH HARMONIC FILTER
  RIGHT: VFD WITH RVSS BYPASS
- MCP RVSS — LEFT: RVSS
  RIGHT: RVSS WITH FVNR BYPASS
  X DENOTES NEMA SIZE
- MCP X #% — RVAT STARTER:
  X DENOTES NEMA SIZE
  #% DENOTES TAP SETTING
- 400A 400A — MEDIUM VOLTAGE VACUUM CONTACTOR
  LEFT: FIXED
  RIGHT: DRAWOUT

ELEMENTARY CONTROL SCHEMATICS

- OL SSOL — OVERLOAD RELAY:
  LEFT: THERMAL
  RIGHT: SOLID-STATE
- ON OFF OFF JOG — BASIC SELECTOR SWITCH:
  LEFT: STANDARD
  RIGHT: SPRING-RETURN
  TEXT DENOTES LEGEND PLATE
- H A FWD REV — MULTI-POSITION SELECTOR SWITCH:
  LEFT: STANDARD
  RIGHT: DOUBLE SPRING-RETURN
  O: OFF
  H: HAND
  L: LOCAL
  A: AUTO
  R: REMOTE
  FWD: FORWARD
  REV: REVERSE
  X DENOTES ACTIVE CONTACT POSITION(S)
- START STOP STOP - L.O. E-STOP — PUSHBUTTON SWITCHES:
  TOP LEFT: N.O.
  TOP RIGHT: N.C.
  BOTTOM RIGHT: N.C. WITH LOCKOUT
  BOTTOM RIGHT: MUSHROOM HEAD
  TEXT DENOTES LEGEND PLATE

	NO	NC
DISCONNECT SWITCHES		
CONTACTS	X	X
TORQUE SWITCH	–	NS

NOTATION LEGEND:
NO/NC: NORMALLY OPEN/CLOSED
HO/HC: HELD OPEN/CLOSED
RO/RC: RISE-TO-OPEN/CLOSE
FO/FC: FALL-TO-OPEN/CLOSE
TO/TC: TIME-OPEN/CLOSE

CONTACTS:
TEXT DENOTES COIL ID

SWITCHES:
TEXT DENOTES TAG NUMBER

	NO	NOHC	NC	NCHO
LIMIT SWITCHES	LS	LS	LS	LS

FORM C CONTACTS:
LEFT: STANDARD
RIGHT: TIMED (SPECIAL)
LEFT: TIMED (ON-DELAY)
RIGHT: TIMED (OFF-DELAY)

NOTE: FORM C CONTACTS ARE NOT NECESSARILY SHOWN AS SUCH ON THE DRAWINGS. REFERENCE SECTION 26 09 16 FOR COMPONENT SPECIFICATIONS.

	NORC	NOFC	NCRO	NCFO
TEMPERATURE SWITCHES/ THERMOSTATS	TS	TS	TS	TS
PRESSURE SWITCHES	PS	PS	PS	PS
LEVEL SWITCHES	LS	LS	LS	LS
FLOW SWITCHES	FS	FS	FS	FS

	ON DELAY NOTC	ON DELAY NCTO	OFF DELAY NOTO	OFF DELAY NCTC	SPECIAL NO	SPECIAL NC
TIME DELAY CONTACTS	TD	TD	TD	TD	TR	TR

- [R] XX YYY [S] — COIL:
  LEFT: POWER-TRIGGERED
  RIGHT: SIGNAL-TRIGGERED
  X DENOTES TYPE:
  M DENOTES MOTOR STARTER
  CR DENOTES CONTROL RELAY
  TR/TD DENOTES TIMING RELAY/TIME DELAY RELAY
  [R]: TIMER RANGE
  [S]: TIMER SETPOINT
  PR DENOTES INTERPOSING PILOT RELAY
  LC DENOTES LIGHTING CONTACTOR
  Y DENOTES FUNCTION TAG OR LINE REFERENCE
- X PTT X — INDICATOR LIGHT:
  LEFT: STANDARD/RIGHT: PUSH-TO-TEST
  X DENOTES COLOR
- MECHANICAL INTERLOCK CONNECTION
- ETM — RUN TIME METER
- SV — SOLENOID VALVE
- MPR — MOTOR PROTECTION RELAY
- 480VAC 120VAC — CONTROL POWER TRANSFORMER
- MOTOR HEATER — MOTOR SPACE HEATER

EQUIPMENT/DEVICE LOCATION SYMBOLS

- ✳ LOCATED IN MCC
- □ LOCATED IN STAND-ALONE MOTOR STARTER/CONTROLLER
- △ LOCATED IN FIELD
- ○X LOCATED AT PANEL:
  X DENOTES PANEL ID:
  L DENOTES LOCAL CONTROL STATION

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: E. TOLEDO
DRAWN BY: E. TOLEDO
CHECKED BY: A. BUTTS

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100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11359031 — ADAM BUTTS — STATE OF UTAH

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ELECTRICAL
LEGENDS AND SYMBOLS

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File: C:\USERS\ETOLEDO\DOCACCDOCS\HAZEN AND SAWYER\70081-002_GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\ELEC\E001 Saved by: ETOLEDO Save date: 6/21/2024 8:19 AM
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ABBREVIATIONS

AE	ANALYSIS ELEMENT
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AIT	ANALYSIS INDICATING TRANSMITTER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AF	AMPERE FRAME
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
BKR	BREAKER
(L/V)CP	(LOCAL/VENDOR) CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
(D)	DEMOLITION
DB	DUCTBANK
DSW	DISCONNECT SWITCH
(*)HH	HANDHOLE*
(*)MH	MANHOLE*
(E)	EXISTING
EO	ELECTRICALLY OPERATED
ETM	ELAPSED TIME METER
ETU	ELECTRONIC TRIP UNIT
(F)	FUTURE
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FS	FLOW SWITCH
FSL	FLOW SWITCH LOW
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFCT	GROUND FAULT CURRENT TRANSFORMER
GNG	GO-NO GO
GND	GROUND
HOA	HAND-OFF-AUTO
HH	HANDHOLE
HPU	HYDRAULIC POWER UNIT
IC	INPUT CONTACTOR
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
(*)JB	JUNCTION BOX*
LCS	LOCAL CONTROL STATION
LP	LIGHTING PANEL
LS	LEVEL SWITCH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW-LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH-HIGH
LT	LEVEL TRANSMITTER
MFR	MULTI-FUNCTION RELAY
MH	MANHOLE
MOD	MOTOR OPERATED DAMPER
MOG	MOTOR OPERATED GATE
MOL	MOTOR OPERATED LOUVER
MOV	MOTOR OPERATED VALVE
MPR	MOTOR PROTECTION RELAY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MWTS	MOTOR WINDING TEMPERATURE SWITCH
(N)	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	OUTPUT CONTACTOR
OL	OVERLOAD

ABBREVIATIONS, CONT.

(*)PB	PULLBOX*
PC	PHOTOCELL
PCC	POINT OF COMMON COUPLING
PE	PRESSURE ELEMENT
PIT	PRESSURE INDICATING TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PST	PHASE SHIFTING TRANSFORMER
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST
RCS	REMOTE CONTROL STATION
RECP	RECEPTACLE
RIO	REMOTE I/O
RM	ROOM
RTD	RESISTANCE THERMAL DEVICE
RTU	REMOTE TELEMETRY UNIT
RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
SA	SUPPLY AIR
S.E.	SERVICE ENTRANCE
SP. C.	SPARE CONDUIT
SPD	SURGE PROTECTIVE DEVICE
SSOL	SOLID STATE OVERLOAD
SST	STAINLESS STEEL
TB	TEST BLOCK
TC	TIMED CLOSE
TO	TIMED OPEN
TSH	TWISTED SHIELDED
TX	TRANSFORMER
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
WPCR	WEATHER PROOF CORROSION RESISTANT
WT	WALK THROUGH
XFMR	TRANSFORMER

*DESIGNATED ABBREVIATIONS CAN HAVE THE FOLLOWING PREFIXES:

E	ELECTRIC
P	POWER
C	CONTROL
I	INSTRUMENTATION
F	FIBER

GENERAL NOTES:

1. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL UNDERGROUND CONCRETE ENCASED ELECTRICAL CONDUITS SHALL BE PER STANDARD DETAIL E-33-0101.
2. BOND ALL NEW CONCRETE ENCASED GROUND CONDUCTORS TO EXISTING GROUND CONDUCTORS IN ALL MANHOLES, PULL BOXES, CABLE TRAYS, AND SIMILAR LOCATIONS WHERE APPLICABLE.
3. UNLESS OTHERWISE SPECIFIED OR NOTED, ALL WALL MOUNTED ELECTRICAL PANELS, ENCLOSURES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED 6'-6" (MAX) FROM THE TOP OF THE PANEL TO FINISHED FLOOR OR GRADE.
4. UNLESS OTHERWISE NOTED, ALL LIGHTING SWITCHES, CONTROL SWITCHES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED WITH THEIR CENTERLINE APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR, SLAB, OR GRADE.
5. A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH CIRCUIT (SEPARATE CONDUCTOR IN THE CONDUIT). THE CONDUCTOR SHALL BE TERMINATED AT THE PROPER DEVICE, TERMINAL, OR LUG AT THE POWER SOURCE (MCC GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.
6. UNLESS SPECIFICALLY NOTED OTHERWISE, EXISTING PAVEMENT SHALL BE SAW CUT AND REMOVED TO ALLOW FOR THE INSTALLATION OF NEW ELECTRICAL DUCTBANKS. AFTER INSTALLATION, REPLACE PAVEMENT WITH NEW TO MATCH ORIGINAL CONDITIONS.
7. REFERENCE SECTION 01 14 00 FOR CONSTRUCTION SEQUENCING REQUIREMENTS.
8. CONDUIT HOMERUNS ARE NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL REFER TO CONDUIT AND WIRE SCHEDULES, RISER DIAGRAMS, SINGLE LINE DIAGRAMS, AND OTHER DRAWINGS FOR CONDUIT AND WIRE REQUIREMENTS.
9. ANCHORAGE AND BRACING OF ELECTRICAL NONSTRUCTURAL COMPONENTS INCLUDES GRAVITY, WIND, AND SEISMIC REQUIREMENTS, UNLESS SEISMIC REQUIREMENTS ARE EXEMPTED. ALL ELECTRICAL NONSTRUCTURAL COMPONENTS ARE SUBJECT TO SEISMIC DESIGN CATEGORY D. COMPONENTS ARE NOT EXEMPT FROM SEISMIC ANCHORAGE AND BRACING (UNLESS SPECIFIC EXEMPTIONS APPLY) AND SHALL BE FURNISHED WITH A MANUFACTURER'S CERTIFICATE OF SEISMIC QUALIFICATION. SEE GENERAL STRUCTURAL NOTES AND SECTION 01 73 23 - ANCHORAGE AND BRACING OF NONSTRUCTURAL COMPONENTS FOR REQUIREMENTS, INCLUDING EXEMPTIONS.

