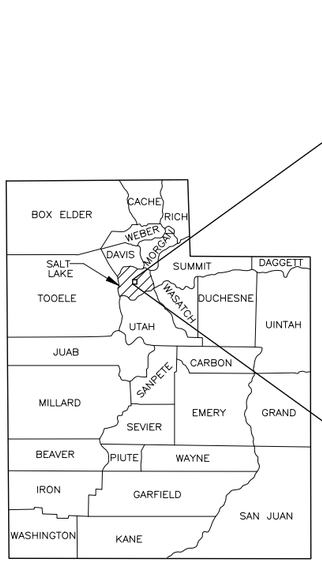
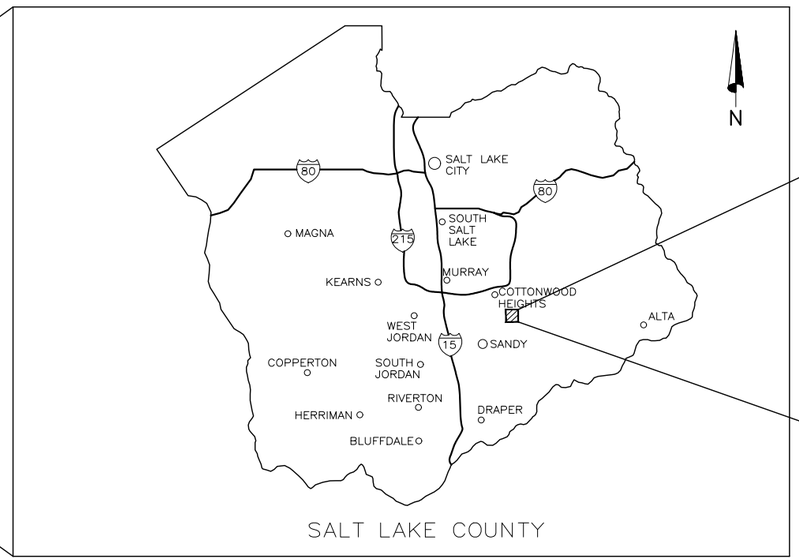
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY

LC063 AQUIFER STORAGE AND RECOVERY PILOT TESTING - PHASE 1 SIB AND INFRASTRUCTURE

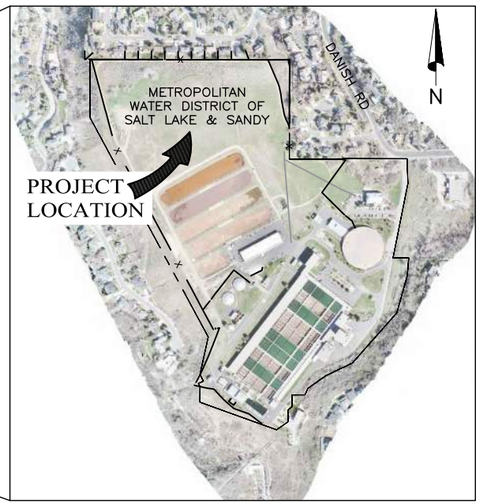
APRIL 2023



STATE OF UTAH



VICINITY MAP



PROJECT LOCATION MAP

HANSEN, ALLEN & LUCE DESIGN TEAM

DAVID E. HANSEN, Ph.D, P.E. – PRINCIPAL IN CHARGE
GREG S. THOMAS, P.E. – PROJECT MANAGER
STEPHEN W. MARGINSON, E.I.T. – PROJECT ENGINEER

BOB HILLYER, P.E. – ELECTRICAL
(HEATH ENGINEERING COMPANY)

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

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY

AMMON D. ALLEN, P.E.
ENGINEERING SUPERVISOR

METROPOLITAN WATER DISTRICT OF SALT LAKE CITY & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UTAH 84093

HANSEN ALLEN & LUCE inc
ENGINEERS

HANSEN, ALLEN & LUCE ENGINEERING INC.
859 WEST SOUTH JORDAN PKWY STE. 200
SOUTH JORDAN, UTAH 84095
(801) 566-5599

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\G-001 COVER.DWG
FILE DATE: 4.12.2023 13:26:39 (SWM)

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H–01	SYMBOL LEGEND, SCHEDULES, DIAGRAMS
H–11	ASR WELL PLAN
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LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE 1 MAR\CAD\G–002 INDEX.DWG
FILE DATE: 4.12.2023 08:48:42 (SWM)

HANSEN ALDER & LUCE, inc. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
GENERAL
INDEX OF DRAWINGS

SHEET: G–002
262.08.200

ABBREVIATIONS

@	AT
A	AIR/AMPERE
A/C	AIR CONDITIONING
A/R	AIR RELEASE
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN	ABANDON
ABND	ABANDONED
ABBR	ABBREVIATION
AC	ASPHALTIC CONCRETE / ALTERNATING CURRENT
ACI	AMERICAN CONCRETE INTERNATIONAL
ACOUS	ACOUSTIC / ACOUSTICAL
ACP	ASBESTOS CEMENT PIPE / ASPHALTIC CONCRETE PAVEMENT
ADD	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE / ADJACENT
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM / ALUM
AMB	AMBIENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
API	AMERICAN PETROLEUM INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
APPURTS	APPURTENANCES
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARV	AIR RELEASE VALVE
ARCH	ARCHITECTURE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AT	ACOUSTICAL TILE
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVAR	AIR VACUUM AND AIR RELEASE
AVE	AVENUE
AWG	AMERICAN WIRE GAGE
AWPA	AMERICAN WOOD PRESERVERS ASSOCIATION
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL AND SPIGOT
B/W	BACK OF WALL / BACK OF WALK
BC	BEGIN CURVE / BOLT CIRCLE / BETWEEN CENTERS / BACK OF CURVE
BCR	BEGIN CURB RETURN
BDRY	BOUNDARY
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BGS	BELOW GROUND SURFACE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLK	BLACK / BLOCK
BLKG	BLOCKING
BLVD	BOULEVARD
BM	BEAM / BENCHMARK
BOA	BLOW-OFF ASSEMBLY
BOO	BOTTOM OF OPENING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BPV	BACK PRESSURE VALVE
BRG	BEARING
BRK	BRICK / BREAK
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
C	CENTIGRADE / CHANNEL / CEMENT
C&G	CURB AND GUTTER
CAB	CABINET / CRUSHED AGGREGATE BASE
CAP	CAPACITY
CATS	CASING TEST STATION
CB	CATCH BASIN / CHALKBOARD / CURB
CC	CENTER TO CENTER
CD	CEILING DIFFUSER
CEM	CEMENT
CF	CURB FACE / CUBIC FOOT
CFH	CUBIC FOOT PER HOUR
CFM	CUBIC FOOT PER MINUTE
CFS	CUBIC FOOT PER SECOND
CHEM	CHEMICAL
CHG	CHANGE
CHKD	CHECKERED
CI	CAST IRON
CIP	CAST IRON PIPE / CAST IN PLACE
CIPP	CAST IN PLACE PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL	CHLORINE GAS / CHLORINATOR / CENTERLINE
CLF	CHAIN LINK FENCE
CLG	CEILING
CLR	CLEAR / CLEARANCE
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CMC	CEMENT MORTAR-COATED
CML	CEMENT MORTAR-LINED
CML&C	CEMENT MORTAR-LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COTG	CLEANOUT TO GRADE
COL	COLUMN
COMM	COMMUNICATION CABLE
COMP	COMPRESSOR
CONC	CONCRETE / CONCENTRIC
COND	CONDENSER / CONDENSATE
CONN	CONNECTION
CONST	CONSTRUCT / CONSTRUCTION
CONT	CONTINUED / CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
COR	CORNER
CPLG	COUPLING
CPVC	CHLORINATE POLYVINYL PIPE
CSP	CORRUGATED STEEL PIPE
CSTS	CURRENT SPAN TEST STATION
CT	CERAMIC TILE
CTR	CENTER
CTS	CORROSION TEST STATION
CTSK	COUNTERSINK
CU	COPEER / CUBIC
CV	CHECK VALVE
CY	CUBIC YARD
CYL	CYLINDER
d	PENNY
DAD	DOUBLE ACTING DOOR
DB	DIRECT BURY
DBL	DOUBLE
DC	DIRECT CURRENT
DEG	DEGREE
DET	DETAIL
DF	DRINKING FOUNTAIN / DOUGLAS FIR
DG	DOOR GRILL
DH	DOUBLE HUNG
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
DIM	DIMENSION
DIR	DIRECTION
DISCH	DISCHARGE
DIST	DISTANCE
DL	DEAD LOAD
DMH	DROP MANHOLE
DMJ	DISMANTLING JOINT
DN	DOWN
DO	DISSOLVED OXYGEN
DR	DOOR / DRAIN
DT	DRAIN TILE
DWG	DRAWING
DWLS	DOWELS
DWY	DRIVEWAY
E/O	EAST OF
EA	EACH
EB	EXPANSION BOLT OR ANCHOR
EC	END OF CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE / EXHAUST FAN
EFF	EFFLUENT
EG	EXISTING GRADE / EDGE OF GUTTER / EXHAUST GRILLE / EXHAUST GAS
EGL	ENERGY GRADE LINE
EL	ELEVATION
ELEC	ELECTRIC / ELECTRONIC
EN	EDGE NAILING
ENCL	ENCLOSURE
ENG	ENGINE
ENGR	ENGINEER
ENT	ENTRANCE
EO	EDGE OF OIL / EMERGENCY OVERFLOW
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
ESEW	EMERGENCY SHOWER / EYE WASH
ESMT	EASEMENT
ETB	EMULSION TREATED BASE
ETC	ET CETERA
EUH	ELECTRIC UNIT HEATER
EVAP	EVAPORATOR
EVC	END VERTICAL CURVE
EW	EACH WAY / EYE WASH
EX	EXISTING
EXC	EXCAVATION / EXCAVATE
EXH	EXHAUST
EX-HY	EXTRA HEAVY
EXIST	EXISTING
EXP	EXPANSION / EXPOSED
EXT	EXTERIOR / EXTENSION
EXTR	EXTRUDED
F	FAHRENHEIT / FINISH
F TO F	FACE TO FACE
F&C	FRAME AND COVER
F&I	FURNISH AND INSTALL
FAB	FABRICATE / FABRICATION / FABRICATED
FAI	FRESH AIR INTAKE
FB	FLAT BAR / FLOOR BEAM / FIELD BLOCK
FC	FLEXIBLE COUPLING
FCA	FLANGE COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDR	FEEDER
FE	FIRE EXTINGUISHER
FEM	FEMALE (PIPE THREAD)
FF	FLAT FACE / FAR FACE / FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT / FLAT HEAD
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOWLINE
FLEX	FLEXIBLE
FLG	FLANGE / FLOORING
FLGD	FLANGED
FLR	FLOOR
FLSG	FLASHING
FM	FACTORY MUTUAL (LAB APPROVED) / FORCE MAIN
FMH	FLEXIBLE METAL HOSE
FN	FIELD NAIL
FND	FOUNDATION
FOC	FACE OF CONCRETE / FIBER OPTIC CABLE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOW	FACE OF WALL
FPC	FLEXIBLE PIPE COUPLING
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTS	FOREIGN PIPE TEST STATION
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FINISHD SURFACE / FAR SIDE / FLOOR SINK / FORGED STEEL
FT	FEET / FOOT
FTG	FOOTING
FUR	FURRING
FUT	FUTURE
FV	FIELD VERIFY
FW	FINISH WATER
FWD	FORWARD
G	GAS
GA	GAGE / GAUGE
GAL	GALLON
GALV	GALVANIZED
GANC	GUT ANCHOR
GB	GRADE BREAK
GC	GROOVED COUPLING
GE	GROOVED END
GEN	GENERAL / GENERATOR
GFA	GROOVED FLANGE ADAPTOR
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GL	GLASS / GROUND LINE / GRADE LINE
GLB	GLUE LAMINATED BEAM / GLULAM
GLV	GLOBE VALVE
GM	GAS METER
GP	GUY POLE
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE / GUARDRAIL
GRD	GROUND
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GVL	GRAVEL
GYP	GYPSUM
H	HIGH / HEIGHT
H&V	HEATING AND VENTILATING
H/B	HOSE BIBB
HC	HOUSE CONNECTION
HD	HUB DRAIN
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
HDR	HEADER
HDW	HARDWARE
HDWL	HEADWALL
HEX	HEXAGONAL
HG	MERCURY
HGL	HYDRAULIC GRADE LINE
HGR	HANGER
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT / HORSEPOWER / HIGH PRESSURE / HIGH PERFORMANCE
HPG	HIGH PRESSURE GAS
HR	HEAT RETURN / HOUR / HANDRAIL
HSL	HORIZONTALLY SLOTTED
HSS	HOLLOW STRUCTURAL SECTION
HTG	HEATING
HTR	HEATER
HV	HORIZONTAL AND VERTICAL CONTROL POINT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HOT WATER / HEADWORK
HWD	HARDWOOD
HWL	HIGH WATER LEVEL
HWO	HANDWHEEL OPERATED
HYD	HYDRAULIC / HYDRANT
I/O	INPUT/OUTPUT
I&C	INSTRUMENTATION & CONTROL
I&O	INSIDE AND OUTSIDE
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
I.F.	INSIDE FACE
IJTS	INSULATING JOINT TEST STATION
IN	INCH
INCL	INCLUDE / INCLUDING
INF	INFLUENT
INSL	INSULATION / INSULATING / INSULATED
INSP	INSPECTION
INST	INSTRUMENT
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRRIG	IRRIGATION
JAN	JANITOR
JC	JUNCTION CHAMBER
JCT	JUNCTION
JS	JUNCTION STRUCTURE
JSTS	JOISTS
JT	JOINT
k	KILO
K	KELVIN / KARAT
kg	KILOGRAM
KIP	THOUSAND POUNDS
km	KILOMETER
kV	KILOVOLT
KVA	KILOVOLT AMPHERE
kW	KILOWATT
kWh	KILOWATT HOUR
L	LETTER / LENGTH / ANGLE
LAB	LABORATORY
LAM	LAMINATED
LAT	LATERAL
LAV	LAVATORY
LB	POUND
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LD	LOCAL DEPRESSION
LDG	LANDING
LF	LINEAR FOOT
LG	LENGTH / LONG
LH	LAMP HOLE / LEFT HAND
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LOL	LAYOUT LINE
LONG	LONGITUDINAL
LP	LOW POINT / LOW PRESSURE / LAMP POST
LPG	LIQUID PETROLEUM GAS
LT	LEFT / LIGHT
LW	LOW WATER
LWL	LOW WATER LEVEL
LWR	LOWER
m	METER
M	MALE (PIPE THREAD)
mA	MILLIAMPS
MACH	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MAILBOX / MACHINE BOLT
MCC	MOTOR CONTROL CENTER
MCJ	MASONRY CONTROL JOINT
MCR	MIDDLE OF CURB RETURN
MEAS	MEASURE
MECH	MECHANICAL
MED	MEDIUM
MEM	MEMBER
MFR	MANUFACTURER
MFRD	MANUFACTURED
MG	MILLION GALLON
MGD	MILLION GALLON PER DAY
MH	MANHOLE / MAINTENANCE HOLE
MHW	MEAN HIGH WATER
MI	MALLEABLE IRON / MILE
MICRON	1/1,000,000 METER
MIL	MILITARY / 1/1,000TH INCH
MIN	MINIMUM / MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MK	MARK
MLW	MEAN LOW WATER
mm	MILLIMETER
MO	MOTOR OPERATED / MASONRY OPENING
MOD	MODEL
MON	MONUMENT
MOR	MORTAR
MSL	MEAN SEA LEVEL
MTC	MECHANICAL-TYPE COUPLING
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL / MATERIAL
MTR	MOTOR
MWS	MAXIMUM WATER SURFACE
N	NORTH
NaOCL	SODIUM HYPOCHLORITE
NaOH	SODIUM HYDROXIDE (CAUSTIC SODA)
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NEAR FACE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GRADE / NATURAL GAS
NIC	NOT IN CONTRACT
NO	NUMBER / NORMALLY OPEN
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NRCP	NON-REINFORCED CONCRETE PIPE
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
NW	NORTHWEST
OBJ	OBJECT
OC	ON CENTER / OVER-CROSSING
OD	OUTSIDE DIAMETER / OVERALL DIMENSION
OE	OUTER EDGE
O.F.	OVERFLOW / OUTSIDE FACE
OFD	OVERFLOW DRAIN
OG	ORIGINAL GROUND
OH	OVERHEAD
OHP	OVERHEAD POWER LINE
OHW	OVERHEAD POWER WIRE
OPER	OPERATOR / OPERATING
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OS&Y	OUTSIDE SCREW AND YOKE
OSA	OUTSIDE AIR
OSHA	OCCUPATIONAL SAFETY AND HEALT ADMINISTRATION
OWG	OIL, WATER, GAS
OZ	OUNCE
P	POLE / PAGE / PIPE
P/S	POLE AND SHELF
PA	PLANTING AREA
PART	PARTITION
PAVMT	PAVEMENT
PB	POLYBUTYLENE / PULL BOX
PC	POINT OF CURVATURE / PORTLAND CEMENT
PCC	PORTLAND CEMENT CONCRETE / POINT OF COMPOUND CURVE
PCOTG	PRESSURE CLEANOUT TO GRADE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PE	POLYETHYLENE / PLAIN END / PLANT EFFLUENT
PG	PRESSURE GAGE
pH	HYDROGEN ION CONCENTRATION
PI	PLANT INFLUENT / POINT OF INTERSECTION
PK	PARKING
PL	PLATE / PROPERTY LINE /PLACE
PLAS	PLASTER / PLASTIC
PLT	PLANT
PLWD	PLYWOOD
PM	PRESSED METAL
PNEU	PNEUMATIC
PNL	PANEL
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
POT	POINT OF TANGENT
PP	POWER POLE / POLYPROPYLENE
PPD	POUNDS PER DAY
PPH	POUNDS PER HOUR
PPM	POUNDS PER MINUTE / PARTS PER MILLION
PR	PAIR
PRC	POINT OF REVERSE CURVE
PRCT	PRECAST
PREFAB	PREFABRICATED
PRESS	PRESSURE
PROF	PROFILE
PROP	PROPERTY
PRV	PRESSURE REGULATING, RELIEF, OR REDUCING VALVE
PRVC	POINT OF REVERSE VERTICAL CURVE
PS	PRESSURE SWITCH / PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PSV	PRESSURE SUSTAINING VALVE
PT	POINT OF TANGENCY / PAINT
PTFE	POLYTETRAFLUOROETHYLENE (TEFLON)
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE (KYNAR)
PW	POTABLE WATER
QTY	QUANTITY
QUAD	QUADRANGLE / QUADRANT
R	RADIUS / RISER / RATE OF SLOPE
R/W	RIGHT-OF-WAY
RAC	RECYCLED ASPHALT CONCRETE
RAG	RETURN AIR GRILLE
RAP	RECYLCED ASPHALT PAVEMENT
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN / ROUND
RED	REDUCER / REDUCING
REF	REFERENCE / REFER / REFRIGERATOR
REG	REGULATING
REINF	REINFORCE / REINFORCED
REQD	REQUIRED
RESIL	RESILIENT
RET	RETAINING / RETURN
REV	REVISION
REW	RECLAIMED WATER
RF	ROOF / RAISED FOUNDATION / ROUGH FACE
RFG	ROOFING
RGE	REGISTERED GEOTECHNICAL ENGINEER
RH	REDHEAD / RIGHT HAND
RM	ROOM
RMP	ROCKY MOUNTAIN POWER
RO	ROUGH OPENING / REVERSE OSMOSIS
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
R/R	REMOVE AND REPLACE
RS	RISING STEM
RT	RIGHT
RTU	REMOTE TERMINAL UNIT
RW	REDWOOD
RWL	RAINWATER LEADER
S	SOUTH / SINK / SECOND / SLOPE
S/O	SOUTH OF
SA	SAMPLE
SAN	SANITARY
SBR	STYRENE BUTADIENE (RUBBER)
SCCP	STEEL CYLINDER CONCRETE PIPE
SCR	SCREWED
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SD	SANITARY DRAIN AND VENT / SMOKE DETECTOR
SDR	STANDARD THERMOPLASTIC PIPE DIMENSION RATIO / STORM DRAIN
SEC	SECONDARY / SECTION
SF	SQUARE FOOT (FEET)
SH	SHOWER
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SLDG	SLIDING
SLG	SLUICE GATE
SOG	SLAB ON GRADE
SOL	SOLUTION
SP	STATIC PRESSURE
SPD	SUMP PUMP DRAIN
SPEC	SPECIFICATION
SQ	SQUARE
SQ IN	SQUARE INCH
SS	STAINLESS STEEL / SANITARY SEWER / SERVICE SINK
SSB	SELECT SUB-BASE
SSPWC	STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION
ST	STREET / STATE
STA	STATION
STC	SLEEVE-TYPE COUPLING
STD	STANDARD
STK	STAKE
STL	STEEL
STM	STEAM
STN	STAINLESS
STR	STRAIGHT / STRUCTURAL
STRUCT	STRUCTURE
SUBFL	SUB-FLOOR
SUCT	SUCTION
SUSP	SUSPEND / SUSPENDED
SV	SOLENOID VALVE
SW	SIDEWALK / SOUTHWEST
SWGR	SWITCHGEAR
SWR	SIDEWALL REGISTER
SY	SQUARE YARD
SYM	SYMMETRICAL / SYMBOL
T	THERMOSTAT / TREAD OF STAIR / TANGENT
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TBC	TOP BACK OF CURB
TBE	THREAD BOTH ENDS
TBG	TUBING
TBM	TEMPORARY BENCH MARK
TCE	TEMPORARY CONSTRUCTION EASEMENT
TCV	TEMPERATURE CONTROL VALVE
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE / TEMPORARY
TF	TOP OF FOOTING
TH	TEST HOLE
THK	THICK / THICKNESS
THR	THRESHOLD
THRD	THREADED
TK	TANK / TACK
TL	TRAVERSE LINE
TOB	TOP OF BAFFLE
TOC	TOP OF CONCRETE
TOE	THREAD ONE END
TOG	TOP OF GRATING
TOM	TOP OF MASONRY
TOP	TOP OF PIPE
TOPO	TOPOGRAPHIC
TOS	TOP OF STEEL / TOP OF SLAB
TOW	TOP OF WALL
TP	TELEPHONE POLE / TURNING POINT / TEST PIT
TRANS	TRANSMITTER / TRANSITION / TRANSMISSION
TS	TRAFFIC SIGNAL
TV	THERMOSTATIC VALVE
TW	THERMOMETER WELL / TRAVELED WAY
TWS	TRACER WIRE STATION
TYP	TYPICAL
UB	UNION BONNET
UBC	UNIFORM BUILDING CODE / UNTREATED BASE COURSE
UC	UNDER-CROSSING
UCE	UTILITY CORRIDOR EASEMENT
UDOT	UTAH DEPARTMENT OF TRANSPORTATION
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNID	UNIDENTIFIED
UNK	UNKNOWN
UNO	UNLESS NOTED OTHERWISE
UOI	UNLESS OTHERWISE INDICATED
UPS	UNINTERRUPTABLE POWER SUPPLY
USA	UNDERGROUND SERVICE ALERT
USGS	UNITED STATES GEOLOGICAL SURVEY
UW	UTILITY WATER
V	VALVE / VERTICAL / VENT / VOLT
VAC	VACUUM
VAR	VARIES / VARIABLE
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
VSL	VERTICALLY SLOTTED
VTR	VENT THRU ROOF
VWM	VERIFY WITH MANUFACTURER
W	WEST / WASTE / WIDTH / WIDE FLANGE / WATER
W/	WITH
W/O	WEST OF / WITHOUT
WC	WATER COLUMN / WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WOG	WATER, OIL, OR GAS
WP	WATERPROOFING / WORKING PRESSURE
WPJ	WEAKEN PLANE JOINT
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
WSTP	WATERSTOP
WT	WEIGHT / WATER TIGHT
WWF	WELDED WIRE FABRIC
WWP	WORKING WATER PRESSURE
XCONN	CROSS CONNECTION
XS	EXTRA STRONG
XSEC	CROSS SECTION
XXS	DOUBLE EXTRA STRONG
YD	YARD
YR	YEAR
Z	ZERO / ZONE

PROJECT ABBREVIATIONS

ASR	AQUIFER STORAGE AND RECOVERY
MAR	MANAGED AQUIFER RECHARGE
MWDSLS	METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
PERF	PERFORATED
POMA	POINT OF THE MOUNTAIN AQUEDUCT
SIB	SURFACE INFILTRATION BASIN
SLA	SALT LAKE AQUEDUCT

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\G-003 ABBREVIATIONS.DWG
FILE DATE: 3.13.2023 17:20:15 (SWM)

LICENSED PROFESSIONAL ENGINEER
GREGORY S. THOMAS
No. 5052482
4/12/23
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING - PHASE 1
GENERAL
ABBREVIATIONS

SHEET: G-003
262.08.200

LEGEND

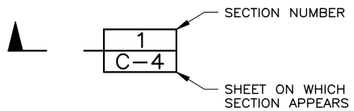
SECTION, DETAIL & ELEVATION IDENTIFICATION

NOTES:

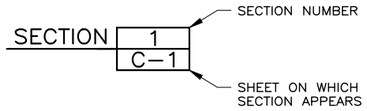
1. IF SECTION CUT AND SECTION OR DETAIL CALL–OUT AND DETAIL ARE SHOWN ON SAME SHEET, SHEET NUMBER IS REPLACED BY A LINE.
2. DETAIL LETTERS "I" AND "O" NOT USED.

SECTION IDENTIFICATION

SECTION CUT ON SHEET C–1:

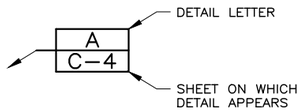


ON SHEET C–4, THIS SECTION IS IDENTIFIED AS:

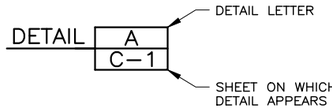


DETAIL IDENTIFICATION

DETAIL CALL–OUT ON SHEET C–1:

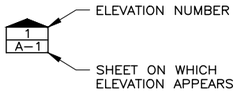


ON SHEET C–4, THIS DETAIL IS IDENTIFIED AS:

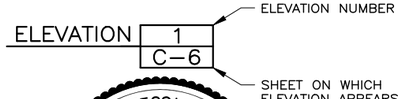


ELEVATION IDENTIFICATION

ELEVATION CALL–OUT ON SHEET C–6:



ON SHEET A–1, THIS ELEVATION IS IDENTIFIED AS:



EXISTING

- EXISTING GAS LINE W/ SIZE (4-G)
- EXISTING GAS SERVICE (GS)
- EXISTING WATER LINE W/ SIZE (10-W)
- EXISTING WATER SERVICE (WS)
- EXISTING SANITARY SEWER W/ SIZE (15-SS)
- EXISTING SANITARY SEWER LATERAL (SL)
- EXISTING STORM DRAIN W/ SIZE (24-SD)
- EXISTING IRRIGATION W/ SIZE (12-IRR)
- EXISTING FIBER OPTIC LINE (FO-UG)
- EXISTING UNDERGROUND TELEPHONE (T-UG)
- EXISTING CABLE TV (C-TV-UG)
- EXISTING UNDERGROUND POWER LINE (P-UG)
- EXISTING OVERHEAD POWER LINE (P-OH)
- EXISTING FENCE LINE (X)
- EXISTING RAILROAD TRACKS
- EXISTING PROPERTY LINE
- EXISTING RIGHT–OF–WAY (R O W)
- EXISTING ASPHALT
- EXISTING MAJOR CONTOUR (4200)
- EXISTING MINOR CONTOUR

- EXISTING FIRE HYDRANT
- EXISTING POWER POLE
- EXISTING POWER / LIGHT POLE COMBO
- EXISTING LIGHT POLE
- EXISTING GUY WIRE
- EXISTING POWER BOX (P)
- EXISTING POWER METER (EM)
- EXISTING TELEPHONE (T)
- EXISTING FIBER OPTIC (F)
- EXISTING CABLE
- EXISTING SIGNAL POLE
- EXISTING SIGNAL / LIGHT POLE COMBO
- EXISTING SIGNAL BOX
- EXISTING TRAFFIC LOOP
- EXISTING TRAFFIC BOX
- EXISTING IRRIGATION BOX
- EXISTING SIGN
- EXISTING TREE

- EXISTING SANITARY SEWER MANHOLE (SS)
- EXISTING STORM DRAIN MANHOLE (SD)
- EXISTING WATER MANHOLE (W)
- EXISTING GAS MANHOLE (G)
- EXISTING POWER MANHOLE (P)
- EXISTING TELEPHONE MANHOLE (T)
- EXISTING FIBER OPTICS MANHOLE (F)
- EXISTING IRRIGATION MANHOLE (IRR)
- EXISTING WATER METER (WM)
- EXISTING VALVES
- EXISTING REDUCERS
- EXISTING SD CATCH BASIN
- EXISTING SD CATCH BASIN / JUNCTION BOX
- EXISTING SD JUNCTION BOX
- EXISTING SD CLEANOUT BOX (SD)
- EXISTING SD COMBO CATCH BASIN / CLEANOUT BOX (SD)
- EXISTING MONITORING WELL

NEW

- PROPOSED MAJOR CONTOUR (4200)
- PROPOSED MINOR CONTOUR
- NEW PROPERTY LINE
- NEW UTILITY LINE
- PERMANENT EASEMENT (P/E)
- CONSTRUCTION EASEMENT (C/E)
- RIDGE LINE (R)
- GRADE BREAK (GB)
- FLOW LINE
- RETAINING WALL
- PIPE REMOVALS
- PIPE ABANDONMENT

- NEW INLET BOX
- NEW CAP
- NEW FIRE HYDRANT
- NEW MONITORING WELL
- NEW ASR WELL
- NEW WATER VALVE
- NEW GATE VALVE
- NEW BUTTERFLY VALVE
- NEW PLUG VALVE
- NEW DRAIN HOLE

HATCHING

- CONCRETE (PLAN)
- CONCRETE (SECTION)
- GROUT
- BRICK (PLAN)
- CMU (PLAN)
- CMU (SECTION)
- STEEL (SECTION)
- GRATING
- EARTH
- AGGREGATE
- GRAVEL
- RIPRAP
- SAND
- UBC

CONTROL SYMBOLS

- EXISTING BENCH MARK (BM–##)
- EXISTING HORIZONTAL CONTROL POINT
- EXISTING VERTICAL CONTROL POINT
- EXISTING HORIZONTAL & VERTICAL CONTROL POINT
- EXISTING SURVEY MONUMENT
- EXISTING SECTION MONUMENT
- GEOTECHNICAL BORING
- TEST HOLE

NOTE:
SURVEY OF EXISTING RING & COVER IS FROM CENTER OF THE COVER.

MISCELLANEOUS

- 104 ROOM NUMBER
- D1 DOOR NUMBER
- W1 WINDOW NUMBER
- P–1 PUMP SCHEDULE
- CTS–1 CATHODIC TEST STATION
- 4 PIPE, VALVE, & FITTING SCHEDULE
- 6 KEY NOTES
- A COORDINATE POINT
- ⌀ DIAMETER
- ∠ ANGLE
- ℄ CENTERLINE

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE 1 MAR\CAD\G–004 LEGEND AND SYMBOLS.DWG
FILE DATE: 3.13.2023 17:28:53 (SWM)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM
DRAFTED	SWM
CHECKED	GST
DATE	APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
GENERAL
LEGEND AND SYMBOLS

SHEET G–004
262.08.200

GENERAL NOTES

GENERAL NOTES

1. CONTRACTOR SHALL MEET ALL UTAH STATE DEPARTMENT OF ENVIRONMENTAL QUALITY AND U.S. EPA REQUIREMENTS WITH RESPECT TO THEIR MINIMUM RULES AND REGULATIONS. ALL MATERIALS THAT MAY CONTACT DRINKING WATER, INCLUDING, PIPES, GASKETS, LUBRICANTS, O-RINGS, SHALL BE ANSI/NSF 61, DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS AND BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
2. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED AND SIGNS, BARRICADES, AND FLASHERS SHALL BE PLACED SO AS TO COMPLY WITH OSHA, UTAH STATE INDUSTRIAL COMMISSION, LOCAL SAFETY STANDARDS, AND MANUAL ON UNIFORM TRAFFIC CONTROL.
3. UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, INCLUDING WATER LINES, IRRIGATION DRAIN LINES, TELEPHONE CABLES, AND ANY OTHER OBSTRUCTION DURING THE COURSE OF CONSTRUCTION AND INSTALLATION OF THE PIPELINES. CONTRACTOR SHALL COORDINATE WITH MWDSLS PERSONNEL FOR MARKING EXISTING UTILITIES WITHIN MWDSLS PROPERTY. FOR UTILITIES OUTSIDE OF MWDSLS CALL BLUE STAKES @ 1-800-662-4111.
4. CONTRACTOR SHALL POTHOLE ALL UNDERGROUND UTILITIES PRIOR TO PIPELINE CONSTRUCTION TO VERIFY THAT THE DESIGN ALIGNMENT AND GRADE IS FEASIBLE AND TO PLAN ANY UTILITY RELOCATIONS THAT MAY BE NECESSARY. FAILURE TO POTHOLE IN ADVANCE WILL NOT RELIEVE CONTRACTOR FROM LOCATING THE PIPELINE IN AN ACCEPTABLE MANNER TO OWNER. ANY RELAYING OF THE PIPELINE THAT MAY BECOME NECESSARY IN THIS REGARD SHALL BE DONE AT CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN RIGHT OF INGRESS AND EGRESS SHOULD HE VENTURE ONTO PRIVATE PROPERTY WHICH IS NOT WITHIN MWDSLS PROPERTY OR ACQUIRED RIGHTS-OF-WAY AND EASEMENTS.
6. UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.
7. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING IMPROVEMENTS DURING CONSTRUCTION AND SHALL REPLACE OR RESTORE ANY IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION ACTIVITY, AS DIRECTED BY THE ENGINEER.
8. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES.
9. CONTRACTOR SHALL OBTAIN NOTICE OF INTENT, AND PREPARE AND COMPLY AND IMPLEMENT WITH STORM WATER POLLUTION PREVENTION PLAN, AND ALL UPDES REQUIREMENTS.
10. STATIONING, CURVE DATA, AND STRAIGHT SECTIONS AS LISTED ARE GROUND DISTANCES. HORIZONTAL AND VERTICAL CONTROL ARE BASED ON MONUMENTS IN SALT LAKE COUNTY.
11. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESEEDED USING NATIVE GRASSES SEED MIX.
12. EXISTING PERIMETER AND ACCESS ROADS DISTURBED DURING CONSTRUCTION SHALL BE REGRADED. REFER TO DETAIL C ON DRAWING SHEET NUMBER CD-101.
13. CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS WITHIN MWDSLS PROPERTY DURING CONSTRUCTION.
14. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL PROVIDE SUFFICIENT SKILLED WORKMEN AND SUPERVISORS WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THE WORK. A PROJECT MANAGER, SHALL BE ASSIGNED BY THE GENERAL CONTRACTOR, AND SHALL BE RESPONSIBLE FOR THE DAILY COORDINATION OF THE PROJECT AND SHALL MAINTAIN ALL REQUIRED DRAWINGS, SPECIFICATIONS, REPORTS, AND OTHER ITEMS FOR REVIEW AT THE SITE.
15. ALL CONSTRUCTION SHALL BE ACCORDING TO THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC). AS AMENDED BY THE STATE OF UTAH.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND SAFETY IN AND AROUND THE JOB SITE AND/OR ADJACENT PROPERTIES.
17. THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS BOTH DURING AND AFTER CONSTRUCTION.

WATERLINE NOTES

1. ALL HDPE AND DIP PIPELINES SHALL BE PRESSURE TESTED TO 40 PSI AS PER SECTION 33 05 05 AND 33 05 11.
2. PIPELINES NOTED ON DRAWINGS SHALL BE DISINFECTED AS PER SECTION 33 13 00.

STRUCTURAL NOTES

DESIGN CRITERIA

RISK CATEGORY:	IV
IMPORTANCE FACTOR, I_s :	1.20
IMPORTANCE FACTOR, I_e :	1.50
GROUND SNOW LOAD (Pg):	39 PSF
ROOF LIVE/SNOW LOAD (Pf=Ps):	33 PSF
NO SOILS REPORT PROVIDED ALLOWABLE SOIL BEARING PRESSURE:	1500 PSF
COEFFICIENT OF FRICTION (u): ASSUMED AT-REST PRESSURE: ASSUMED ACTIVE PRESSURE:	0.25 60 PCF 45 PCF

REINFORCED CONCRETE

1. ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. UNLESS CALLED OUT OTHERWISE ON THE PLANS, MINIMUM REINFORCEMENT OF CONCRETE WORK SHALL BE:
   WALLS:
   8" THICK OR LESS – USE #5 @ 16" EW
   9" OR THICKER – USE #5 @ 12" EW, EF
   SLABS:
   8" THICK OR LESS – USE #4 @ 16" EW
3. ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED, OR TERMINATED IN A STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 6.
4. UNLESS SHOWN OTHERWISE ALL BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS TO BE SPLICED TO THE DOWELS.
5. ALL REINFORCING BARS SHALL BE GRADE 60 AND SHALL CONFORM TO ASTM A-615, CURRENT REVISION. REINFORCING STEEL SHALL BE NEW AND FREE FROM RUST, OIL OR OTHER BOND INHIBITOR.
6. ALL CONTINUOUS REINFORCING BARS SHALL LAP AT LEAST 40 BAR DIAMETERS. SPLICES SHALL BE MADE AWAY FROM POINTS OF MAXIMUM STRESS. MINIMUM LAP SHALL BE 18 IN.
7. CONCRETE COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS:
   7.1. SURFACE NOT EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
   CONCRETE SLABS OR BUNKERS – 3/4"
   7.2. CONCRETE SURFACES IN WATER BEARING SURFACES EXPOSED DIRECTLY TO THE GORUND, WATER OR WEATHER AFTER FORM REMOVAL:
   FOR #5 BARS OR SMALLER – – – – 1 1/2"
   FOR #6 BARS OR LARGER – – – – 2"

REINFORCED CONCRETE CONT.

7.3. CONCRETE PLACED DIRECTLY AGAINST GROUND – – – – 3"
7.4. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ±1/4" OF POSITION SPECIFIED.

8. CONCRETE CURING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SOME CONCRETE WORK REQUIRES WATER CURING, AS MEMBRANE CURING IS NOT ALLOWED. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. THE CONTRACTOR SHALL STUDY REQUIREMENTS AND SHALL FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED. TOP OF WALLS SHALL BE KEPT VISIBLY MOIST AT ALL TIMES AND SHALL BE FLOODED NOT LESS THAN THREE TIMES DAILY.

   A. FOR POURING CONCRETE DURING COLD WEATHER:
      1. FOLLOW RECOMMENDATIONS CONTAINED IN PUBLICATION ACI 306R "COLD-WEATHER CONCRETING," CURRENT REVISION.
      2. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH WHICH COULD BE CAUSED BY FROST, FREEZING ACTIONS OR LOW TEMPERATURES.
      3. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40°F OR 4°C, UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50°F OR 10°C, AND NOT MORE THAN 80°F OR 27°C AT TIME OF PLACEMENT. CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% +/- 1% BY VOLUME.
      4. CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% +/- 1% BY VOLUME.
      5. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
      6. DO NOT USE CALCIUM CHLORIDE, SALT OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE APPROVED IN THE MIX DESIGN.
      7. COVER AND HEAT CONCRETE FOR A MINIMUM OF 7 DAYS AS RECOMMENDED BY ACI 306R, CURRENT REVISION.

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

9. NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED 85 PERCENT OF THE SPECIFIED STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED 85 PERCENT OF THE SPECIFIED STRENGTH.
10. CONCRETE FOR BOOSTER STATION & VAULTS TO HAVE A MIN. 28 DAY STRENGTH OF 4000 PSI

WELDING

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

SUBMITTALS

1. THE FOLLOWING INFORMATION AND SUBMITTALS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER (CM) BEFORE FABRICATION AND/OR DELIVERY TO THE JOBSITE, NOT ALL MAY APPLY.
   A. CONCRETE MIX DESIGNS.
   B. CONCRETE REINFORCEMENT SHOP DRAWINGS.
   C. STRUCTURAL BACKFILL PIT LOCATION AND MATERIAL SPECIFICATION, IF USED ON SITE.
   D. OTHER SHOP DRAWINGS & SUBMITTALS AS DEEMED NECESSARY BY THE CONSTRUCTION MANAGER.
   E. SPECIAL INSPECTION PER SHEET G-006.

SOIL NOTES

1. SOILS REPORT WAS NOT PREPARED FOR THE SITE. CONTRACTOR TO PREPARE SITE AND FILLS PER CODE. IT IS RECOMMENDED THAT A GEOTECHNICAL ENGINEER VIEW THE EXISTING CONDITIONS AFTER EXCAVATIONS AND PRIOR TO ANY BACKFILL FOR VERIFICATION OF EXISTING CONDITIONS.
2. ALL ORGANIC MATERIALS, RUBBISH, UNSUITABLE FILL, TOPSOIL, ETC. SHALL BE REMOVED FROM BENEATH LOCATIONS OF PROPOSED FOOTINGS, CONCRETE SLABS AND ASPHALT PAVING.
3. ALL FOOTINGS SHALL BE PLACED ON NATIVE SOILS OR ON COMPACTED STRUCTURAL FILL EXTENDING DOWN TO THE NATIVE SOILS. IMPORTED STRUCTURAL FILL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY BASED ON ASTM D1557 OR AS PER CODE.
4. SLABS SHALL BE PLACED ON COMPACTED GRANULAR BACKFILL COMPACTED PER CODE.
5. UNLESS OTHERWISE NOTED, STRUCTURAL BACKFILL SHALL CONFORM TO:
   A. IMPORTED GRANULAR MATERIAL SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES.
   B. SHALL COMPLY WITH SPECIFICATIONS FOR GRADATIONS.
6. ALL FREE WATER SHALL BE REMOVED FROM THE FOUNDATION EXCAVATION PRIOR TO PLACING CONCRETE.
7. EXTERIOR FOOTINGS AND GRADE BEAMS SHALL BE LOCATED AT LEAST 30" BELOW FINISHED GRADE, AND MAINTAIN 6" BETWEEN FINISH GRADE AND WOOD FRAMING.
8. CONTRACTOR SHALL REMOVE ALL UNSUITABLE FILL FROM UNDER ALL CONCRETE FLATWORK, PAVEMENT, BUILDINGS AND STRUCTURES, ACCORDING TO THE CODE AND REPLACE WITH STRUCTURAL FILL COMPACTED TO 95% MAX DRY DENSITY PER ASTM D-1557 OR AS PER GEOTECHNICAL REPORT.

SEISMIC BRACKETS

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

STRUCTURAL STEEL AND METAL FABRICATIONS

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

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

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

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

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

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

TEST HOLE DATA

TEST HOLE NO.	DATE	TYPE	POINT	NORTHING	EASTING	GROUND ELEVATION	DEPTH	TOP ELEVATION	SHEET	STATION	COMMENTS
101	2/3/2023	SPRINKLER LINE	2001	7383236.72	1557038.06	4999.80	2.20	4997.60	PP-100	–	
102	2/4/2023	FINISHED WATER DRAIN	2002	7383243.46	1557029.57	4994.03	9.50	4984.53	PP-100	10+21.54	
103	2/5/2023	ELECTRICAL DUCT BANK	2003	7383246.14	1557022.28	4991.90	8.60	4983.30	PP-100	10+28.98	
104	2/6/2023	CENTURY LINK FIBER OPTIC	2004	7383251.07	1557017.82	4989.80	7.00	4982.80	PP-100	10+35.52	
105	2/7/2023	ELECTRICAL DUCT BANK	2005	7383256.26	1557010.52	4989.02	5.80	4983.22	PP-100	10+44.22	
106	2/8/2023	ELECTRICAL CONDUIT + WATER	2006	7383268.53	1556998.13	4988.40	7.00	4981.40	PP-100	10+61.76	MEASURE DOWN TO ELECTRICAL CONDUIT. 8" WATER 1' BELOW ELECTRICAL CONDUIT.
107	2/9/2023	FIBER OPTIC	2007	7383288.85	1556974.77	4986.65	–	–	PP-100	10+92.71	RECORD DRAWINGS INDICATE FIBER OPTIC LINE. TEST HOLING COULD NOT LOCATE TO 6' BELOW GRADE. UTILITY MAY OR MAY NOT BE PRESENT.
108	2/10/2023	GAS	2008	7383303.49	1556948.59	4985.25	4.60	4980.65	PP-100	11+22.47	
109	2/11/2023	ELECTRICAL CONDUIT	2009	7383227.87	1557034.61	4997.35	–	–	PP-100	–	BLUE STAKES INDICATE UNDERGROUND ELECTRICAL CONDUIT. MEASURE DOWN DATA UNAVAILABLE DUE TO EXISTING GRADE CONDITIONS.

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\G-005 GENERAL NOTES.DWG
FILE DATE: 4.12.2023 08:57:23 (SWM)

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH
4/12/2023

DESIGNED	SWM
DRAFTED	SWM
CHECKED	GST
DATE	APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
GENERAL
GENERAL NOTES & TEST HOLE DATA

SHEET: G-005
262.08.200

SPECIAL INSPECTIONS

SCHEDULE OF SPECIAL INSPECTIONS APPLICABLE TO THIS PROJECT

MATERIAL/ACTIVITY	TYPE OF INSPECTION	C/P *	EXTENT/REFERENCE	INSP INITIALS	INSP DATE
GENERAL					
Pre-construction conference	Meeting with Owner, Contractor and Registered Design Professional to discuss Special Inspection procedures	P	Scheduled by DCRA with the Contractor prior to commencement of work		
EARTHWORK					
Site preparation (building)	Field testing and inspection	P	Field Review; IBC 1705.6		
Fill material (building)	Review submittals, field testing and inspection	P	Field Review; IBC 1705.6		
Fill compaction (building)	In-place density tests, lift thickness	C	Field Review; IBC 1705.6		
Excavation	Field inspection and verification of proper depth	P	Field Review; IBC 1705.6		
Foundation sub-grade	Field inspection of foundation subgrade prior to placement of concrete	P	Field Review; IBC 1705.6		
CONCRETE					
Materials	Review product supplied versus certificates of compliance and mix design	P	Submittal & Field Review; IBC 1705.3; ACI 318: Ch. 4 and 5; IBC 1904.2, 1910.2, 1903.3		
Installation of reinforcing steel, including Pre-stressed tendons and anchor bolts as well as welding	Field inspection of placement	P	Submittal and Field Review; ACI 318:3.5, 3.5.2 3.8.6 & Ch. 7 8.1.3 and 21.2.8; AWS D1.4; IBC 1705.3, 1908.5, 1909.1, 1910.4		
Formwork installation	Field inspection	P	Field Review; ACI 318: 6.1.1; IBC 1705.3		
Concreting operations and placement	Field inspection of placement/sampling	C	Field Review; ACI 318: 5.6, 5.8, 5.9-10; ASTM C 172, C 31; IBC 1705.3, 1910.6, 1910.7, 1910.8, 1910.10		
Concrete curing	Field inspection of curing process	P	Field Review; ACI 318: 5.11-13; IBC 1705.3, 1910.9		
Concrete strength	Evaluation of concrete strength		Laboratory Testing; ACI 318: 6.2; IBC 1705.3		
PRECAST CONCRETE					
Verify fabrication/QC procedures In-plant	Inspection of plant and QC procedures**		Submittal or Field Review; IBC 1705.3		
Erection and installation	Review submittals and as-built assemblies; Field inspection of in-place precast		Submittal and Field Review; ACI 318; Ch. 16; IBC Table 1705.3		

NOTES:

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

P = PERIODIC INSPECTION
C = CONTINUOUS INSPECTION

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\G-005 GENERAL NOTES.DWG
FILE DATE: 3.27.2023 17:17:18 (SWM)

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
GENERAL
SPECIAL INSPECTIONS

SHEET G–006
262.08.200

SURVEY CONTROL POINT 2

LIMITS OF EXCESS EXCAVATED MATERIAL STOCKPILE AREA

ALTA HILLS DR

AREA 3
C-103

AREA 2
C-102

AREA 1
C-101

STAGING AREA

SURVEY CONTROL POINT 1

COBBLE CANYON LN

N

0 80 160
SCALE IN FEET

SURVEY CONTROL

DESCRIPTION	POINT NO.	NORTHING	EASTING	ELEVATION
SURVEY CONTROL PT. 1		7382233.98'	1556449.78'	5012.54'
SURVEY CONTROL PT. 2		7383314.60'	1557221.95'	4988.35'

NOTES:
ALL COORDINATES CONTAINED HEREIN ARE BASED ON A MODIFIED NAD 83 FORMAT SYSTEM. ALL VERTICAL COORDINATES CONTAINED HEREIN ARE BASED ON NAVD 88.

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
4/12/23

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED SWM
DRAFTED SWM
CHECKED GST
DATE APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE
AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SITE PLAN OVERVIEW & SURVEY CONTROL

SHEET
C-100
262.08.200

FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\C-100 SITE PLAN.DWG
FILE DATE: 4.10.2023 10:59:34 (SWM)

SEE SHEET C-102 FOR CONTINUATION

EXISTING DRYING BED NO 1

EXISTING MAINTENANCE BUILDING

SEE SHEET C-102 FOR CONTINUATION

16" HDPE DR 32.5 ASR WELL PIPING SEE SHEET PP-100

ASR VALVE VAULT A C-300

KEY MAP

0 40 80 SCALE IN FEET

EXISTING FENCING PROTECT IN PLACE, TYP

EXISTING ACCESS ROAD PROTECT IN PLACE, TYP

EXISTING 30" RCP PIG WASTE DISCHARGE PROTECT IN PLACE

EXISTING THICKENER

EXISTING THICKENER

24" HDPE DR 32.5 SIB INLET PIPING SEE PP-300

EXISTING CONNECTION STRUCTURE

EXISTING GRAVITY FLOW CONTROL VAULT

EXISTING SLA FW PUMP STATION

EXISTING 69" WELDED STEEL RAW WATER/SLA

EXISTING 54" RCP OVERFLOW

EXISTING FINISHED WATER RESERVOIR

EXISTING 36" WELDED STEEL SANDY CITY FINISHED WATER

EXISTING 60" WELDED STEEL POMA-3 FINISHED WATER

EXISTING 8" DUCTILE IRON FINISHED WATER

EXISTING 10" PVC C900

SURVEY CONTROL POINT 1

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY

FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\C-100 SITE PLAN.DWG
FILE DATE: 4.10.2023 10:59:34 (SWM)

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE INC. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
AREA 1 SITE PLAN

SHEET C-101

262.08.200

SEE SHEET C–103
FOR CONTINUATION

12'–0" WIDE UBC ACCESS ROAD
SEE SHEET RD–100

200'–0"

100'–0"

24" HDPE DR 32.5
SIB INLET PIPING
SEE SHEET PP–302

STAGING AREA

FUTURE DRYING
BED NO 6

FUTURE DRYING
BED OVERFLOW

SEE SHEET C–103
FOR CONTINUATION

KEY MAP

0 40 80
SCALE IN FEET

LIMITS OF EXCESS EXCAVATED
MATERIAL STOCKPILE AREA
APPROX 4.14 ACRES X 3'–0" THICK

EXISTING FENCING
PROTECT IN PLACE, TYP

16" HDPE DR 32.5
ASR WELL PIPING
SEE SHEET PP–101

EXISTING DRYING BED NO 5

EXISTING MATERIALS
STOCKPILE TO BE RELOCATED
BY MWDSLS PERSONNEL

ELECTRICAL AND
CONTROLS CONDUITS
SEE SHEET E–10

EXISTING ACCESS ROAD
PROTECT IN PLACE, TYP

MONITORING WELL
BY OTHERS

EXISTING DRYING BED NO 4

EXISTING ACCESS ROAD
PROTECT IN PLACE, TYP

MONITORING WELL
CONCRETE PAD
D
CD–105

EXISTING DRYING BED NO 3

EXISTING DRYING BED NO 2

EXISTING 30" RCP
PIG WASTE DISCHARGE
PROTECT IN PLACE

SEE SHEET C–101
FOR CONTINUATION

EXISTING DRYING
BED NO 1

SEE SHEET C–101
FOR CONTINUATION

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S.
THOMAS
STATE OF UTAH

FILE NAME:PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\C–100 SITE PLAN.DWG
FILE DATE: 4.10.2023 10:59:34 (SWM)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM
DRAFTED	SWM
CHECKED	GST
PROJECT ENGINEER	
DATE	APRIL 2023

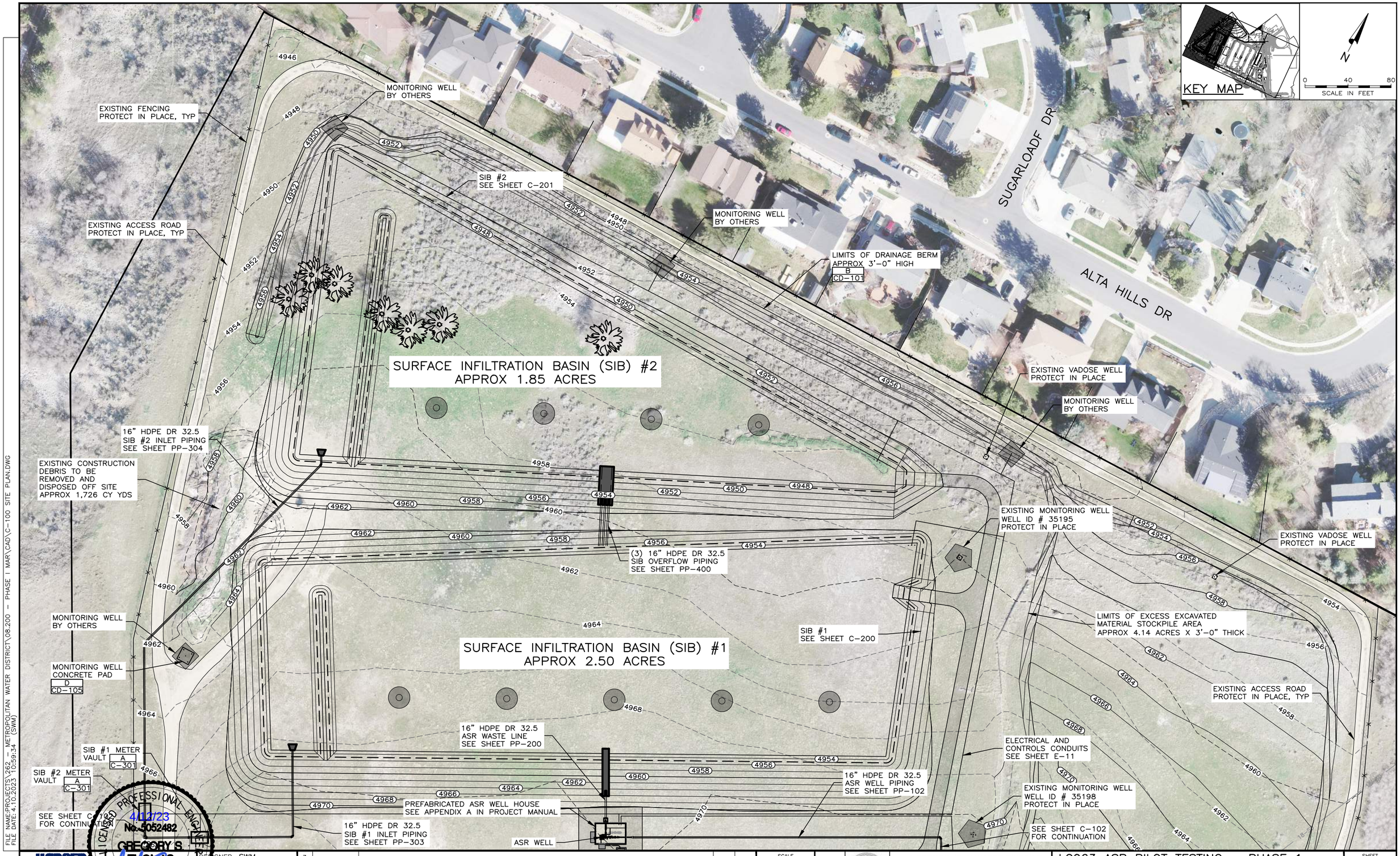
NO.	DATE	REVISIONS	BY	APVD.
3				
2				
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SCALE
AS
SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
AREA 2 SITE PLAN

SHEET
C–102
262.08.200



FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\C-100 SITE PLAN.DWG
FILE DATE: 4.10.2023 10:59:34 (SWM)

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
AREA 3 SITE PLAN

SHEET C-103
262.08.200

SIB #1 DRAIN HOLE COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	7,383,754.55	1,555,966.66	4953.00	DRAIN HOLE CENTER
2	7,383,800.49	1,556,055.49	4953.00	DRAIN HOLE CENTER
3	7,383,846.42	1,556,144.32	4953.00	DRAIN HOLE CENTER
4	7,383,892.36	1,556,233.14	4953.00	DRAIN HOLE CENTER
5	7,383,938.29	1,556,321.97	4953.00	DRAIN HOLE CENTER

SIB #1 COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,383,655.65	1,555,884.22	4953.00	TOE OF SLOPE
B	7,383,674.04	1,555,919.78	4953.00	TOE OF SLOPE
C	7,383,683.70	1,555,938.45	4953.00	TOE OF SLOPE
D	7,383,918.18	1,556,391.93	4953.00	TOE OF SLOPE
E	7,384,048.32	1,556,345.71	4953.00	TOE OF SLOPE
F	7,384,051.59	1,556,328.00	4953.00	TOE OF SLOPE
G	7,384,062.89	1,556,323.98	4953.00	TOE OF SLOPE
H	7,384,076.60	1,556,335.67	4953.00	TOE OF SLOPE
I	7,384,065.09	1,556,366.03	4961.07	TOP OF SLOPE
J	7,384,075.81	1,556,360.36	4960.72	TOP OF SLOPE
K	7,384,107.18	1,556,324.80	4953.00	TOE OF SLOPE
L	7,383,804.35	1,555,799.08	4953.00	TOE OF SLOPE
M	7,383,803.57	1,555,855.99	4956.00	TOP OF SLOPE
N	7,383,805.06	1,555,858.59	4956.00	TOP OF SLOPE

N

0 25 50
SCALE IN FEET

SIB #2
SEE SHEET C–201

EXISTING ACCESS ROAD
PROTECT IN PLACE

16" HDPE DR 32.5
SIB #2 INLET PIPING
SEE SHEET PP–304

(3) 16" HDPE DR 32.5
SIB OVERFLOW PIPING
SEE SHEET PP–400

NORMAL WATER SURFACE
ELEVATION = 4955.00

EXISTING
MONITORING WELL
WELL ID # 35195
PROTECT IN PLACE

A / CD–102 SIB LEVEL SENSOR

SIB #1
MAINTENANCE RAMP

MONITORING WELL
BY OTHERS

1 / C–202

APPROX 150'–0" X 3' –0" TALL
EARTHEN WEIR
D / CD–101

SURFACE INFILTRATION
BASIN #1

A / CD–101 DRAIN HOLE, TYP

100'–0", TYP

APPROX
50'–0", TYP

40'–0"

SIB RIP RAP
APRON B / CD–102

16" HDPE DR 32.5
SIB #1 INLET PIPING
SEE SHEET PP–303

12'–0" WIDE UBC
ACCESS ROAD
SEE SHEET RD–100

ELECTRICAL AND
CONTROLS CONDUITS
SEE SHEET E–11

16" HDPE DR 32.5
ASR WASTE LINE
SEE SHEET PP–200

2 / C–202

PREFABRICATED ASR WELL HOUSE
SEE APPENDIX A IN PROJECT MANUAL

ASR WELL

16" HDPE DR 32.5
ASR WELL PIPING
SEE SHEET PP–102

EXISTING MONITORING WELL
WELL ID # 35198
PROTECT IN PLACE

FILE NAME:PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\C–200 GRADING PLAN & X–SECTIONS.DWG
FILE DATE: 4.11.2023 14:40:26 (SWM)

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE INC. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SIB #1 GRADING PLAN

SHEET: C–200
262.08.200

SIB #2 DRAIN HOLE COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	7,384,008.67	1,555,871.09	4946.50	DRAIN HOLE CENTER
2	7,384,050.78	1,555,961.79	4946.50	DRAIN HOLE CENTER
3	7,384,092.89	1,556,052.49	4946.50	DRAIN HOLE CENTER
4	7,384,135.00	1,556,143.19	4946.50	DRAIN HOLE CENTER

SIB #2 COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,383,910.78	1,555,778.98	4946.50	TOE OF SLOPE
B	7,383,927.67	1,555,815.36	4946.50	TOE OF SLOPE
C	7,383,936.54	1,555,834.46	4946.50	TOE OF SLOPE
D	7,384,144.25	1,556,281.83	4946.50	TOE OF SLOPE
E	7,384,158.22	1,556,275.34	4946.50	TOE OF SLOPE
F	7,384,164.58	1,556,321.57	4955.42	TOP OF SLOPE
G	7,384,174.46	1,556,314.36	4954.95	TOP OF SLOPE
H	7,384,173.31	1,555,680.30	4946.50	TOE OF SLOPE
I	7,384,141.27	1,555,744.69	4949.50	TOP OF SLOPE
J	7,384,142.33	1,555,747.50	4949.50	TOP OF SLOPE

N

0 25 50
SCALE IN FEET

MONITORING WELL BY OTHERS

LIMITS OF DRAINAGE BEAM APPROX 3'-0" HIGH
B CD-101

MONITORING WELL BY OTHERS

EXISTING ACCESS ROAD PROTECT IN PLACE

NORMAL WATER SURFACE ELEVATION = 4948.50

APPROX 230'-0" X 3' -0" TALL EARTHEN WEIR
D CD-101

1 C-203

SURFACE INFILTRATION BASIN #2

100'-0", TYP

40'-0"

APPROX 50'-0", TYP

SIB RIP RAP APRON B CD-102

16" HDPE DR 32.5 SIB #2 PIPING SEE SHEET PP-304

DRAIN HOLE, TYP A CD-101

MONITORING WELL BY OTHERS

EXISTING VADOSE WELL PROTECT IN PLACE

A CD-102 SIB LEVEL SENSOR

5:1

SIB #2 MAINTENANCE RAMP

12'-0" WIDE UBC ACCESS ROAD SEE SHEET RD-102

(3) 16" HDPE DR 32.5 SIB OVERFLOW PIPING SEE SHEET PP-400

2 C-203

SIB #1 SEE SHEET C-200

EXISTING MONITORING WELL WELL ID # 35195 PROTECT IN PLACE

PT 10+16.18

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\C-200 GRADING PLAN & X-SECTIONS.DWG
FILE DATE: 4.11.2023 14:40:26 (SWM)

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM
DRAFTED	SWM
CHECKED	GST
DATE	APRIL 2023

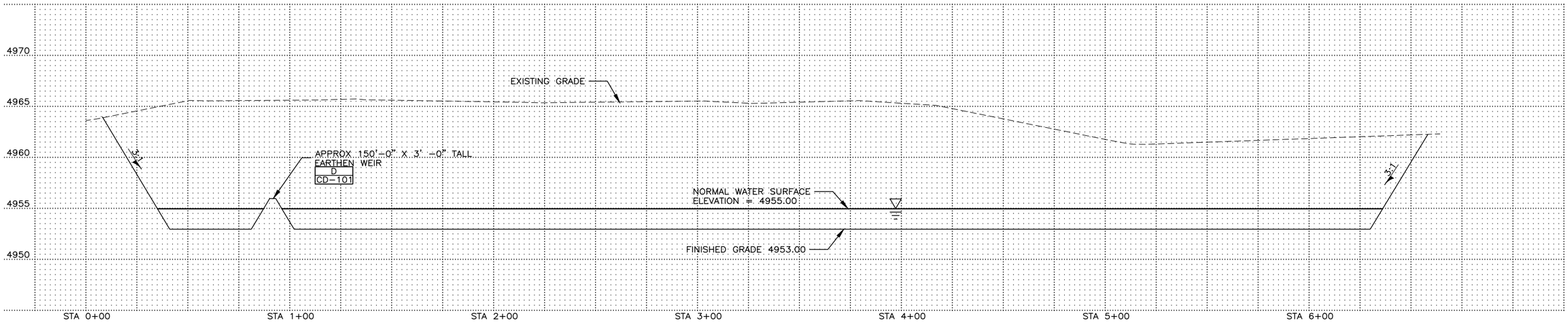
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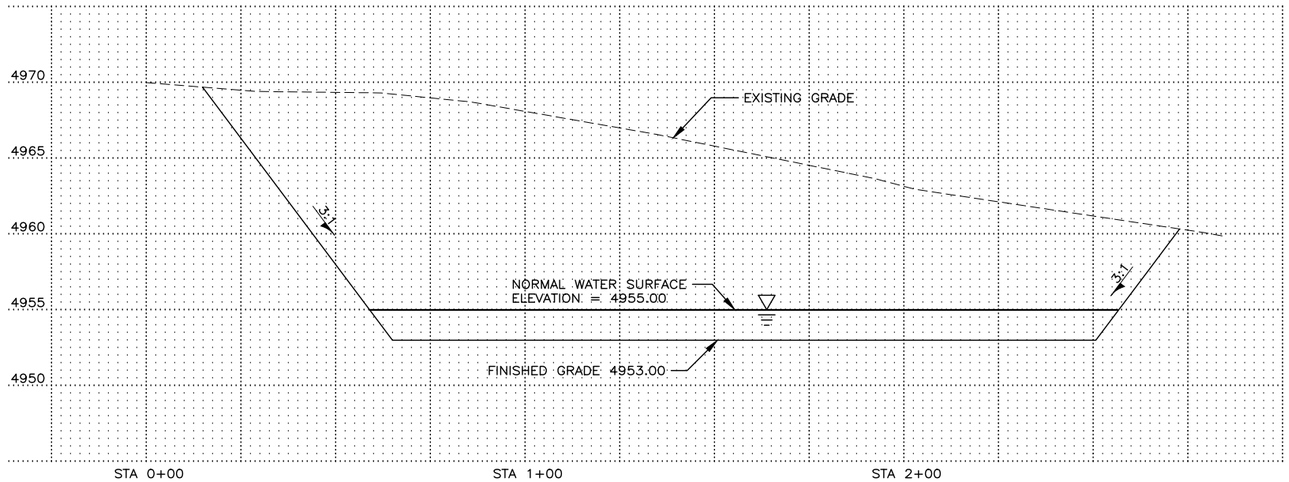
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SIB #2 GRADING PLAN

SHEET C-201
262.08.200



SIB #1 CROSS SECTION 1 / C-200



SIB #1 CROSS SECTION 2 / C-200

SHEET NOTES:
1. AREA @ SIB FLOOR = 2.50 ACRES
2. CUT VOLUME = 59,790.00 CUBIC FEET
3. NORMAL WATER SURFACE ELEVATION = 4,955.00 FEET
4. WATER VOLUME @ NORMAL WATER SURFACE = 5.10 ACRE FEET

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED SWM
DRAFTED SWM
CHECKED GST
PROJECT ENGINEER
DATE APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
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1				

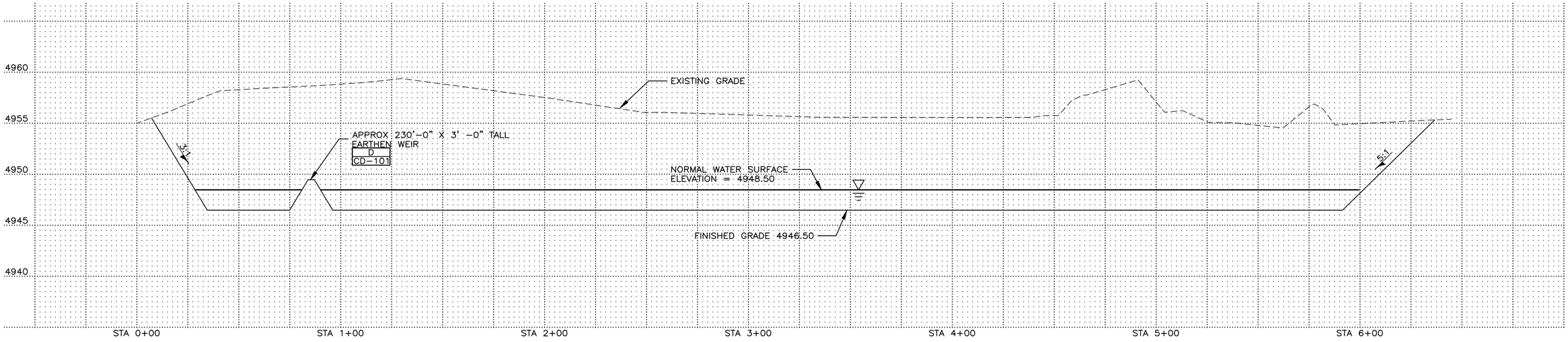
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

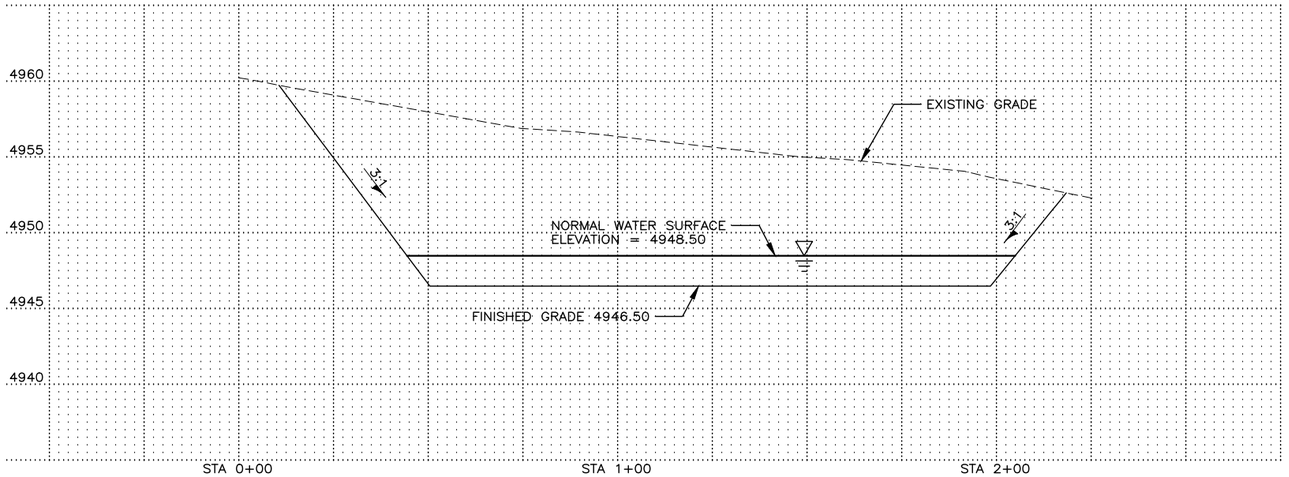
LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SIB #1 CROSS SECTIONS

SHEET C-202
262.08.200

FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\C-200 GRADING PLAN & X-SECTIONS.DWG
FILE DATE: 4.11.2023 14:40:26 (SWM)



SIB #2 CROSS SECTION 1
C-201



SIB #2 CROSS SECTION 2
C-201

SHEET NOTES:
1. AREA @ SIB FLOOR = 1.87 ACRES
2. CUT VOLUME = 38,506.00 CUBIC FEET
3. NORMAL WATER SURFACE ELEVATION = 4,948.50 FEET
4. WATER VOLUME @ NORMAL WATER SURFACE = 3.80 ACRE FEET

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

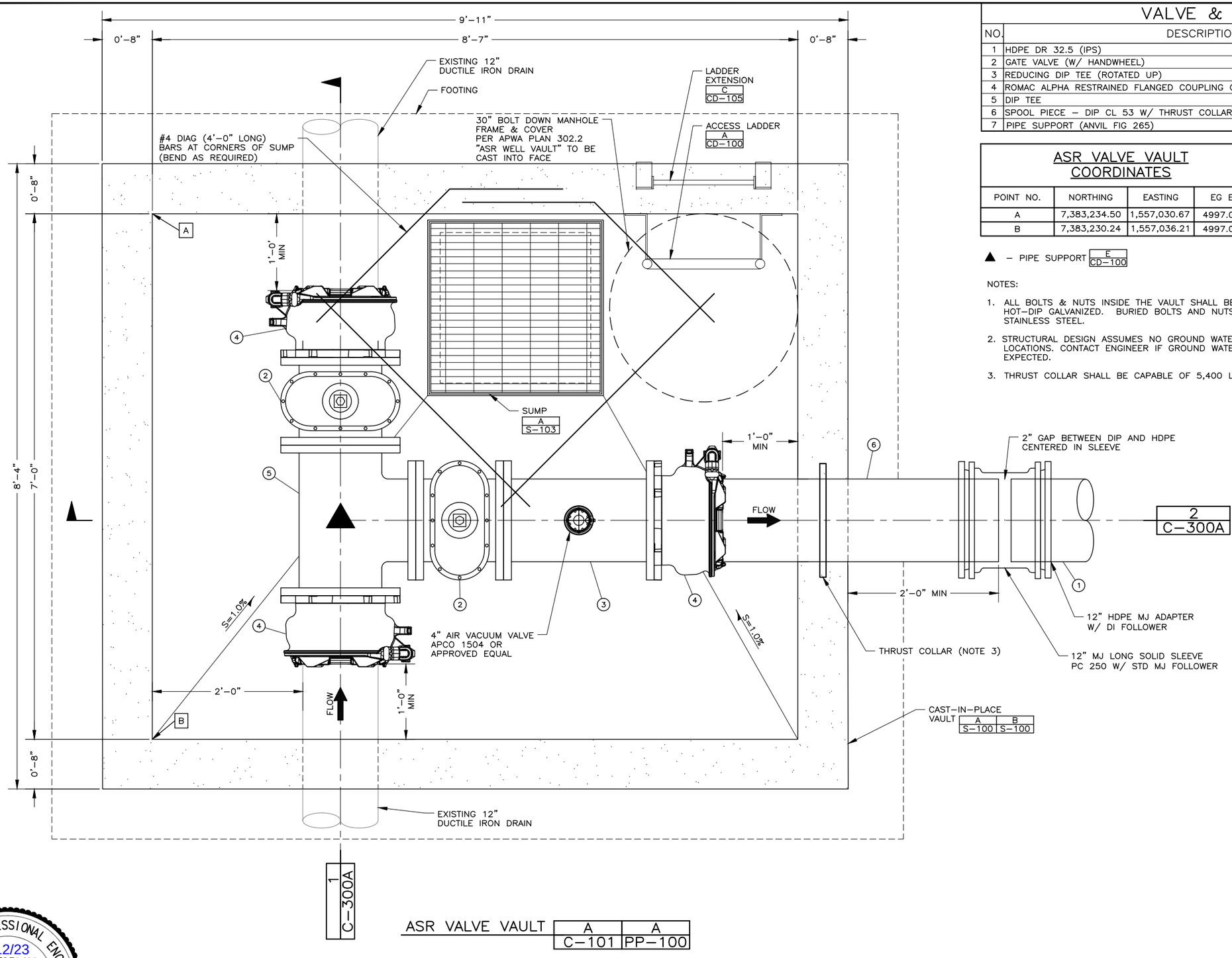
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SIB #2 CROSS SECTIONS

SHEET C-203
262.08.200

FILE NAME:PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\C-200 GRADING PLAN & X-SECTIONS.DWG
FILE DATE: 4.11.2023 14:40:26 (SWM)



VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	CONNECTION	SIZE
1	HDPE DR 32.5 (IPS)	PE	12"
2	GATE VALVE (W/ HANDWHEEL)	FLG X PE	12"
3	REDUCING DIP TEE (ROTATED UP)	FLG	12"x4"
4	ROMAC ALPHA RESTRAINED FLANGED COUPLING OR APPROVED EQUAL	FLG	12"
5	DIP TEE	FLG	12"
6	SPOOL PIECE – DIP CL 53 W/ THRUST COLLAR	FLG X PE	12"
7	PIPE SUPPORT (ANVIL FIG 265)	SIZED FOR PIPE	

ASR VALVE VAULT COORDINATES

POINT NO.	NORTHING	EASTING	EG EL
A	7,383,234.50	1,557,030.67	4997.00±
B	7,383,230.24	1,557,036.21	4997.00±

0 1/2 1
SCALE IN FEET

▲ – PIPE SUPPORT E CD-100

NOTES:

1. ALL BOLTS & NUTS INSIDE THE VAULT SHALL BE ZINC COATED OR HOT-DIP GALVANIZED. BURIED BOLTS AND NUTS SHALL BE TYPE 304 STAINLESS STEEL.
2. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
3. THRUST COLLAR SHALL BE CAPABLE OF 5,400 LBS OF THRUST RESTRAINT.