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11359081 — ADAM BUTTS — 9/9/24 — STATE OF UTAH

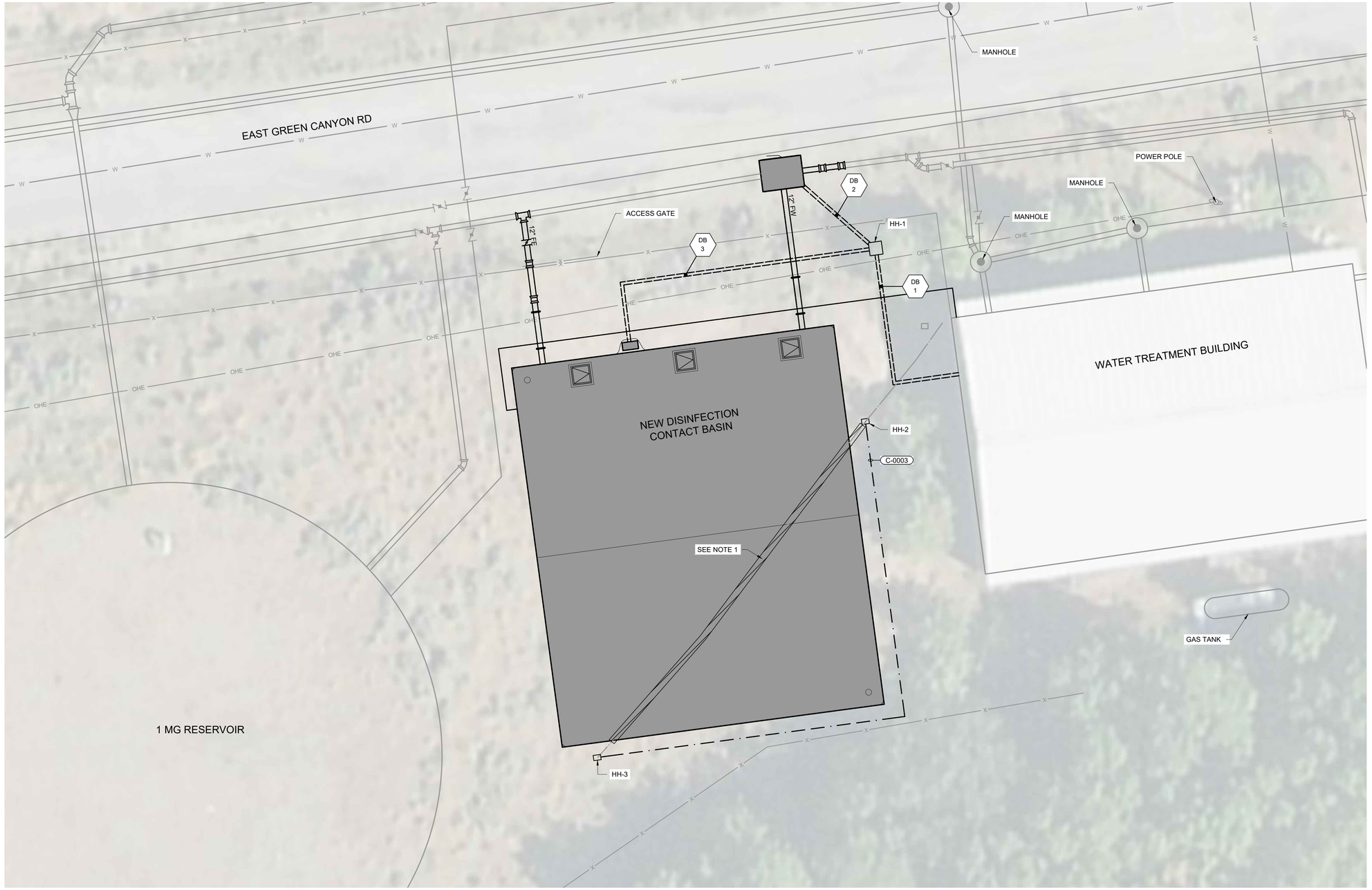
Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
GENERAL NOTES AND ABBREVIATIONS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E002



NOTES:

1. REMOVE EXISTING CAT5 COPPER CABLE FROM EXISTING CONDUIT. INTERCEPT EXISTING CONDUIT AND INSTALL NEW PULLBOX. ROUTE NEW CONDUIT AROUND NEW DISINFECTION CONTACT BASIN.
2. INSTALL NEW JUNCTION BOX IN HH-2 AND HH-3. ROUTE EXISTING COPPER ETHERNET CABLE INTO JUNCTION BOX AND SEAL JUNCTION BOX ENTRY WITH CABLE GLAND. INTERIOR TO EACH JUNCTION BOX, INSTALL NEW ETHERNET TERMINAL CONNECTOR. INSTALL EXISTING COPPER CABLE INTO ETHERNET TERMINAL CONNECTOR. ROUTE NEW COPPER CATEGORY 6A ETHERNET CABLE BETWEEN HH-2 AND HH-3 IN C-0003 AND CONNECT INTO CABLE TERMINATOR IN EACH HANDHOLE.

SITE PLAN
SCALE: 1" = 10'-0"

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: E. TOLEDO
DRAWN BY: E. TOLEDO
CHECKED BY: A. BUTTS

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11959091 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

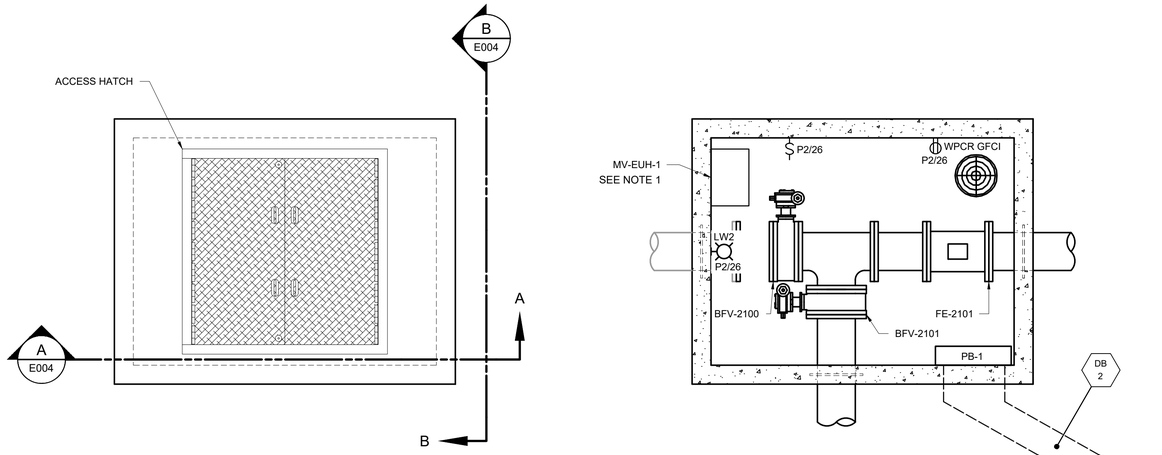
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
SITE PLAN

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: E003

NOTES:

1. WASHDOWN/CORROSION RESISTANT ELECTRIC UNIT HEATER TO BE 2kW, 208 VOLTS SINGLE PHASE. CHROMALOX HD3D-200, TRIAD 234-U11R-0020C, or APPROVED EQUAL.



UPPER PLAN

LOWER PLAN

CONCRETE METER VAULT

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

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11959091 — ADAM BUTTS — STATE OF UTAH — 9/19/24

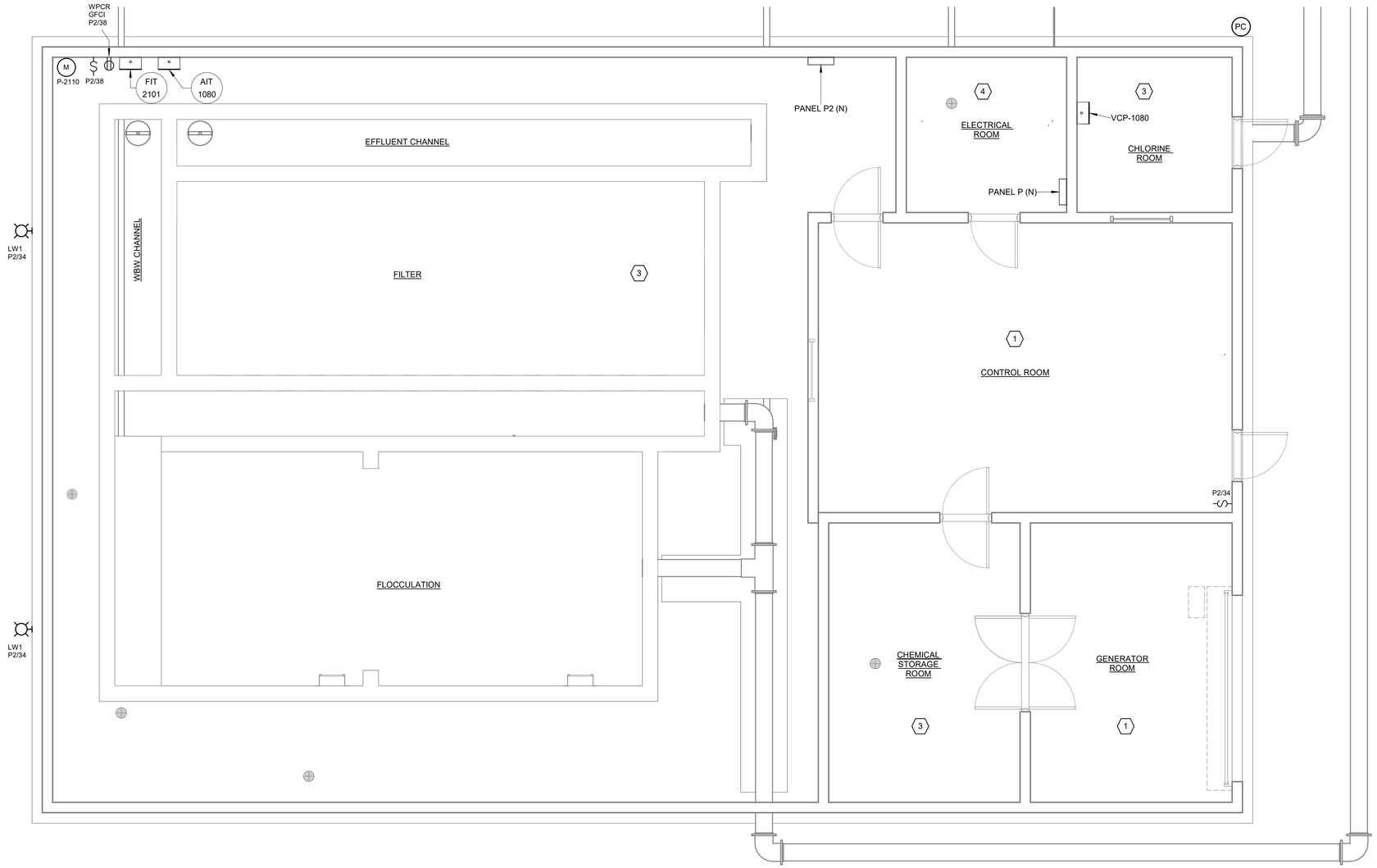
Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN — EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
CONCRETE METER VAULT

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E004



AREA DESIGNATIONS:

1. INDOOR DRY NON-PROCESS AREA
2. INDOOR DRY PROCESS AREA
3. INDOOR WET PROCESS AREA
4. INDOOR WET NON-PROCESS AREA

FILTER BUILDING ELECTRICAL MODIFICATION PLAN

1/4" = 1'-0"

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER
No. 11959091
ADAM BUTTS
9/19/24
STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

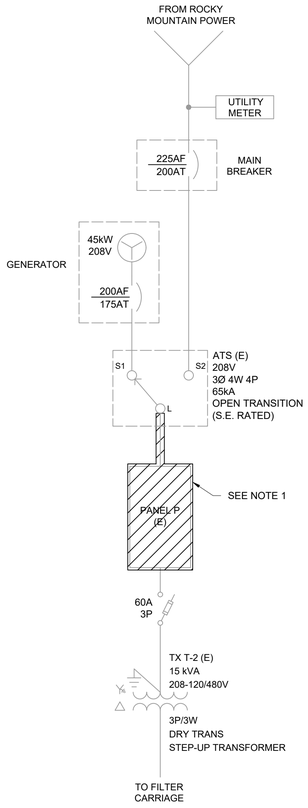
GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
FILTER BUILDING - MODIFICATIONS PLAN

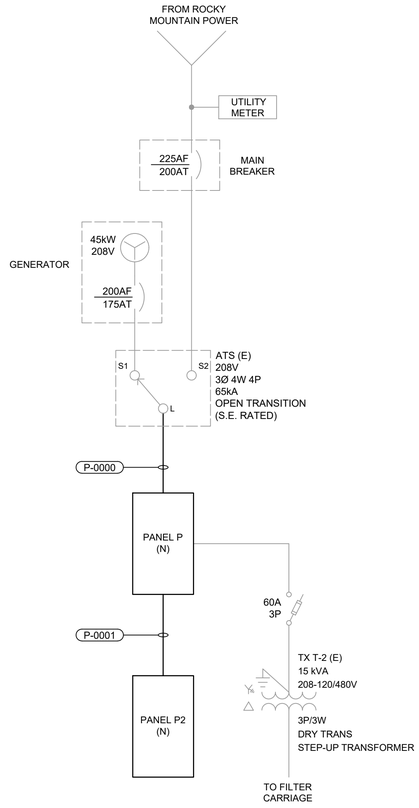
DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E100

NOTES:

1. EXISTING PANEL P SHOWN FOR REFERENCE. DEMOLISH PANEL P AND REPLACE WITH NEW PANEL P.



DEMOLITION ONE LINE



MODIFIED ONE LINE

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11959051 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN — EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
FILTER BUILDING - ONE LINE AND DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E101

SEE NOTE 1

208/120 VOLTS
3 PHASE, 4 WIRE

PANEL P (E)
LUG ONLY
225A 3P

TYPE: NEMA 1
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
-	HEATER STORAGE ROOM		20	3	1	-			-			2					
					3		-			-		4	3	20		HEATER CHEMICAL ROOM	-
					5			-			-	6					
-	TURB PUMP		20	1	7	-			-			8	2	20		HEATER CHEMICAL ROOM	-
-	PORTABLE WATER PUMP & OVERFLOW VAULT PUMP		40	3	9		-			-		10					
					11			-			-	12	2	30		HEATER INFRARED	-
					13	-			-			14					
-	LIGHTS ENTRY BATH & FAN		20	1	15		-			-		16	1	20		LIGHTS STORAGE AREA	-
-	VENTILATOR FAN & LIGHTS OUT		20	1	17			-			-	18	1	20		LIGHTS FLOCULATOR	-
-	TELEMETRY & SCADA		20	1	19	-			-			20	1	20		RECEPT CHEM LAB & RECEPT	-
-	RECEPTACLE BATH FILTER		20	1	21		-			-		22	1	20		RECEPT STORAGE & CHEM INJ.	-
-	RECEPTACLE FLOCCULATOR		20	1	23			-			-	24	1	20		OVERHEAD DOOR	-
-	LIGHTS FILTER AREA		20	1	25	-			-			26					
-	WATER & CHLOR ROOM HEATER		30	2	27		-			-		28	3	40		XFMR T-2	-
					29			-			-	30					
-	FLOCCULATOR TANK MIXERS		20	3	31	-			-			32	1	20		CHLORINE ALARM & SCALE	-
					33		-			-		34	2	20		HEATER RESTROOM	-
					35			-			-	36					
-	CONTROL PANEL		20	1	37	-			-			38	1	20		MOTOR OPERATED VALVE	-
-	RECEPT & EXHAUST FAN CL		30	1	39		-			-		40	2	30		HEATER IN PRES RE STATION	-
-	CL VENTILATOR & PUMP VAULT		20	1	41			-			-	42					

TOTAL	0	0	0	0	0	0	TOTAL
	PHASE TOTAL			TOTAL LOAD (VA)			
	0	0	0	0			
				TOTAL LOAD (A)			
				0			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE
ETU - ELECTRONIC TRIP UNIT

NOTES:

NOTES:

1. EXISTING PANEL SCHEDULE FOR PANEL P SHOWN FOR REFERENCE. DEMOLISH PANEL P AND REPLACE WITH NEW PANEL P.
2. INTERCEPT EXISTING CONDUITS FOR EXISTING LOADS AT EXISTING PANEL P. INSTALL NEW JUNCTION BOXES AS REQUIRED AND EXTEND CIRCUIT TO NEW PANEL P2. ALL EXISTING CIRCUITS SHALL UTILIZE JUNCTION BOX MOUNTED TERMINAL BLOCKS TO EXTEND CIRCUIT.

208/120 VOLTS
3 PHASE, 4 WIRE

PANEL P (N)
200A MAIN BREAKER
400A 3P

TYPE: NEMA 3R
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
-	HEATER STORAGE ROOM		20	3	1	-			-			2					
					3		-			-		4	3	20		HEATER CHEMICAL ROOM	-
					5			-			-	6					
-	TURB PUMP		20	1	7	-			-			8	2	20		HEATER CHEMICAL ROOM	-
-	PORTABLE WATER PUMP		40	3	9		-			-		10					
					11			-			-	12	2	30		HEATER INFRARED	-
					13	-			-			14					
-	LIGHTS ENTRY BATH & FAN		20	1	15		-			-		16	1	20		LIGHTS STORAGE AREA	-
-	VENTILATOR FAN		20	1	17			-			-	18	1	20		LIGHTS FLOCULATOR	-
-	LIGHTS OUTSIDE		20	1	19	-			-			20	1	20		RECEPT CHEMICAL LAB	-
-	RECEPTACLE BATH FILTER		20	1	21		-			-		22	1	20		RECEPT STORAGE & CHEM INJ.	-
-	RECEPTACLE FLOCCULATOR		20	1	23			-			-	24	1	20		OVERHEAD DOOR	-
-	LIGHTS FILTER AREA		20	1	25	-			-			26					
-	WATER & CHLOR ROOM HEATER		30	2	27		-			-		28	3	40		XFMR T-2	-
					29			-			-	30					
-	FLOCCULATOR TANK MIXERS		20	3	31	-			-			32	1	20		SPARE	-
					33		-			-		34	2	20		SPARE	-
					35			-			-	36					
-	SPARE		20	1	37	-			1,980			38					
-	SPARE		30	1	39		-			3,120		40	3	125	P-0001	PANEL P2 (SUBFEED)	-
-	SPARE		20	1	41			-			3,620	42					

TOTAL	0	0	0	1,980	3,120	3,620	TOTAL
	PHASE TOTAL			TOTAL LOAD (VA)			
	1,980	3,120	3,620	8,720			
				TOTAL LOAD (A)			
				10			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE
ETU - ELECTRONIC TRIP UNIT

NOTES/ACCESSORIES:
65kAIC
100kA INTERNAL SPD
[FEED THRU LUGS]
CKT WIRE/CONDUIT NOTES (WHERE NOTED IN SCHEDULE):
1. FURNISH AND INSTALL (2#12, #12 GND) IN 3/4"C.
2. FURNISH AND INSTALL (2#10, #10 GND) IN 3/4"C.