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE 1 MAR\CAD\C-300 ASR VALVE VAULT PLAN.DWG
FILE DATE: 4.12.2023 08:30:33 (SWM)

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOM/S
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

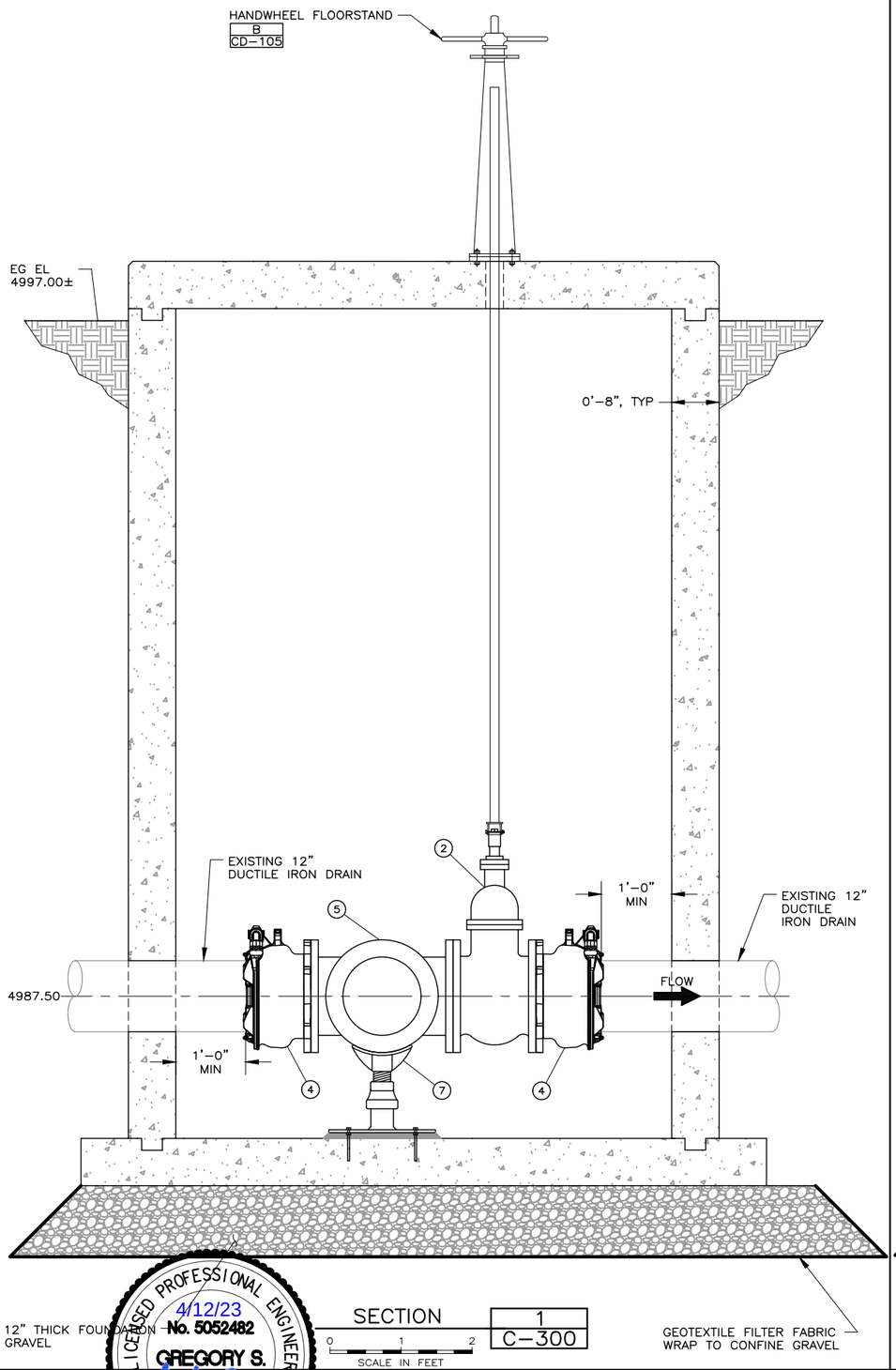
DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

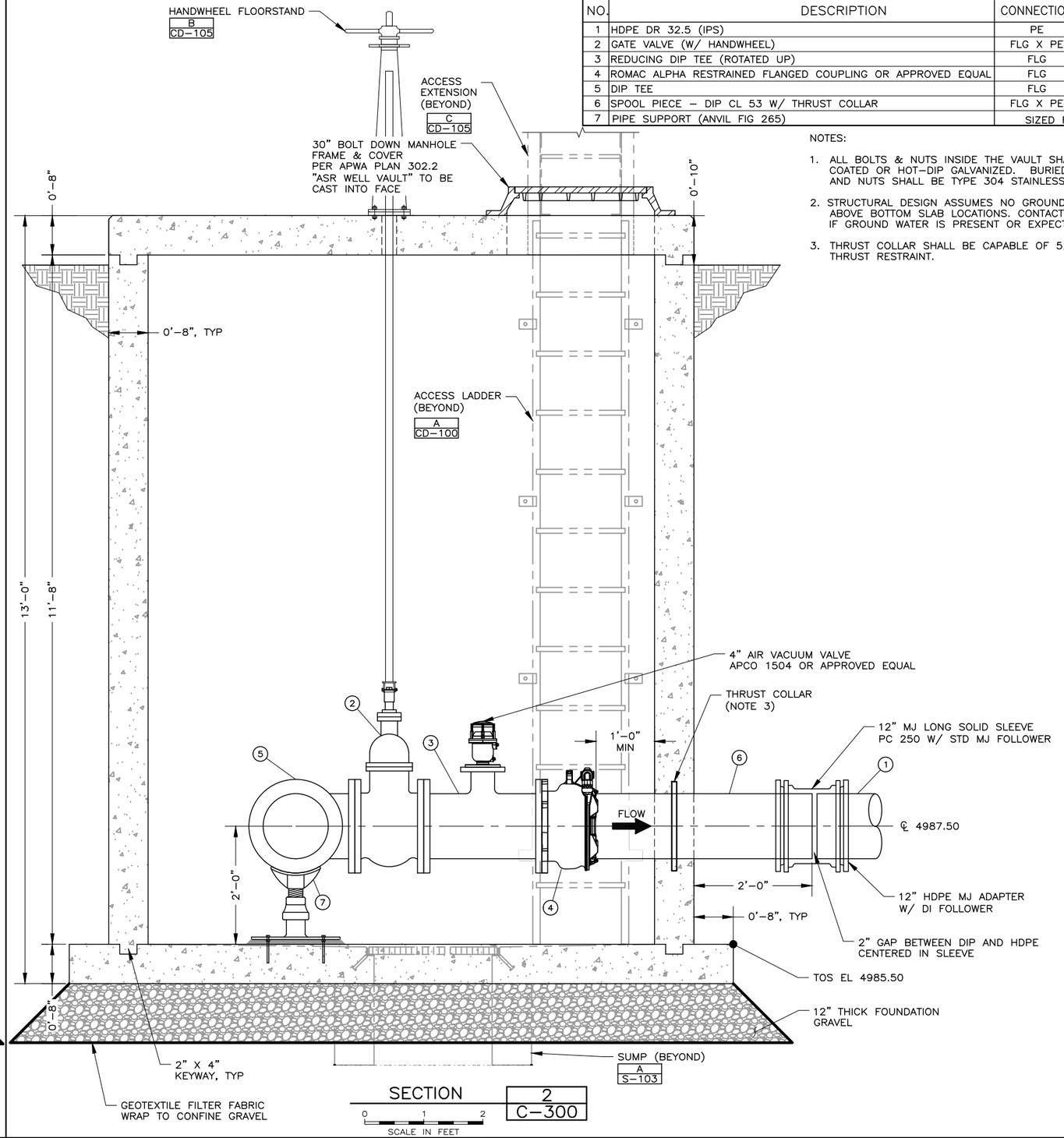
LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR VALVE VAULT PLAN

SHEET C-300
262.08.200



SECTION 1 / C-300

SCALE IN FEET 0 1 2



SECTION 2 / C-300

SCALE IN FEET 0 1 2

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	CONNECTION	SIZE
1	HDPE DR 32.5 (IPS)	PE	12"
2	GATE VALVE (W/ HANDWHEEL)	FLG X PE	12"
3	REDUCING DIP TEE (ROTATED UP)	FLG	12"x4"
4	ROMAC ALPHA RESTRAINED FLANGED COUPLING OR APPROVED EQUAL	FLG	12"
5	DIP TEE	FLG	12"
6	SPOOL PIECE – DIP CL 53 W/ THRUST COLLAR	FLG X PE	12"
7	PIPE SUPPORT (ANVIL FIG 265)	SIZED FOR PIPE	

NOTES:

1. ALL BOLTS & NUTS INSIDE THE VAULT SHALL BE ZINC COATED OR HOT-DIP GALVANIZED. BURIED BOLTS AND NUTS SHALL BE TYPE 304 STAINLESS STEEL.
2. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
3. THRUST COLLAR SHALL BE CAPABLE OF 5,400 LBS OF THRUST RESTRAINT.

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	MAJ	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

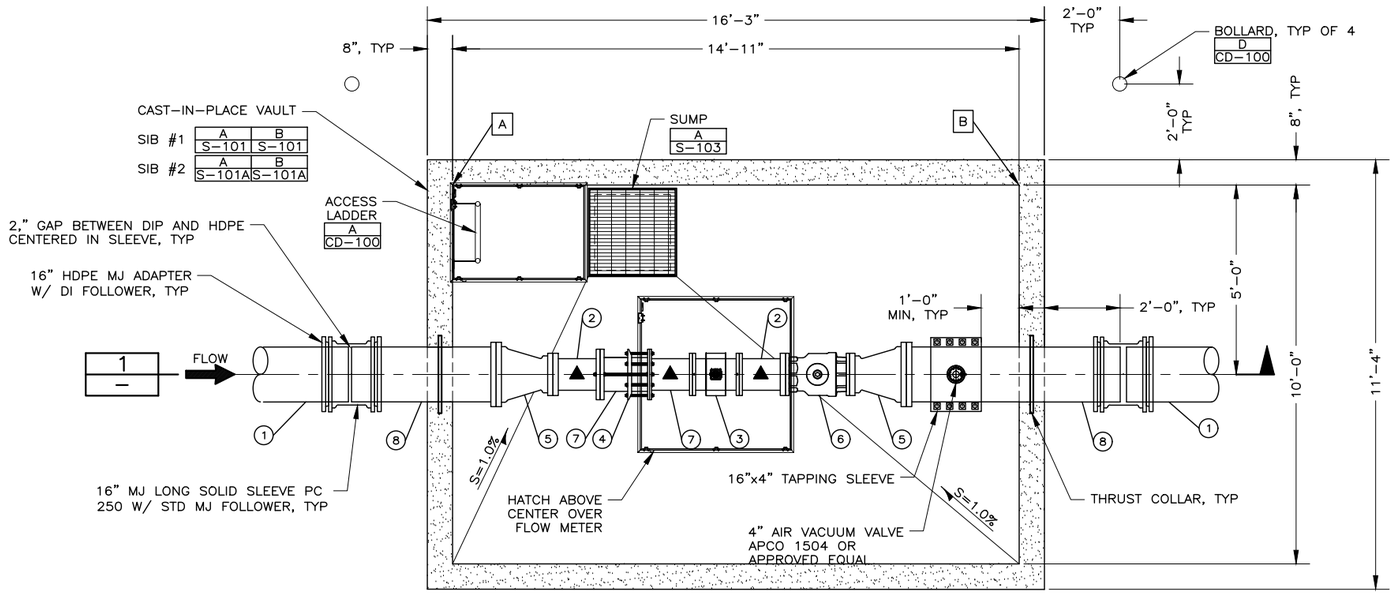
METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR VALVE VAULT SECTIONS

SHEET C-300A

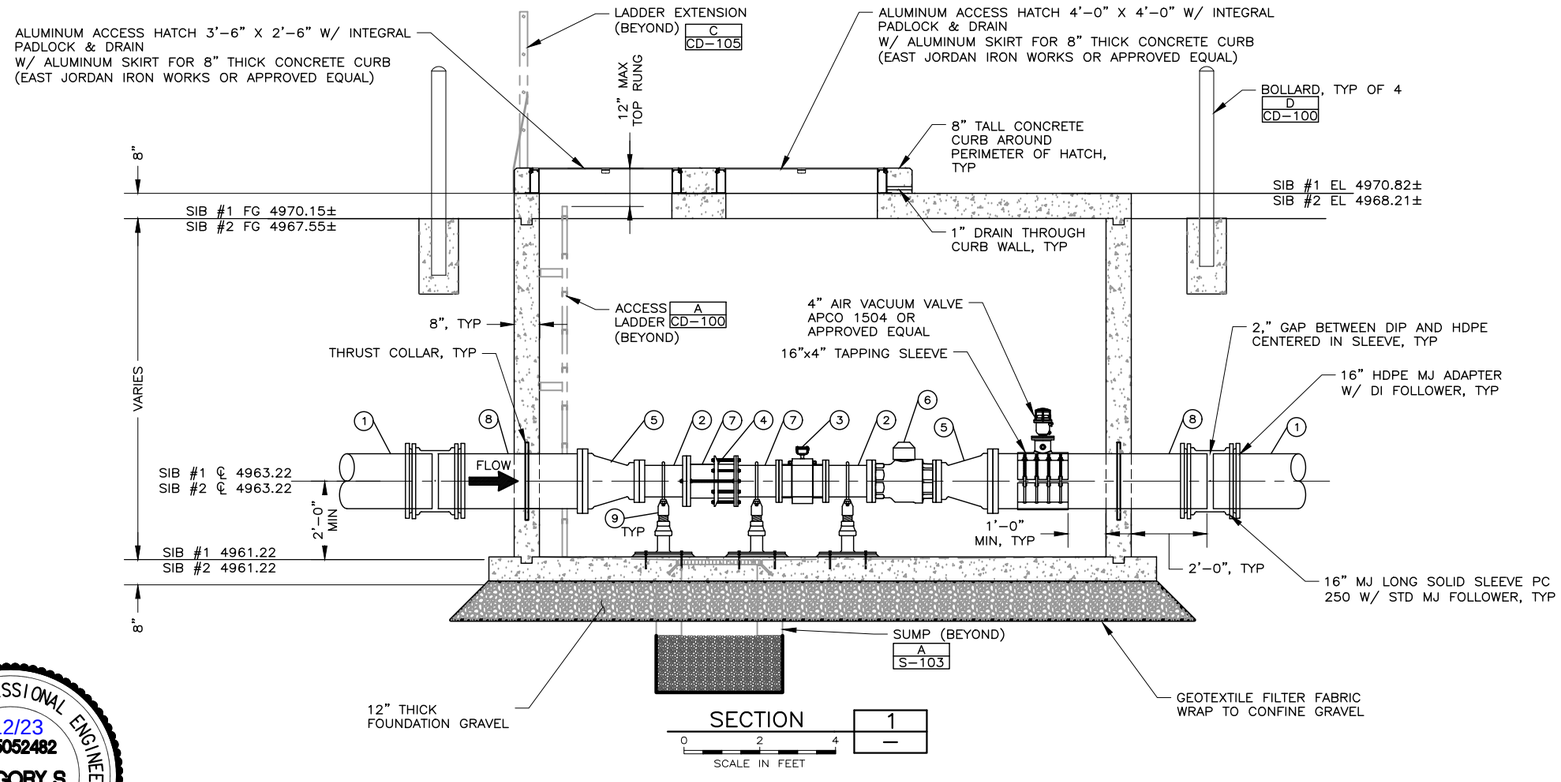
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\C-300A ASR VALVE VAULT SECTIONS.DWG
FILE DATE: 4.12.2023 08:37:06 (SWM)



SIB METER VAULT PLAN | A C–103 | A PP–302 | A PP–303 | A PP–304

0 2 4
SCALE IN FEET



SECTION 1 —

0 2 4
SCALE IN FEET

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	JOINT	SIZE
1	HDPE DR 32.5 (IPS)	PE	16"
2	SPOOL PIECE – DIP CL 53 (1'–0" LONG)	FLG	10"
3	MAG METER (SIEMENS MAG 5100W)	FLG	10"
4	DISMANTLING JOINT (ROMAC DJ400 OR EQUAL)	FLG	10"
5	CONCENTRIC REDUCER (MATERIAL = DI)	FLG	10" X 16"
6	SEGMENT BALL VALVE W/ ELECTRIC MOTOR ACTUATOR	FLG	10"
7	SPOOL PIECE – DIP CL 53 (1'–0" LONG)	FLG X PE	10"
8	SPOOL PIECE – DIP CL 53 W/ THRUST COLLAR	FLG X PE	16"
9	PIPE SUPPORT (ANVIL FIG. 265)	SIZED FOR PIPE	

SIB #1 METER VAULT COORDINATES

POINT NO.	NORTHING	EASTING	FG EL
A	7,383,553.68	1,555,854.80	4970.15±
B	7,383,560.75	1,555,867.98	4970.15±

N

0 2 4
SCALE IN FEET

SIB #2 METER VAULT COORDINATES

POINT NO.	NORTHING	EASTING	FG EL
A	7,383,541.09	1,555,806.61	4967.55±
B	7,383,554.27	1,555,799.55	4967.55±

N

0 2 4
SCALE IN FEET

▲ – PIPE SUPPORT E CD–100

NOTES:

1. ALL BOLTS & NUTS INSIDE THE VAULT SHALL BE ZINC COATED OR HOT–DIP GALVANIZED. BURIED BOLTS AND NUTS SHALL BE TYPE 304 STAINLESS STEEL.
2. INSTALL SERVICE UTILITY GROUNDING – SEE ELECTRICAL DRAWINGS.
3. THRUST COLLAR SHALL BE CAPABLE OF 9,500 LBS OF THRUST RESTRAINT.

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH
REGISTERED ENGINEER

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

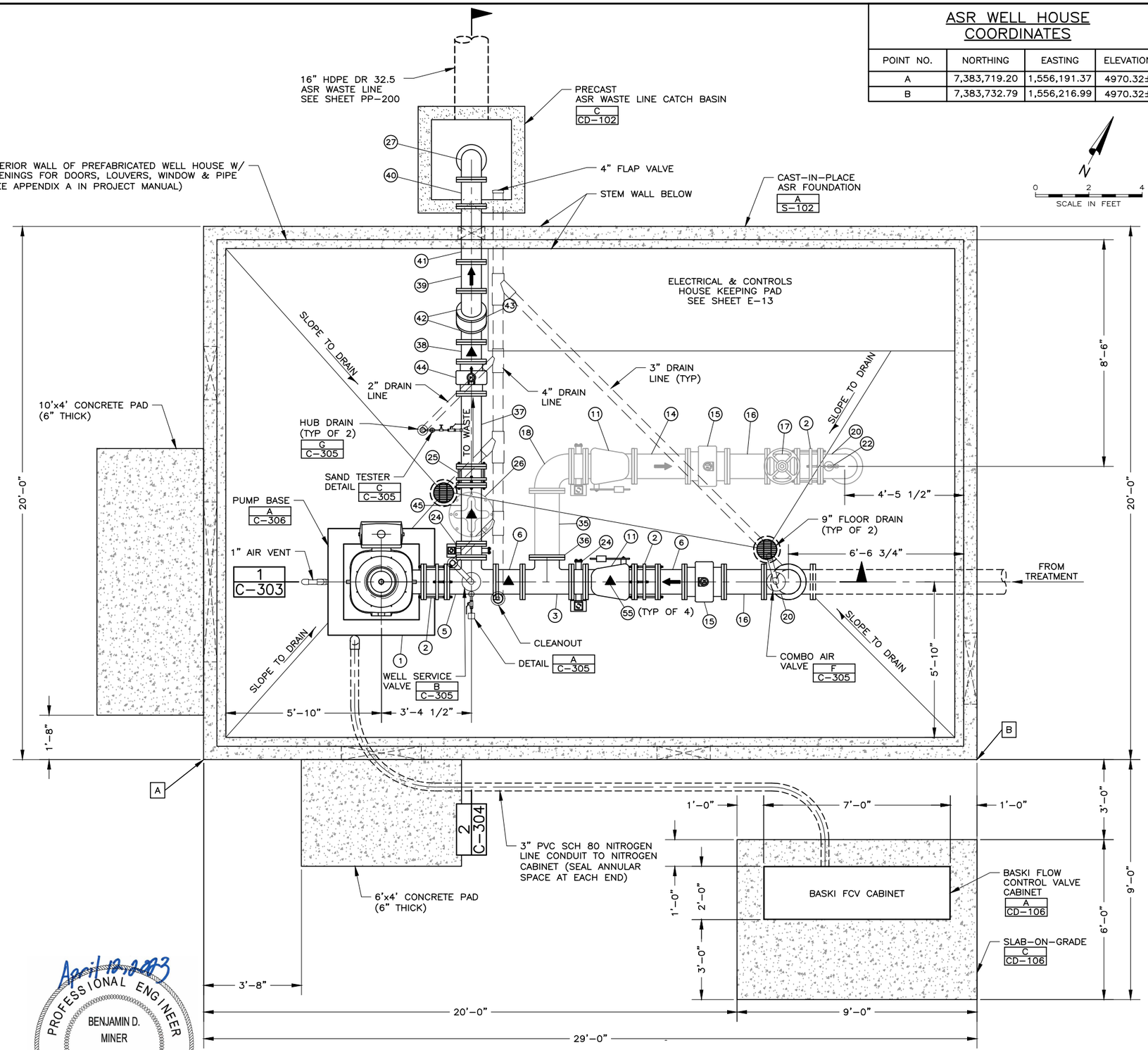
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
SIB METER VAULT PLAN AND SECTION

SHEET C–301

262.08.200

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE 1 MAR\CAD\C–301 SIB METER VAULT PLAN & SECTION.DWG
FILE DATE: 4.12.2023 08:39:19 (SWM)



ASR WELL HOUSE COORDINATES

POINT NO.	NORTHING	EASTING	ELEVATION
A	7,383,719.20	1,556,191.37	4970.32±
B	7,383,732.79	1,556,216.99	4970.32±

VALVE & FITTING SCHEDULE

NO.	DESCRIPTION	CONNECTION	SIZE
1	DISCHARGE HEAD W/ MOTOR (FABRICATED)	FLG	10"
2	DISMANTLING JOINT (ROMAC DJ400)	FLG	10"
3	DI TEE	FLG	10"
4	REDUCING BUSHING	THD	2" X 3/4"
5	REDUCING TEE W/ 2" BOSS	FLG	10" X 8"
6	DIP SPOOL (1'-0" LONG)	FLG	10"
7	(NOT USED)	–	–
8	PRESSURE GAUGE, 4 1/2" (0-50 PSI)	THD	1/2"
9	WELL SERVICE AIR VALVE (VALMATIC 102WS)	THD	2"
10	SMOOTH NOISE SAMPLING TAP	THD	3/4"
11	SWING CHECK VALVE	FLG	10"
12	ROSSUM SAND TESTER	THD	–
13	HIGH PRESSURE SHUT-OFF SWITCH	THD	1/2"
14	DIP SPOOL (2'-0" LONG)	FLG	10"
15	MAG METER	FLG	10"
16	DIP SPOOL (1'-6" LONG)	FLG	10"
17	GATE VALVE	FLG	10"
18	DI 90° ELBOW	FLG	10"
19	DIP SPOOL (CLASS 53 DIP)	FLG	10"
20	ELBOW W/ 2" BOSS	FLG	10"
21	DIP SPOOL (CLASS 53 DIP)	FLG	10"
22	COMBO AIR VALVE ASSEMBLY	THD	1"
23	DIELECTRIC UNION	THD	2"
24	BUTTERFLY VALVE (ELECTRICAL ACTUATION)	FLG	8"
25	DISMANTLING JOINT	FLG	8"
26	FUTURE PUMP CONTROL VALVE (NOT IN CONTRACT)	FLG	8"
27	DI 90° ELBOW	FLG	8"
28	DIP SPOOL (1'-6" LONG)	FLG	8"
29	DIP SPOOL W/ SLIT	FLG	8"
30	BRASS NIPPLE	THD	1/2"
31	THRED-O-LET OR TAPPED BOSS	THD	1"
32	BALL VALVE W/ UNION	THD	1"
33	BUSHING	THD	1" X 1/2"
34	PRESSURE TRANSDUCER	THD	–
35	DIP SPOOL (2'-6" LONG)	FLG	10"
36	DIP BLIND FLANGE	FLG	10"
37	DIP SPOOL CLASS 53 DIP (2'-9" LONG)	FLG	8"
38	DIP SPOOL CLASS 53 DIP (0'-9" LONG)	FLG	8"
39	DIP SPOOL (1'-1" LONG)	FLG	8"
40	DIP SPOOL (1'-0" LONG)	FLG	8"
41	WALL PIECE DIP SPOOL	FLG	8"
42	DIP 45° ELBOW	FLG	8"
43	DIP FILLER (0'-6" LONG)	FLG	8"
44	MAG METER	FLG	8"
45	DIP SPOOL CLASS 53 DIP (2'-3" LONG)	FLG	8"
46	BRASS NIPPLE	THD	1"
47	BRASS BALL VALVE	THD	2"
48	BRASS CROSS	THD	2"
49	BRASS TEE	THD	3/4"
50	BRASS NIPPLE	THD	3/4"
51	BRASS NIPPLE	THD	2"
52	BRASS 90° BEND	THD	2"
53	BRASS PIPE	THD	2"
54	COMBO AIR VALVE (VALMATIC 202C.2 LOW HEAD)	THD	2"
55	PIPE SUPPORT (ANVIL FIG 265)	SIZED FOR PIPE	

▲ – PIPE SUPPORT E CD-100

GENERAL SHEET NOTES:
1. ITEMS SHOWN SHADED ARE FUTURE AND NOT IN CONTRACT.

April 12, 2023
PROFESSIONAL ENGINEER
BENJAMIN D. MINER
No. 318761-2202
STATE OF UTAH

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE 1 MAR\CAD\C-302 ASR WELL HEAD EQUIPMENT PLAN.DWG
FILE DATE: 4.12.2023 09:57:04 (MAJ)

HANSEN ALLEN & LUCE ENGINEERS

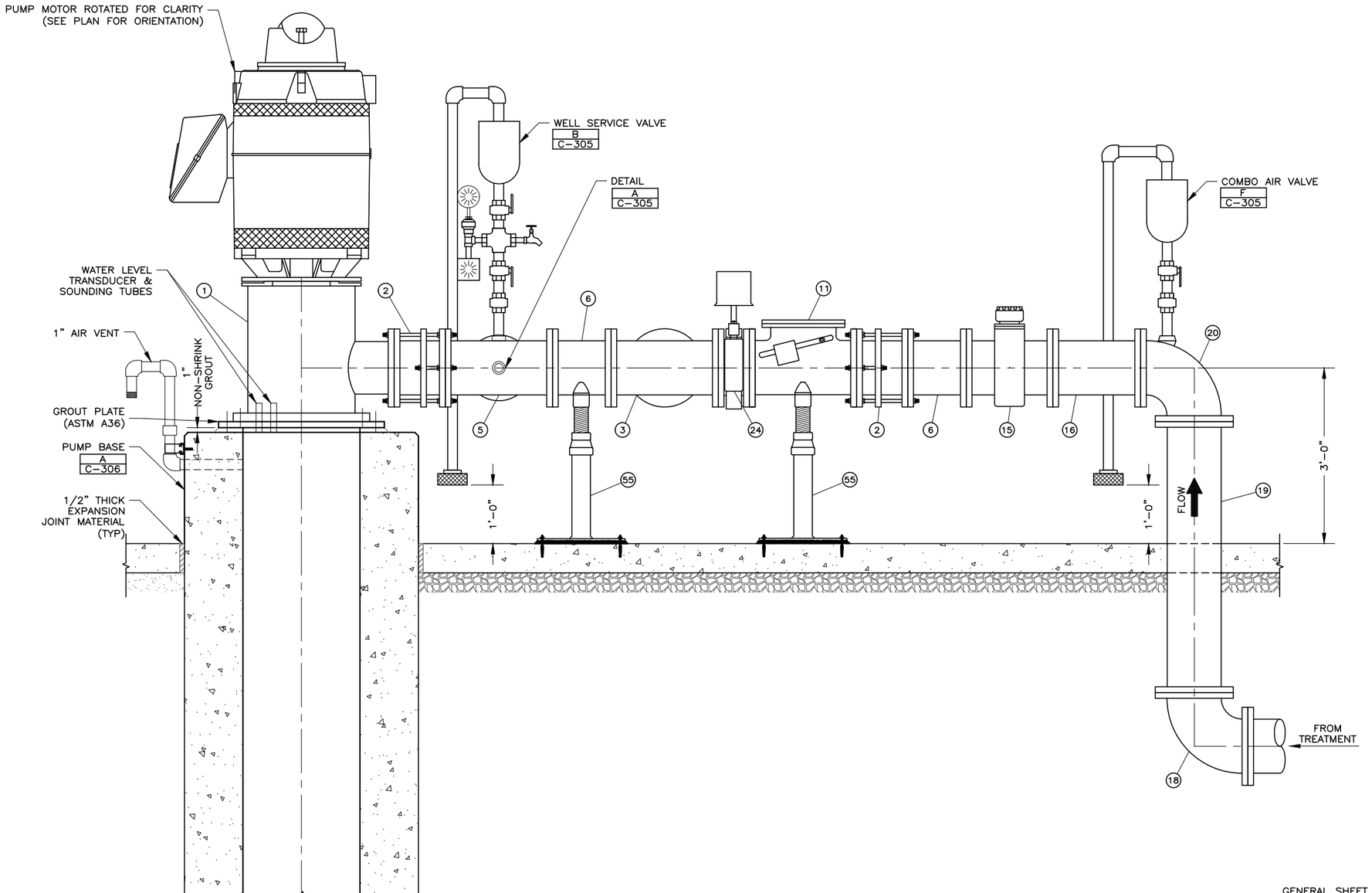
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DRAFTED	MAJ	2				
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SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR WELL HEAD EQUIPMENT PLAN

SHEET C-302
262.08.200



GENERAL SHEET NOTES:
1. SEE SHEET C-302 FOR VALVE & FITTING SCHEDULE.

PUMP PIPING SECTION 1 / C-302

SCALE IN FEET 0 1 2

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\C-303 WELL HEAD EQUIPMENT SECTIONS I.DWG
FILE DATE: 4.12.2023 09:57:52 (MAJ)

April 12, 2023
PROFESSIONAL ENGINEER
BENJAMIN D. MINER
No. 318761-2202
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

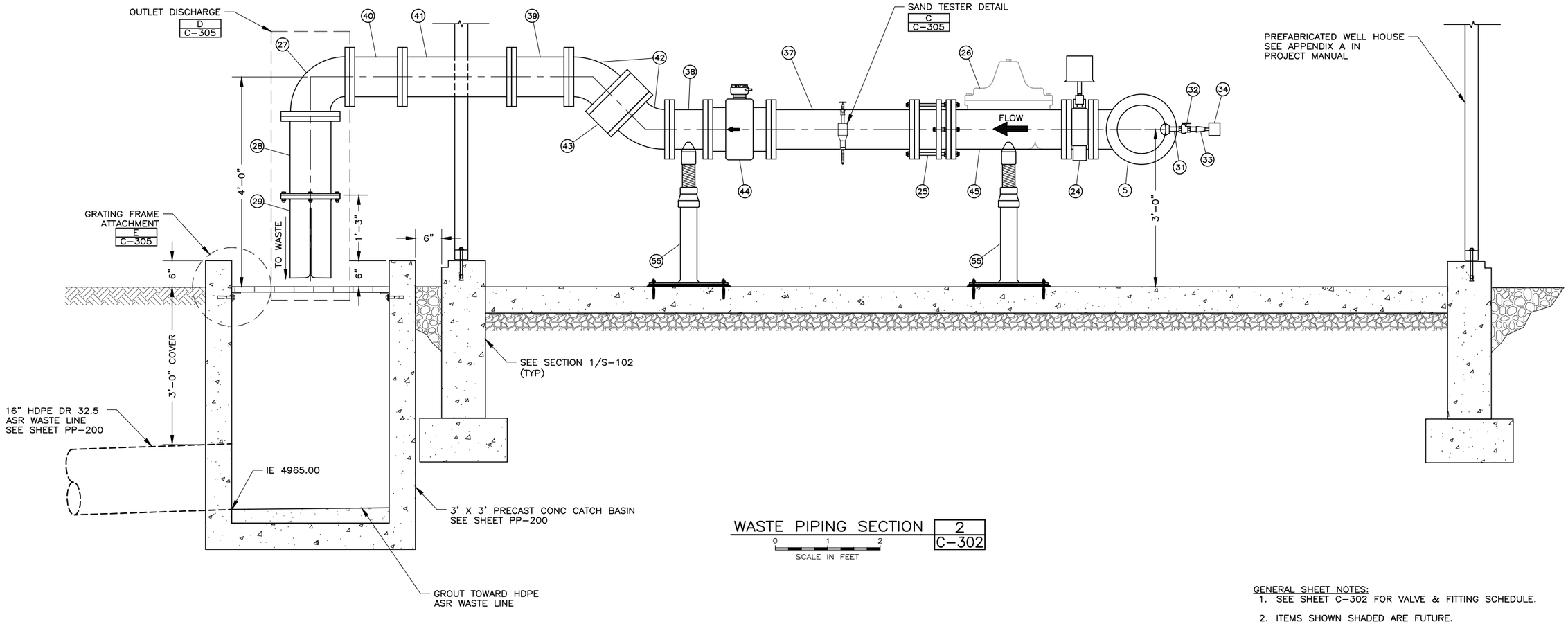
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SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR WELL HEAD EQUIPMENT SECTION I

SHEET C-303
262.08.200



WASTE PIPING SECTION 2 / C-302

0 1 2
SCALE IN FEET

GENERAL SHEET NOTES:
1. SEE SHEET C-302 FOR VALVE & FITTING SCHEDULE.
2. ITEMS SHOWN SHADED ARE FUTURE.

April 12, 2023
PROFESSIONAL ENGINEER
BENJAMIN D. MINER
No. 318761-2202
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	BDM	3				
DRAFTED	MAJ	2				
CHECKED	BDM	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

PROJECT ENGINEER

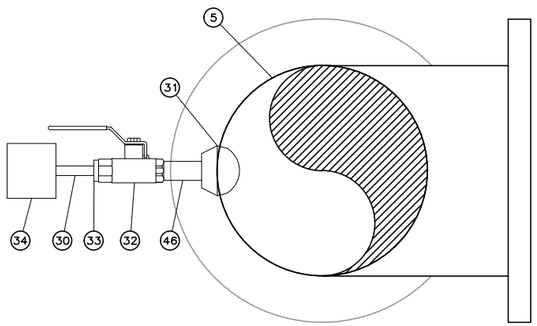
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METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

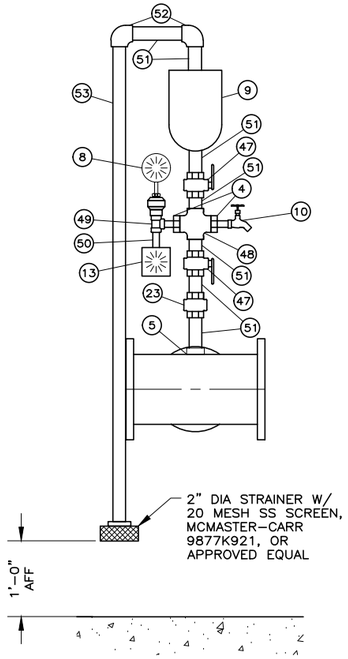
LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR WELL HEAD EQUIPMENT SECTION II

SHEET C-304
262.08.200

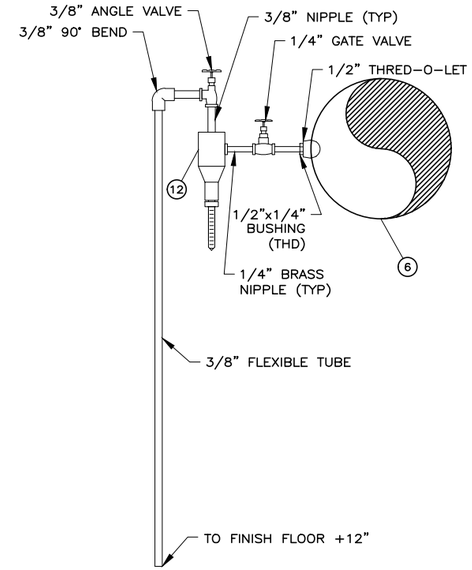
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FILE DATE: 4.12.2023 10:02:35 (MAJ)



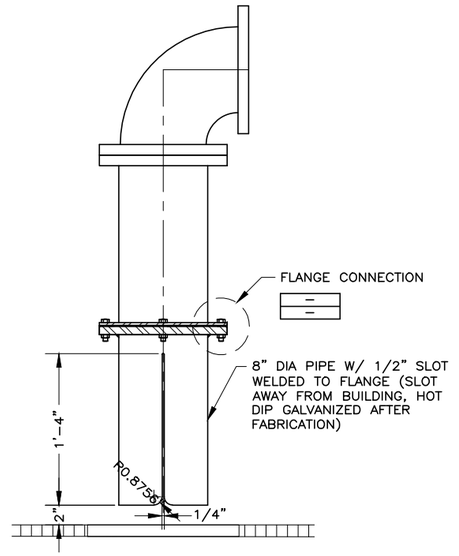
DETAIL A | A
NTS C-302 | C-303



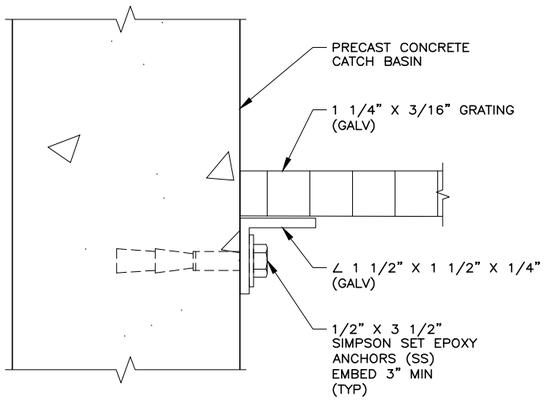
WELL SERVICE VALVE B | B
NTS C-302 | C-303



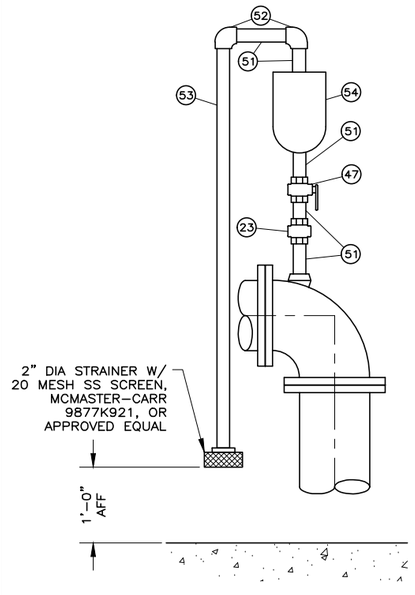
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NTS C-302 | C-304



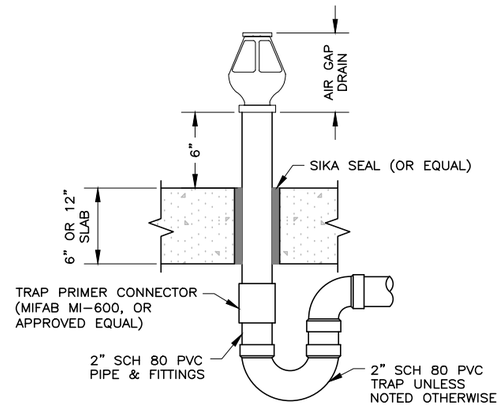
OUTLET DISCHARGE D
NTS C-304



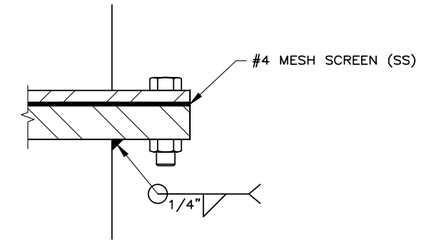
GRATING FRAME ATTACHMENT E
NTS C-304



AIR RELEASE DETAIL F | F
NTS C-302 | C-303



HUB DRAIN G
NTS C-302



FLANGE CONNECTION H
NTS —

GENERAL SHEET NOTES:
1. SEE SHEET C-302 FOR VALVE & FITTING SCHEDULE.