208/120 VOLTS
3 PHASE, 4 WIRE

PANEL P2 (N)
125A MAIN BREAKER
125A 3P

TYPE: NEMA 4X
MOUNT: SURFACE

MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	VOLT-AMPERES A	VOLT-AMPERES B	VOLT-AMPERES C	CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
-	CONTROL PANEL	SEE NOTE 2	20	1	1	-			500			2	1	20	P-0003	VCP-1010	-
-	RECEPTACLES CHLORINE	SEE NOTE 2	20	1	3		-			100		4	1	20	P-0004	AIT-1080	-
-	EXHAUST FAN CHLORINE	SEE NOTE 2	30	1	5			-			-	6	1	20		SPARE	-
-	CHLORINE VENTILATOR	SEE NOTE 2	20	1	7	-			-			8	1	20		SPARE	-
-	PUMP VAULT CHRORINE	SEE NOTE 2	20	1	9		-			-		10	1	20		SPARE	-
-	OVERFLOW VAULT PUMP	SEE NOTE 2	20	1	11			-			-	12	1	20		SPARE	-
-	TELEMETRY & SCADA	SEE NOTE 2	20	1	13	-			-			14	1	20		SPARE	-
-	SPARE		20	1	15		-			-		16	1	20		SPARE	-
-	SPARE		20	1	17			-			-	18	1	20		SPARE	-
-	SPARE		20	1	19	-			-			20	1	20		SPARE	-
-	SPARE		20	1	21		-			-		22	1	20		SPARE	-
-	SPARE		20	1	23			-			-	24	1	20		SPARE	-
-	SPARE		20	1	25	-			280			26	1	20	P-0012	METER VAULT LIGHT/RECEPT	-
-	CHLORINE ALARM	SEE NOTE 2	20	1	27		-			1,000		28	2	20	P-0011	MV-EUH-1	-
-	HEATER RESTROOM	SEE NOTE 2	30	2	29			-			1,000	30					
					31	-			200			32	1	20	P-0009	DCB EXTERIOR LIGHTING	-
-	MOTOR OPERATED VALVE	SEE NOTE 2	20	1	33		-			100		34	1	20	P-0005	FIT-2101	-
-	HEATER IN PRES RE STATION	SEE NOTE 2	30	2	35			-			700	36	1	20	P-0006	DCB HEAT TRACE	-
					37	-			1,000			38	1	20	P-0007	DCB SAMPLE PUMP P-2110	-
-	SCALE	SEE NOTE 2	20	1	39		-			1,920		40	1	20	P-0008	DCB RECEPTACLE NO. 1	-
-	RECEPT OUTSIDE CL ROOM	SEE NOTE 2	20	1	41			-			1,920	42	1	20	P-0010	DCB RECEPTACLE NO. 2	-

TOTAL	0	0	0	1,980	3,120	3,620	TOTAL
	PHASE TOTAL			TOTAL LOAD (VA)			
	1,980	3,120	3,620	8,720			
				TOTAL LOAD (A)			
				10			

MODIFICATION (MODS) LEGEND:
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE
ETU - ELECTRONIC TRIP UNIT

NOTES/ACCESSORIES:
65kAIC
100kA INTERNAL SPD
[FEED THRU LUGS]
CKT WIRE/CONDUIT NOTES (WHERE NOTED IN SCHEDULE):
1. FURNISH AND INSTALL (2#12, #12 GND) IN 3/4"C.
2. FURNISH AND INSTALL (2#10, #10 GND) IN 3/4"C.

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: E. TOLEDO
DRAWN BY: E. TOLEDO
CHECKED BY: A. BUTTS

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER No. 11959951 ADAM BUTTS 9/19/24 STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
PANEL SCHEDULES AND RAISER DIAGRAMS

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: E102

File: C:\USERS\ETOLEDO\DCACCDOCS\HAZEN AND SAWYER\70081-002_GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\ELEC\E102 Saved by ETOLEDO Save date: 7/11/2024 2:21 PM
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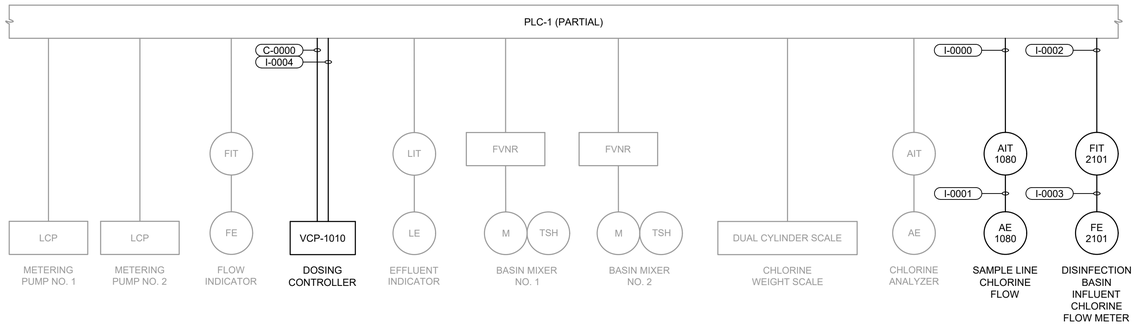

CONTROLS ONE LINE DIAGRAM

SINGLE LINE DIAGRAM

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
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PROFESSIONAL ENGINEER — No. 11959051 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

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SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
CONTROLS ONE LINE DIAGRAM

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E103

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-0000	3"	ATS (E)	PANEL P (N)	3#3/0, 1#3GND	
P-0001	2"	PANEL P (N)	PANEL P2 (N)	3#3/0, 1#3GND	
P-0002				THIS CONDUIT IS NOT USED	
P-0003	3/4"	PANEL P2 (N)	VCP-1010	2#12, 1#12 GND	
P-0004	3/4"	PANEL P2 (N)	AIT-1080	2#12, 1#12 GND	
P-0005	1"	PANEL P2 (N)	FIT-2101	2#12, 1#12 GND	
P-0006	1"	PANEL P2 (N)	DCB HEAT TRACE	2#10, 1#10 GND	
P-0007	1"	PANEL P2 (N)	DCB SAMPLE PUMP P-2110	2#10, 1#10 GND	
P-0008	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 1	2#8, 1#8 GND	
P-0009	3/4"	PANEL P2 (N)	DCB EXTERIOR LIGHTING	2#12, 1#12 GND	
P-0010	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 2	2#8,1#8 GND	
P-0011	1"	PANEL P2 (N)	MV-EUH-1	2#12, 1#12 GND	
P-0012	1"	PANEL P2 (N)	METER VAULT LIGHT/RECEPT	2#10, 1#10 GND	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-0000	3/4"	PLC-1	VCP-1010	2#14 AWG, #14 GND	
C-0001				THIS CONDUIT IS NOT USED	

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
I-0000	3/4"	PLC-1	AIT-1080	2/C#16TSH, #14 GND	
I-0001	3/4"	AIT-1080	AE-1080	VENDOR CABLE	
I-0002	3/4"	PLC-1	FIT-2101	2/C#16TSH, #14 GND	
I-0003	1"	FIT-2101	FE-2101	VENDOR CABLE	
I-0004	3/4"	PLC-1	VCP-1010	2/C#16TSH, #14 GND	
I-0005	3/4"	WATER TREATMENT BUILDING	EXISTING PUMP STATION	EXISTING CAT 5 COPPER	DIRECT BURY CONDUIT

DUCTBANK ID	CONDUIT	SIZE	FROM	TO	REMARKS
DB-01	P-0008	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 1	
	P-0010	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 2	
	P-0011	1"	PANEL P2 (N)	MV-EUH-1	
	P-0012	1"	PANEL P2 (N)	METER VAULT LIGHT/RECEPT	
	I-0003	1"	FIT-2101	FE-2101	
	X-XXXX	1"	PANEL P2 (N)	HH-1	SPARE
	X-XXXX	1"	PANEL P2 (N)	HH-1	SPARE
	X-XXXX	1"	PANEL P2 (N)	HH-1	SPARE
DB-02	P-0011	1"	PANEL P2 (N)	MV-EUH-1	
	P-0012	1"	PANEL P2 (N)	METER VAULT LIGHT/RECEPT	
	I-0003	1"	FIT-2101	FE-2101	
	X-XXXX	1"	HH-1	CONCRETE METER VAULT	SPARE
	X-XXXX	1"	HH-1	CONCRETE METER VAULT	SPARE
DB-03	P-0008	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 1	
	P-0010	1"	PANEL P2 (N)	DCB RECEPTACLE NO. 2	
	X-XXXX	1"	HH-1	DCB RECEPTACLE STAND	SPARE
	X-XXXX	1"	HH-1	DCB RECEPTACLE STAND	SPARE

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER: P. OSBORN
DESIGNED BY: E. TOLEDO
DRAWN BY: E. TOLEDO
CHECKED BY: A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER No. 11359981 ADAM BUTTS 9/9/24 STATE OF UTAH

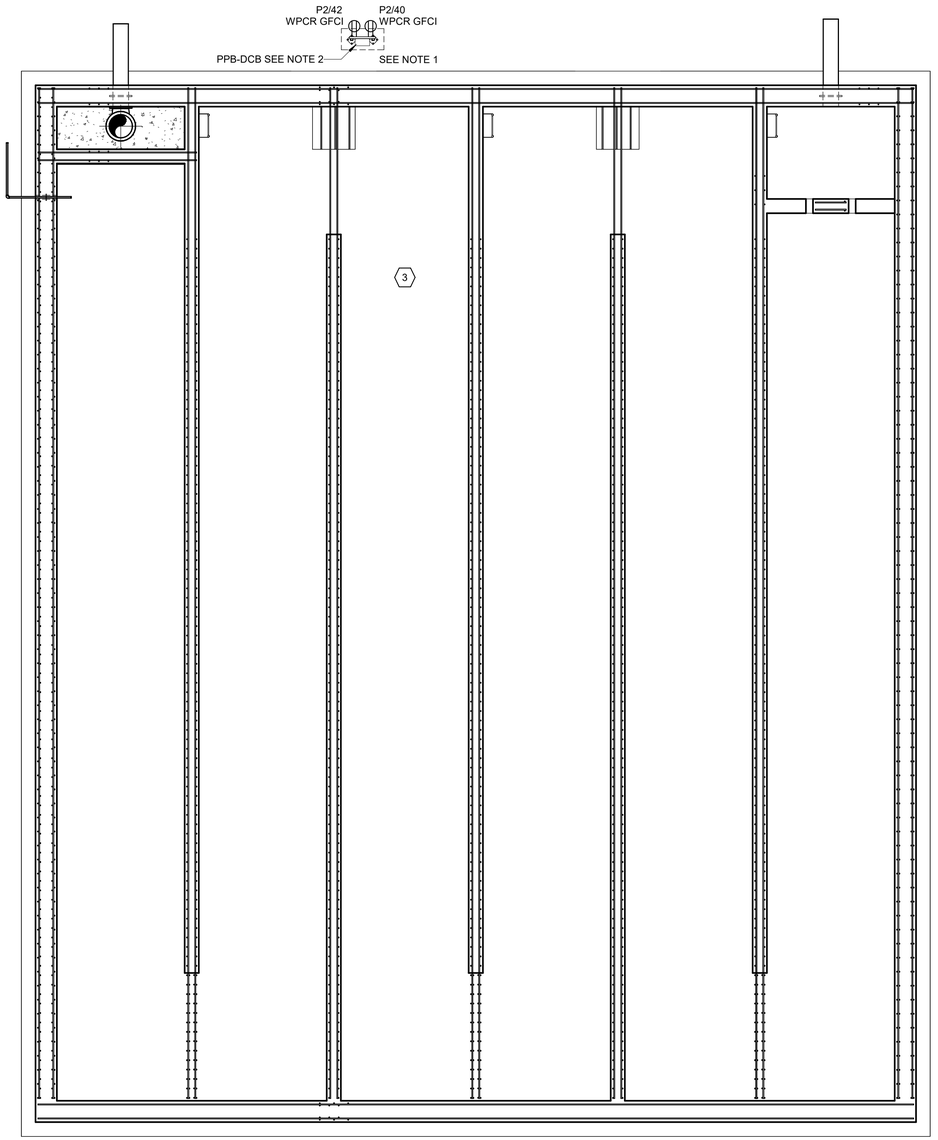
Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
CONDUIT, WIRE, AND DUCTBANK SCHEDULES

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: E104



DISINFECTION CONTACT BASIN PLAN

3/16" = 1'-0"

N

NOTES:

1. STUB UP AND CAP SPARE CONDUITS AT 12" ABOVE GRADE.
2. USE POWER DISTRIBUTION BOX TO REDUCE WIRING SIZE FROM 8 AWG TO 10AWG PER RECEPTACLE REQUIREMENTS. FIELD COORDINATE EXACT REQUIREMENTS.

AREA DESIGNATIONS:

3 INDOOR WET PROCESS AREA

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

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PROFESSIONAL ENGINEER No. 11959051 ADAM BUTTS 9/19/24 STATE OF UTAH

Hazen

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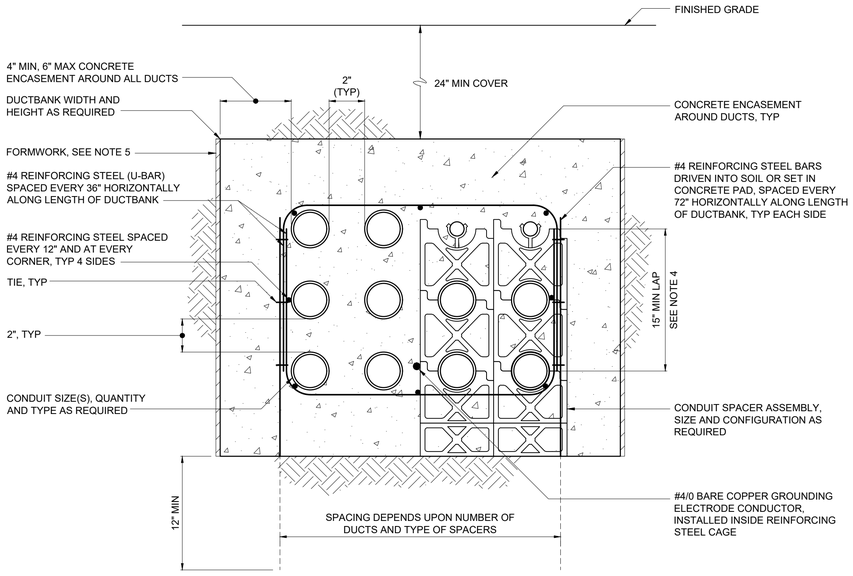
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
DISINFECTION CONTACT BASIN PLAN

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	E200



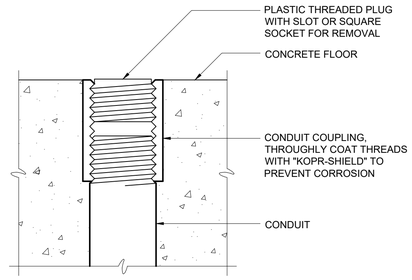
NOTES:

1. CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 03 30 00.
2. REINFORCING STEEL AND TIES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 03 21 00. OVERLAP FOR REINFORCING STEEL SPLICES ALONG THE DUCTBANK LENGTH SHALL BE 15", MINIMUM.
3. CONDUIT SPACERS ARE REQUIRED IN ACCORDANCE WITH SPECIFICATION SECTION 33 71 19. HORIZONTAL SPACING OF CONDUIT SPACER ASSEMBLIES ALONG LENGTH OF DUCTBANK SHALL BE AS SHOWN IN THE TABLE.
4. FOR DUCTBANKS LESS THAN 15" IN HEIGHT, THE LAP SHALL BE THE HEIGHT OF THE DUCTBANK.
5. IN POOR SOIL CONDITIONS, DUCTBANKS SHALL BE FORMED WITH FORMING MATERIALS TO MAINTAIN 4" MINIMUM ENCASEMENT. WHERE SOIL CONDITIONS PERMIT AND THE EXCAVATION IS MAINTAINED FOR A 4" MINIMUM TO 10" MAXIMUM ENCASEMENT, THE FORMWORK CAN BE OMITTED.

MAX SPACING BETWEEN CONDUIT SPACER ASSEMBLIES	
CONDUIT SIZE	SPACING
1"	3 FT
1 1/4-2"	5 FT
2 1/2-3"	6 FT
3 1/2-5"	7 FT
6"	8 FT

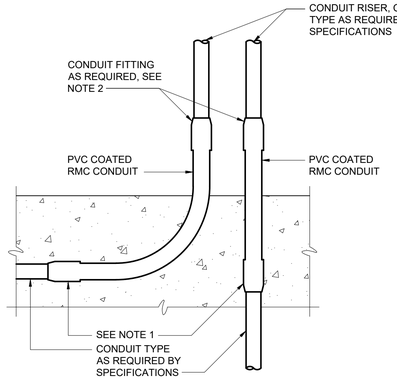
TYPICAL DUCTBANK SECTION

E-33-0101



FLOOR STUB-UP FOR FUTURE CONDUIT

E-26-0101

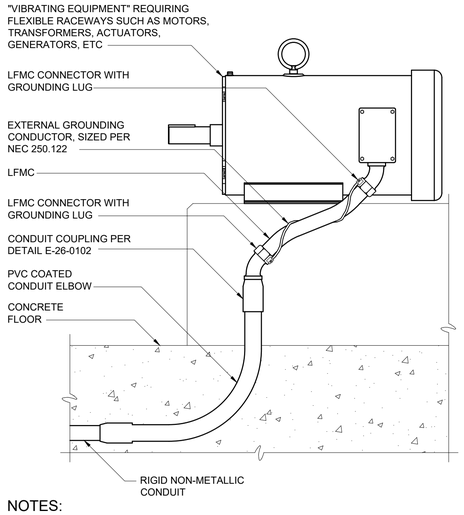


NOTES:

1. FOR ENCASED PVC CONDUIT USE PVC TERMINAL ADAPTER. FOR ALL OTHER CONDUIT TYPES, USE PVC COATED RMC COUPLINGS.
2. IF ANY THREADS OF THE PVC COATED RMC CONDUIT ARE EXPOSED AFTER INSTALLATION OF THE CONDUIT FITTING, THE CONDUIT FITTING SHALL BE PVC COATED TYPE WITH APPROPRIATE PVC SKIRTS. IF THE THREADS OF THE PVC COATED RMC CONDUIT ARE PROPERLY CUT SO THAT THEY ARE NOT EXPOSED AFTER INSTALLATION OF THE CONDUIT FITTING, THE CONDUIT MATERIAL SHALL BE AS REQUIRED BY THE SPECIFICATIONS, BASED ON THE MATERIAL OF THE CONDUIT RISER.

CONDUIT EXITING CONCRETE ENCASEMENT

E-26-0102

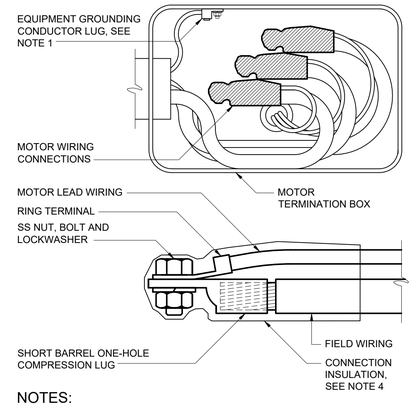


NOTES:

1. WHERE NON-METALLIC CONDUIT TRANSITIONS TO RIGID METALLIC CONDUIT AND / OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT, (LFMC), TO FEED VIBRATING TYPE LOADS, THE CONTRACTOR SHALL FURNISH AND INSTALL AN EXTERNAL BARE COPPER GROUNDING CONDUCTOR AND APPROVED GROUNDING LFMC CONNECTORS TO ENSURE GROUND CONTINUITY TO THE RIGID METALLIC CONDUIT AS SHOWN. THE GROUNDING CONDUCTOR SHALL BE SIZED ACCORDING TO NEC 250.122 AND BE NEATLY WRAPPED AROUND LFMC AS SHOWN. LFMC INSTALLED IN THIS MANNER CANNOT BE USED FOR A CONTINUOUS GROUND PATH PER NEC 350.60.

LFMC CONDUIT GROUND STRAP

E-26-0104



NOTES:

1. EQUIPMENT GROUNDING CONDUCTOR LUG SHALL BE ATTACHED WITH NUT AND LOCKWASHER TO THE MOTOR GROUNDING STUD. WHERE PROVIDED, FACTORY INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUGS ARE ACCEPTABLE IN LIEU OF THE FIELD INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUG.
2. RING TERMINALS ON MOTOR LEADS SHALL BE FACTORY INSTALLED BY THE MOTOR MANUFACTURER.
3. INSTALL SHORT BARREL COMPRESSION CONNECTOR ON FIELD WIRING WITH MANUFACTURER'S RECOMMENDED COMPRESSION TOOL AND CRIMPING DIE. CONNECTORS SHALL HAVE SMOOTHLY ROUNDED EDGES.
4. HEAT SHRINK OR COLD APPLIED CONNECTOR INSULATION LISTED FOR THE PURPOSE AND AS SPECIFIED.