April 12, 2023
PROFESSIONAL ENGINEER
BENJAMIN D. MINER
No. 318761-2202
STATE OF UTAH

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\C-305 WELL HEAD EQUIPMENT DETAILS.DWG
FILE DATE: 4.12.2023 10:03:58 (MAJ)

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	BDM
DRAFTED	MAJ
CHECKED	BDM
DATE	APRIL 2023

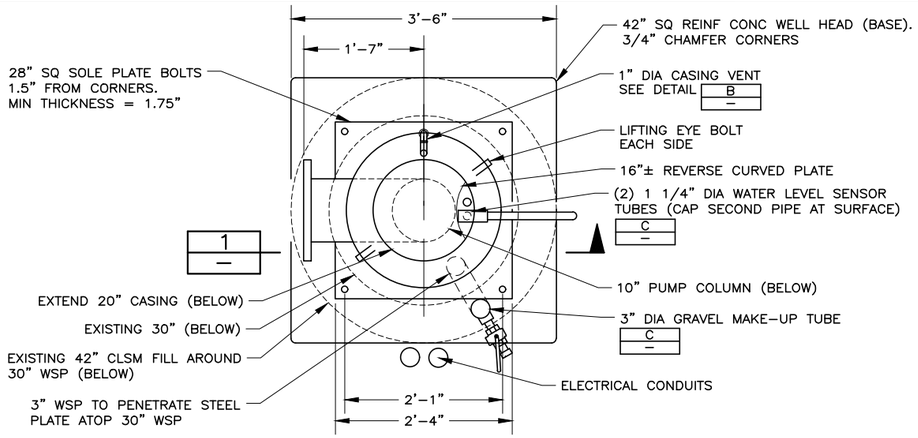
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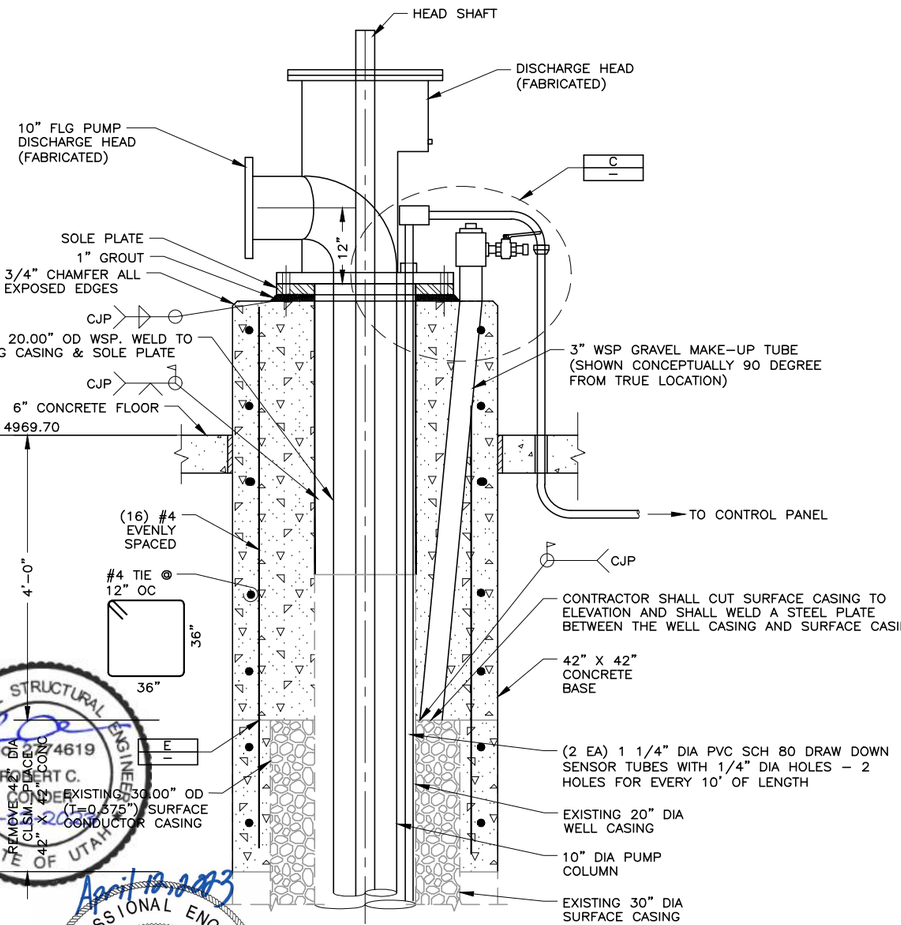
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR WELL HEAD EQUIPMENT DETAILS

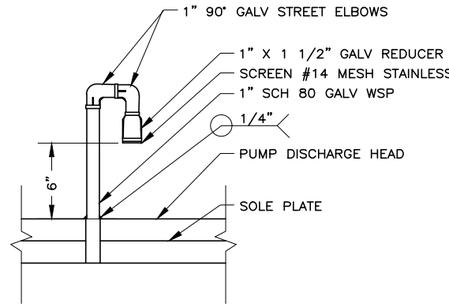
SHEET C-305
262.08.200



PUMP BASE NTS — A C-302 | A C-303

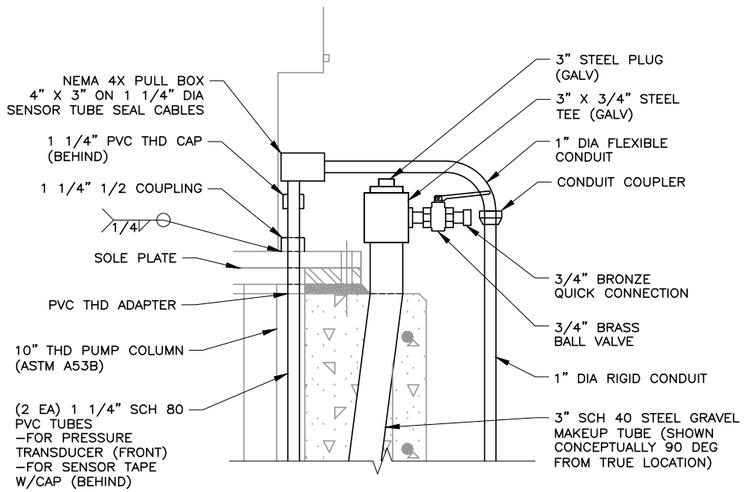


SECTION 1 NTS

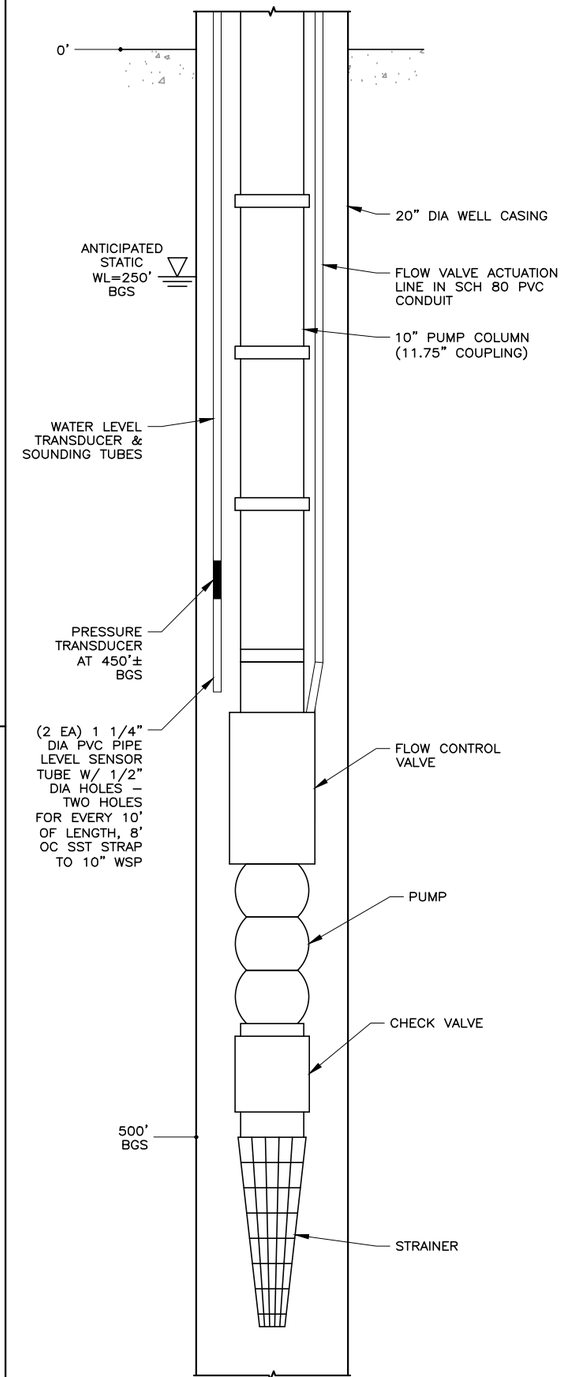


DETAIL B NTS

GENERAL SHEET NOTES:
1. CJP WELD ALL JOINTS (JTS).
2. CJP DBL FILLET WELD PIPE TO PL (OR FLG) JTS.



DETAIL C NTS



ASR WELL SECTION E NTS

PROFESSIONAL STRUCTURAL ENGINEER — No. 7619 — ROBERT C. JONES — STATE OF UTAH — April 19, 2023

PROFESSIONAL ENGINEER — BENJAMIN D. MINER — No. 318761-2202 — STATE OF UTAH — April 19, 2023

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	BDM
DRAFTED	MAJ
CHECKED	BDM
DATE	APRIL 2023

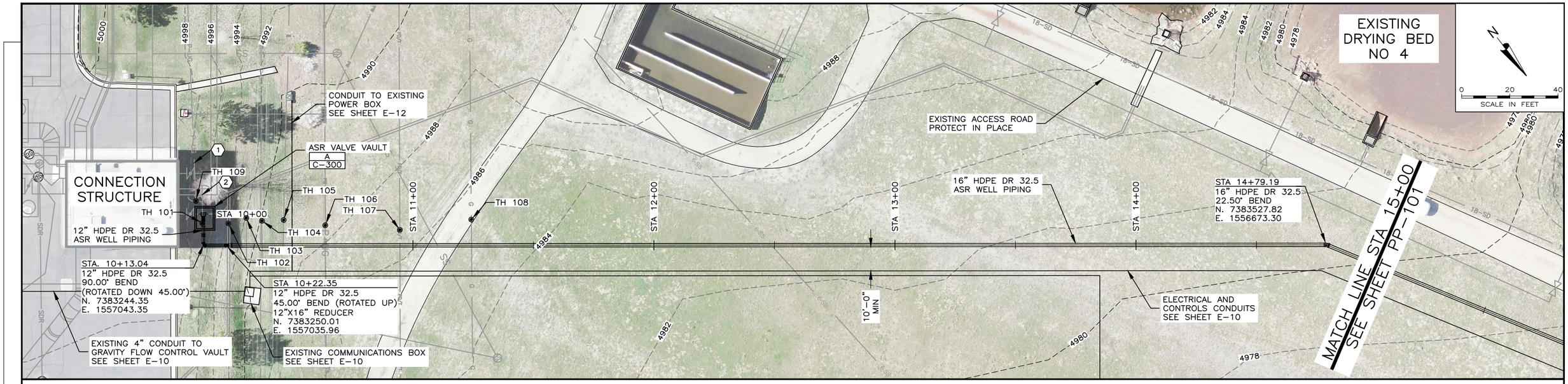
NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL
ASR WELL HEAD PUMP BASE DETAILS

SHEET C-306
262.08.200



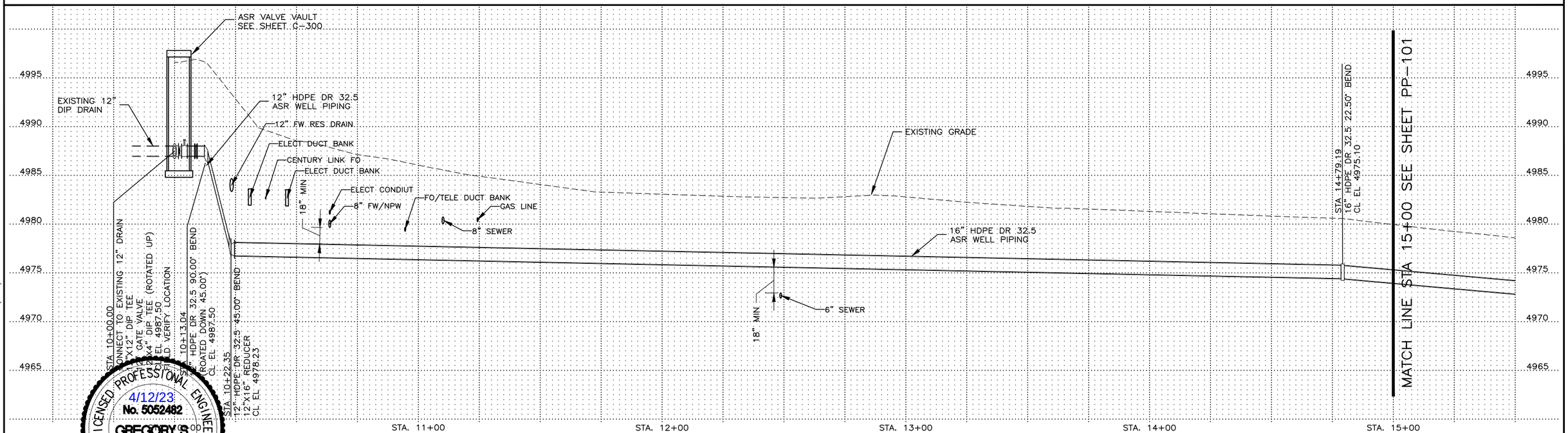
GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. PIPELINE SHALL BE PRESSURED TESTED IN ACCORDANCE WITH SECTION 33 05 11 HDPE PRESSURE PIPE. CONTRACTOR SHALL PROVIDE TEMPORARY BULKHEADS AND TEMPORARY TAPS AS NEEDED TO FACILITATE PRESSURE TESTING.
3. PIPELINE SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 33 13 00 PIPELINE TESTING AND DISINFECTION.
4. THE MINIMUM PIPE SLOPE SHALL BE 0.3% WITH NO LOCAL HIGH POINT EXCEPT AS INDICATED ON THE DRAWINGS.
5. TRENCH SECTION PER DETAIL A ON SHEET CD-105.

KEY NOTES:

(1) BLUE STAKES IDENTIFIED UNDERGROUND ELECTRICAL CONDUIT AT TH 109. TEST HOLE MEASURE DOWN DATA UNAVAILABLE DUE TO EXISTING GRADE CONDITIONS IN AREA. CONTRACTOR TO LOCATE ELECTRICAL CONDUIT PRIOR TO CONSTRUCTION AND IDENTIFY POTENTIAL CONFLICTS WITH ASR VALVE VAULT.

(2) RELOCATE 4" SPRINKLER LINE (TH 101). CONTRACTOR TO COORDINATE W/ MWDSLS ON RELOCATION.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

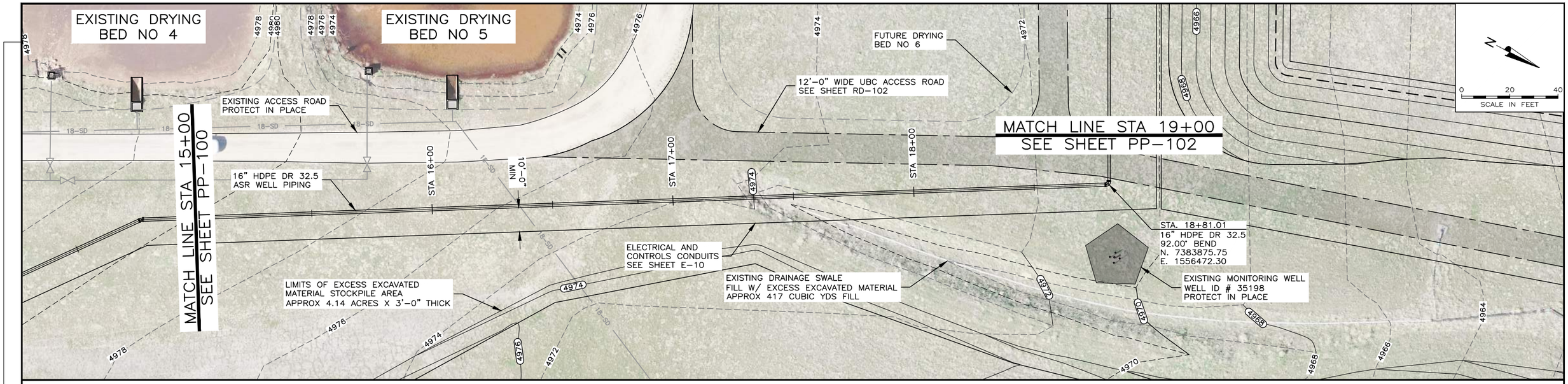
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ASR PIPING PLAN AND PROFILE
STA 10+00 TO STA 15+00

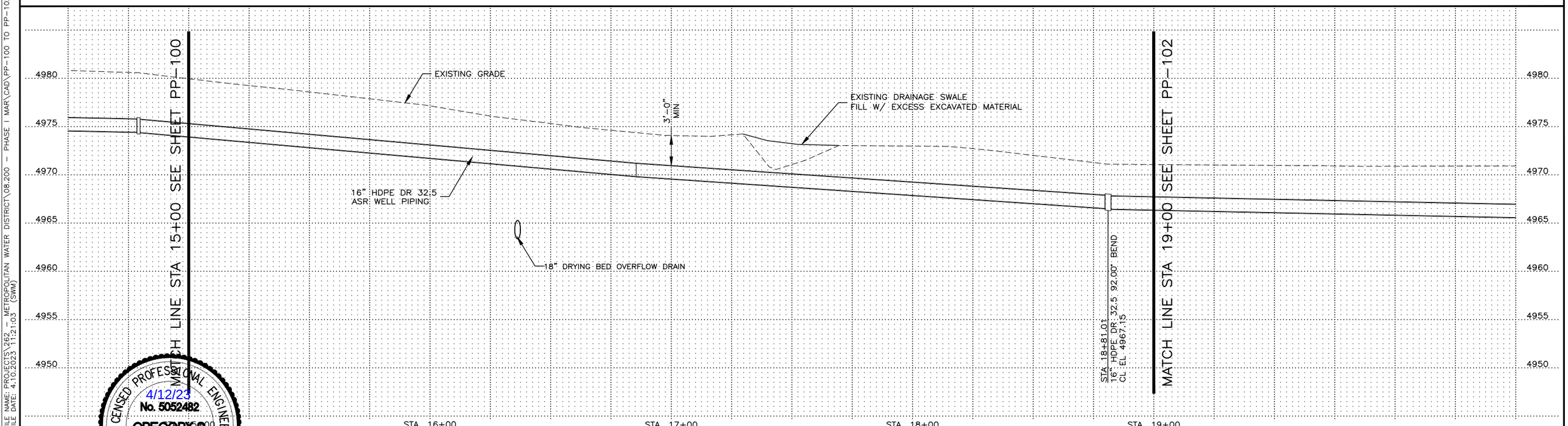
SHEET: PP-100
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-100 TO PP-102.DWG
FILE DATE: 4.10.2023 11:21:03 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. PIPELINE SHALL BE PRESSURED TESTED IN ACCORDANCE WITH SECTION 33 05 11 HDPE PRESSURE PIPE. CONTRACTOR SHALL PROVIDE TEMPORARY BULKHEADS AND TEMPORARY TAPS AS NEEDED TO FACILITATE PRESSURE TESTING.
3. PIPELINE SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 33 13 00 PIPELINE TESTING AND DISINFECTION.
4. THE MINIMUM PIPE SLOPE SHALL BE 0.3% WITH NO LOCAL HIGH POINT EXCEPT AS INDICATED ON THE DRAWINGS.
5. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
REGISTERED PROFESSIONAL ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

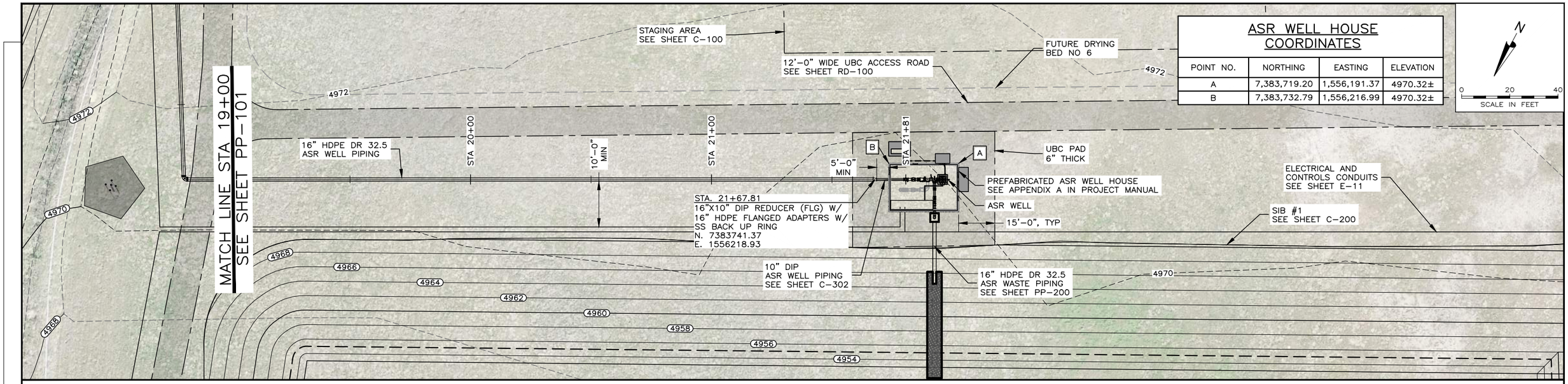
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ASR PIPING PLAN AND PROFILE
STA 15+00 TO STA 19+00

SHEET: PP-101
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\PP-100 TO PP-102.DWG
FILE DATE: 4.10.2023 11:21:03 (SWM)



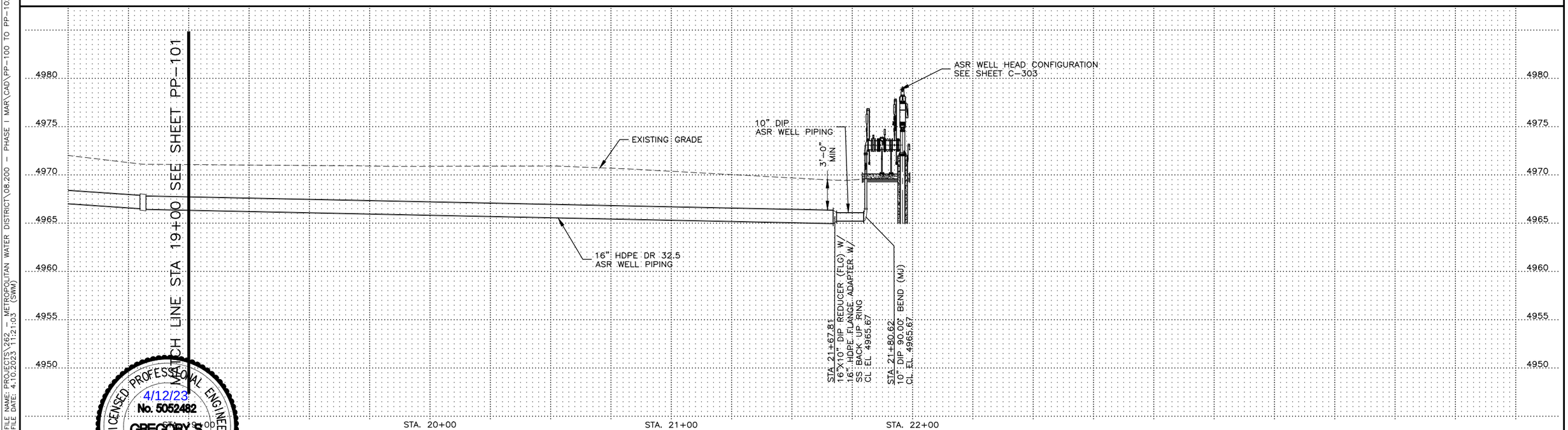
ASR WELL HOUSE COORDINATES			
POINT NO.	NORTHING	EASTING	ELEVATION
A	7,383,719.20	1,556,191.37	4970.32±
B	7,383,732.79	1,556,216.99	4970.32±

N

0 20 40
SCALE IN FEET

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. PIPELINE SHALL BE PRESSURED TESTED IN ACCORDANCE WITH SECTION 33 05 11 HDPE PRESSURE PIPE. CONTRACTOR SHALL PROVIDE TEMPORARY BULKHEADS AND TEMPORARY TAPS AS NEEDED TO FACILITATE PRESSURE TESTING.
3. PIPELINE SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 33 13 00 PIPELINE TESTING AND DISINFECTION.
4. THE MINIMUM PIPE SLOPE SHALL BE 0.3% WITH NO LOCAL HIGH POINT EXCEPT AS INDICATED ON THE DRAWINGS.
5. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

HANSEN ALLEN & LUCE, Inc. ENGINEERS

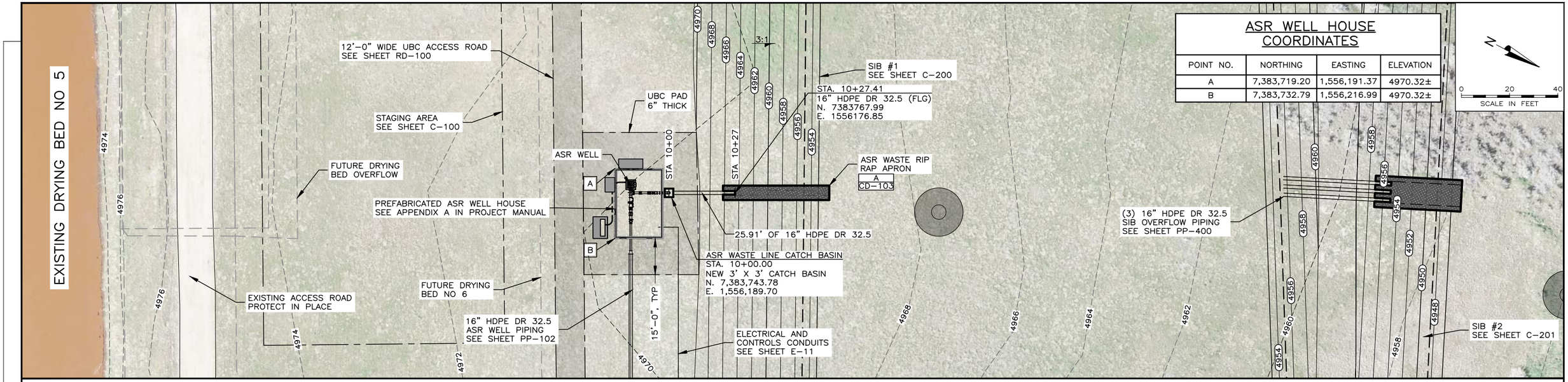
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ASR PIPING PLAN AND PROFILE
STA 19+00 TO STA 21+80.62

SHEET: PP-102
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-100 TO PP-102.DWG
FILE DATE: 4.10.2023 11:21:03 (SWM)

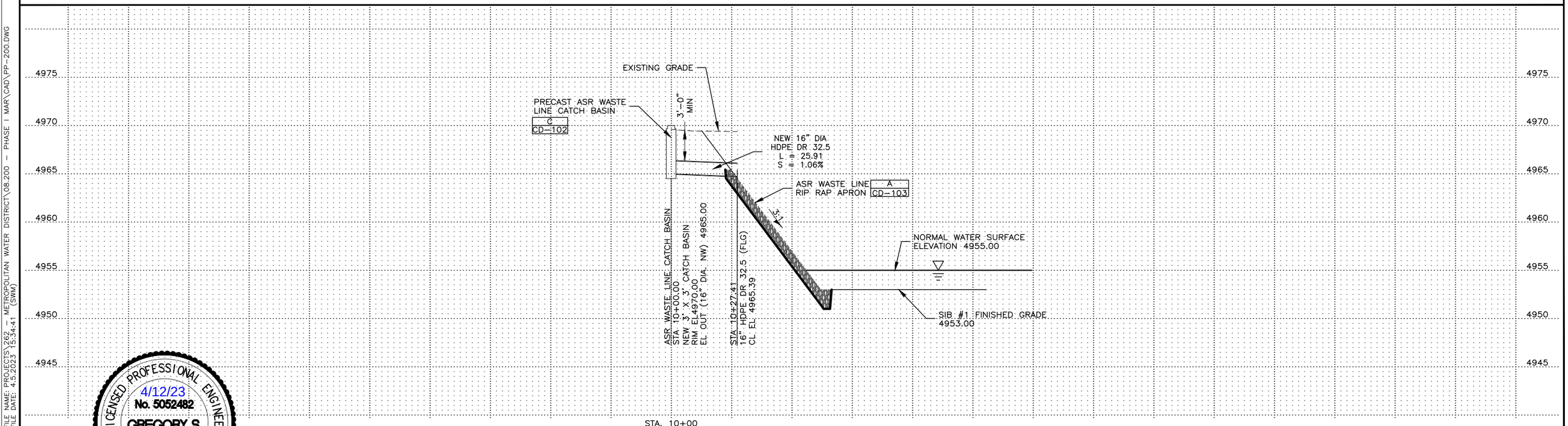


ASR WELL HOUSE COORDINATES

POINT NO.	NORTHING	EASTING	ELEVATION
A	7,383,719.20	1,556,191.37	4970.32±
B	7,383,732.79	1,556,216.99	4970.32±

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. CONTRACTOR SHALL FIELD VERIFY REQUIRED CATCH BASIN RIM ELEVATION PRIOR TO FABRICATION.
3. PIPE INVERT ELEVATION IS AT INSIDE EDGE OF CATCH BASIN.
4. PIPE LENGTH IS FROM INSIDE EDGE OF CATCH BASIN TO PIPE END.
5. PIPE SLOPES ARE FROM INSIDE EDGE OF CATCH BASIN TO PIPE END.
6. CATCH BASIN NORTHING AND EASTING IS AT CENTER OF CATCH BASIN.
7. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
PROJECT ENGINEER		NO.	DATE	REVISIONS	BY / APVD.
DATE	APRIL 2023				

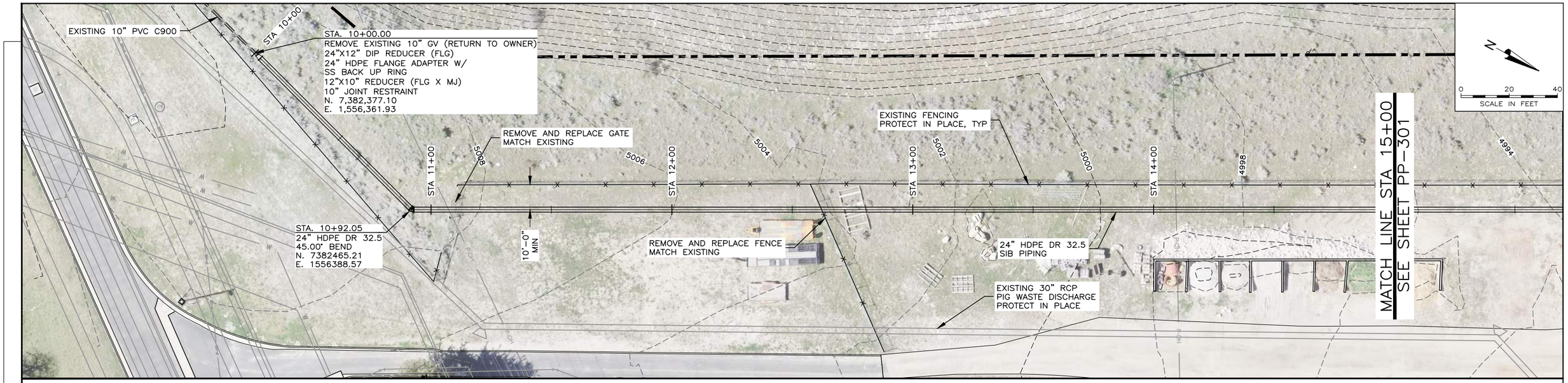
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ASR WASTE LINE PLAN AND PROFILE
STA 10+00 TO STA 10+27.41

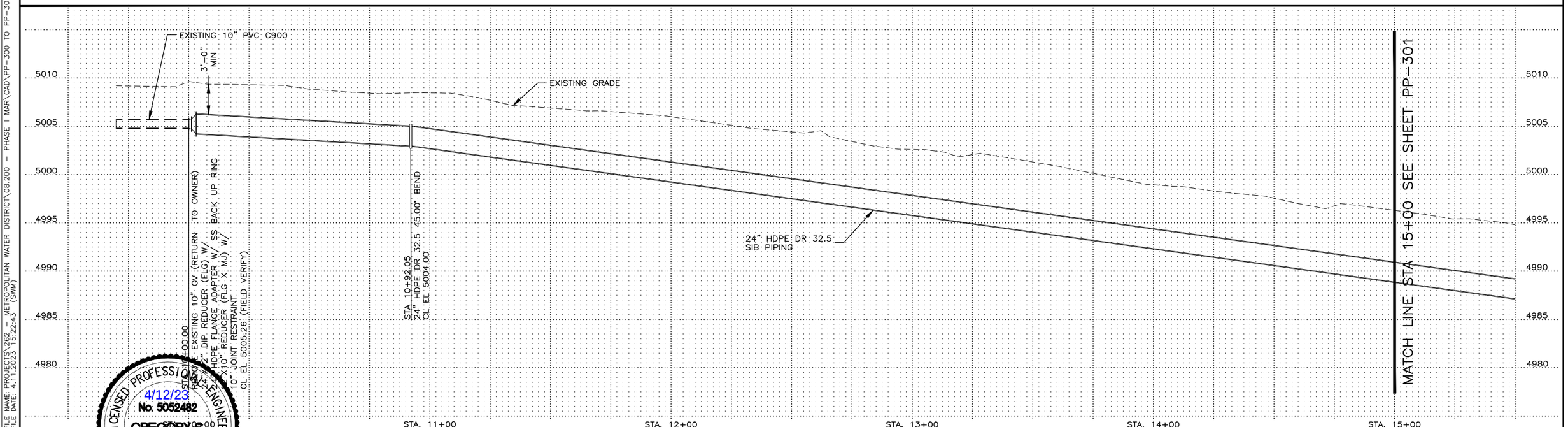
SHEET: PP-200
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MARY\CAD\PP-200.DWG
FILE DATE: 4.5.2023 15:34:41 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. PIPELINE SHALL BE PRESSURED TESTED IN ACCORDANCE WITH SECTION 33 05 11 HDPE PRESSURE PIPE. CONTRACTOR SHALL PROVIDE TEMPORARY BULKHEADS AND TEMPORARY TAPS AS NEEDED TO FACILITATE PRESSURE TESTING.
3. THE MINIMUM PIPE SLOPE SHALL BE 0.3% WITH NO LOCAL HIGH POINT EXCEPT AS INDICATED ON THE DRAWINGS.
4. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

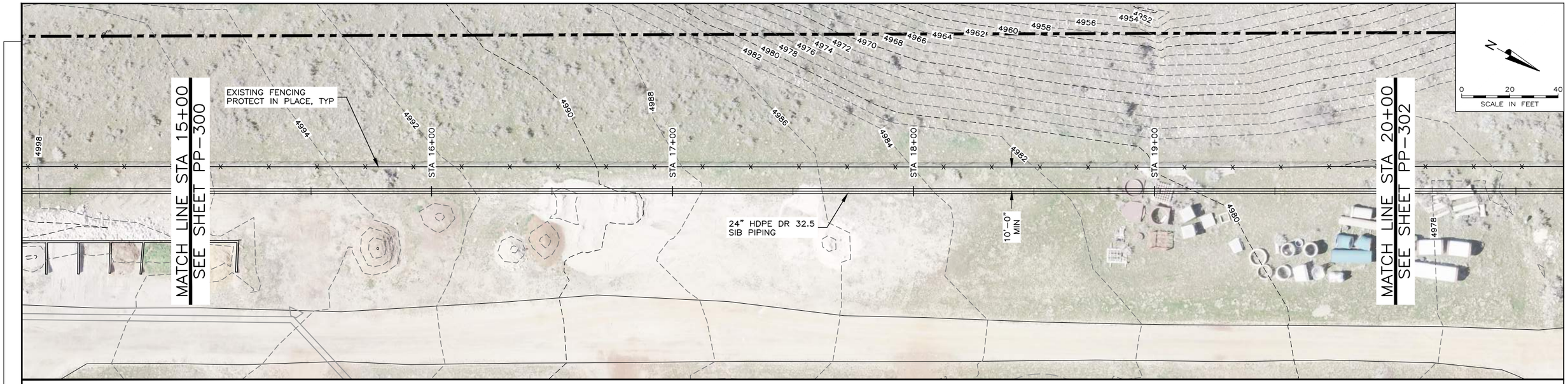
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB PIPING PLAN AND PROFILE
STA 10+00 TO STA 15+00

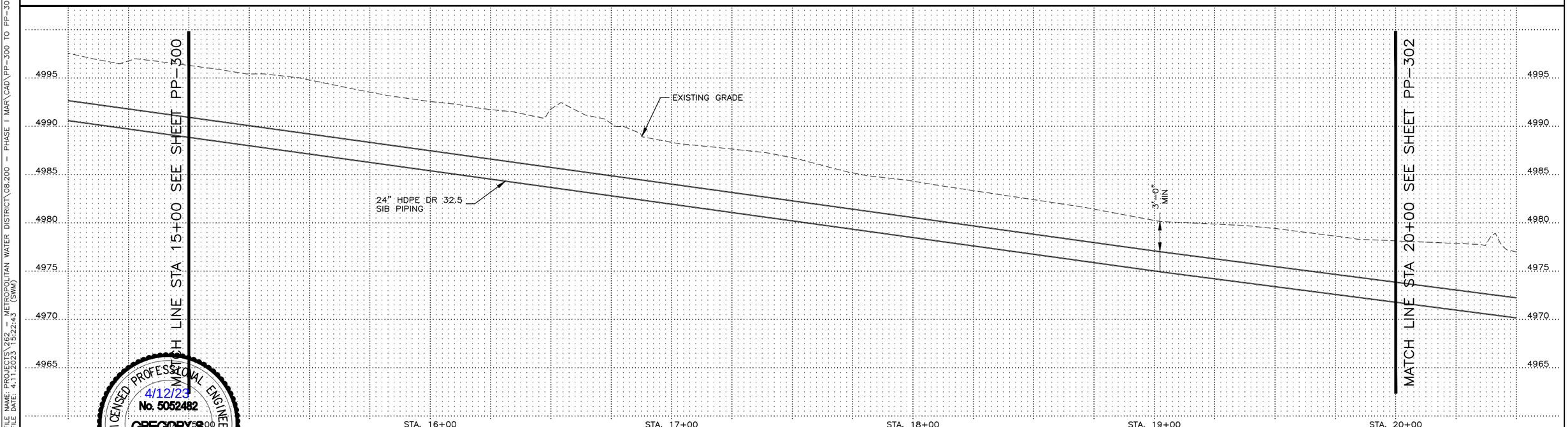
SHEET: PP-300
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-300 TO PP-304.DWG
FILE DATE: 4.11.2023 15:22:43 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. PIPELINE SHALL BE PRESSURED TESTED IN ACCORDANCE WITH SECTION 33 05 11 HDPE PRESSURE PIPE. CONTRACTOR SHALL PROVIDE TEMPORARY BULKHEADS AND TEMPORARY TAPS AS NEEDED TO FACILITATE PRESSURE TESTING.
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4. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	NO.	DATE	REVISIONS	BY	APVD.
DRAFTED	SWM	3				
CHECKED	GST	2				
DATE	APRIL 2023	1				

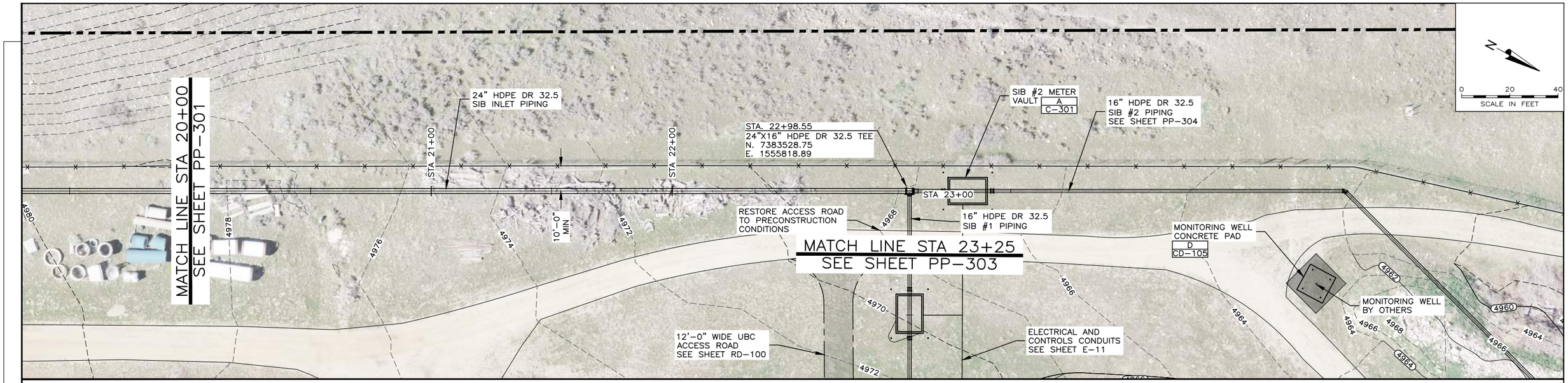
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METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB PIPING PLAN AND PROFILE
STA 15+00 TO STA 20+00

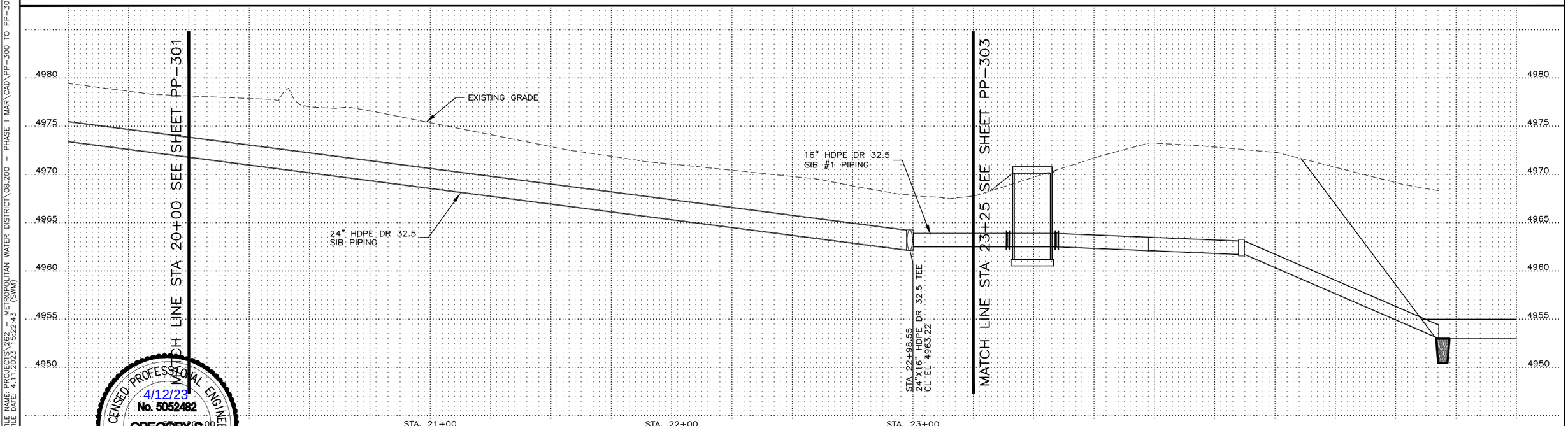
SHEET: PP-301
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-300 TO PP-304.DWG
FILE DATE: 4.11.2023 15:22:43 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
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4. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