LOW VOLTAGE MOTOR TERMINATION

E-26-0301

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER: P. OSBORN
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DRAWN BY: E. TOLEDO
CHECKED BY: A. BUTTS

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100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER No. 11356981 ADAM BUTTS 9/9/24 STATE OF UTAH

Hazen

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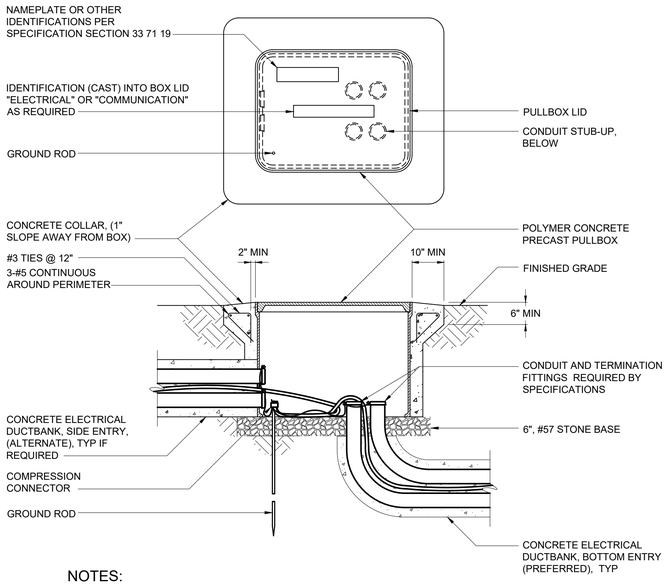
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
DETAILS - SHEET 1

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: ED001

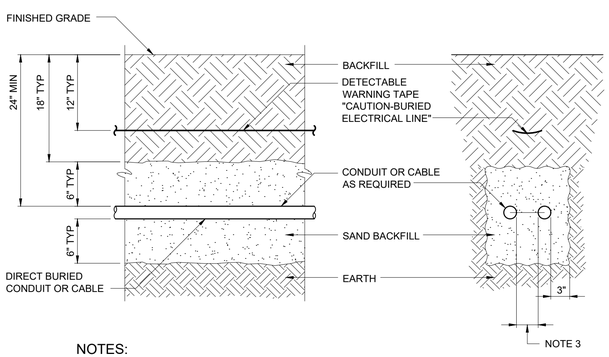


NOTES:

1. FOR SIDE ENTRY, CONDUIT DUCTBANK SHALL ENTER PULLBOX AT LOWEST POINT.
2. GROUND CONDUCTORS WITHIN DUCTBANK SHALL BE BONDED TOGETHER AND TO GROUND ROD.
3. CONDUIT BONDING BUSHINGS (IF REQUIRED) SHALL BE BONDED TO GROUND ROD.
4. FOR SIDE ENTRY, CONDUIT SHALL ENTER IN INDIVIDUAL CIRCULAR HOLES APPROPRIATELY SIZED FOR THE CONDUIT. LARGE SINGLE RECTANGULAR OPENINGS FOR MULTIPLE CONDUITS ARE NOT ACCEPTABLE
5. DUCTBANK REINFORCING REBAR SHALL PENETRATE THE SIDEWALLS OF THE BOX NO LONGER THAN 1".

POLYMER CONCRETE ELECTRICAL HANDHOLE

E-33-0103

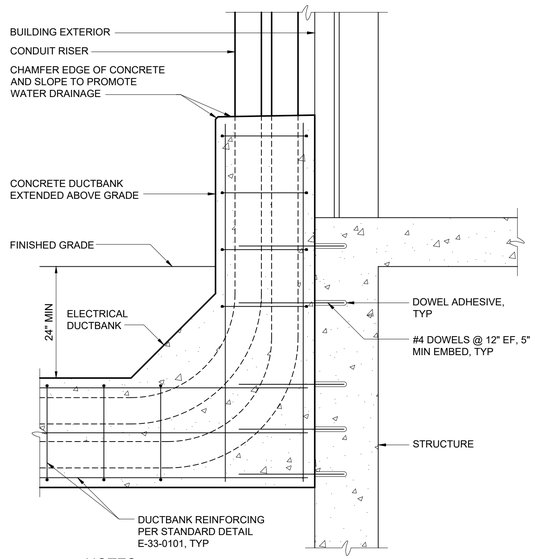


NOTES:

1. CONDUIT SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 26 05 33.13.
2. BACKFILL THAT CONTAINS LARGE ROCKS, PAVING MATERIALS, CINDERS, LARGE OR SHARPLY ANGULAR SUBSTANCES, OR CORROSIVE MATERIAL SHALL NOT BE USED.
3. MAINTAIN A MINIMUM OF 2" BETWEEN POWER, CONTROL, AND INSTRUMENTATION CONDUITS OR CONDUCTORS.

TYPICAL DIRECT BURIED CONDUIT & CABLE

E-33-0104

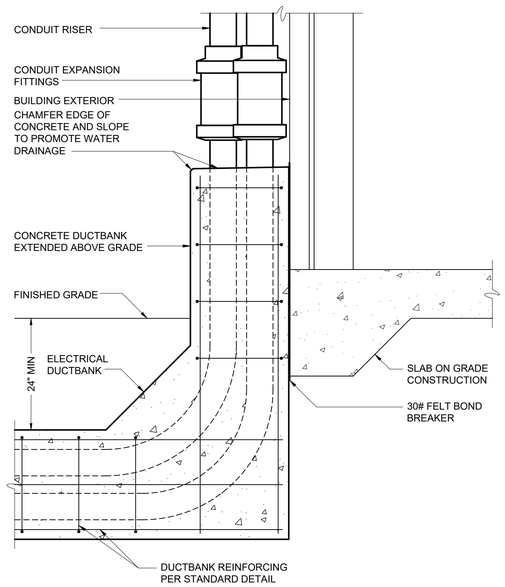


NOTES:

1. PROVIDE DOWEL ADHESIVE AS REQUIRED BY SPECIFICATION SECTION 03 21 00.

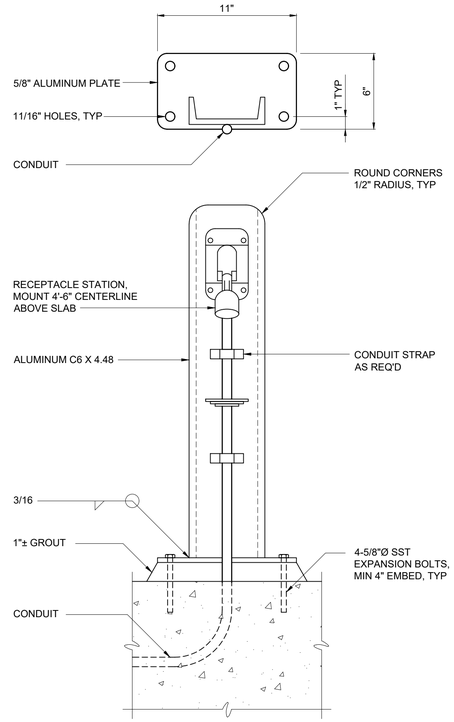
DUCTBANK ATTACHMENT TO STRUCTURE

E-33-0107



DUCTBANK ABUTMENT (FLOATING) TO STRUCTURE

E-33-0108



ELEVATION

NOTES:

1. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE PER SPECIFICATIONS.
2. CONSTRUCT 1'-6" DIAMETER X 2'-6" DEEP CONCRETE FOUNDATION WHERE NO CONCRETE SLAB EXISTS.
3. USE SST WASHERS, NUTS AND BOLTS FOR MOUNTING DEVICES.

LARGE RECEPTACLE SUPPORT AND MOUNTING

E-26-0402

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

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PROFESSIONAL ENGINEER No. 11359951 AIDAN BUTTS 9/19/24 STATE OF UTAH

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NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

ELECTRICAL
DETAILS - SHEET 2

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	ED002

File: C:\USERS\ETOLEDO\DOCACCDOCS\HAZEN AND SAWYER\70081-002_ GREEN CANYON DCB DESIGN\PROJECT FILES\01_DESIGN\ELEC\ED002 Saved by ETOLEDO Save date: 6/21/2024 8:30 AM
PLOT DATE: 9/19/2024 9:56 AM BY: ETOLEDO

VALVE, GATE, AND ACTUATOR SYMBOLS

- GATE VALVE
- PLUG VALVE
- GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- BALL CHECK VALVE
- SWING CHECK VALVE
- CHECK VALVE
- 3-WAY VALVE
- 3-WAY BALL VALVE
- MUD VALVE
- TELESCOPING VALVE
- DIAPHRAGM VALVE
- PINCH VALVE
- NEEDLE VALVE
- SLUICE GATE
- STOP/SLIDE GATE
- SOLENOID ACTUATOR (S)
- PNEUMATIC ACTUATOR (P)
- BACKFLOW PREVENTER
- ALTITUDE VALVE
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- COMBINATION VACUUM AND PRESSURE RELIEF VALVE
- SURGE ANTICIPATION VALVE
- PRESSURE-REDUCING REGULATOR
- BACKPRESSURE REGULATOR
- AIR RELEASE VALVE (V)
- ROTARY MOTOR (M)
- ELECTROHYDRAULIC ACTUATOR (E/H)
- MANUAL ACTUATOR

PUMP AND EQUIPMENT SYMBOLS

- CENTRIFUGAL WET PIT PUMP (OR DRY-PIT SUBMERSIBLE)
- BLOWER (CENTRIFUGAL)
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- COMPRESSOR
- BELT CONVEYOR
- CHOPPER PUMP
- PISTON PUMP
- DIAPHRAGM PUMP
- INLINE GRINDER
- SCREW CONVEYOR
- ROTARY LOBE PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- METERING PUMP
- WELL PUMP
- MIXER (M)
- DOUBLE DISC PUMP
- PROGRESSIVE CAVITY PUMP
- VERTICAL PUMP
- HOSE PUMP
- STEP SCREEN
- FAN
- CENTRIFUGAL PUMP
- SCREW CENTRIFUGAL PUMP
- VACUUM PUMP
- BAR SCREEN