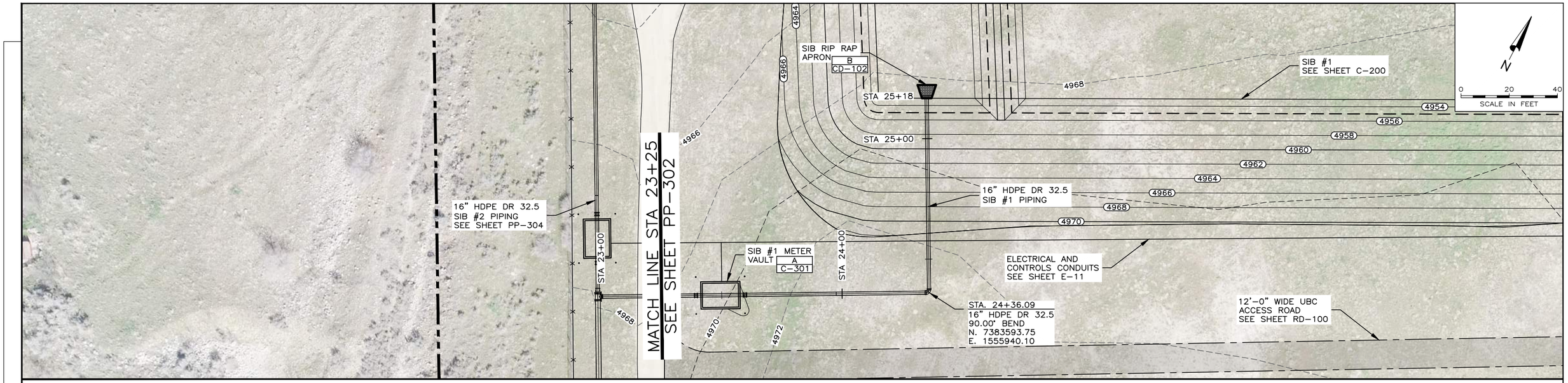
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METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB PIPING PLAN AND PROFILE
STA 20+00 TO STA 23+25

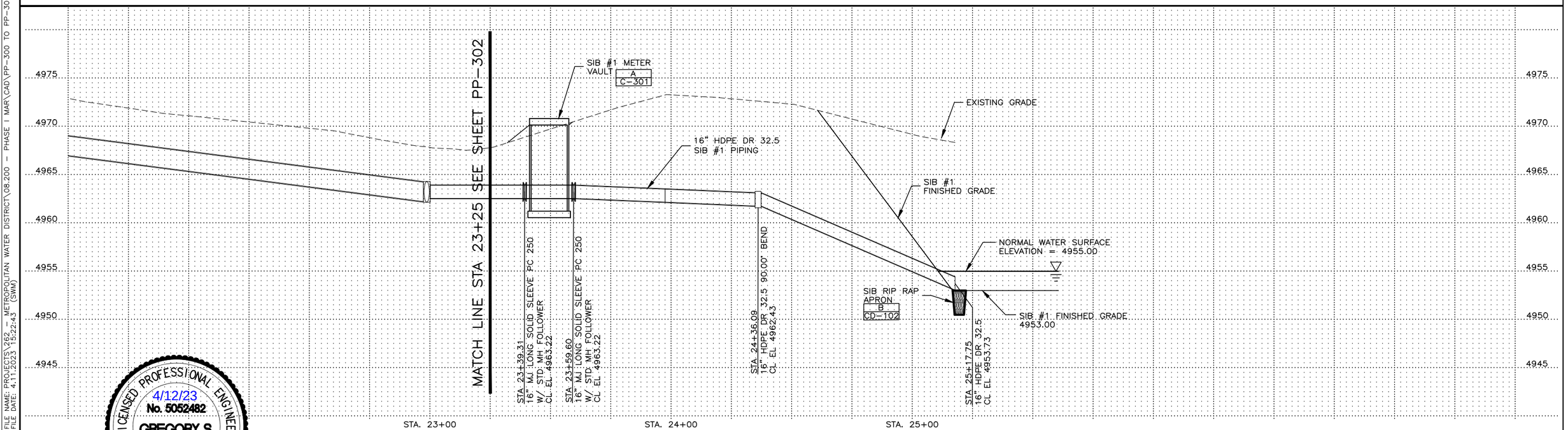
SHEET: PP-302
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-300 TO PP-304.DWG
FILE DATE: 4.11.2023 15:22:43 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G–005.
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3. THE MINIMUM PIPE SLOPE SHALL BE 0.3% WITH NO LOCAL HIGH POINT EXCEPT AS INDICATED ON THE DRAWINGS.
4. TRENCH SECTION PER DETAIL A ON SHEET CD–105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3				
DRAWN	SWM	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

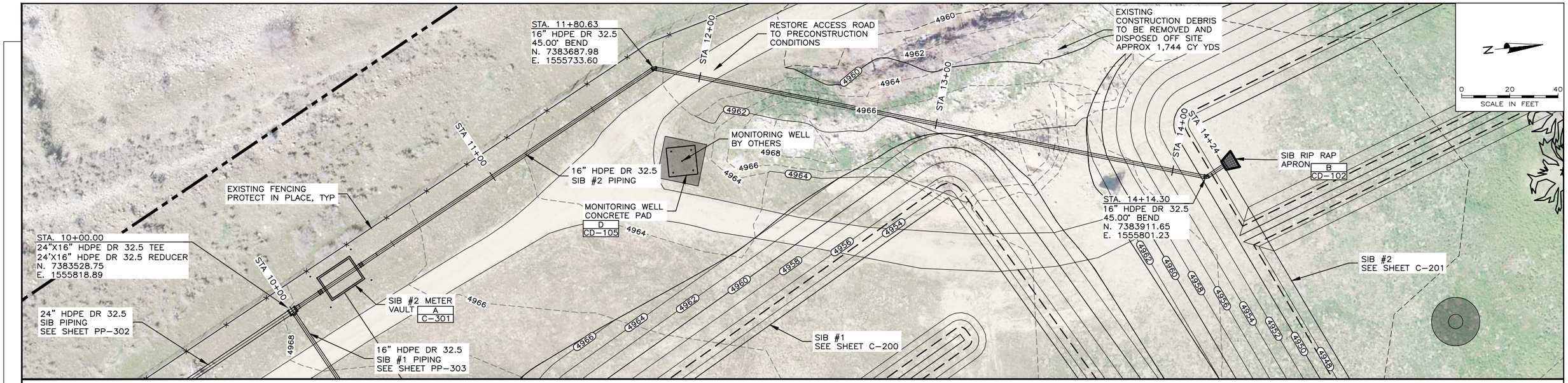
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METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB PIPING PLAN AND PROFILE
STA 23+25 TO STA 25+17.75

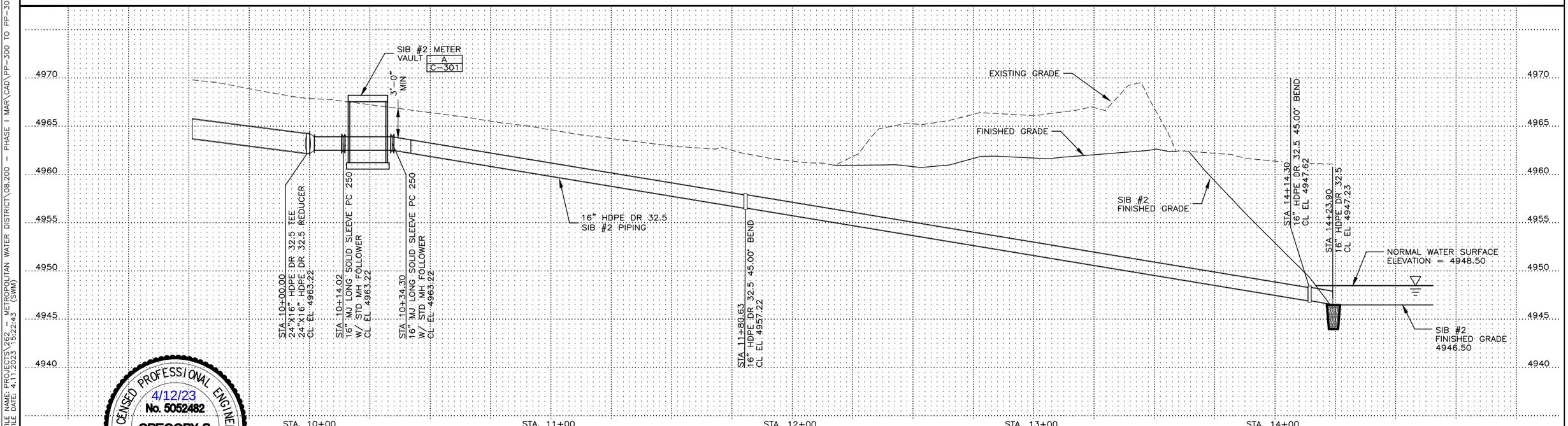
SHEET: PP–303
262.08.200

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\PP–300 TO PP–304.DWG
FILE DATE: 4.11.2023 15:22:43 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
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LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

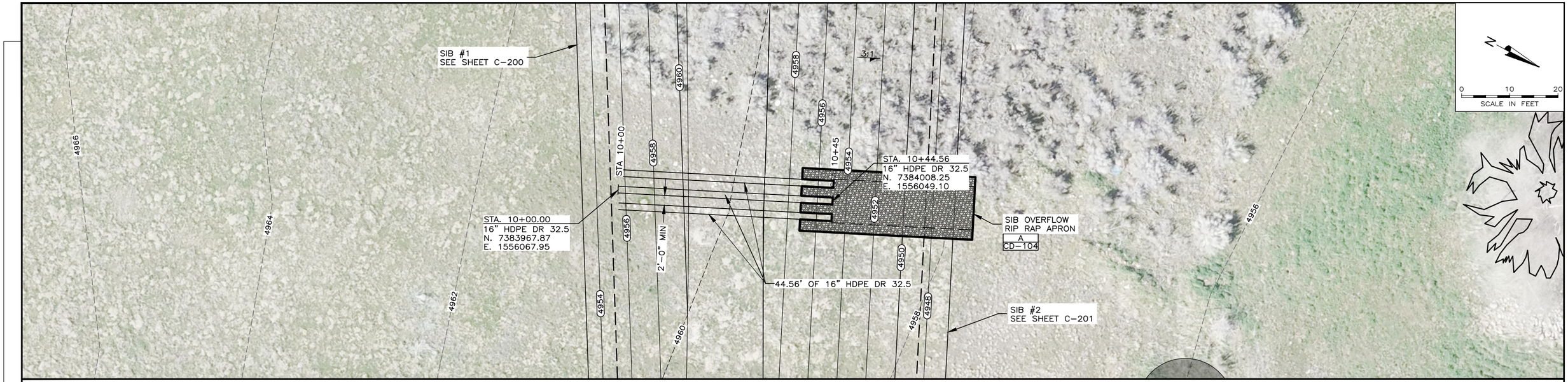
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB PIPING PLAN AND PROFILE
STA 10+00 TO STA 14+23.90

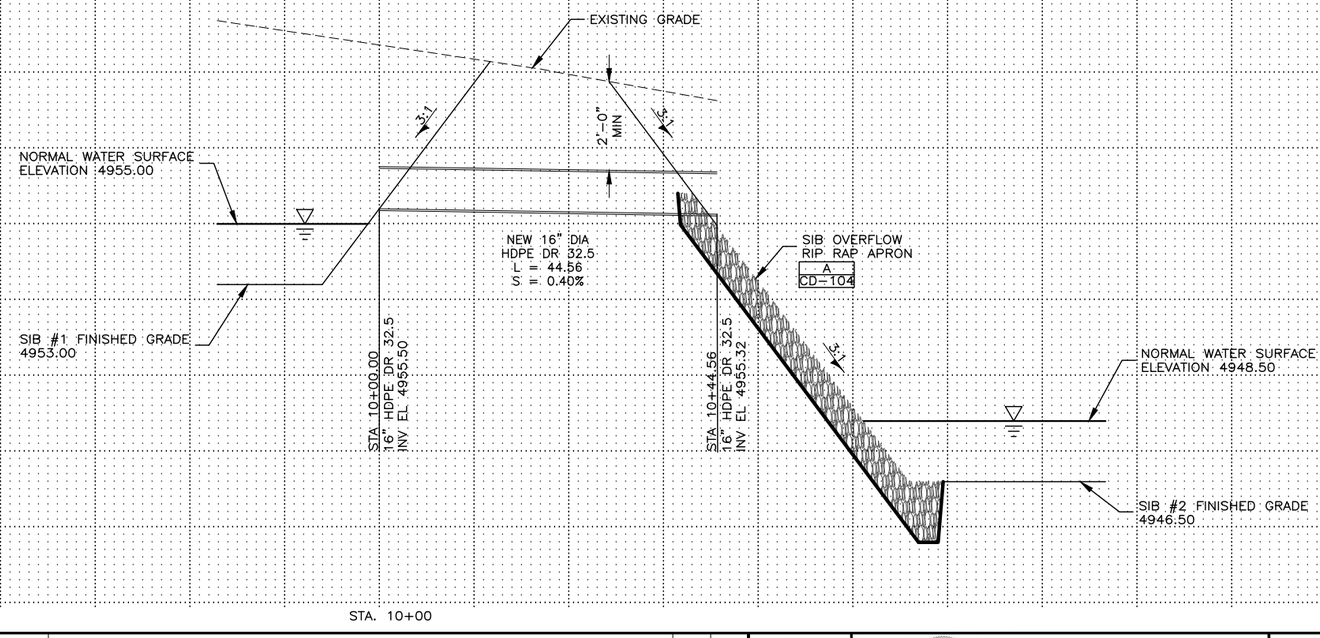
SHEET: PP-304
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-300 TO PP-304.DWG
FILE DATE: 4.11.2023 15:22:43 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. TRENCH SECTION PER DETAIL A ON SHEET CD-105.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3				
DRAFTED	SWM	2				
CHECKED	GST	1				
PROJECT ENGINEER	DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

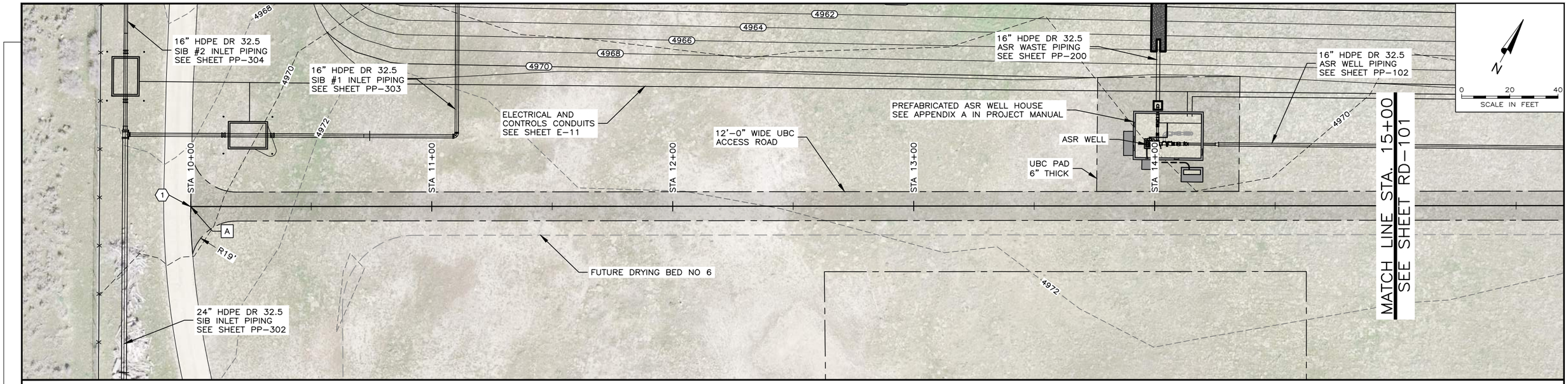
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
SIB OVERFLOW PLAN AND PROFILE
STA 10+00 TO STA 10+45.56

SHEET: PP-400
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\PP-400.DWG
FILE DATE: 4.12.2023 17:30:59 (SWM)



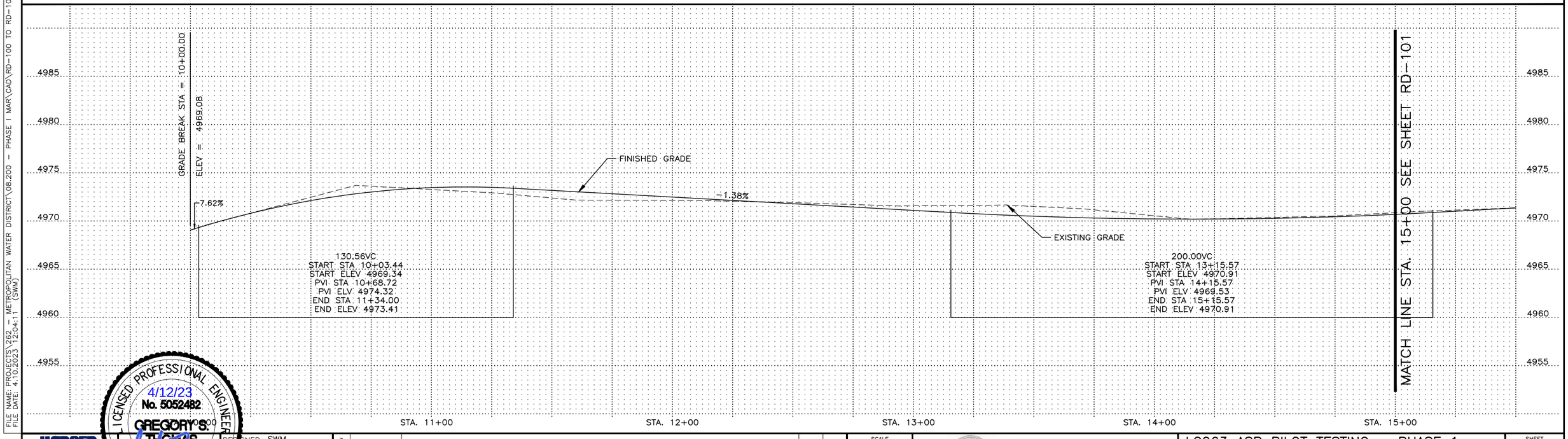
GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. ACCESS ROAD SHALL BE 8-INCHES UBC COMPACTED TO MINIMUM 96% OF MDD AS DETERMINED BY ASTM D-1557 PER DETAIL C ON SHEET CD-101.
3. CUT / FILL SIDE SLOPES SHALL SHALL BE 2:1 MAX.

ACCESS ROAD COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,383,515.51	1,555,857.00	4969.08	CL, BP

KEY NOTES:

(1) TIE TO EXISTING ACCESS ROAD.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

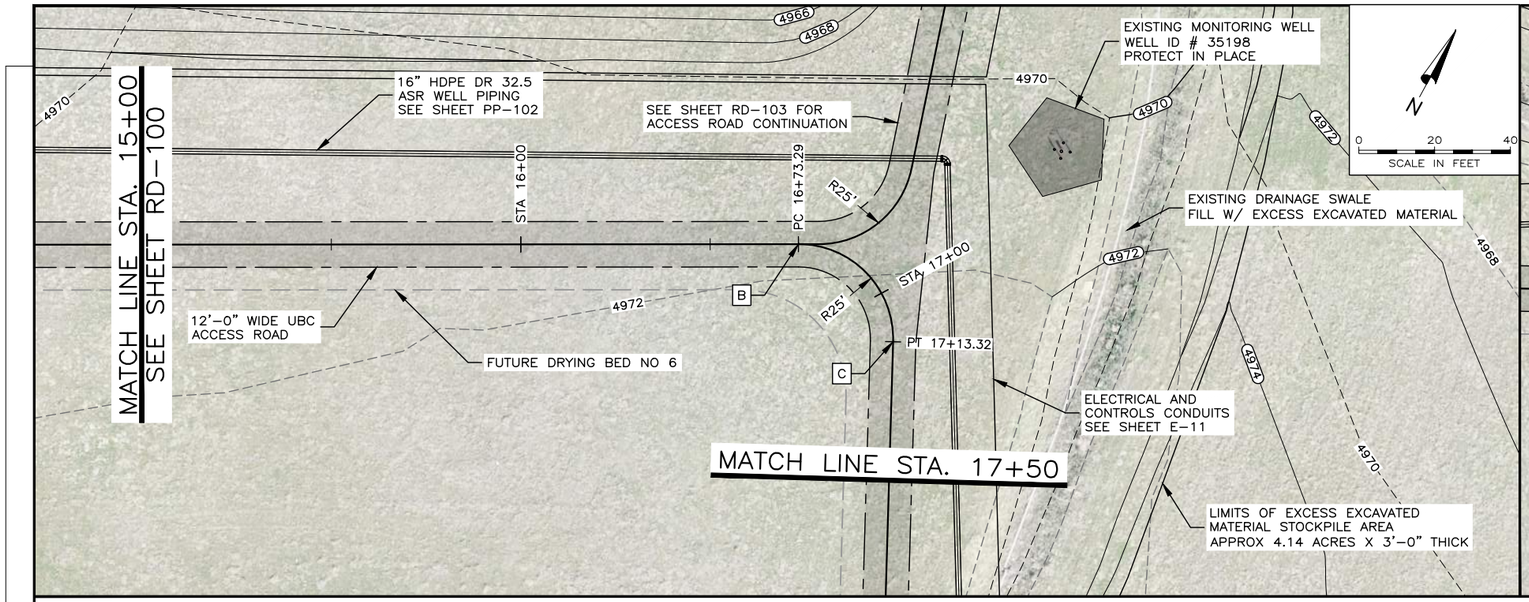
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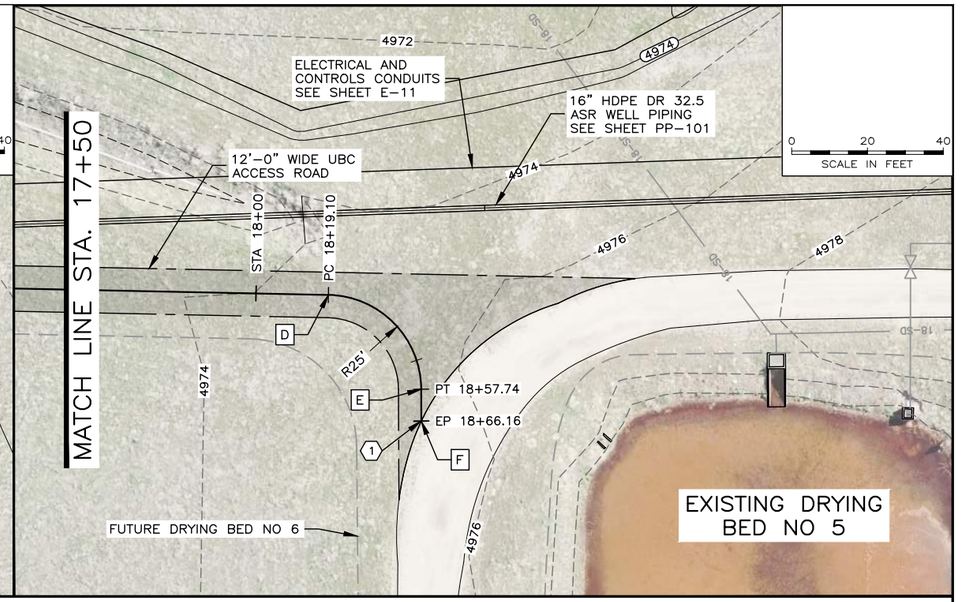
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ACCESS ROAD PLAN AND PROFILE
STA 10+00 TO STA 15+00

SHEET: RD-100
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\RD-100 TO RD-103.DWG
FILE DATE: 4.10.2023 12:04:11 (SWM)





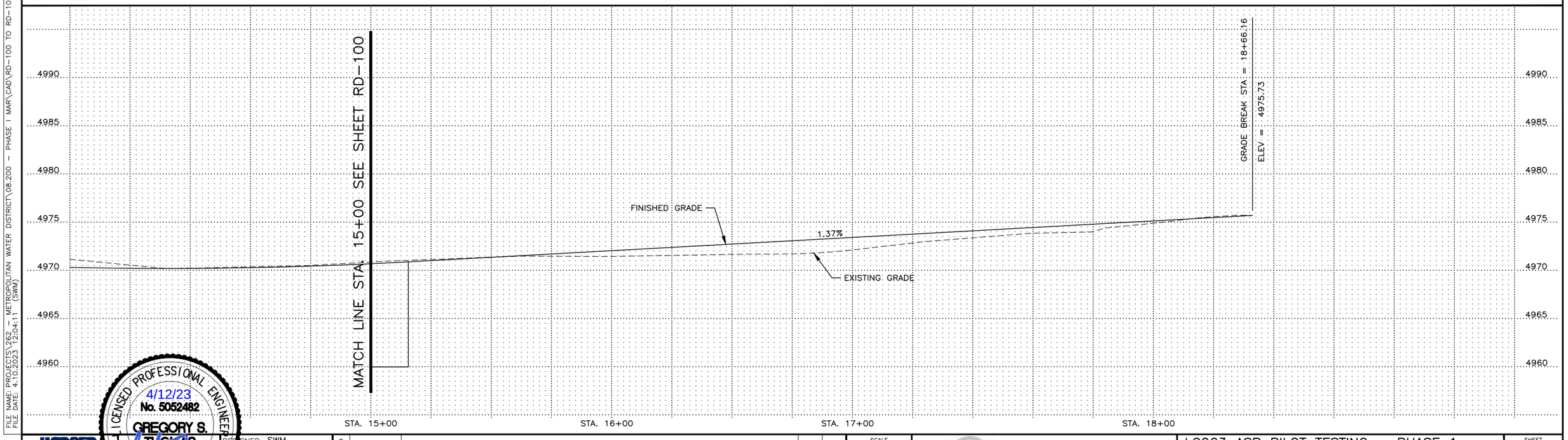
GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. ACCESS ROAD SHALL BE 8-INCHES UBC COMPACTED TO MINIMUM 96% OF MDD AS DETERMINED BY ASTM D-1557 PER DETAIL C ON SHEET CD-101.
3. CUT / FILL SIDE SLOPES SHALL SHALL BE 2:1 MAX.

ACCESS ROAD COORDINATE TABLE				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
B	7,383,837.18	1,556,448.48	4973.07	CL, PC, R=25'
C	7,383,826.49	1,556,482.74	4973.63	CL, PT
D	7,383,732.08	1,556,530.46	4975.08	CL, PC, R=25'
E	7,383,698.78	1,556,519.99	4975.61	CL, PT
F	7,383,694.80	1,556,512.57	4975.73	CL, EP

KEY NOTES:

(1) TIE TO EXISTING ACCESS ROAD.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

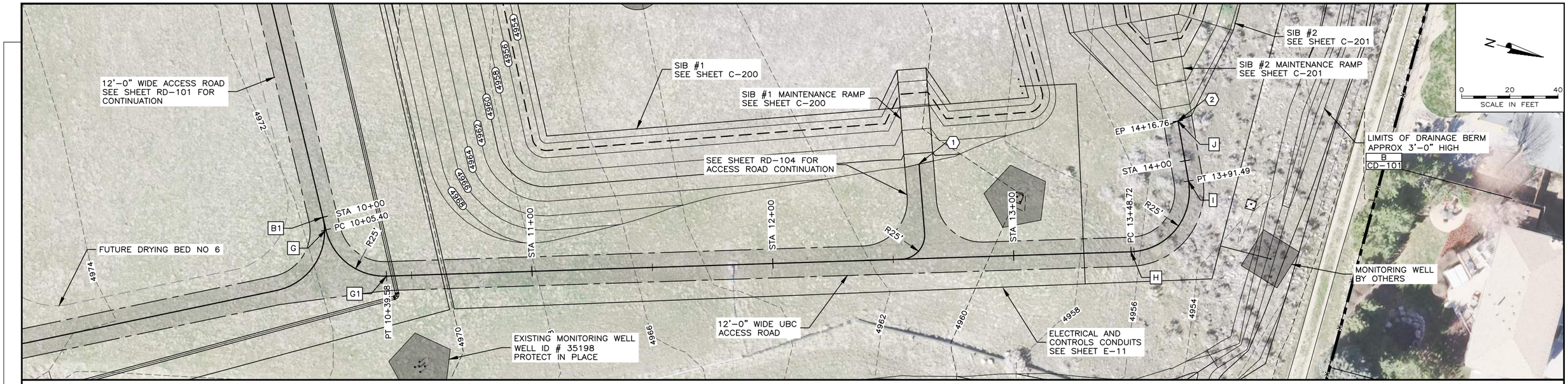
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ACCESS ROAD PLAN AND PROFILE
STA 15+00 TO STA 18+66.16

SHEET: RD-101
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\RD-100 TO RD-103.DWG
FILE DATE: 4.10.2023 12:04:11 (SWM)



GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. ACCESS ROAD SHALL BE 8-INCHES UBC COMPACTED TO MINIMUM 96% OF MDD AS DETERMINED BY ASTM D-1557 PER DETAIL C ON SHEET CD-101.
3. CUT / FILL SIDE SLOPES SHALL SHALL BE 2:1 MAX.

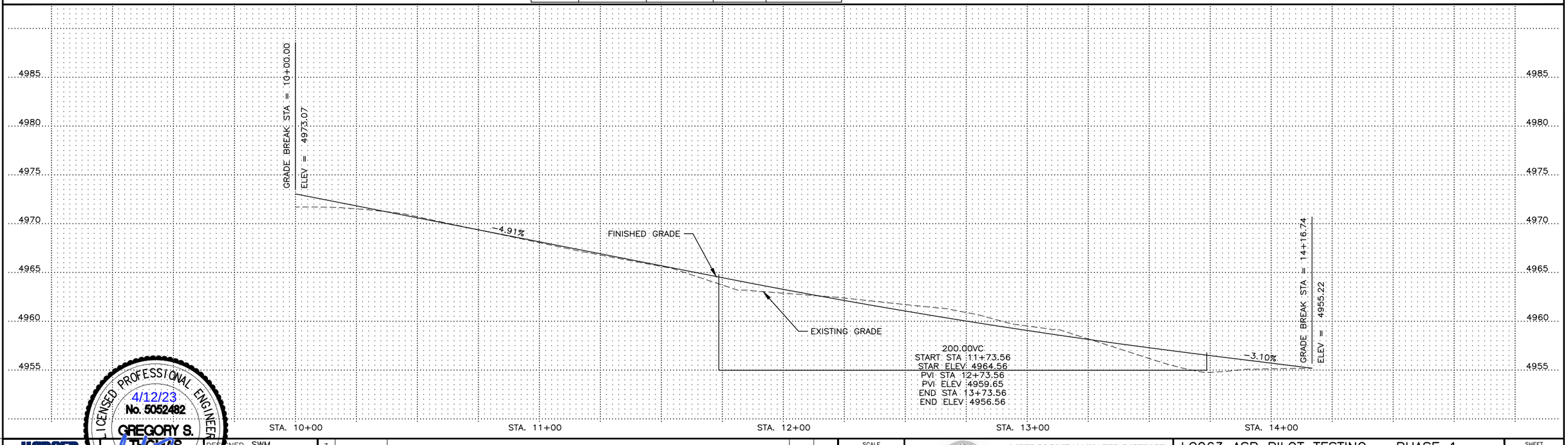
ACCESS ROAD COORDINATE TABLE

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
B1	7,383,837.18	1,556,448.48	4973.07	CL, BP
G	7,383,839.76	1,556,453.22	4972.80	CL, PC, R=25'
G1	7,383,868.97	1,556,465.20	4971.13	CL, PT
H	7,384,164.81	1,556,375.48	4960.93	CL, PC, R=25'
I	7,384,180.23	1,556,341.03	4957.35	CL, PT
J	7,384,169.59	1,556,318.12	4956.00	CL, EP

KEY NOTES:

(1) TIE TO SIB #1 ACCESS RAMP. SEE SHEET C-200 FOR COORDINATE POINTS.

(2) TIE TO SIB #2 ACCESS RAMP. SEE SHEET C-201 FOR COORDINATE POINTS.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY APVD.

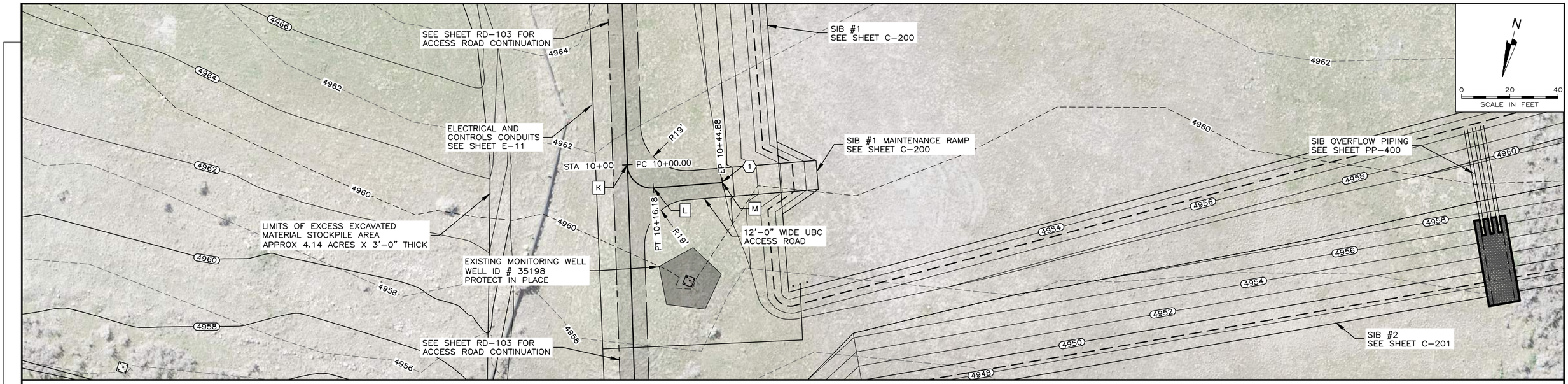
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ACCESS ROAD PLAN AND PROFILE
STA 10+00 TO STA 14+16.74

SHEET RD-102
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\RD-100 TO RD-103.DWG
FILE DATE: 4.10.2023 12:04:11 (SWM)



GENERAL NOTES:

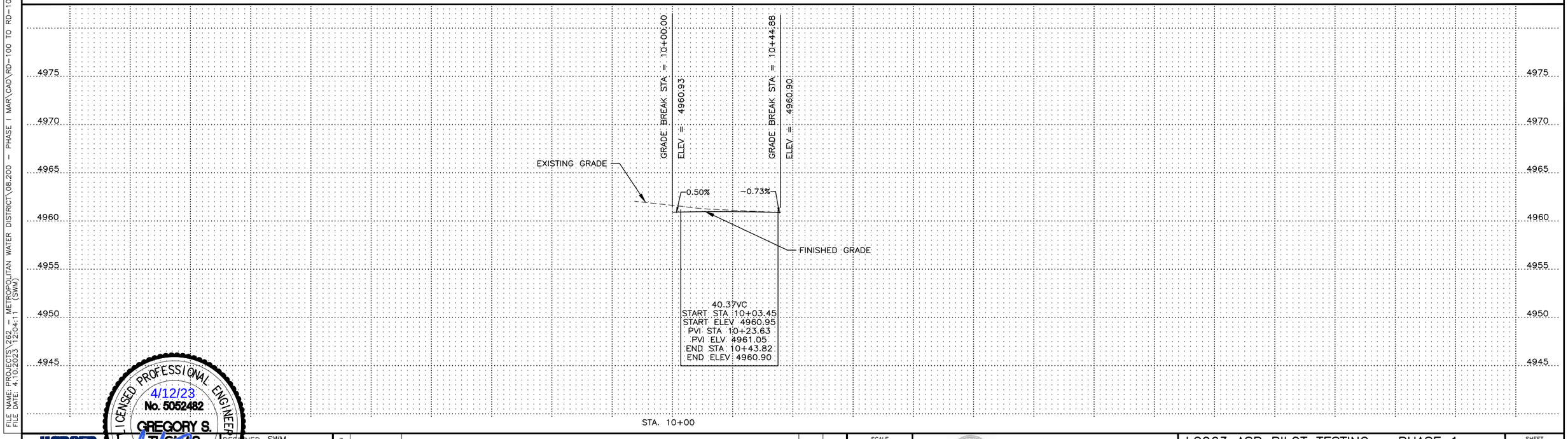
1. CONTRACTOR SHALL PROTECT IN PLACE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES. REFER TO GENERAL NOTE 4 ON SHEET G-005.
2. ACCESS ROAD SHALL BE 8-INCHES UBC COMPACTED TO MINIMUM 96% OF MDD AS DETERMINED BY ASTM D-1557 PER DETAIL C ON SHEET CD-101.
3. CUT / FILL SIDE SLOPES SHALL SHALL BE 2:1 MAX.

ACCESS ROAD COORDINATE TABLE

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
K	7,384,073.54	1,556,403.16	4960.93	CL, BP, PC, R=25'
L	7,384,080.06	1,556,390.25	4961.00	CL, PT
M	7,384,070.45	1,556,363.19	4960.90	CL, EP

KEY NOTES:

(1) TIE TO SIB #1 ACCESS RAMP. SEE SHEET C-200 FOR COORDINATE POINTS.



LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM
DRAWN	SWM
CHECKED	GST
DATE	APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

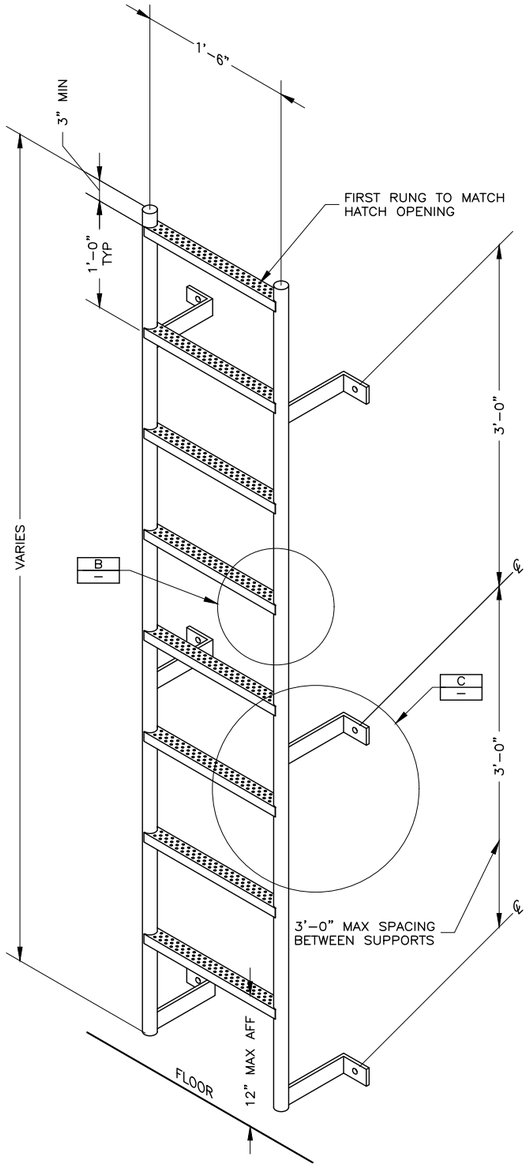
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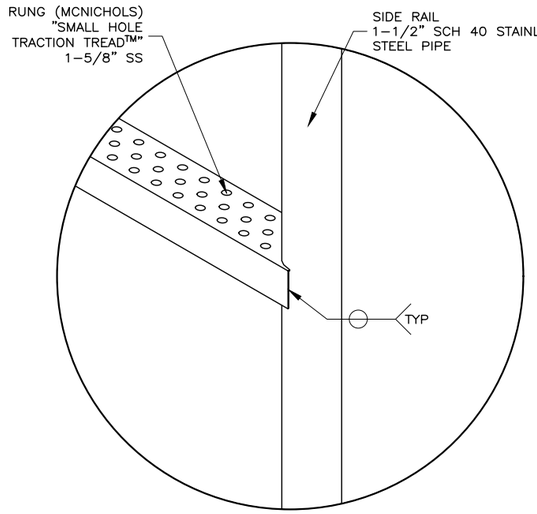
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ACCESS ROAD PLAN AND PROFILE STA 10+00 TO STA 10+44.88

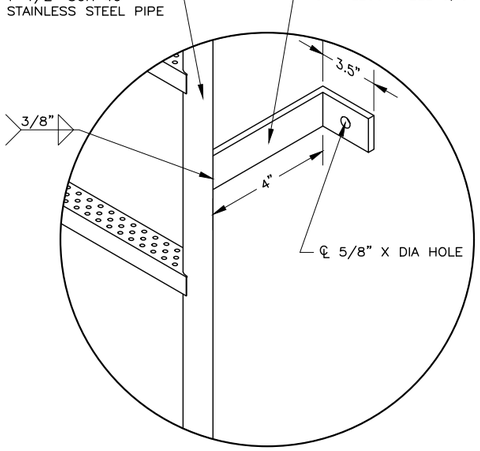
SHEET: RD-103
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\RD-100 TO RD-103.DWG
FILE DATE: 4.10.2023 12:04:11 (SWM)





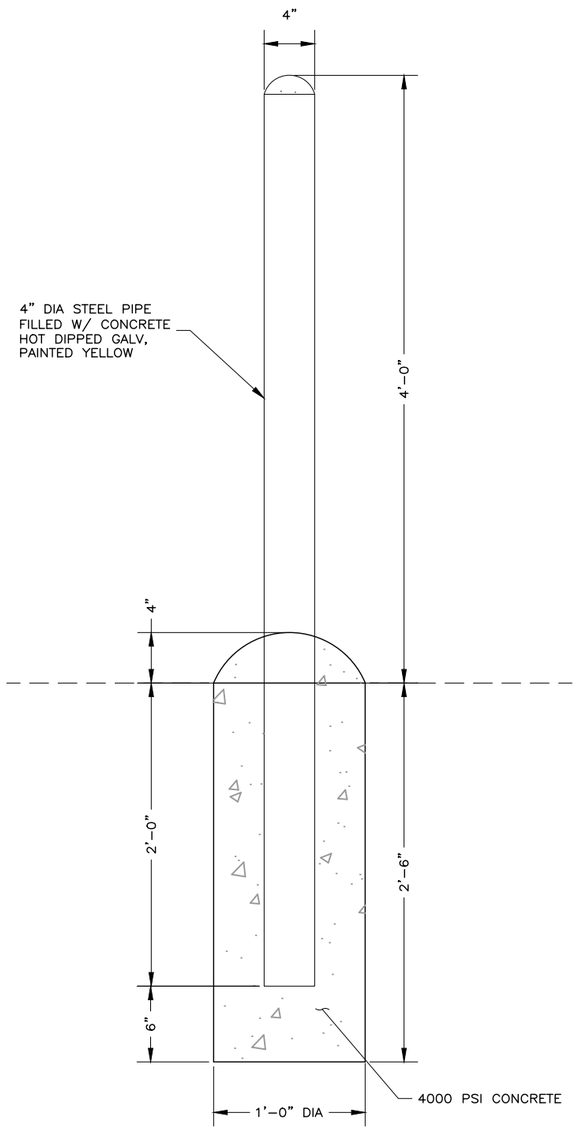
DETAIL B
NTS



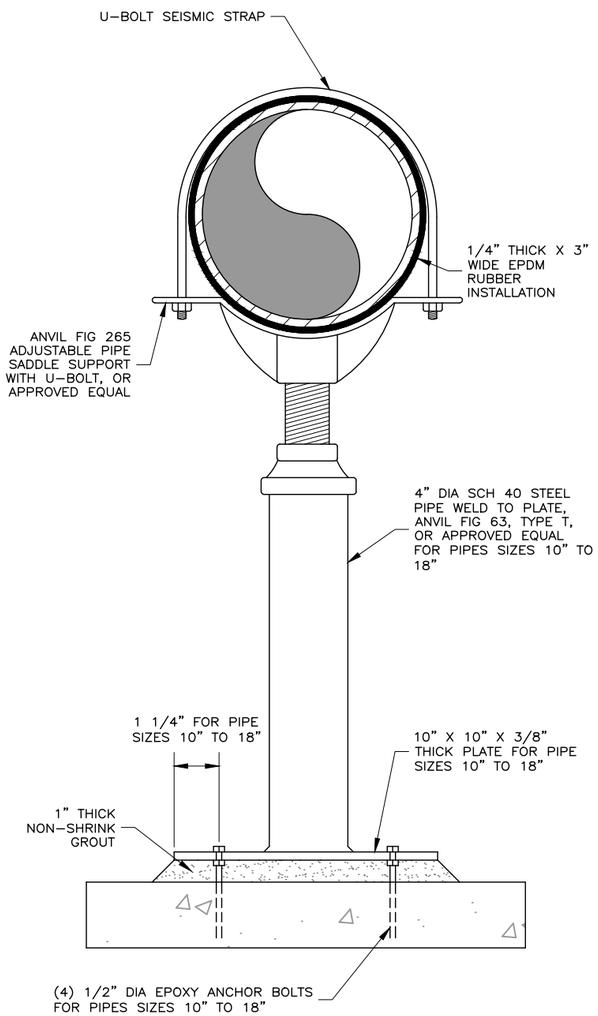
DETAIL C
NTS

ACCESS LADDER	A	A	A
	C-300	C-300A	C-301

DETAIL NOTES:
1. LADDER, ANCHORS, AND BOLTS TO BE 304 STAINLESS STEEL.



BOLLARD	D	D
NTS	C-301	CD-102



DETAIL NOTES:
1. GALVANIZE ALL PARTS AFTER FABRICATION.
2. USE GALVANIZED ANCHOR BOLTS.

ADJUSTABLE PIPE SUPPORT WITH U-BOLT	E	E	E
NTS	C-300	C-301	C-302

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY APVD.

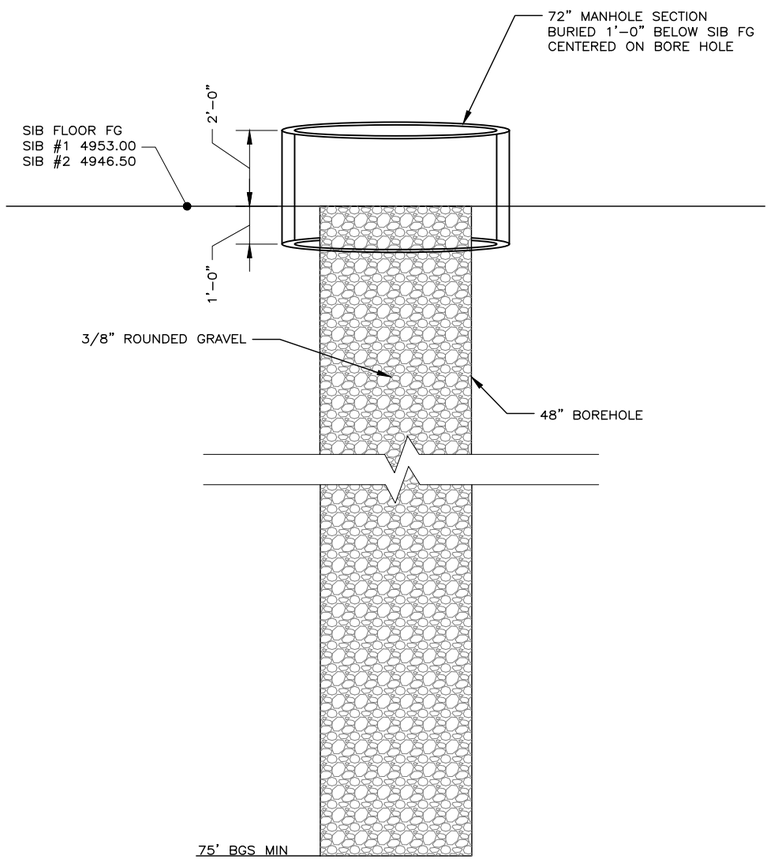
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET I

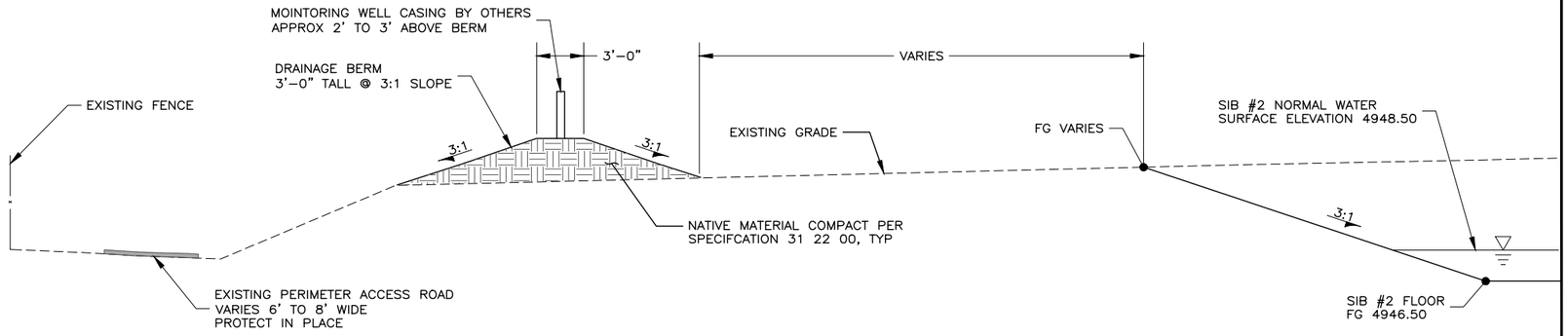
SHEET CD-100
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\CD-100 DETAIL SHEET I.DWG
FILE DATE: 4.10.2023 12:09:32 (SWM)



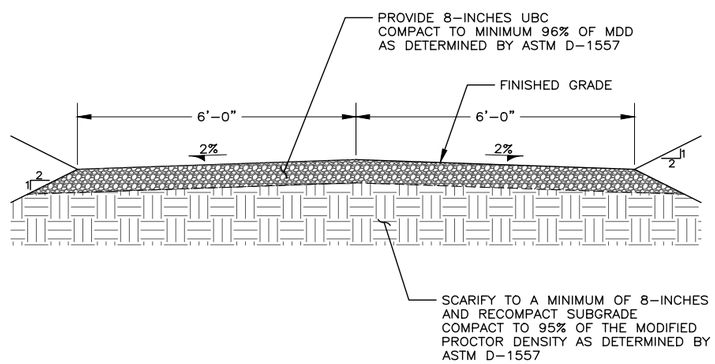
DRAIN HOLE SECTION
NTS

A	A
C–200	C–201



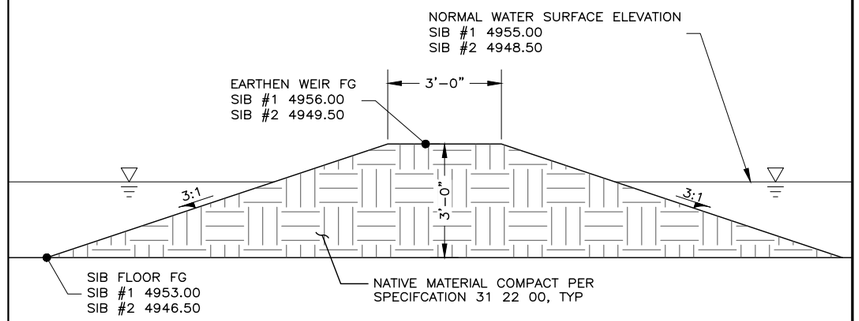
DRAINAGE BERM TYPICAL CROSS SECTION
NTS

B	B	B
C–103	C–201	RD–103



UBC ACCESS ROAD
NTS

C	C	C
RD–100	RD–101	RD–102
C	C	
RD–103	RD–104	



SIB EARTHEN WEIR
NTS

D	D	D	D
C–200	C–201	C–202	C–203

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	BDM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

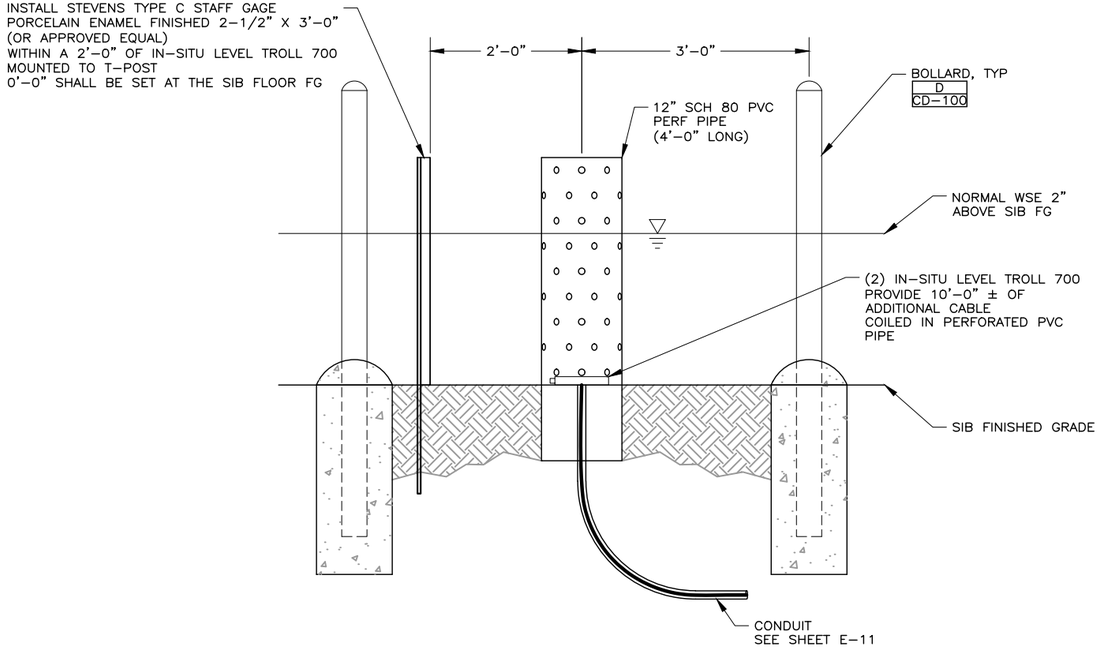
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET II

SHEET: CD–101
262.08.200

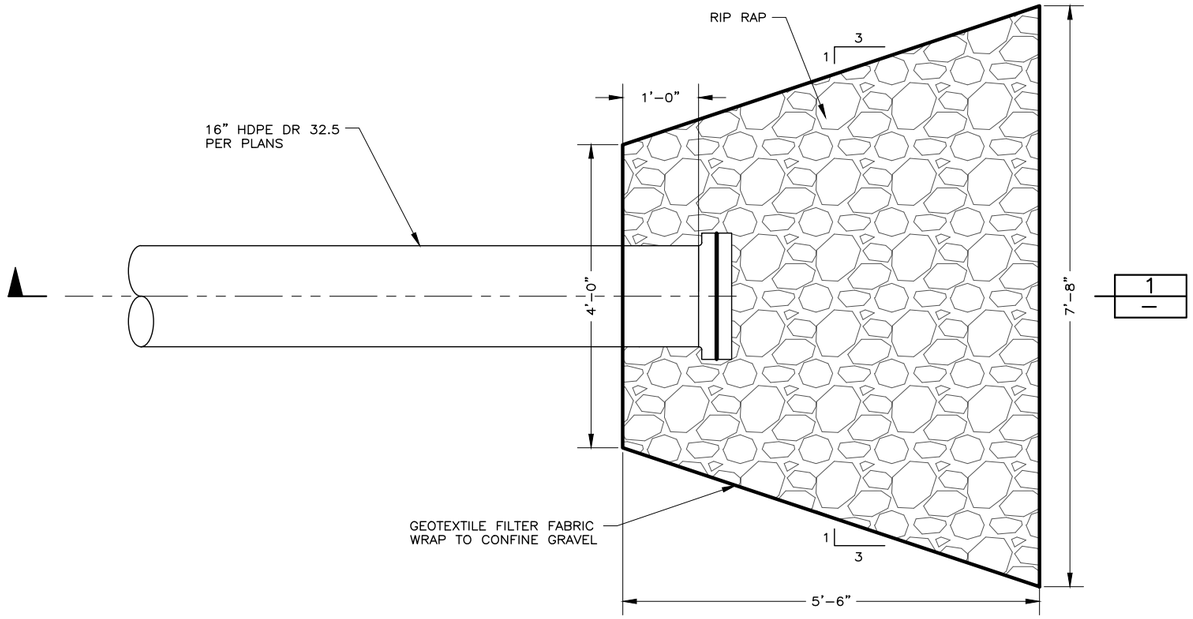
FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\CD–101 DETAIL SHEET II.DWG
FILE DATE: 4.3.2023 15:37:32 (SWM)



SIB LEVEL SENSOR

A	A
C-200	C-201

SCALE IN FEET

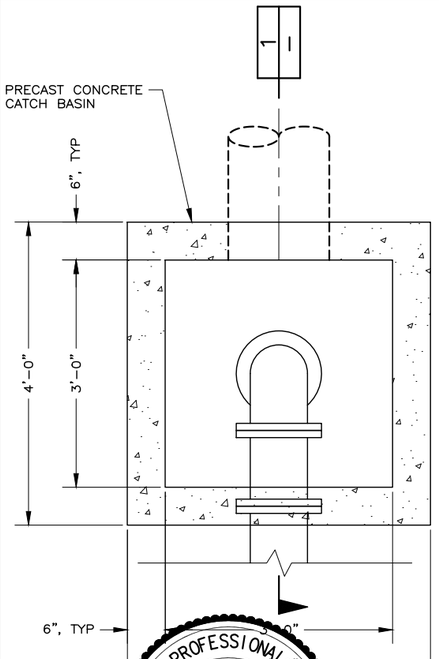


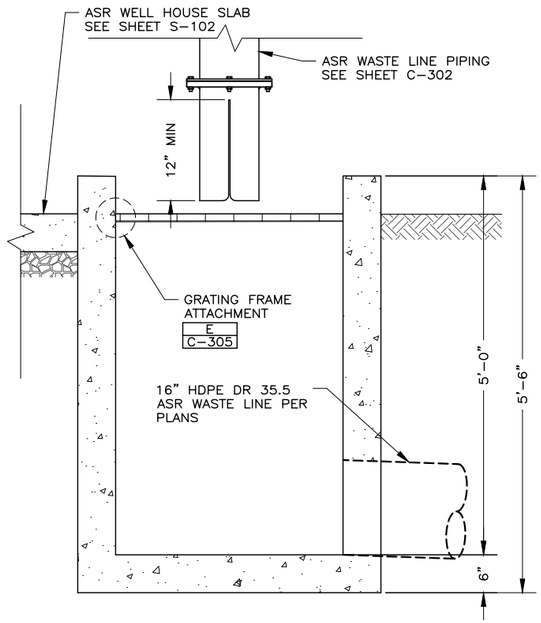
SIB RIPRAP APRON

B	B	B	B
C-200	C-201	PP-303	PP-304

SCALE IN FEET

DETAIL NOTES:
1. RIPRAP D_{50} = 12 INCHES





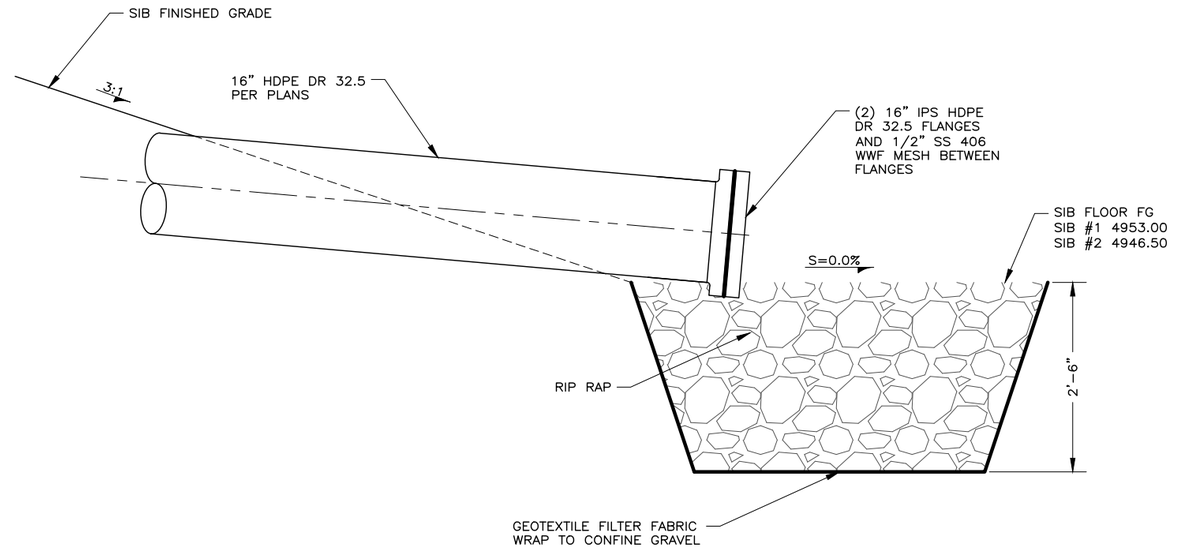
ASR WASTE CATCH BASIN

C	C	C
C-302	PP-200	S-102

SCALE IN FEET

SECTION 2 —

SCALE IN FEET



SECTION 1 —

SCALE IN FEET

DETAIL NOTES:
1. RIPRAP D_{50} = 12 INCHES

I CERTIFY THAT I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF UTAH
4/12/23
No. 5552482
GREGORY S. THOMAS

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	BJM, SWM	3					
DRAFTED	MAJ, DRW	2					
CHECKED	GST	1					
DATE	APRIL 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

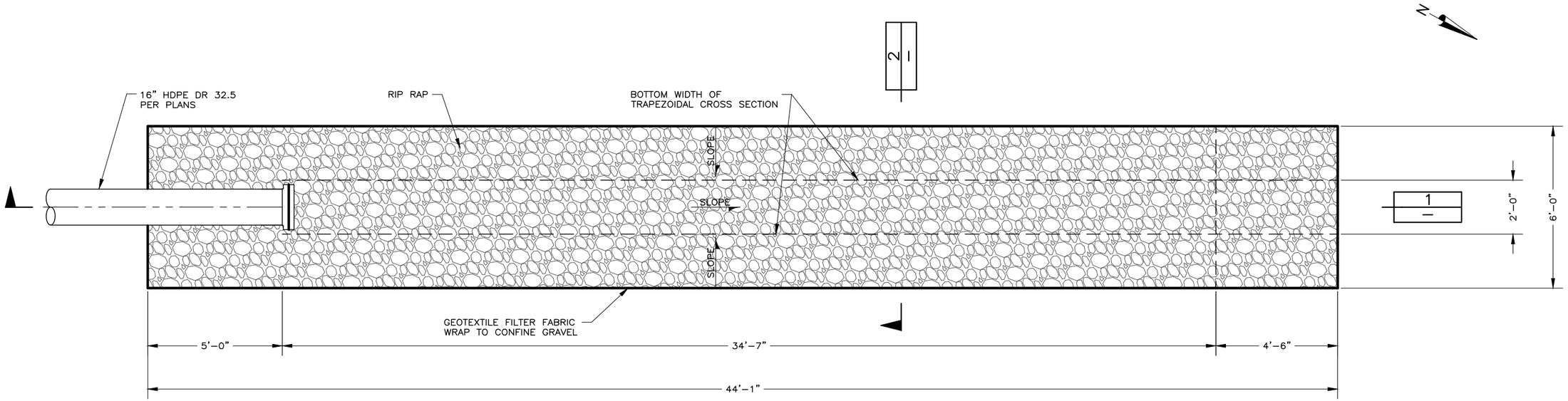
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET III

SHEET CD-102

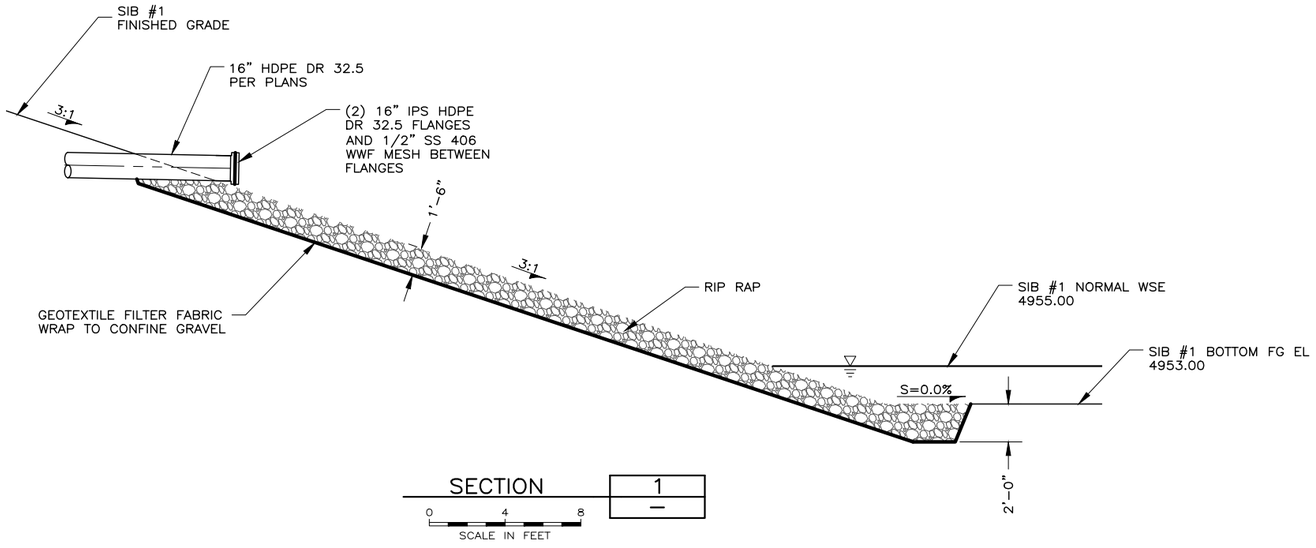
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\CD-102 DETAIL SHEET III.DWG
FILE DATE: 4.10.2023 12:11:32 (SWM)



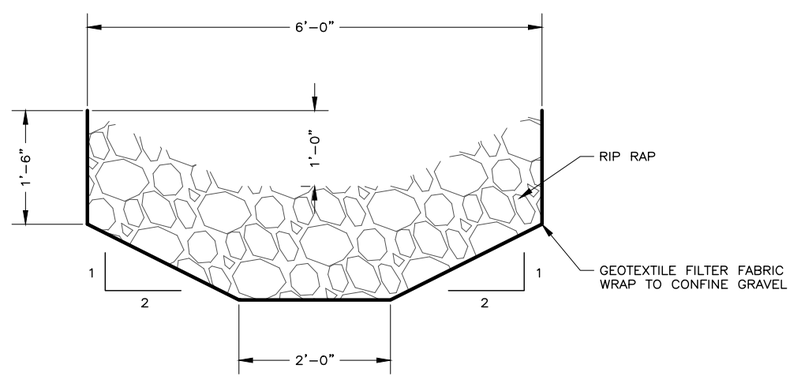
ASR WASTE RIP RAP APRON PLAN | A | PP-200

0 2 4
SCALE IN FEET



SECTION | 1 | —

0 4 8
SCALE IN FEET



SECTION | 2 | —

0 2 4
SCALE IN FEET

DETAIL NOTES:
1. RIPRAP D_{50} = 12 INCHES

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM
DRAWN	SWM
CHECKED	GST
PROJECT ENGINEER	
DATE	APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

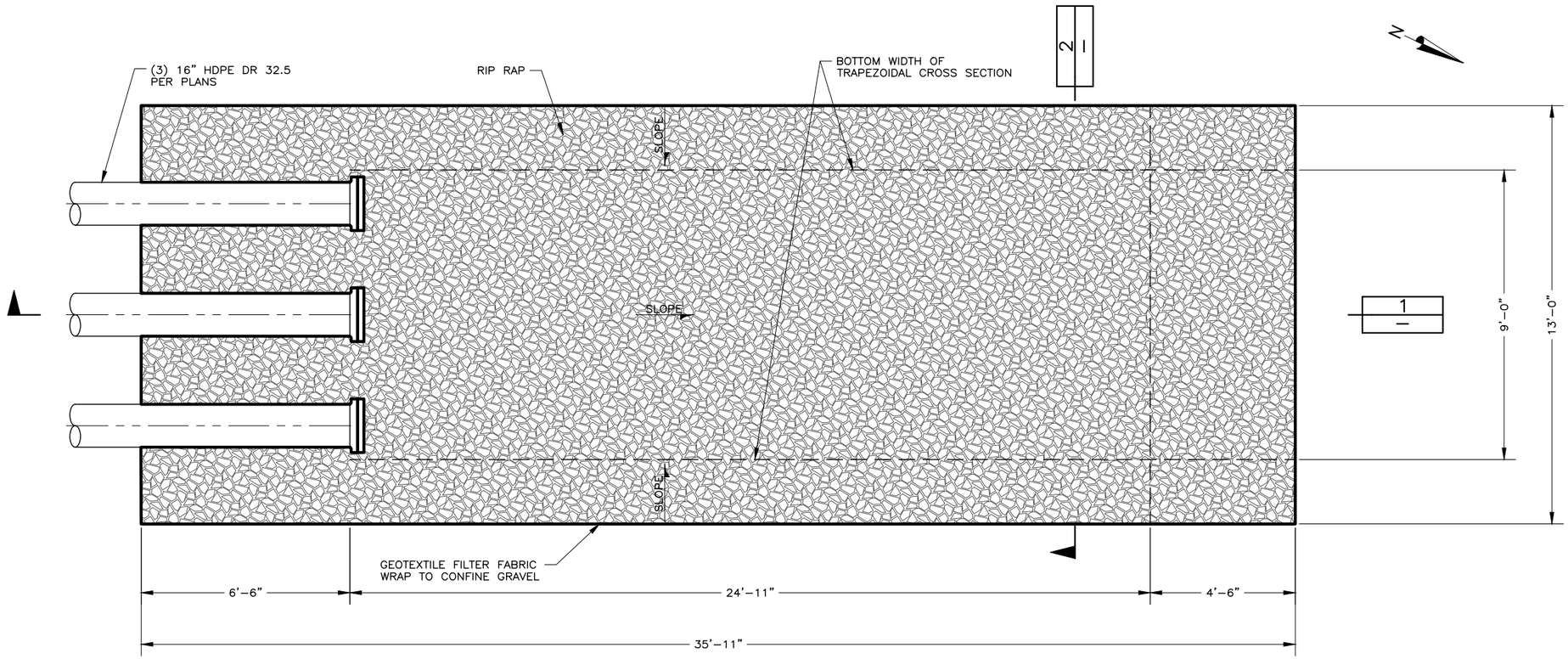
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET IV

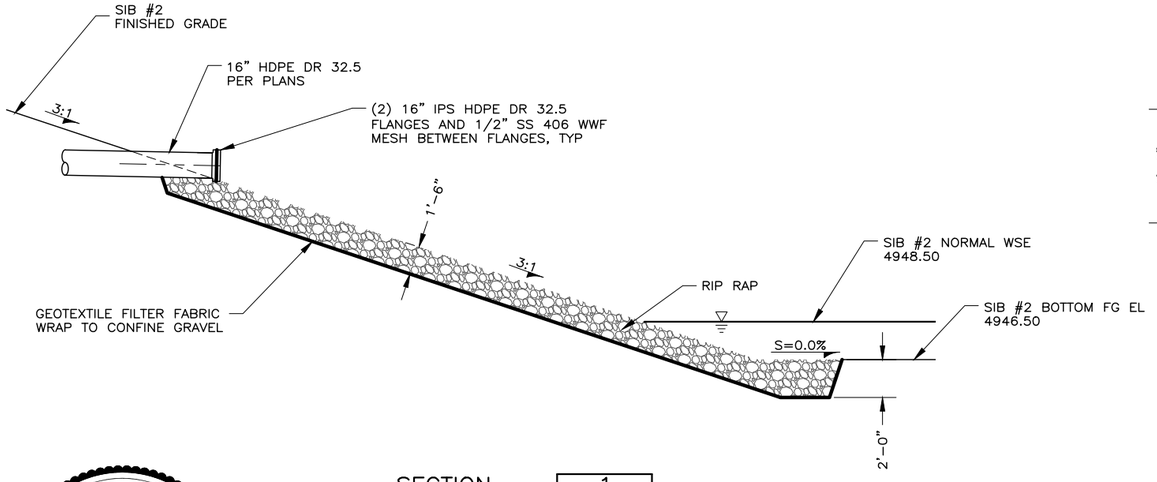
SHEET CD-103
262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\CD-103 DETAIL SHEET IV.DWG
FILE DATE: 4.10.2023 12:12:52 (SWM)

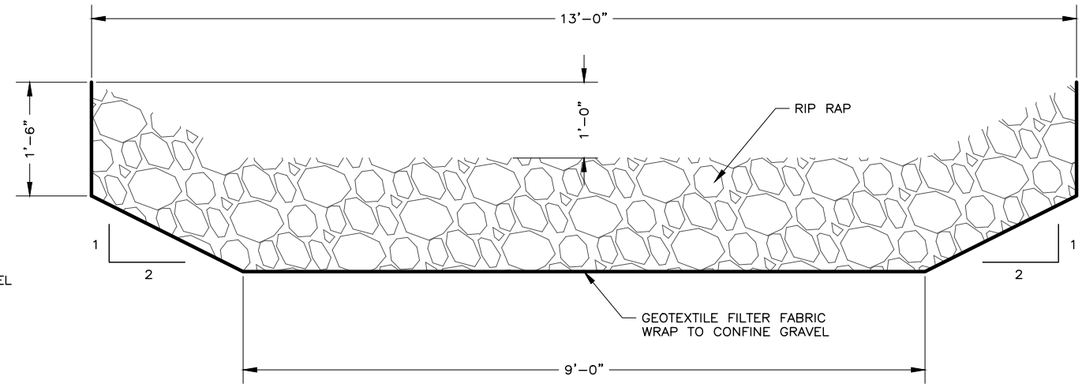


SIB OVERFLOW RIP RAP APRON PLAN — A — PP–400

SCALE IN FEET (0, 2, 4)



SECTION 1 — SCALE IN FEET (0, 4, 8)



SECTION 2 — SCALE IN FEET (0, 2, 4)

DETAIL NOTES:
1. RIPRAP D_{50} = 12 INCHES

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM
DRAFTED	SWM
CHECKED	GST
DATE	APRIL 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

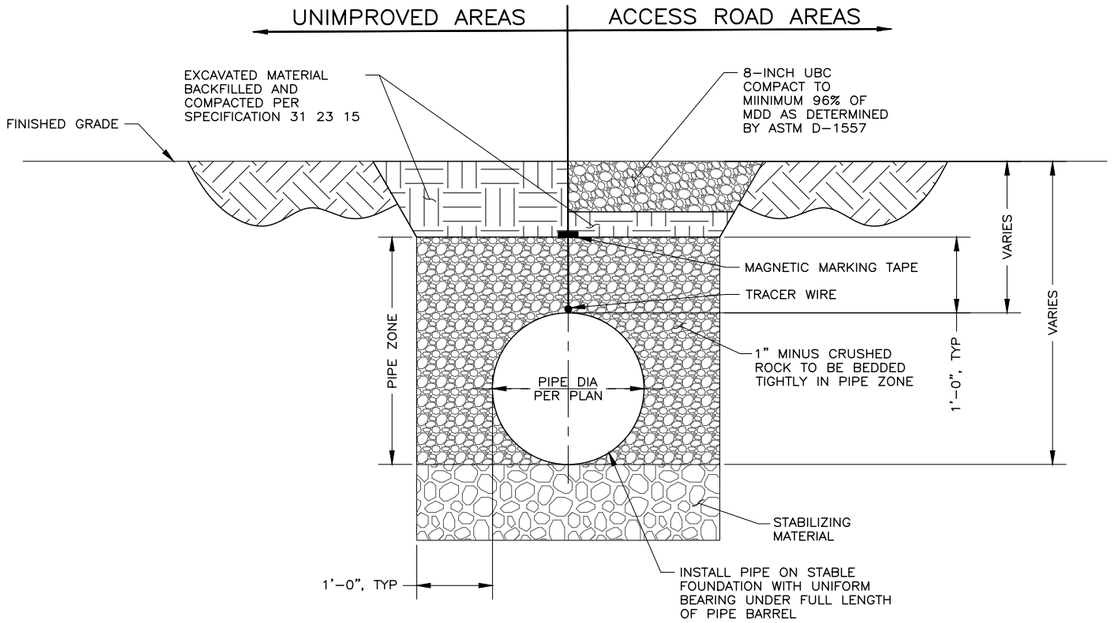
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METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

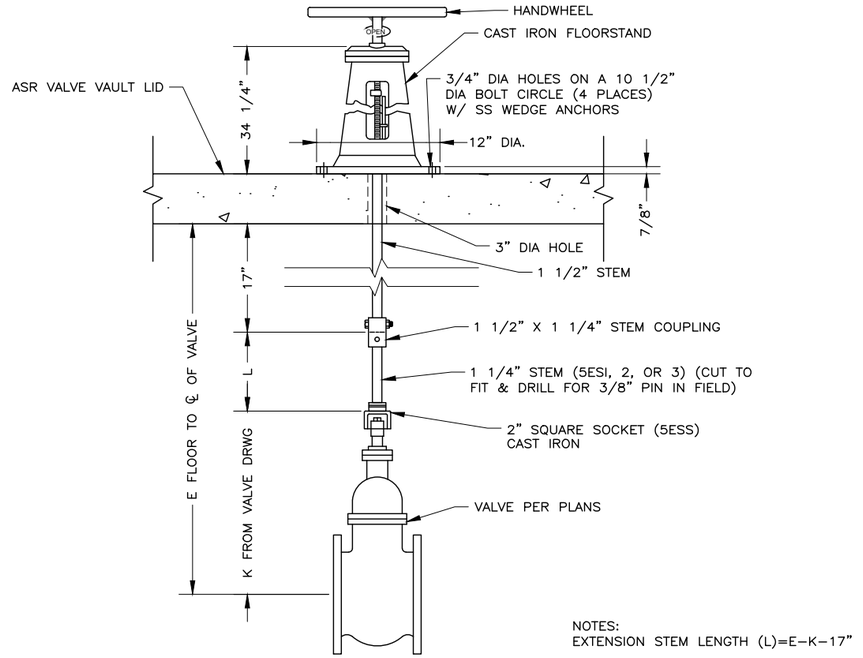
LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET V

SHEET CD–104
262.08.200

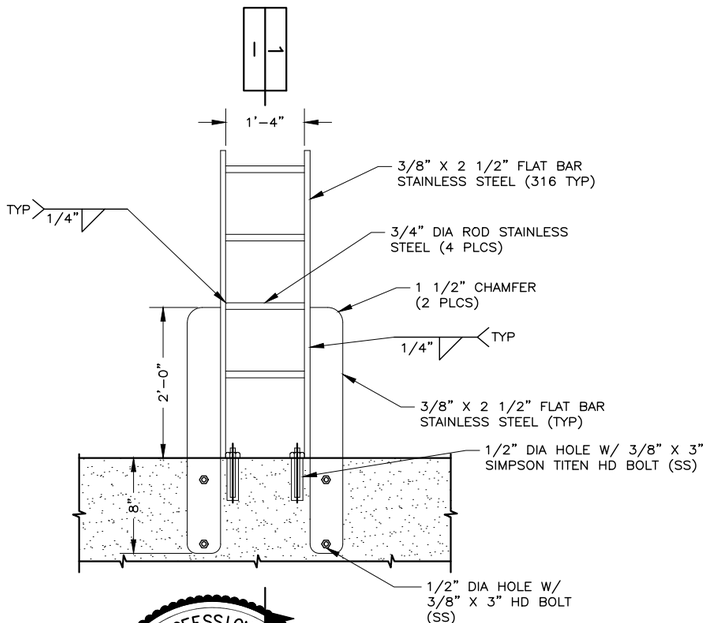
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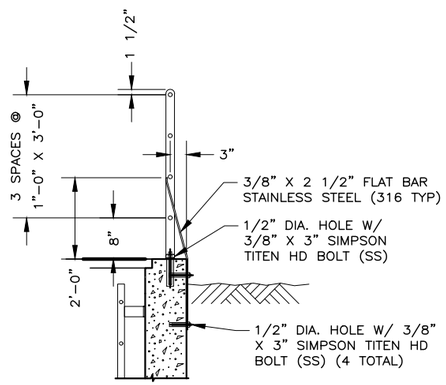


TYPICAL TRENCH DETAIL — NTS — A / —

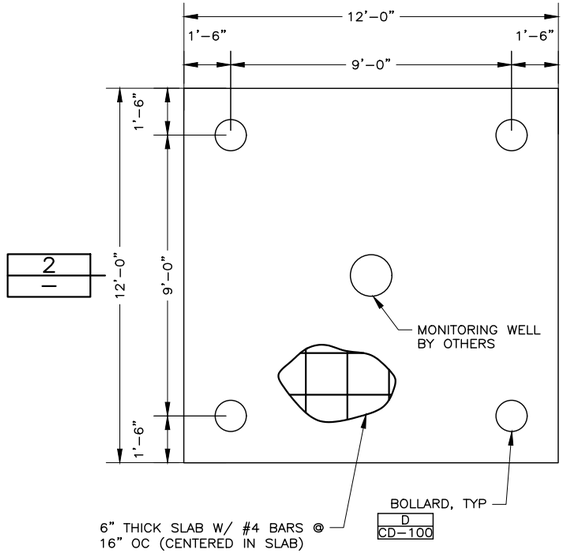


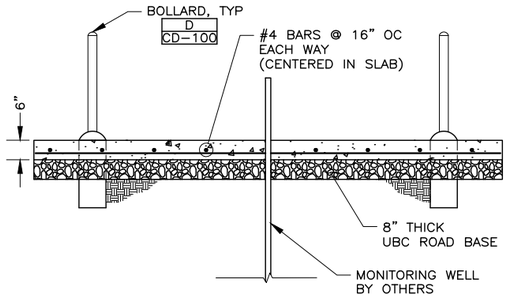
HANDWHEEL FLOORSTAND — NTS — B / C-300A





SECTION — NTS — 1 / —





SECTION — NTS — 2 / —

LADDER EXTENSION DETAIL — NTS — C / C-300 | C / C-300A | C / C-301

MONITORING WELL PLAN VIEW — NTS — D / C-102 | D / C-103 | D / PP-302 | D / PP-304

LICENSED PROFESSIONAL ENGINEER — No. 5052482 — GREGORY S. THOMAS — 4/14/23 — STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM	3					
DRAFTED	SWM	2					
CHECKED	GST	1					
PROJECT ENGINEER		NO.	DATE	REVISIONS		BY	APVD.
DATE	APRIL 2023						

SCALE: AS SHOWN

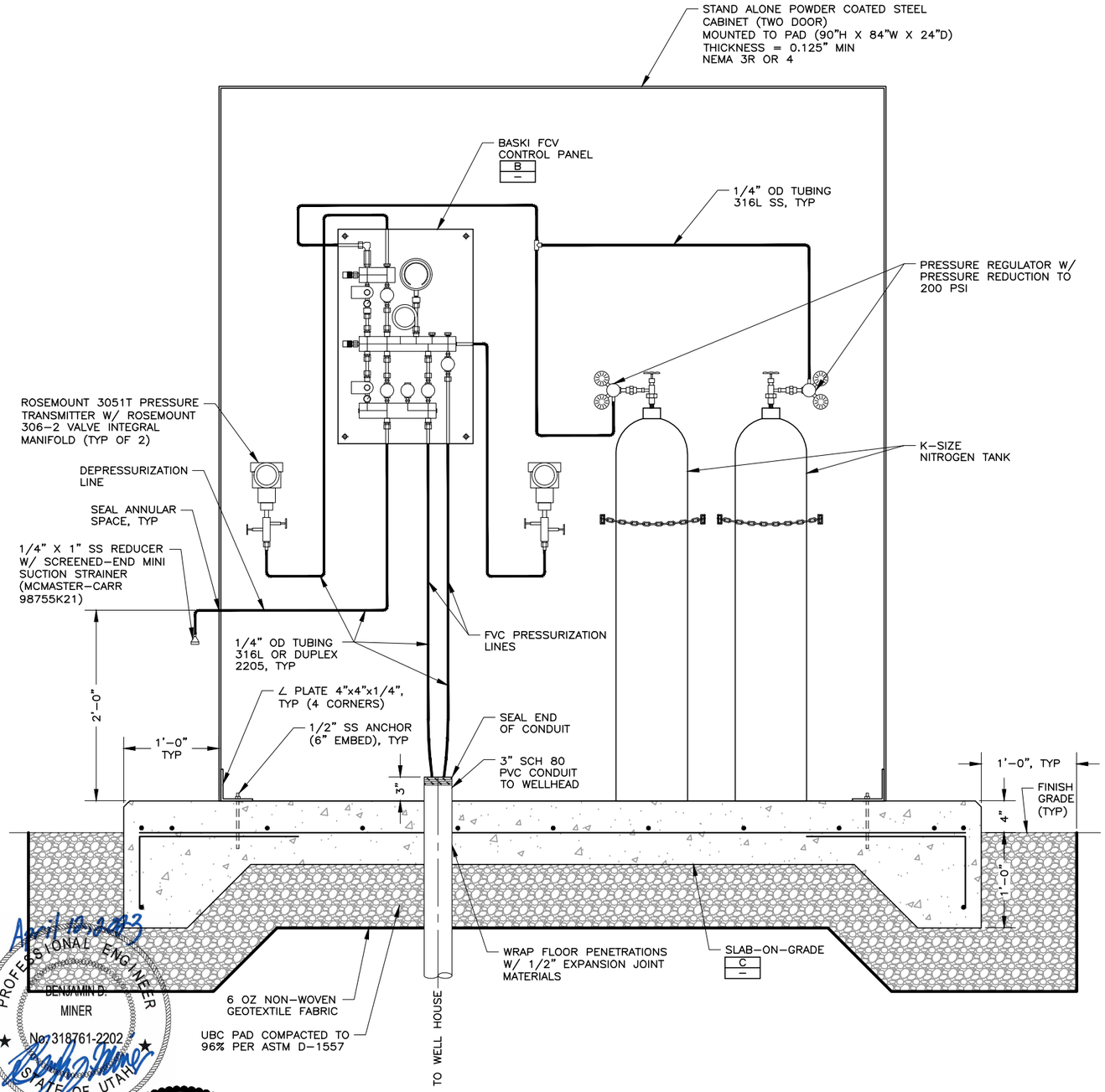
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
DETAIL SHEET VI

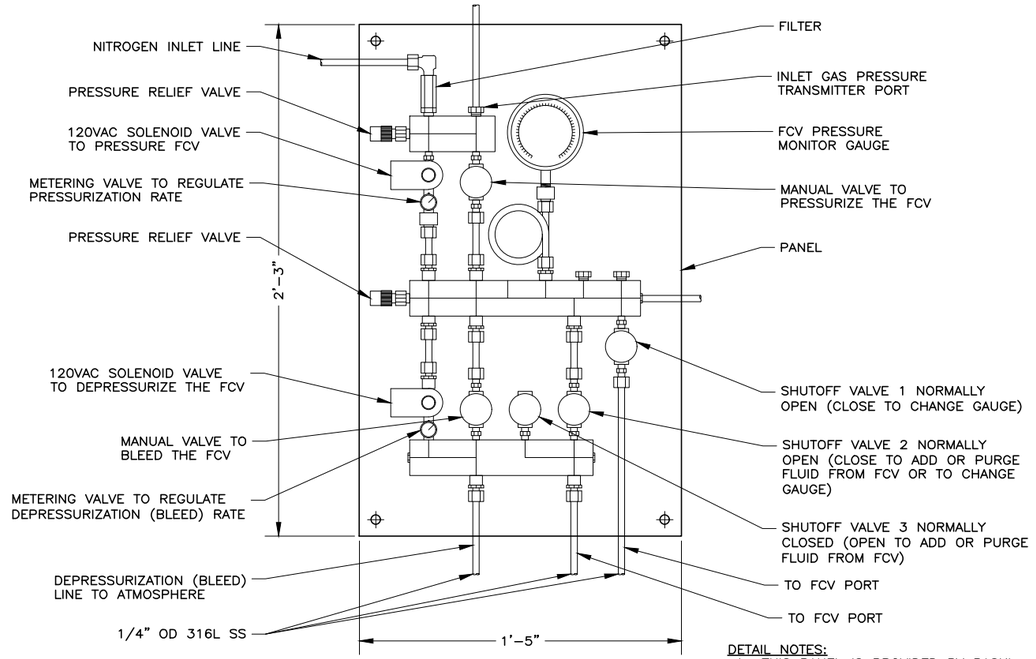
SHEET CD-105

262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\CD-105 DETAIL SHEET VI.DWG
FILE DATE: 4.10.2023 12:22:25 (SWM)

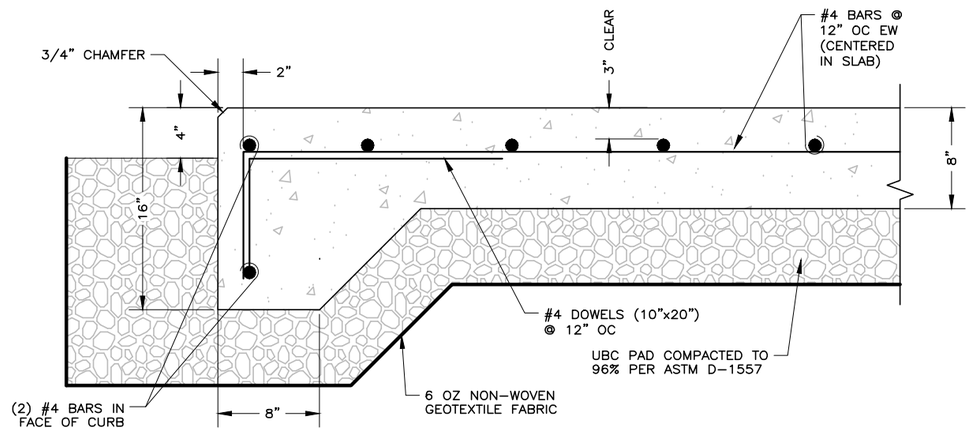


BASKI FLOW CONTROL VALVE CABINET | A | C-302
NTS



DETAIL NOTES:
1. THIS PANEL IS PROVIDED BY BASKI.

BASKI FCV CONTROL PANEL | B | —
NTS



SLAB ON GRADE DETAIL | C | —
NTS

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\CD-106 BASKI FLOW CONTROL VALVE DETAILS.DWG
FILE DATE: 4.5.2023 11:56:00 (MAJ)

April 10, 2023
PROFESSIONAL ENGINEER
BENJAMIN D. MINER
No. 318761-2202
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
4/12/23
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE ENGINEERS

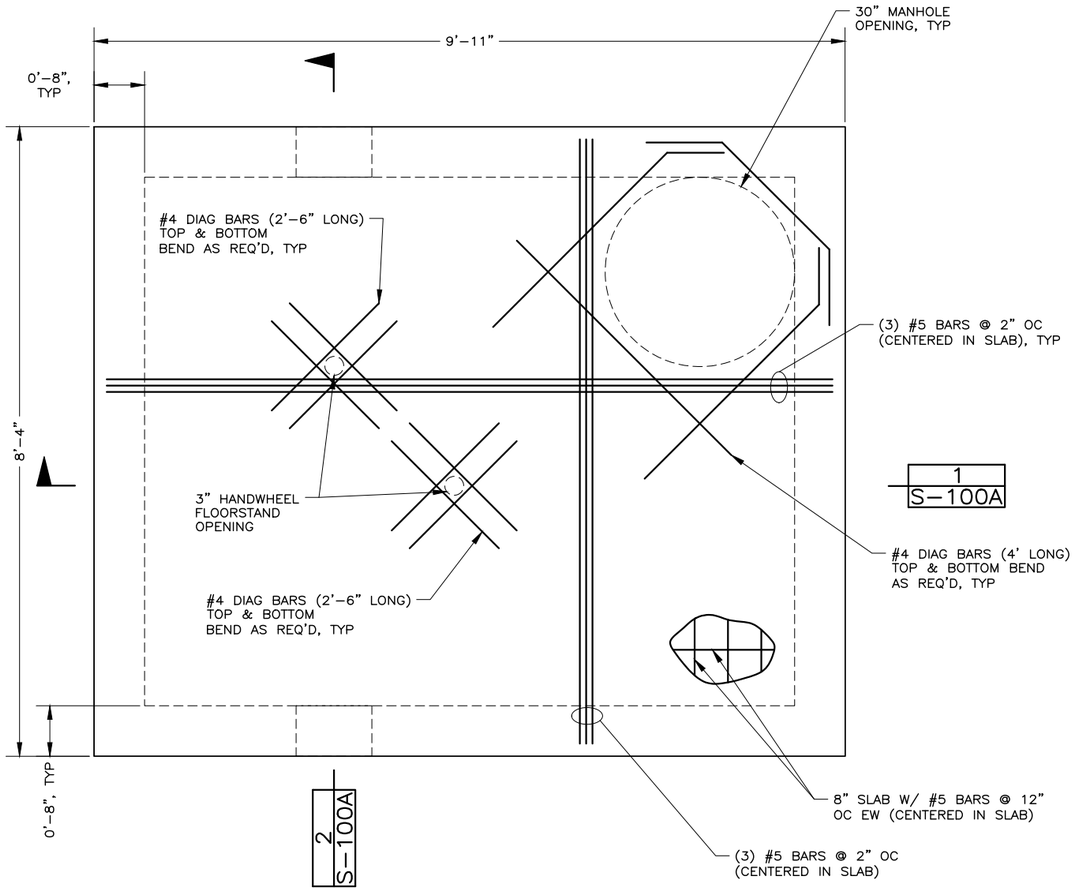
DESIGNED	JCB, BDM	3			
DRAFTED	MAJ, DRW	2			
CHECKED	BDM	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

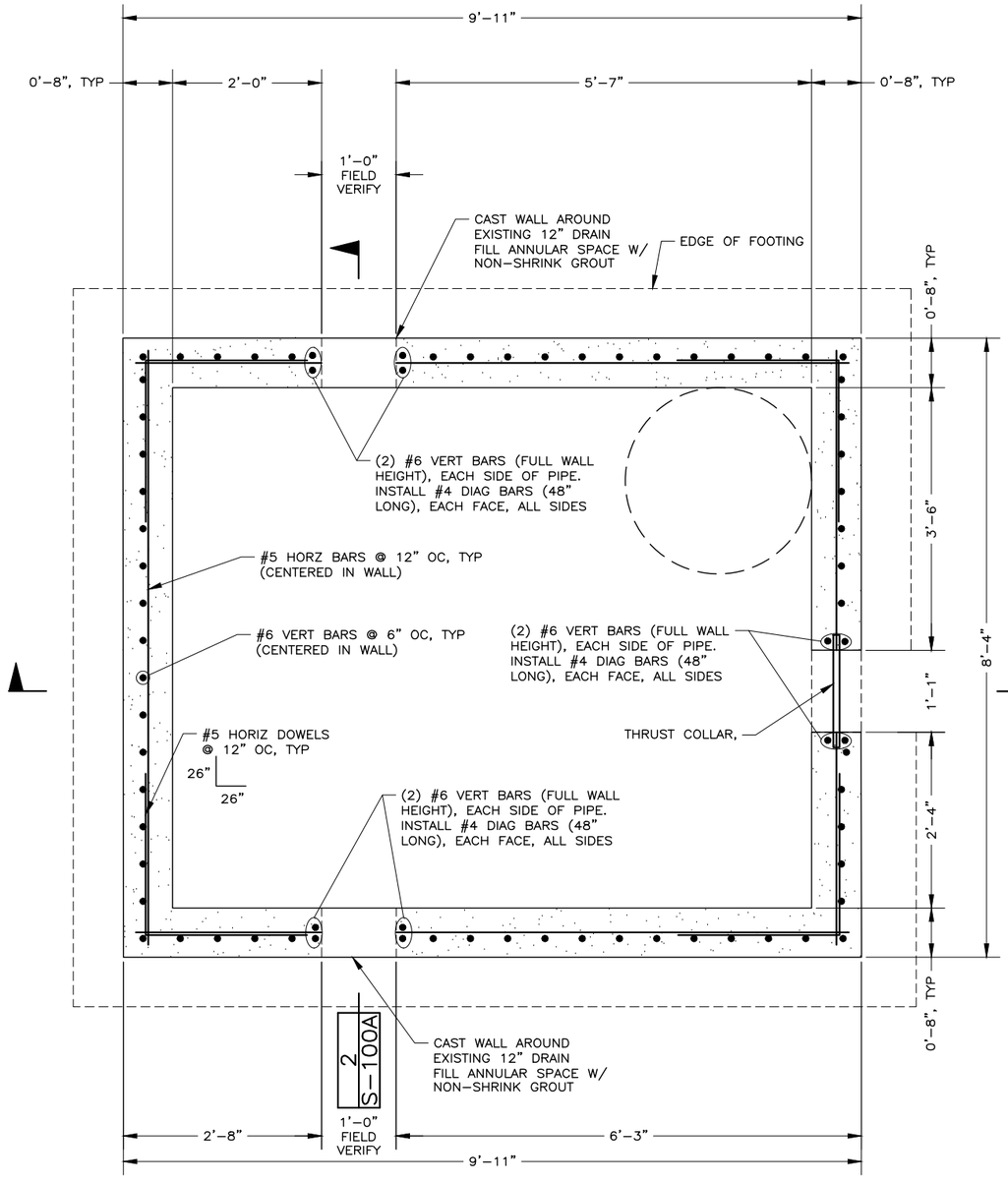
LC063 ASR PILOT TESTING – PHASE 1
CIVIL DETAILS
BASKI FLOW CONTROL VALVE DETAILS

SHEET: CD-106
262.08.200



ASR VALVE VAULT ROOF SLAB PLAN — A / C–300

SCALE IN FEET: 0 1 2



ASR VALVE VAULT WALL PLAN — B / C–300

SCALE IN FEET: 0 1 2

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 5,400 LBS OF THRUST RESTRAINT.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 – METROPOLITAN WATER DISTRICT\08.200 – PHASE I MAR\CAD\S–100 ASR VALVE VAULT PLANS.DWG
FILE DATE: 4.12.2023 09:15:30 (SWM)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

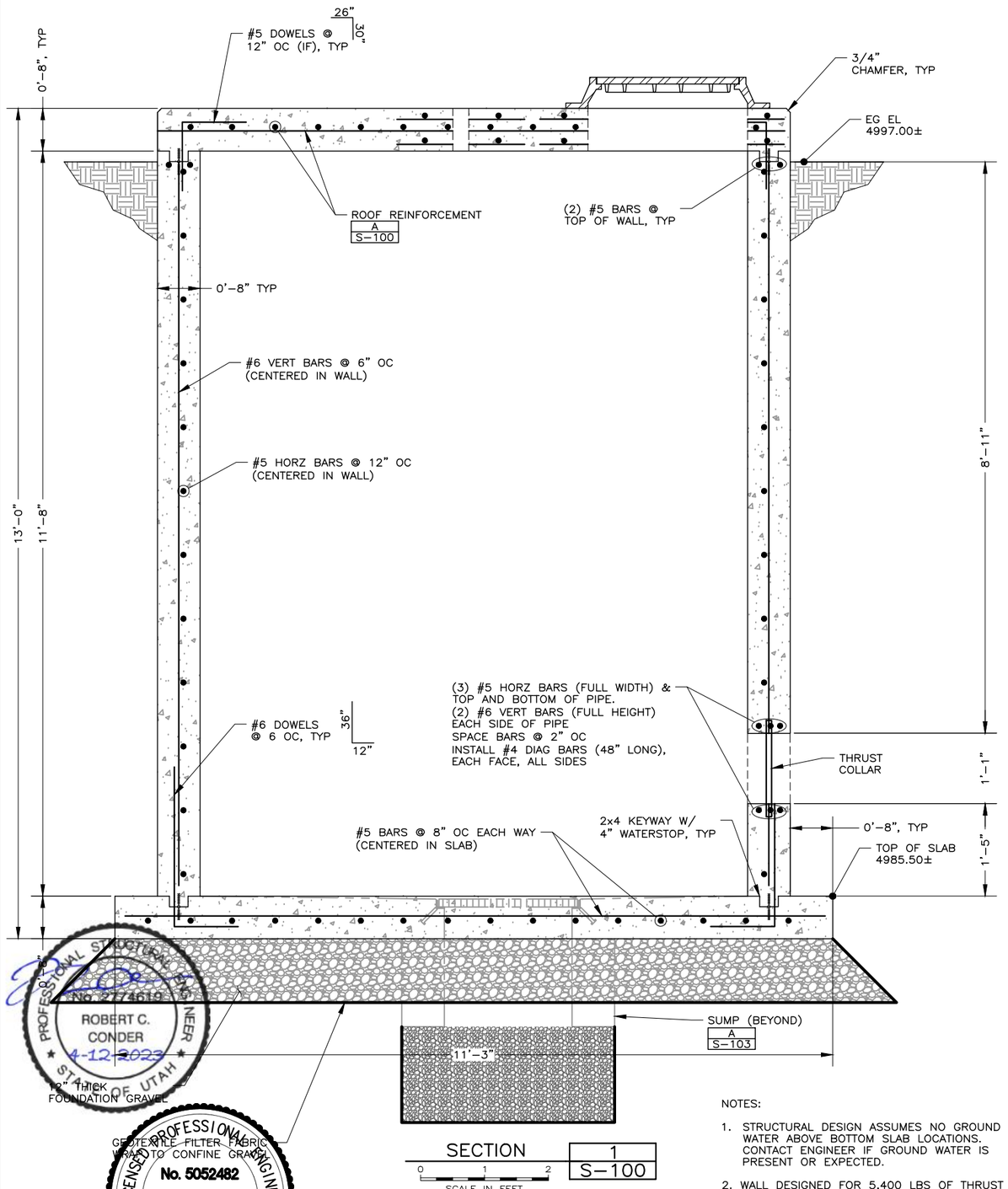
DESIGNED	SWM, RCC	3				
DRAFTED	MAJ	2				
CHECKED	GST, RCC	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
ASR VALVE VAULT PLANS

SHEET: S–100
262.08.200

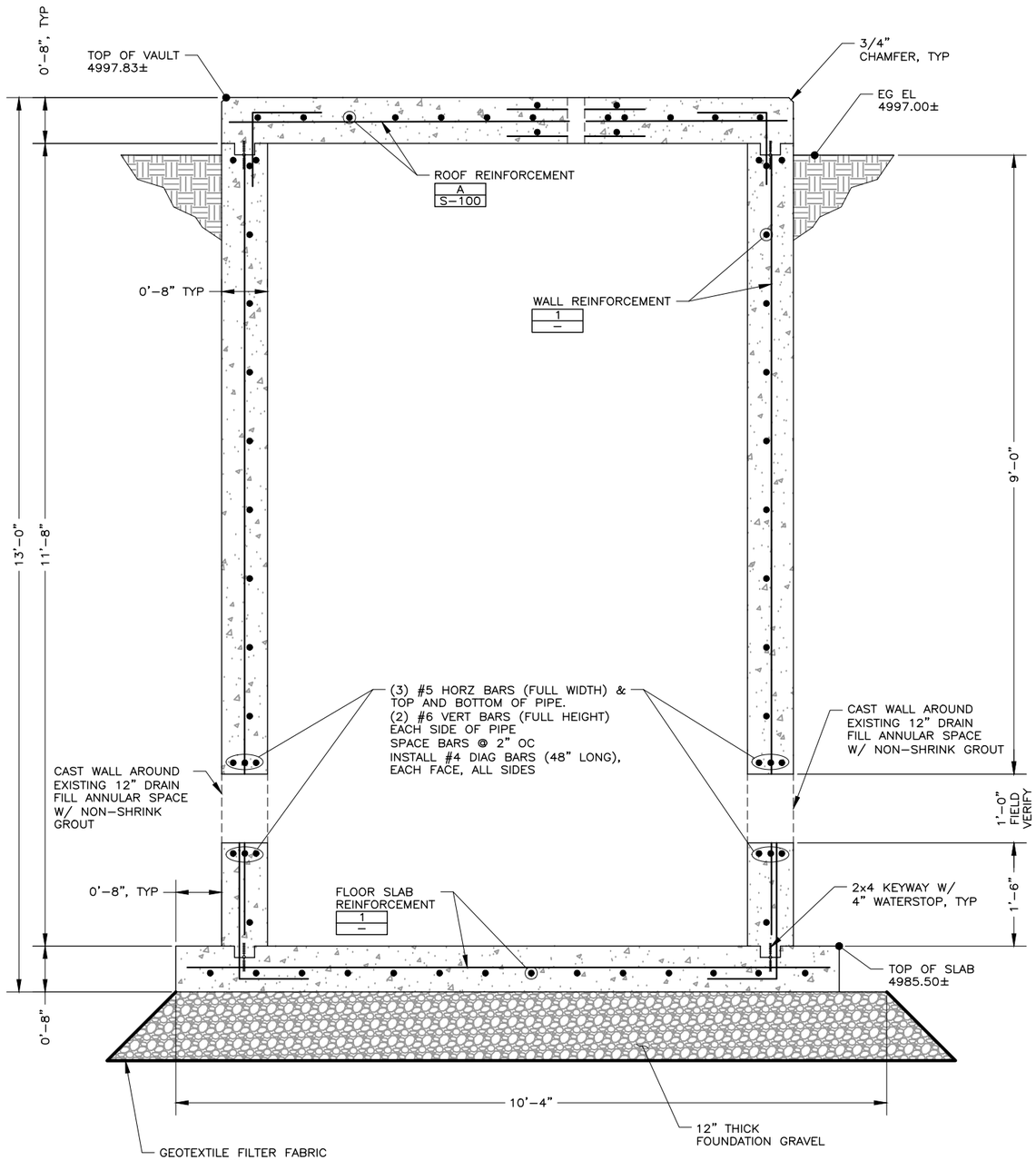


SECTION 1 / S-100

SCALE IN FEET (0, 1, 2)

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 5,400 LBS OF THRUST RESTRAINT.



SECTION 2 / S-100

SCALE IN FEET (0, 1, 2)

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 5,400 LBS OF THRUST RESTRAINT.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2174619
ROBERT C. CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\S-100A ASR VALVE VAULT SECTIONS.DWG
FILE DATE: 4.12.2023 09:35:38 (SWM)

HANSEN ALLEN & LUCE, INC. ENGINEERS

DESIGNED	SWM
DRAFTED	MAJ
CHECKED	GST
DATE	APRIL 2023

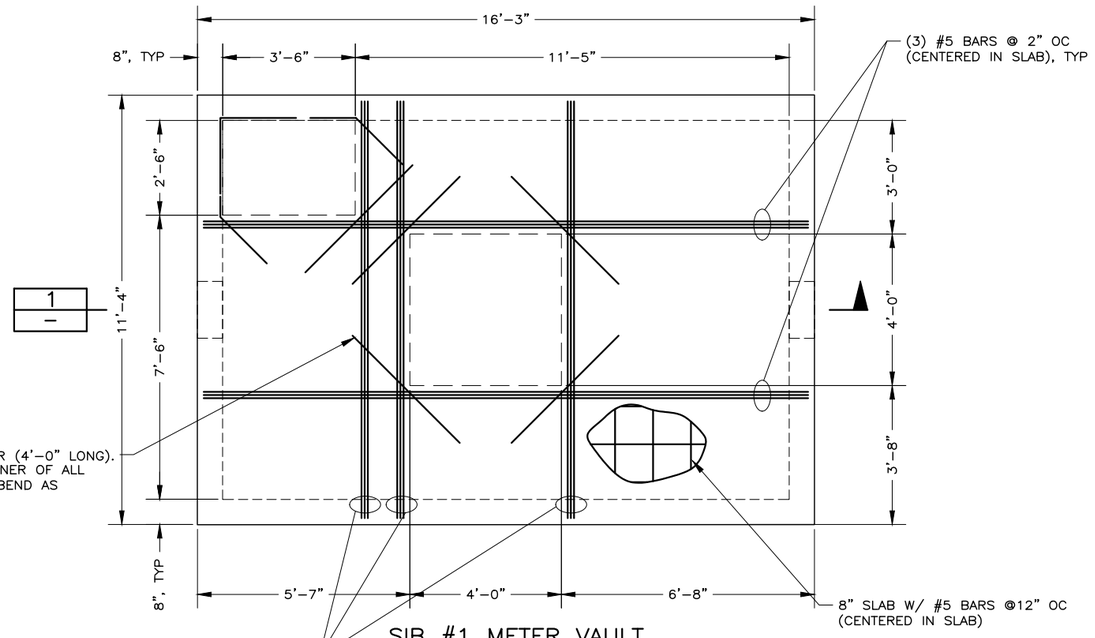
NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
ASR VALVE VAULT SECTIONS

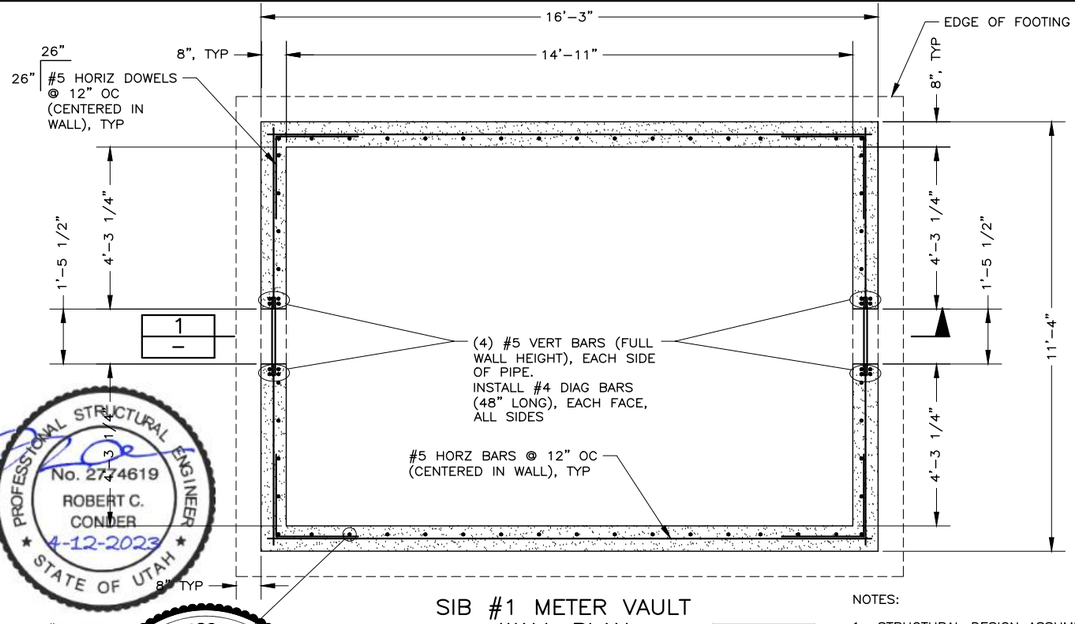
SHEET: S-100A
262.08.200



SIB #1 METER VAULT
ROOF SLAB PLAN

A
C-301

0 2 4
SCALE IN FEET



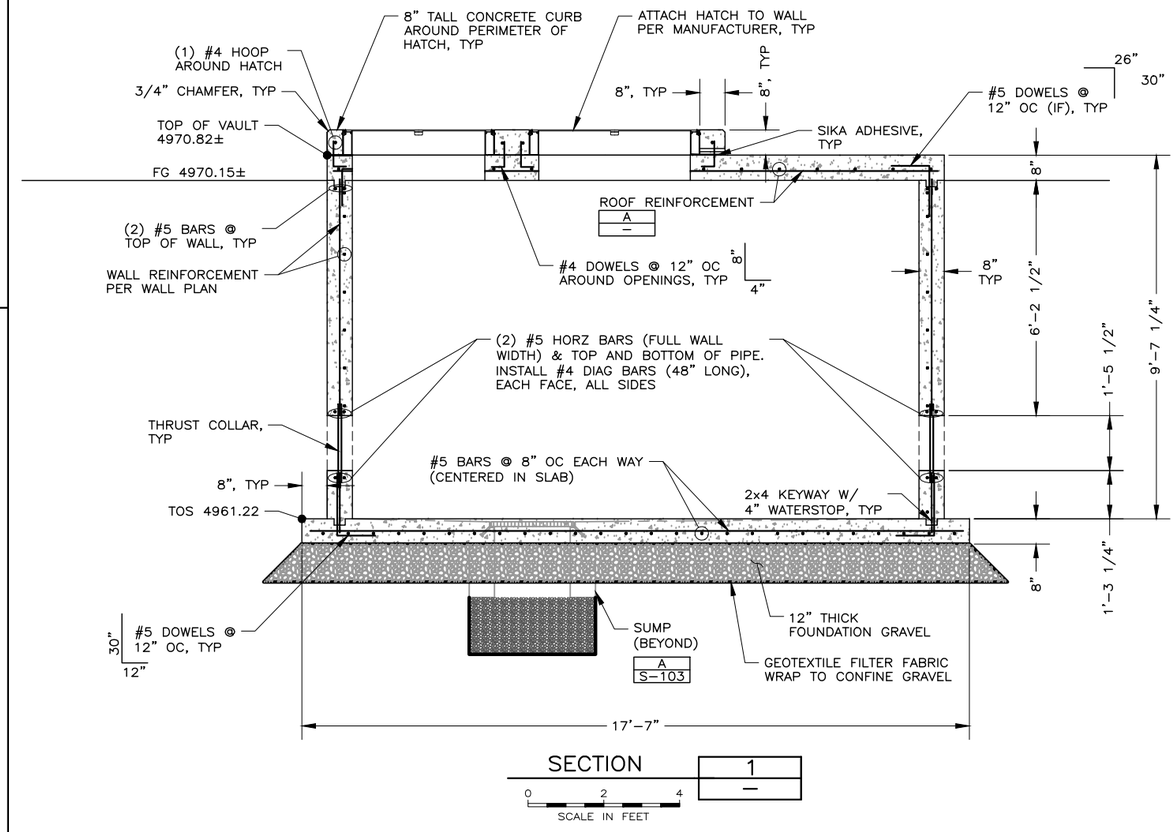
SIB #1 METER VAULT
WALL PLAN

B
C-301

0 2 4
SCALE IN FEET

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 9,500 LBS OF THRUST RESTRAINT.



SECTION

1
—

0 2 4
SCALE IN FEET

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 9,500 LBS OF THRUST RESTRAINT.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, inc. ENGINEERS

DESIGNED	SWM	3			
DRAFTED	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY APVD.

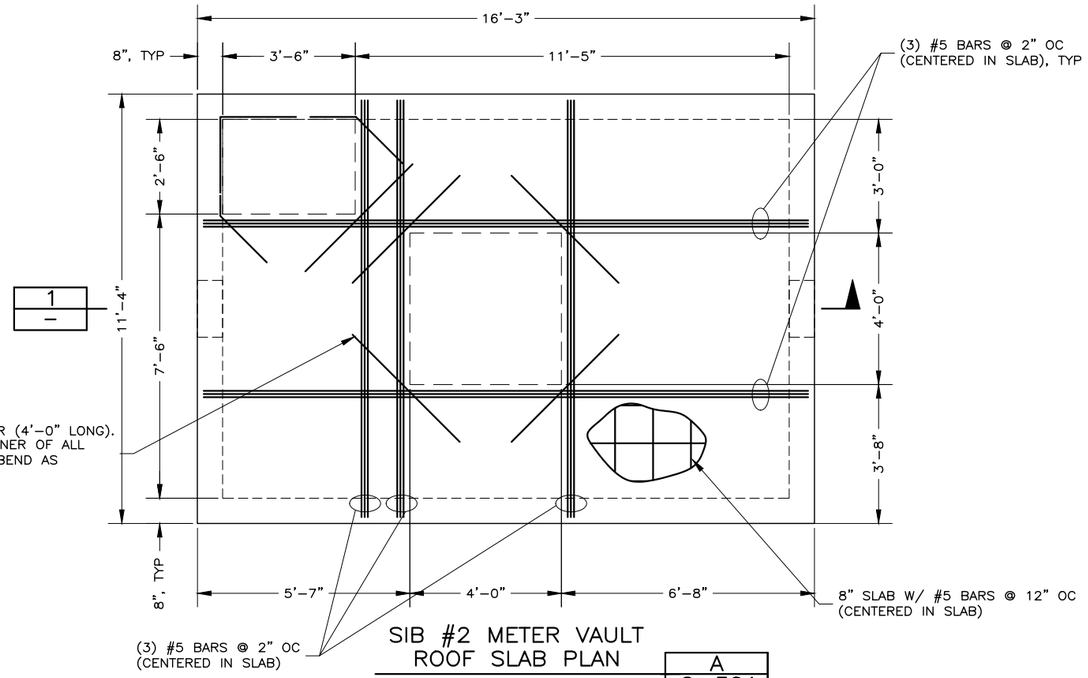
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
SIB #1 METER VAULT PLANS AND SECTION

SHEET S-101
262.08.200

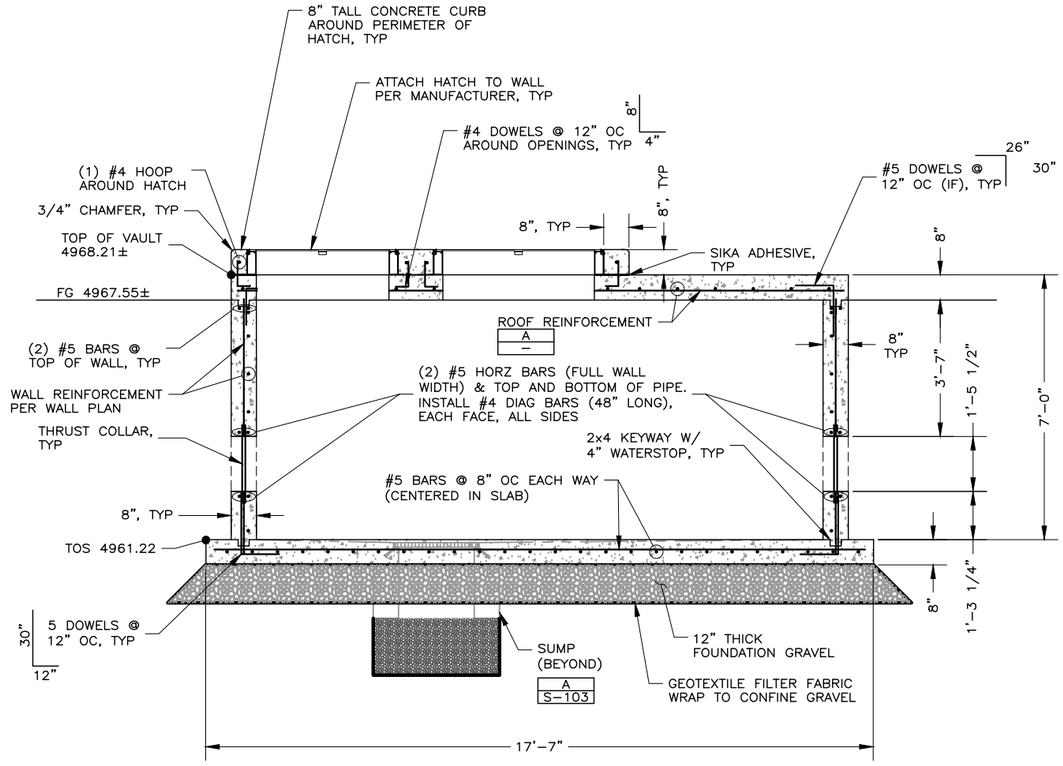
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FILE DATE: 4.12.2023 09:37:30 (SWM)



SIB #2 METER VAULT
ROOF SLAB PLAN

A
C–301

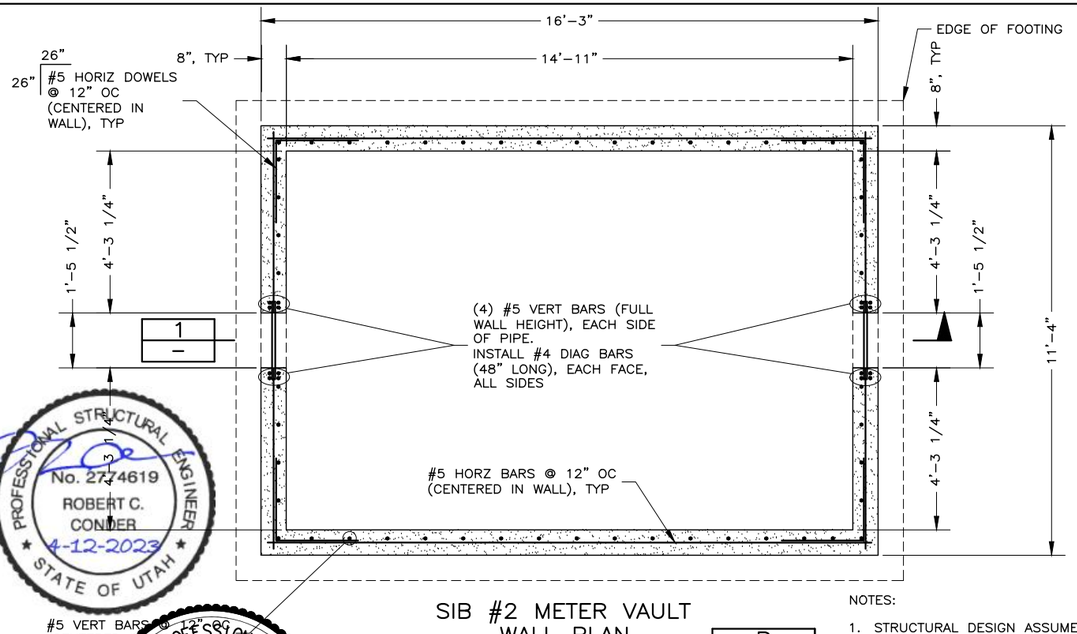
0 2 4
SCALE IN FEET



SECTION

1
—

0 2 4
SCALE IN FEET



SIB #2 METER VAULT
WALL PLAN

B
C–301

0 2 4
SCALE IN FEET

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 9,500 LBS OF THRUST RESTRAINT.