LINE SYMBOLS AND LEGEND

- MAJOR PROCESS PIPES OR CHANNELS
- SECONDARY PROCESS OR MECHANICAL CONNECTION
- AIR SUPPLY OR SIGNAL
- HYDRAULIC LINE
- ELECTRICAL SIGNAL/ COPPER CABLE
- DATA LINK OR INTERNAL SOFTWARE LINK
- FO — FIBER OPTIC CABLE
- C6 — CAT6 CABLE
- PROCESS/SIGNALS NOT CONNECTED (CROSSING)
- PROCESS/SIGNALS CONNECTED
- OFF-SHEET CONNECTOR (TAG / DRAWING / TO/FROM)
- DISCRETE ELECTRICAL SIGNALS
- DISCRETE DIGITAL SIGNALS
- ANALOG ELECTRICAL SIGNALS
- ANALOG DIGITAL SIGNALS

PRIMARY ELEMENT SYMBOLS

- MAGNETIC FLOW METER (M)
- SONIC FLOW METER
- THERMAL MASS FLOW METER (ΔT)
- POSITIVE DISPLACEMENT FLOW METER
- TURBINE OR PROPELLER FLOW METER
- PARSHALL FLUME
- AVERAGING PITOT TUBE
- VORTEX FLOW METER
- XX: RF=ADMITTANCE/CAPACITANCE MAN=MANOMETER (ABCD 1234)
- ULTRASONIC LEVEL SENSOR
- SUBMERSIBLE LEVEL SENSOR
- NON-CONTACT RADAR LEVEL SENSOR
- GUIDED WAVE RADAR LEVEL SENSOR
- FLOAT LEVEL SWITCH
- CAPACITANCE LEVEL SENSOR
- VIBRATORY FORK

PIPING MISCELLANEOUS SYMBOLS

- EXPANSION JOINT
- QUICK CONNECT
- BLIND FLANGE
- FLEXIBLE HOSE
- CALIBRATION CYLINDER
- INCREASER/ REDUCER
- PULSATION DAMPENER
- EXPANSION TANK
- TANK VENT
- ORIFICE PLATE
- FILTER
- AIR DAMPER
- RUPTURE DISK
- VENT (V)
- WEIR
- STRAINER
- DIAPHRAGM SEAL
- FULL LINE OR TAPPED RING SEAL
- DRAIN (D)
- WATER LEVEL

INSTRUMENTATION AND CONTROL MISCELLANEOUS SYMBOLS

- AIR FILTER
- STATIC MIXER
- INJECTOR
- VARIABLE AREA FLOWMETER (ROTAMETER)
- MANHOLE
- PIPE CAP
- VALVE MANIFOLD
- HORN
- FLANGE FOR INSTRUMENT MOUNTING
- HORN/STROBE
- XXXX-YYYYY EQUIPMENT OR PANEL TAG

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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PROFESSIONAL ENGINEER — No. 11959051 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

Hazen

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WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

INSTRUMENTATION AND CONTROL SYMBOLS, LEGENDS, AND GENERAL NOTES - SHEET 1

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	I001

INSTRUMENT AND FUNCTION SYMBOLS

LOCATION AND ACCESSIBILITY	SHARED DISPLAY/SHARED CONTROL		COMPUTER SYSTEMS AND SOFTWARE	DISCRETE
	PRIMARY CHOICE OR BASIC PROCESS CONTROL SYSTEM	ALTERNATE CHOICE OR SAFETY INSTRUMENTED SYSTEM		
- LOCATED IN FIELD - NOT PANEL, CABINET, OR CONSOLE MOUNTED - VISIBLE AT FIELD LOCATION - NORMALLY OPERATOR ACCESSIBLE	ABCD 12345	ABCD 12345	ABCD 12345	ABCD 12345
- LOCATED IN OR ON FRONT OF CENTRAL OR MAIN PANEL OR CONSOLE - VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE	ABCD 12345	ABCD 12345	ABCD 12345	ABCD 12345
- LOCATED IN REAR OF CENTRAL OR MAIN PANEL - LOCATED IN CABINET BEHIND PANEL - NOT VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NOT NORMALLY OPERATOR ACCESSIBLE AT PANEL OR CONSOLE	ABCD 12345	ABCD 12345	ABCD 12345	ABCD 12345
- LOCATED IN OR ON FRONT OF SECONDARY OR LOCAL PANEL OR CONSOLE - VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE	ABCD 12345	ABCD 12345	ABCD 12345	ABCD 12345
- LOCATED IN REAR OF SECONDARY OR LOCAL PANEL - LOCATED IN FIELD CABINET - NOT NORMALLY OPERATOR ACCESSIBLE AT PANEL OR CONSOLE	ABCD 12345	ABCD 12345	ABCD 12345	ABCD 12345

X — SUFFIX (X) TO DIFFERENTIATE BETWEEN INSTRUMENTS AND FUNCTIONS THAT WOULD OTHERWISE HAVE THE SAME IDENTIFICATION.

SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS OR SHARING A COMMON HOUSING

(ZZZ) — DESIGNATIONS OF CONTROL FUNCTIONS (ZZZ) ASSOCIATED WITH INSTRUMENT OR OTHER COMPONENTS.

AHC	AUTO/HOLD/CLOSE	OC	OPEN/CLOSE
AM	AUTO/MANUAL	OSC	OPEN/STOP/CLOSED
CALC	CALCULATION	POT	POTENTIOMETER
DEV	DEVIATION	RL	RAISE/LOWER
FORA	FORWARD/OFF/REVERSE/AUTO	RS	RUN/STOP
MOA	MANUAL/OFF/AUTO	RSL	RAISE/STOP/LOWER
HOA	HAND/OFF/AUTO	SD	SHUTDOWN
HOR	HAND/OFF/REMOTE	SEL	SELECT
LOS	LOCKOUT STOP	SP	SET POINT
LR	LOCAL/REMOTE	SR	START/RESET
LSR	LOCAL/STOP/REMOTE	SS	STOP/START
OO	ON / OFF		

* ABCD 12345 — INSTRUMENT WITH COMPUTING OR CONVERTING FUNCTION

* ABCD 12345 — CONTROL SYSTEM COMPUTING FUNCTION

CONVERT

E	VOLTAGE
I	CURRENT
P	PNEUMATIC
A	ANALOG
B	BINARY
H	HYDRAULIC
O	ELECTROMAGNETIC, SONIC
R	RESISTANCE (ELECT.)
D	DIGITAL

COMPUTE

*		P	PROPORTIONAL	△	DIFFERENCE
—	SUBTRACTOR	R	DERIVATIVE	>	HIGH SELECTING
X	MULTIPLYING	Σ/n	AVERAGING	<	LOW SELECTING
÷	DIVIDING	I:I	RATIO	⌒	INTEGRAL
n√	ROOT EXTRACTION	PID	PID	#	COMPLEX FUNCTION

= 1, 2, 3, etc.
REFER TO NOTE ON SAME SHEET FOR BRIEF DESCRIPTION

* — ELECTRICAL CONTROL INTERLOCK

\# — COMPLEX INTERLOCK
= 1, 2, 3, etc.
REFER TO NOTE ON SAME SHEET FOR BRIEF DESCRIPTION

ABCD 1234 — PILOT LIGHT

AND — AND LOGIC

OR — OR LOGIC

PPR — PUMP PROTECTION RELAY

R — RELAY

IDENTIFICATION LETTERS

	FIRST LETTERS		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/ PASSIVE FUNCTION	OUTPUT/ ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY (MASS) OR SPECIFIC, GRAVITY	DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE (EMF)		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	UNCLASSIFIED		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

ANALYTICAL ABBREVIATIONS

AXX 12345 — ANALYSIS INSTRUMENT

(ZZZ) (ZZZ) =

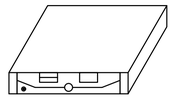
ALK	ALKALINITY
CH4	METHANE
CL2	CHLORINE
COMB	COMBUSTIBLE GAS
CON	CONDUCTIVITY
DO	DISSOLVED OXYGEN
IR	INFRARED
H2S	HYDROGEN SULFIDE
LEL	LOWER EXPLOSIVE LIMIT
METH	METHANOL VAPOR
NH3	AMMONIA
NO3	NITRATE
O2	OXYGEN
O3	OZONE
ORP	OXIDATION/REDUCTION POTENTIAL
PETRO	PETROLEUM VAPOR
PH	HYDROGEN ION CONCENTRATION
PO4	PHOSPHATE
SO2	SULFUR DIOXIDE
TH	TOTAL HARDNESS
TSS	TOTAL SUSPENDED SOLIDS
TURB	TURBIDITY
UVI	ULTRAVIOLET INTENSITY

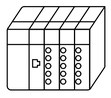
GENERAL NOTES

1. SYMBOLS AND NOMENCLATURE ARE BASED ON ANSI/ISA-5.1-2022.
2. REFER TO LEGEND SHEETS OF OTHER DISCIPLINES FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAIL ON CONTROL SYSTEM FUNCTIONAL REQUIREMENTS.
4. EQUIPMENT DENOTED WITH AN ASTERISK (*V) ARE PROVIDED AS PACKAGED EQUIPMENT. REFER TO THE APPLICABLE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL DETAIL.
5. POWER SUPPLIES FOR LOOPS OR SYSTEMS SHALL BE FURNISHED BY THE INSTRUMENTATION SUPPLIER TO MEET THE PARTICULAR CHARACTERISTICS (E.G., VOLTAGE AND CURRENT REQUIREMENTS) OF COMPONENTS IN EACH LOOP OR SYSTEM.

NETWORK SYMBOLS AND LEGEND

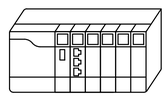

OPERATOR WORKSTATION


SERVER


DIN RAIL MOUNTED PLC (PROGRAMMABLE LOGIC CONTROLLER)

OIT (OPERATOR INTERFACE TERMINAL)


DIN RAIL MOUNTED ETHERNET SWITCH


CHASSIS MOUNTED PLC

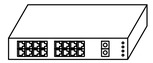

RADIO

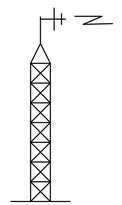

PANEL MOUNTED UPS


RACK MOUNTED UPS

FOPP (FIBER OPTIC PATCH PANEL)

WIRELESS ACCESS POINT


RACK MOUNT ETHERNET SWITCH


ANTENNA


FIBER/COPPER MEDIA CONVERTER

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

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

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

100% SUBMITTAL DRAWING ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11956951 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

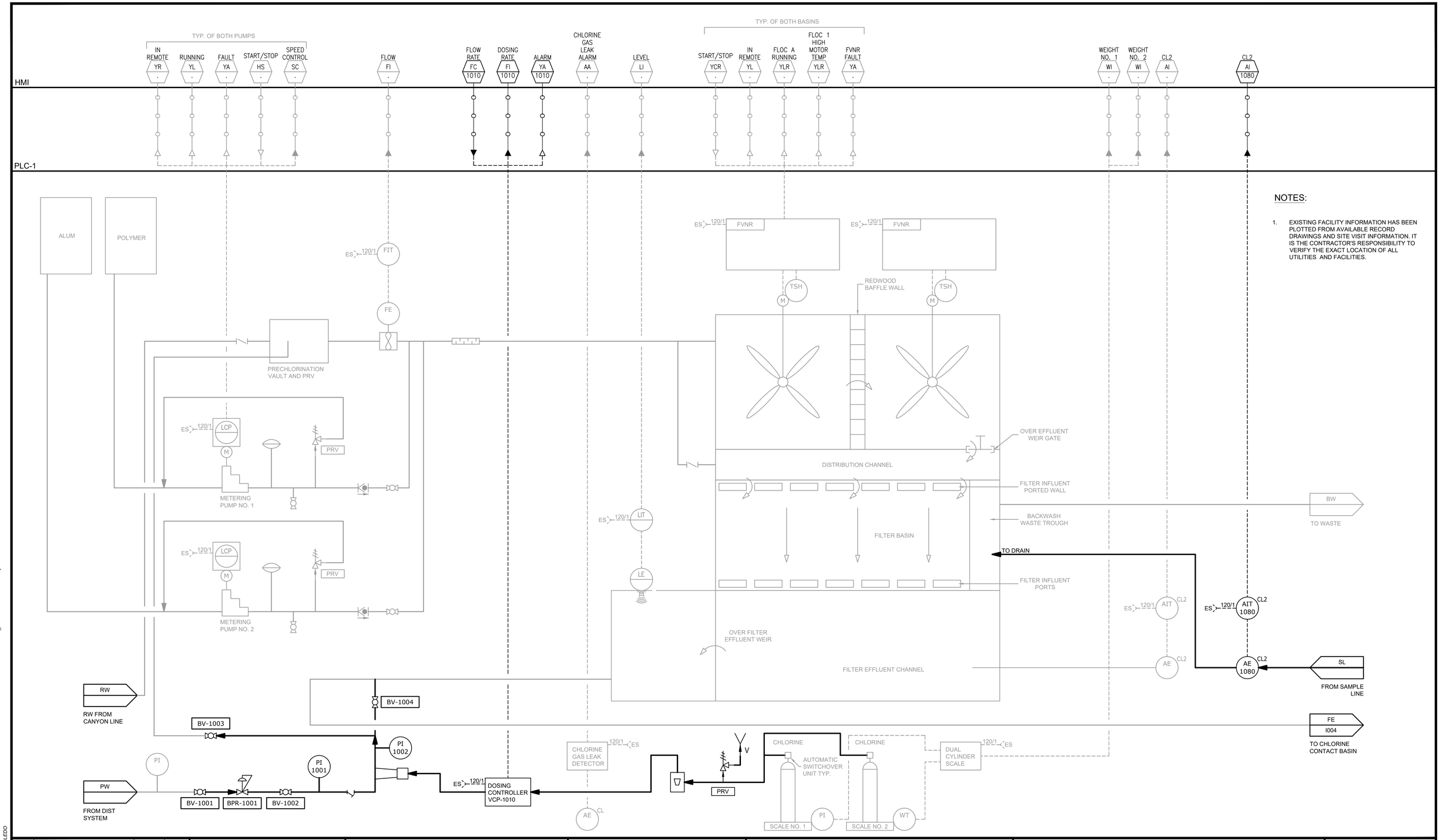
NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

INSTRUMENTATION
SYMBOLS, LEGENDS, AND GENERAL NOTES - SHEET 2

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	I002

File: C:\USERS\ETOLEDO\APPDATA\LOCAL\AUTODESK\AUTOCAD PLANT 3D\COLLABORATION\CACHE\70081-002 - NORTH LOGAN_3P\ID DWG\I002 Saved by ETOLEDO Save date: 6/21/2024 8:35 AM
PLOT DATE: 9/19/2024 9:48 AM BY: ETOLEDO



NOTES:

1. EXISTING FACILITY INFORMATION HAS BEEN PLOTTED FROM AVAILABLE RECORD DRAWINGS AND SITE VISIT INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UTILITIES AND FACILITIES.

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2", 1")

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER — No. 11959051 — ADAM BUTTS — 9/19/24 — STATE OF UTAH

Hazen
HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

INSTRUMENTATION AND CONTROL
P&ID - RAW WATER & FILTER BUILDING

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	I003

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PLOT DATE: 9/18/2024 9:48 AM BY: ETOLEDO

HMI

PLC-1

FLOW
FI
2101

ES 120/1 FIT 2101

FLOW METER VAULT

FE 2101

M

BFV-2101

BFV-2100

FE
I003
FROM FILTER BUILDING

D

CHLORINE CONTACT BASIN

BFV-2110

FW
TO STORAGE TANKS

ES 120/1 M
CHLORINE SAMPLE PUMP

P-2110

SL
I003
SAMPLE LINE TO CHLORINE ANALYZER

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER
No. 11959051
ADAM BUTTS
9/19/24
STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

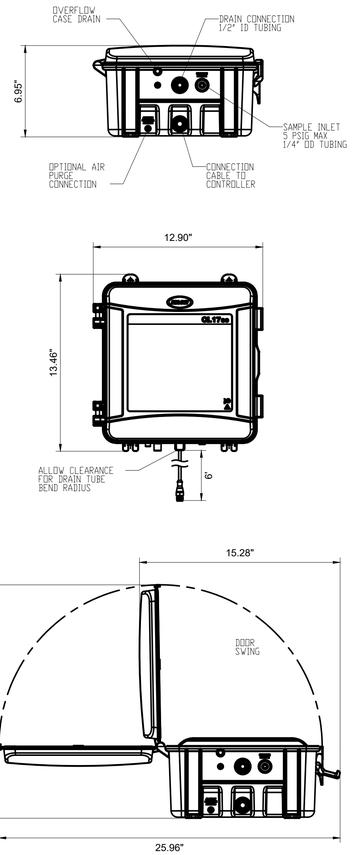
INSTRUMENTATION AND CONTROL
P&ID - DISINFECTION CONTACT BASIN

DATE: SEPTEMBER 2024
HAZEN NO.: 70081-002
CONTRACT NO.:
DRAWING NUMBER: I004

File: C:\USERS\ETOLEDO\APPDATA\LOCAL\AUTODESK\AUTOCAD PLANT 3D\COLLABORATION\CACHE\70081-002 - NORTH LOGAN_3\PID DWG\I004 Saved by: ETOLEDO Save date: 9/18/2024 9:47 AM
PLOT DATE: 9/18/2024 9:48 AM BY: ETOLEDO

NOTES:

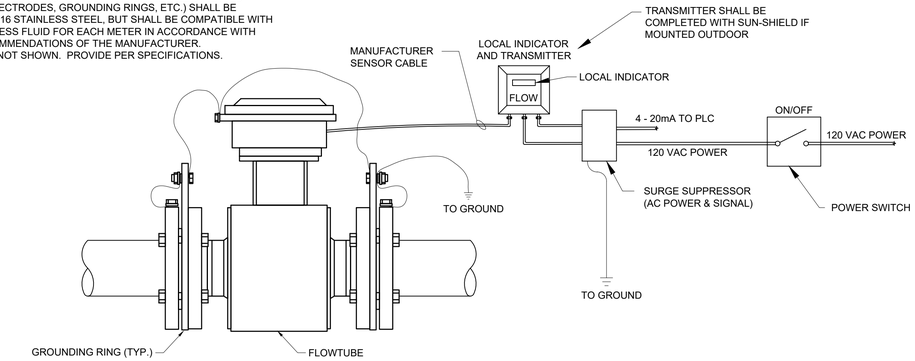
1. UNIVERSAL CONTROLLER NOT SHOWN. PROVIDE ALL INTERCONNECTING WIRING BETWEEN CHLORINE ANALYZER AND UNIVERSAL CONTROLLER AS REQUIRED AND RECOMMENDED BY MANUFACTURER.



CHLORINE ANALYZER

I-40-0511

NOTES:
1. ALL MATERIALS OF CONSTRUCTION FOR METALLIC WETTED PARTS (ELECTRODES, GROUNDING RINGS, ETC.) SHALL BE MINIMUM 316 STAINLESS STEEL, BUT SHALL BE COMPATIBLE WITH THE PROCESS FLUID FOR EACH METER IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
2. GASKETS NOT SHOWN. PROVIDE PER SPECIFICATIONS.



MAGNETIC FLOW METER

I-40-0106

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	9/16	PO

PROJECT ENGINEER:	P. OSBORN
DESIGNED BY:	E. TOLEDO
DRAWN BY:	E. TOLEDO
CHECKED BY:	A. BUTTS

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

100% SUBMITTAL DRAWING
ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER
No. 11959951
ADAM BUTTS
9/19/24
STATE OF UTAH

Hazen

HAZEN AND SAWYER
10619 S. JORDAN GATEWAY STE 130
SOUTH JORDAN, UTAH 84095

NORTH LOGAN
EST 1884

GREEN CANYON
WATER TREATMENT PLANT
DISINFECTION CONTACT BASIN DESIGN

INSTRUMENTATION AND CONTROL
STANDARD DETAILS

DATE:	SEPTEMBER 2024
HAZEN NO.:	70081-002
CONTRACT NO.:	
DRAWING NUMBER:	ID001