NOTES:

1. STRUCTURAL DESIGN ASSUMES NO GROUND WATER ABOVE BOTTOM SLAB LOCATIONS. CONTACT ENGINEER IF GROUND WATER IS PRESENT OR EXPECTED.
2. WALL DESIGNED FOR 9,500 LBS OF THRUST RESTRAINT.

PROFESSIONAL STRUCTURAL ENGINEER
No. 277619
ROBERT C.
CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S.
THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc.
ENGINEERS

DESIGNED	SWM	3			
DRAWN	SWM	2			
CHECKED	GST	1			
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY APVD.

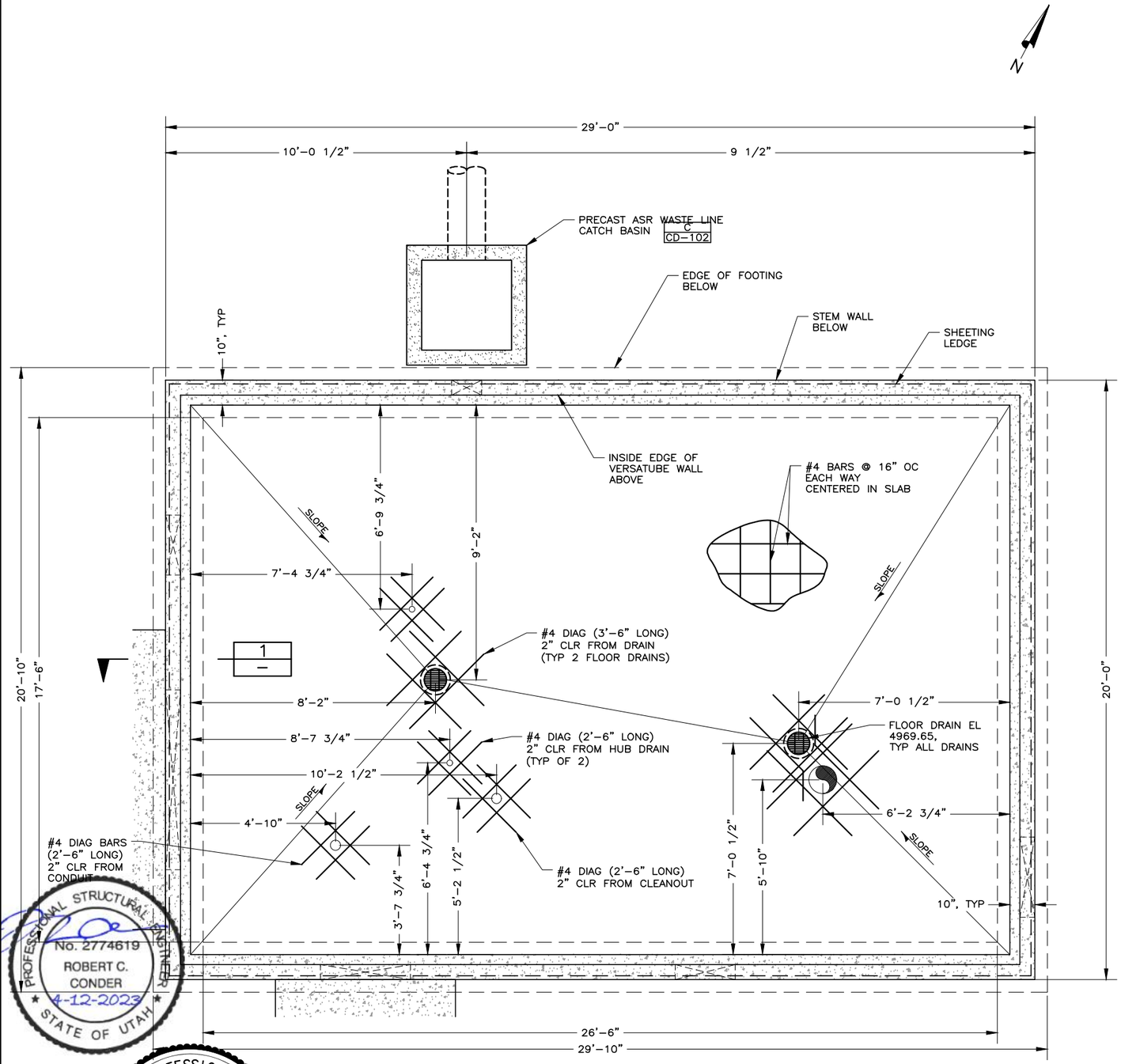
SCALE
AS SHOWN

METROPOLITAN WATER DISTRICT
OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
SIB #2 METER VAULT PLANS AND SECTION

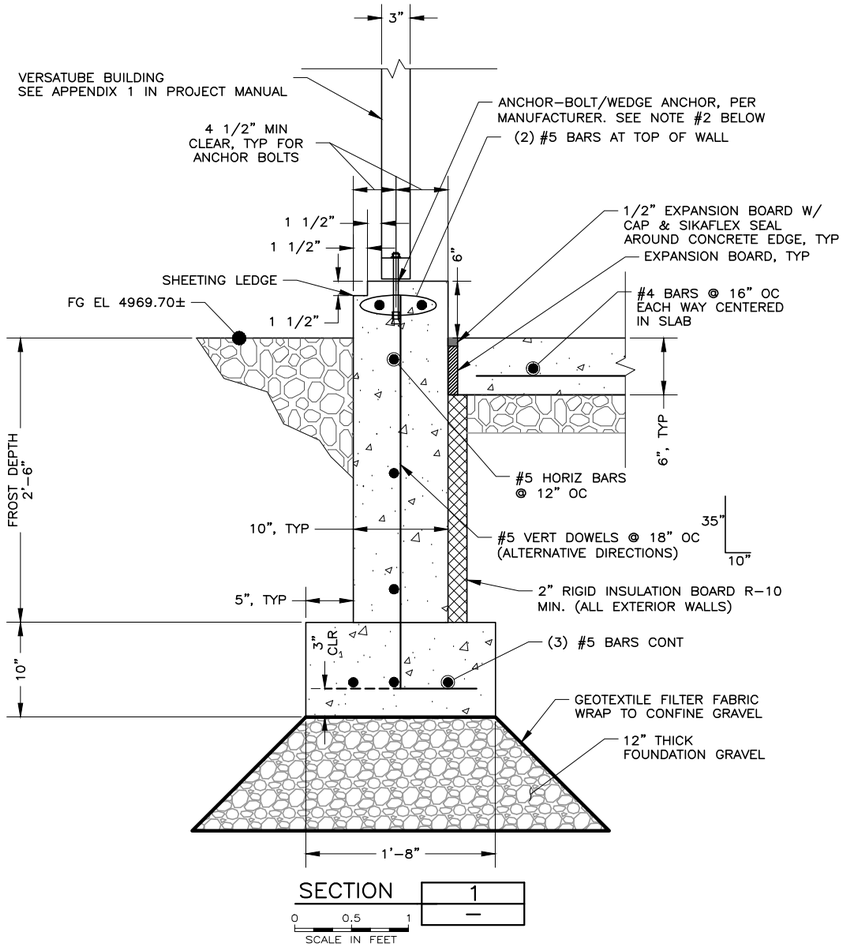
SHEET
S–101A
262.08.200

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FILE DATE: 6.12.2023 09:39:31 (SWW)



ASR WELL PAD PLAN A C-302

SCALE IN FEET (0, 2, 4)



SECTION 1 —

SCALE IN FEET (0, 0.5, 1)

SECTION NOTES:

1. CONTRACTOR TO VERIFY FOOTING AND FOUNDATION DESIGN AND DIMENSIONS WITH BUILDING MANUFACTURER.
2. ANCHOR BOLTS/WEDGE ANCHORS (SPECIFIED BY VERSA-TUBE BUILDING) TO HAVE MINIMUM EDGE DISTANCE TO FACE OF FOUNDATION WALL OF 4-1/2" (VERIFY WITH VERSA-TUBE ENGINEERING). BOLTS TO EMBED INTO FOUNDATION WALL 4-1/2" (3-1/2" MIN), AS REQUIRED BY BUILDING MANUFACTURER.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE I MAR\CAD\S-102 ASR WELL PAD PLAN & SECTION.DWG
FILE DATE: 4.5.2023 09:10:51 (SWM)

HANSEN ALLEN & LUCE, inc. ENGINEERS

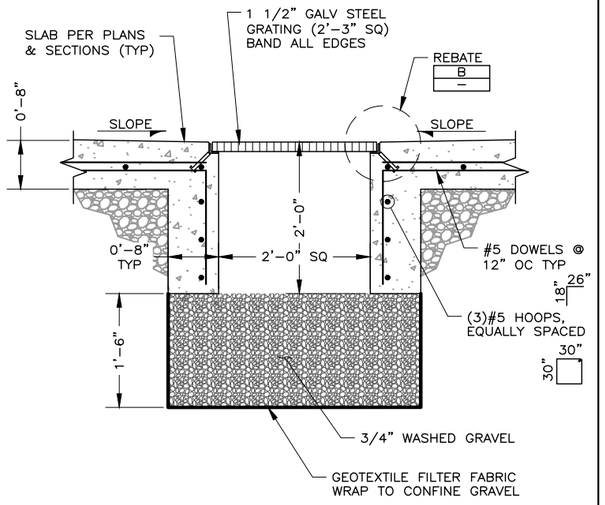
DESIGNED	BDM	3				
DRAFTED	MAJ	2				
CHECKED	GST	1				
DATE	APRIL 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
ASR WELL PAD PLAN AND SECTION

SHEET S-102
262.08.200

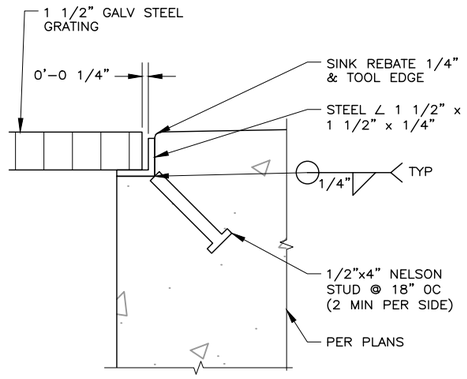


SUMP DETAIL

SCALE IN FEET (0 1 2)

A	A	A
C-300	C-300A	C-301

A	A	A	A
S-100	S-100A	S-101	S-101A



DETAIL NOTES:

1. GALVANIZE REBATE AFTER FABRICATION.
2. SUMP REINFORCEMENT NOT SHOWN FOR CLARITY

REBATE	B
NTS	—

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4-12-2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 5052482
GREGORY S. THOMAS
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	SWM	3	
DRAFTED	MAJ	2	
CHECKED	GST	1	
DATE	APRIL 2023	NO.	DATE

REVISIONS | BY | APVD.

SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
STRUCTURAL
MISCELLANEOUS DETAILS

SHEET S-103

262.08.200

FILE NAME: PROJECTS\262 - METROPOLITAN WATER DISTRICT\08.200 - PHASE 1 MAR\CAD\S-103 MISC DETAILS.DWG
FILE DATE: 4.3.2023 10:09:14 (SWM)

SCHEMATICS & DIAGRAMS

SYMBOL	DESCRIPTION
	TERMINAL LUG OR STRIP
	TRANSFORMER
	GROUND CONNECTION
	BOND TO METALLIC WATER PIPE
	BOND TO METALLIC WATER PIPE
	BOND TO BUILDING STEEL
G	GENERATOR

LIGHTING

SYMBOL	DESCRIPTION
	FLUORESCENT LIGHT FIXTURE, SEE FIXTURE SCHEDULE.
	EMERGENCY LIGHTING, SEE FIXTURE SCHEDULE.
F#	LIGHTING FIXTURE TYPE - SEE FIXTURE SCHEDULE.
$	SINGLE POLE SWITCH
$3	3 WAY SWITCH
$m	WALL MOUNTED MOTION SWITCH - DUAL TECHNOLOGY
$T	MOTOR RATED TOGGLE SWITCH
$D	DIGITAL OVERRIDE SWITCH
$P	SINGLE POLE SWITCH WITH PILOT LIGHT
SP	RECESSED CEILING MOUNTED SPEAKER BY OTHERS
	WALL MOUNTED MOTION SENSOR
	CEILING MOUNTED MOTION SENSOR
	CEILING-MOUNTED EXIT LIGHT, SEE FIXTURE SCHEDULE
	WALL-MOUNTED EXIT LIGHT, SEE FIXTURE SCHEDULE
	RECESSED CAN LIGHT, SEE FIXTURE SCHEDULE

CONTROLS & INSTRUMENTS

SYMBOL	DESCRIPTION
AE	ANALYZER ELEMENT
AIT	ANALYZING INDICATING TRANSMITTER
GSD	COMBUSTIBLE GAS DETECTOR
CIT	CONDUCTIVITY INDICATING TRANSMITTER
FE	FLOW ELEMENT
FIT	FLOW INDICATING TRANSMITTER
FS	FLOW SWITCH
LE	LEVEL ELEMENT
LIT	LEVEL INDICATING TRANSMITTER
LS	LEVEL SWITCH
LT	LEVEL TRANSMITTER
ME	MOISTURE ELEMENT
MV	MOTOR OPERATED VALVE OR GATE
OS	OVER TORQUE SWITCH
PIT	PRESSURE INDICATING TRANSMITTER
PS	PRESSURE SWITCH
SV	SOLENOID OPERATED VALVE
TE	TEMPERATURE ELEMENT
TS	TEMPERATURE SWITCH
TT	TEMPERATURE TRANSMITTER
ZS	LIMIT OR POSITION SWITCH
DS	DOOR SWITCH

SCHEMATICS & DIAGRAMS

SYMBOL	DESCRIPTION
	EMERGENCY STOP PUSH BUTTON (MAINTAINED)
	NORMALLY CLOSED PUSH BUTTON
	LOCKOUT STOP PUSH BUTTON
	NORMALLY OPEN PUSH BUTTON
T.C.	CONTACT - TIME DELAY T.C. = NORMALLY OPEN W/TIME DELAY CLOSING. I.C. - T.O. = NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING. T.C.-T.O. = NORMALLY OPEN W/TIME DELAY CLOSING AND TIME DELAY OPENING AFTER DEENERGIZATION.
T.O.	CONTACT - TIME DELAY T.C. = NORMALLY CLOSED WITH TIME DELAY OPENING. T.O.-T.C. = NORMALLY CLOSED WITH TIME DELAY OPENING AND TIME DELAY CLOSING AFTER DEENERGIZATION. I.O.-T.C. = NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING.
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH
	PRESSURE SWITCH LOW
	PRESSURE SWITCH HIGH
	FLOW SWITCH
	LEVEL FLOAT SWITCH
	TEMPERATURE SWITCH
AMPS / POLES	DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES.
	FUSEHOLDER OR FUSEBLOCK
AMPS POLES	CIRCUIT BREAKER OR MOTOR CIRCUIT PROTECTOR, SHOWN WITH TRIP RATING AND NUMBER OF POLES.
H O A OOX	3 POSITION SELECTOR SWITCH HAND - OFF - AUTO, POSITION LEGEND: X=CLOSED O=OPEN
ON OFF XO	2 POSITION SELECTOR SWITCH, POSITION LEGEND: X=CLOSED O=OPEN
ICTO	TIMER RELAY CONTACT INSTANTANEOUS CLOSE TIME DELAY OPEN.
NOTC	TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE.
5	FULL VOLTAGE NONREVERSING (FVNR) MOTOR STARTER OR CONTACTER NUMBER DESIGNATES NEMA SIZE.
	RTU, PLC, OR RIO CONTACT
UM	UTILITY METER
X	BEACON ALARM LIGHT. LETTER INDICATES COLOR: R=RED, A=AMBER, B=BLUE, G=GREEN
X	PILOT LIGHT. LETTER INDICATES COLOR: R=RED, A=AMBER, B=BLUE, G=GREEN
R	RELAY
TD	TIME DELAY RELAY
AR	ALARM RELAY
ETM ETM	ELAPSED TIME METER
M	MOTOR STARTER OR CONTACTOR COIL
EOL	ELECTRONIC OVERLOAD RELAY
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
VFD	VARIABLE FREQUENCY DRIVE
HF	HARMONIC FILTER
CT'S	CURRENT TRANSFORMER
	THERMAL OVERLOAD RELAY
	LTC CONNECTION
	MC CONNECTION
X	MOTOR, X = HORSEPOWER
	DEVICE LOCATED AT REMOTE LOCATION.
	FUSE
	NODE OR CONNECTION

POWER

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, RECESSED FLOOR MOUNTED
	DUPLEX RECEPTACLE, RECESSED CEILING MOUNTED
	QUADRAPLEX RECEPTACLE
	QUADRAPLEX RECEPTACLE, RECESSED FLOOR MOUNTED
	QUADRAPLEX RECEPTACLE, RECESSED CEILING MOUNTED
	ISOLATED GROUND TYPE DUPLEX RECEPTACLE
	SPECIAL PURPOSE OR WELDING OUTLET.
GFCI	GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE.
WP	WEATHERPROOF CONVENIENCE OUTLET
	FLUSH FLOOR DEVICE BOX
	HOME RUN TO PANEL - INDICATING 2 #12, #12 GND, 3/4" CONDUIT OR AS SHOWN.
	HOME RUN TO PANEL - INDICATING NUMBER OF CONDUCTORS - #12 OR AS SHOWN.
X-1,3,5	HOME RUN TO PANEL SHOWING BRANCH CIRCUIT NUMBERS.
	HATCH MARKS IN CONDUIT RUN DENOTES NUMBER OF CONDUCTORS IN CONDUIT. LONG HATCH MARK DENOTES GROUND CONDUCTOR. SIZE OF CONDUCTORS TO BE #12 AWG CONDUCTORS IN CONDUIT UNLESS NOTED OTHERWISE. UNMARKED CONDUITS SHALL BE 3/4" WITH 3 #12.
(E)	DENOTES EXISTING EQUIPMENT OR DEVICES
T	THERMOSTAT
X M	MOTOR, X = HORSE POWER
F	CEILING EXHAUST FAN
J	JUNCTION BOX
	ELECTRICAL PANEL, POWER OR LIGHTING
	METER BASE
	COMBINATION MOTOR STARTER, SEE SPECS
	DISCONNECT SWITCH. VOLTAGE RATING NEMA ENCLOSURE FUSE (NF-NO FUSE) POLES SIZE (AMPS)
+0'-0"	THIS NOTATION ADJACENT TO WALL OUTLET SYMBOL DENOTES MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER OF OUTLET DEVICE. IF NOT NOTED, THE MOUNTING HEIGHT TO CENTER SHALL BE AS DETAILED OR SPECIFIED.
$M	MANUAL MOTOR STARTER
$T	MANUAL MOTOR STARTER WITH OVERLOADS
DM	DAMPER MOTOR
F#	LIGHTING FIXTURE TYPE - SEE FIXTURE SCHEDULE.
$	SINGLE POLE SWITCH
$3	3 WAY SWITCH
$4	4 WAY SWITCH
	COMMUNICATION/DATA JACK. CONDUIT TO ABOVE CEILING. OWNER TO RUN WIRING.
2	DATA OR CATHODE RAY TUBE (CRT) TERMINAL OUTLET. +1'-6". (SINGLE, DOUBLE)
2 4	TELEPHONE JACK OUTLET. 1'-6". (SINGLE, DOUBLE, QUAD)

FEEDER DESIGNATION LOGIC

6	I	P: 2 N: 3 G: 4	5

1. NUMBER OF CONDUITS
2. P: NUMBER - SIZE OF PHASE CONDUCTORS PER CONDUIT
3. N: NUMBER - SIZE OF NEUTRAL CONDUCTOR(S) PER CONDUIT
4. G: NUMBER- SIZE OF GROUND CONDUCTOR(S) PER CONDUIT
5. SIZE OF EACH CONDUIT IN INCHES
6. CONDUIT NUMBER

KEY TO CONDUCTOR SIZE & TYPE

14 = #14 AWG COPPER
12 = #12 AWG COPPER
10 = #10 AWG COPPER
8 = #8 AWG COPPER
6 = #6 AWG COPPER
4 = #4 AWG COPPER
2 = #2 AWG COPPER
1/0 = 1/0 AWG COPPER
2/0 = 2/0 AWG COPPER
3/0 = 3/0 AWG COPPER
4/0 = 4/0 AWG COPPER
250 = 250 KCMIL COPPER
350 = 350 KCMIL COPPER
500 = 500 KCMIL COPPER
750 = 750 KCMIL COPPER

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CAPACITY
AFD	ADJUSTABLE FREQUENCY DRIVES
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
C	CONDUIT
CB	CIRCUIT BREAKER
CL2	CHLORINE
CON	CONTACTOR
CPM	CUSTOMER POWER MONITORING
CPT	CONTROL POWER TRANSFORMER
CU	COPPER, BARE
CV	CONTROL VALVE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
DV/DT	DIFFERENTIAL VOLTAGE/TIME
DWG	DRAWING
ELR	END OF LINE RESISTER
ETM	ELAPSED TIME METER
EOL	ELECTRONIC OVERLOAD
ES	EMERGENCY STOP
EXIST	EXISTING
FA	FOUL AIR
FC	FAIL CLOSED
FE	FLOW ELEMENT
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
FW	FINISHED WATER
G	GROUND
GES	GROUNDING ELECTRODE SYSTEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS	GALVANIZED RIGID STEEL
H, HI	HIGH
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
I	CURRENT
IC	INSTRUMENTATION CABLE
ICR	INTERMITTENT CYCLE REACTOR
IO	INPUT/OUTPUT
ISC	SHORT CIRCUIT CURRENT
ISR	INTRINSICALLY SAFE RELAY
JB	JUNCTION BOX
L, LO	LOW
LAN	LOCAL AREA NETWORK
LC	LOOP CONTROLLER
LCL	LEVEL CONTROL, LOW
LCP	LOCAL CONTROL PANEL
LOS	LOCK-OUT-STOP
LR	LOCAL/REMOTE
LS	LEVEL SWITCH
LTC	LIQUID TIGHT FLEXIBLE CONDUIT
M	MOTOR
MA	MANUAL/AUTO, MILLIAMP
MAX	MAXIMUM
MC	MANUFACTURER'S CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MH	MANHOLE
MIN	MINIMUM
ML	MIXED LIQUOR
MOV	MOTOR OPERATED VALVE
MTU	MASTER TELEMETRY UNIT
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NECA	NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NPW	NON-POTABLE WATER
NS	NITROGEN SUPPLY
NTS	NOT TO SCALE
NTU	TURBIDITY
O.C.	ON CENTER
OF	OVERFLOW
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
OO	ON/OFF (MAINTAINED)
OR	OFF-REMOTE
P	PHASE OR POLE
PB	PULL BOX
PCP	PROCESS CONTROL PANEL
PFR	PHAS/POWER FAILURE RELAY
PI	PULSE INPUT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLI	PLANT INFLUENT
PKG	PACKAGE
PMP	PUMP
PNL	PANEL
PO	PULSE OUTPUT
PPG	POUNDS PER GALLON
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRES	PRESSURE
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH, HIGH
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RAS	RETURN ACTIVATED SLUDGE
RW	RAW WATER
RCL	REMOTE I/O
RF	RADIO FREQUENCY
RIO	REMOTE INPUT/OUTPUT
RS	RAW SEWAGE
RSP	RAW SEWAGE PUMP
RST	RESET
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
RWT	REFLECTED WAVE TRAP
SEQ	SERVICE ENTRANCE EQUIPMENT
SES	SERVICE ENTRANCE SECTION
SLC	SINGLE LOOP CONTROLLER
SLOS	START-LOCK-OFF-STOP
SMC	SUBMERSIBLE MANUFACTURER CABLE
SO2	SULFUR DIOXIDE
SP	SET POINT
SPC	SPARE CONDUIT
SPR	SPARE
SS	START/STOP
SSS	SOLID STATE STARTER (SOFT START)
ST	SHUNT TRIP
TC	TELEPHONE CABLE
TDOE	TIME DELAY ON ENERGIZE
TS	TEMPERATURE SWITCH
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WAS	WASTE ACTIVATED SLUDGE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
ZS	POSITION SWITCH

ELECTRICAL LINETYPES

SYMBOL	DESCRIPTION
	EXPOSED CONDUIT
	UNDERGROUND CONDUIT
	BARE COPPER GROUND CONDUCTOR
	LIGHTNING PROTECTION
	EXISTING EXPOSED CONDUIT
	EXISTING UNDERGROUND CONDUIT
	CAPPED UNDERGROUND CONDUIT OR STUBBUP
	NEW ELECTRICAL EQUIPMENT
	DETAIL VIEW OR MATCHING
	FUTURE
	CONDUIT DROP
	CONDUIT RISE

FILE NAME: I:\22113\01 - DWG\ELEC\SHEET\22113-E-01.DWG - KINKADE MINSON
FILE DATE: 4/12/2023 12:49 PM

HEATH Engineering Company

HANSEN ALLEN & LUCE Inc ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
DRAFTED	KGM	2				
CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SYMBOL LEGEND

SHEET: E-01
262.08.200

CONTROL CONDUIT SCHEDULE

C001	2 - #16 TSP, 1-#16 GND, 1"C OR 2"C BURIED
C002	3 - #16 TSP, 1-#16 GND, 1"C OR 2"C BURIED
C003	4 - #16 TSP, 1-#16 GND, 1"C OR 2"C BURIED
C007	7 - #16 TSP, 1-#16 GND, 1"C OR 2"C BURIED
C101	4 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C102	6 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C103	8 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C104	10 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C108	18 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C109	20 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C110	22 - #14, 1 - #14 GND, 1"C OR 2"C BURIED
C200	CAT 6 CABLE, 1"C
C201	FLOW ELEMENT CABLE, 1"C
C202	LEVEL ELEMENT CABLE, 1"C
C203	MANUFACTURER'S CABLE, 1"C
C204	VENDOR POWER CABLE INCLUDES INSTRUMENTATION
C205	8 - RTD CABLES, 1-#16GND, 1"C
C206	FIBER OPTIC CABLE - 24 STRAND, 2"C
C300	PULL STRING, 1"C
C301	PULL STRING, 1"C
C302	PULL STRING, 1-1/2"C
C303	PULL STRING, 2"C
C304	PULL STRING, 3"C
C305	PULL STRING, 4"C
C401	PROFIBUS MBP (PA) CABLE, 1"C
C402	PROFIBUS DP CABLE, 1"C

POWER CONDUIT SCHEDULE

P001	3-1/C JACKETED 15kV #1/0 CU MV-105 100% CONCENTRIC NEUTRAL, 220MIL, 133% INSULATION, 105C RATING, P.E. OVERALL JACKET IN NEW 4" HDPE CONDUIT WITH LONG SWEEP FIBERGLASS ELBOWS

P100	2	P: 3 - 350 N: 1 - 350 G: NONE	3"
P101	2	P: 3 - 250 N: NONE G: 1 - #1	2-1/2"
P102	1	P: 3 - #12 N: NONE G: 1 - #12	1"
P103	1	P: 3 - #6 N: NONE G: 1 - #6	1"
P104	1	P: 3 - #1 N: NONE G: 1 - #8	1-1/2"

PANEL MDP

VOLTAGE: 480/277 V 3Ø 4W | CIRCUIT BREAKER TYPE: I-LINE | MAIN BREAKER AMPS 600 | BUS AMPS: 600
ENCLOSURE: NEMA 12 GASKETED | INTERRUPTING CAPACITY: 22 KAIC | MOUNTING: SURFACE | COVER TYPE: DOOR-IN-DOOR | LOCATION: IN ASR WELL BUILDING

BRANCH CIRCUIT BREAKER				CONNECTION	DESCRIPTION	PHASE			DESCRIPTION	CONNECTION	BRANCH CIRCUIT BREAKER			
NOTES	#	AMP	P.	LOAD (VA)		A	B	C		LOAD (VA)	P.	AMP	#	NOTES
1	MDP-1	600	3	99997	WELL PUMP	102067			TRANSFORMER	2070	3	50	MDP-2	
	MDP-3	--	--	99997	------		102423		------	2426	--	--	MDP-4	
	MDP-5	--	--	99997	------			101367	------	1370	--	--	MDP-6	
	MDP-7	20	3	100	MOTORIZED VALVE	100			SPARE		1	20	MDP-8	
	MDP-9	--	--	100	------		100		SPARE		1	20	MDP-10	
	MDP-11	--	--	100	------			100	SPARE		1	20	MDP-12	
	MDP-13	20	3	100	MOTORIZED VALVE	100			SPARE		1	20	MDP-14	
	MDP-15	--	--	100	------		100		SPARE		1	20	MDP-16	
	MDP-17	--	--	100	------			100	SPARE		1	20	MDP-18	
	MDP-19	20	1		SPARE	0			SPARE		1	20	MDP-20	
	MDP-21	20	1		SPARE		0		SPARE		1	20	MDP-22	
	MDP-23	20	1		SPARE			0	SPARE		1	20	MDP-24	
	MDP-25				PROVISION	0			PROVISION				MDP-26	
	MDP-27				PROVISION		0		PROVISION				MDP-28	
	MDP-29				PROVISION			0	PROVISION				MDP-30	
	MDP-31				PROVISION	0			PROVISION				MDP-32	
	MDP-33				PROVISION		0		PROVISION				MDP-34	
	MDP-35				PROVISION			0	PROVISION				MDP-36	
	MDP-37				PROVISION	0			PROVISION				MDP-38	
	MDP-39				PROVISION		0		PROVISION				MDP-40	
	MDP-41				PROVISION			0	PROVISION				MDP-42	
	MDP-43				PROVISION	0			PROVISION				MDP-44	
	MDP-45				PROVISION		0		PROVISION				MDP-46	
	MDP-47				PROVISION			0	PROVISION				MDP-48	
	MDP-49				PROVISION	0			PROVISION				MDP-50	
	MDP-51				PROVISION		0		PROVISION				MDP-52	
	MDP-53				PROVISION			0	PROVISION				MDP-54	
					PHASE SUBTOTALS (VA)	102267	102623	101567						
					PHASE TOTALS (KVA)	102.3	102.6	101.6						
					PHASE TOTALS @ 277V (AMPS)	369.2	370.5	366.7						

NOTES:
1 COORDINATE BREAKER SO THAT THE BRANCH CIRCUIT BREAKER OPENS BEFORE THE MAIN BREAKER
2
3
4

PANEL L

VOLTAGE: 208/120 V 3Ø 4W | CIRCUIT BREAKER TYPE: BOLT-ON | MAIN BREAKER AMPS 100 | BUS AMPS: 125
ENCLOSURE: NEMA 12 GASKETED | INTERRUPTING CAPACITY: 10 KAIC | MOUNTING: SURFACE | COVER TYPE: DOOR-IN-DOOR | LOCATION: IN ASR WELL BUILDING

BRANCH CIRCUIT BREAKER				CONNECTION	DESCRIPTION	PHASE			DESCRIPTION	CONNECTION	BRANCH CIRCUIT BREAKER			
NOTES	#	AMP	P.	LOAD (VA)		A	B	C		LOAD (VA)	P.	AMP	#	NOTES
	L-1	20	1	500	PLC	1000			WATER FLOW METER TRANSMITTER	500	1	20	L-2	
	L-3	20	1	1080	RECEPTACLES		1580		WATER FLOW METER TRANSMITTER	500	1	20	L-4	
	L-5	20	1	500	LIGHTING			500	SPARE		1	20	L-6	
	L-7	20	1	150	VALVE POWER	150			SPARE		1	20	L-8	
	L-9	20	1	150	SIB 1 VALVE POWER		150		SPARE		1	20	L-10	
	L-11	20	1	150	SIB 2 VALVE POWER			150	SPARE		1	20	L-12	
	L-13	20	1	200	WINDING HEATER	200			SPARE		1	20	L-14	
	L-15	20	1	696	VENT FAN		696		SPARE		1	20	L-16	
	L-17	20	2	720	HEAT TRACE			720	SPARE		1	20	L-18	
	L-19	--	--	720	------	720			SPARE		1	20	L-20	
	L-21	20	1		SPARE		0		SPARE		1	20	L-22	
	L-23	20	1		SPARE			0	SPARE		1	20	L-24	
					PHASE SUBTOTALS (VA)	2070	2426	1370						
					PHASE TOTALS (KVA)	2.1	2.4	1.4						
					PHASE TOTALS @ 120V (AMPS)	17.3	20.2	11.4						

NOTES:
1
2
3
4

LIGHTING FIXTURE SCHEDULE

TYPE	ELECTRICAL	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	SOURCE	NOTES
F1	51W 120-277V	LITHONIA	FEM L48 10000LM LPFFL MD MVOLT 50K 80CRI ST5L WLF	4' LED ENCLOSED AND GASKETED STRIP, LOW-PROFILE, FROSTED POLYCARBONATE LENS, IP67, 1500 PSI HOSE-DOWN. PROVIDE WITH STAINLESS STEEL LATCHES.	5000K CCT 10000 Lm 80 CRI	1,2
F2	25W 120-277V	LITHONIA	WST LED P2 40K VF MVOLT DDBXD PE	LED WALL PACK, DIE-CAST ALUMINUM HOUSING, FORWARD THROW OPTICS WITH INTEGRAL PHOTO CELL.	4000K CCT 3000 Lm 70 CRI	1

NOTES:
1- EQUAL FIXTURE SUBSTITUTIONS ALLOWED UPON PRIOR APPROVAL FROM ENGINEER.
2- MOUNT FIXTURE ON CEILING. FIELD COORDINATE.

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FILE DATE:

HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
DRAFTED	KGM	2				
CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SCHEDULES

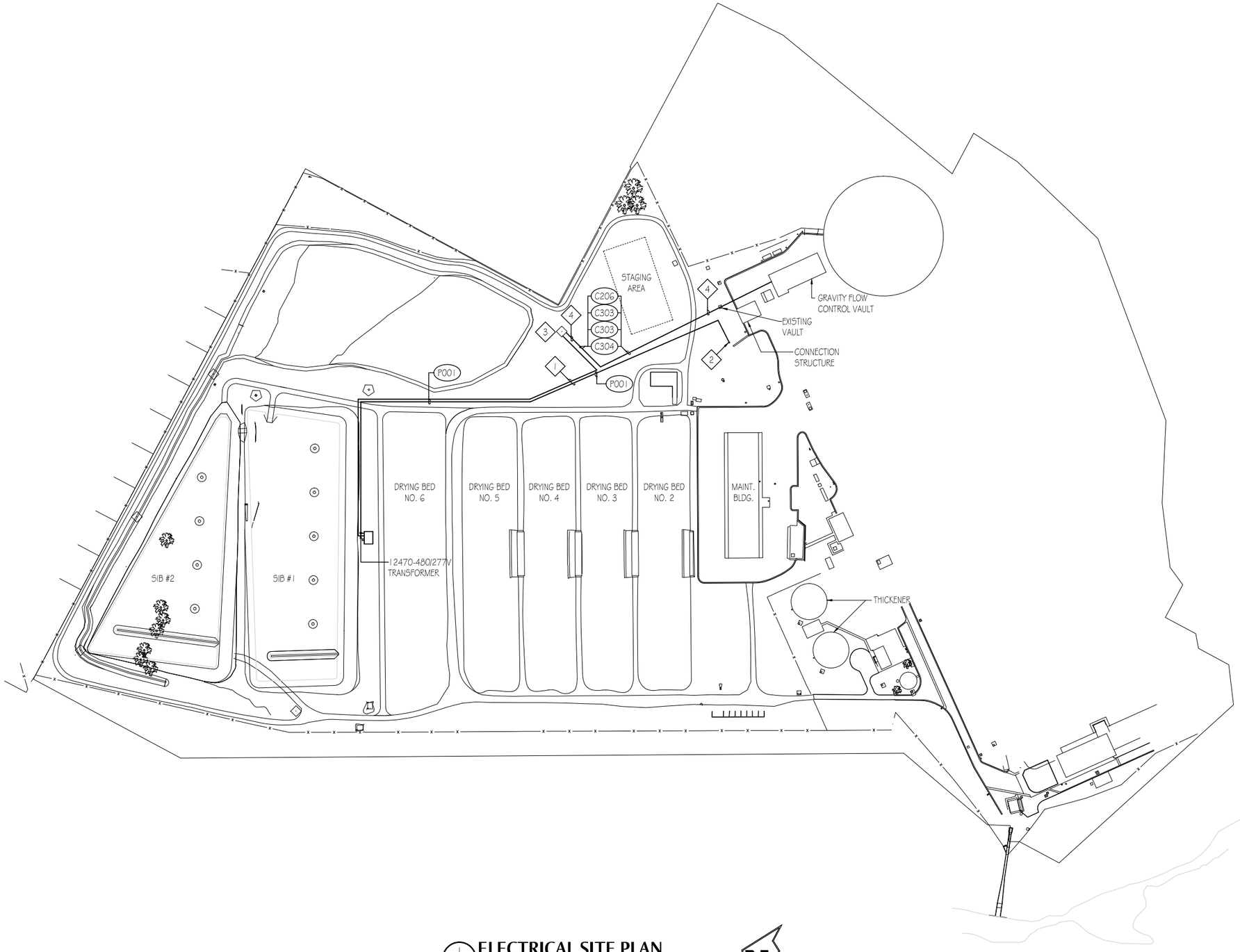
SHEET: E–02
262.08.200

DRAWING NOTES

1. RUN CONTROL CONDUITS IN SEPARATE TRENCH FROM POWER CONDUITS. PROVIDE 10'-0" SEPARATION BETWEEN CONDUITS AND WATER LINE. PROVIDE PULL BOXES AS NEEDED.
2. 12470 TAP BOX
3. CONTROLS VAULT
4. CONTINUE FIBER CABLE THROUGH EXISTING 4" CONDUIT FROM CONTROLS VAULT TO GRAVITY CONTROL VAULT VIA INTERMEDIATE VAULT

GENERAL NOTES

A. ALL LTS WILL BE VISIBLE ON THE WELL HOUSE HMI AND SENT BACK TO SCADA VIA FIBER.



1 E-100 **ELECTRICAL SITE PLAN**

SCALE: 120 60 0 120 240

N

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HEATH Engineering Company

HANSEN ALLEN & LUCE, inc. ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
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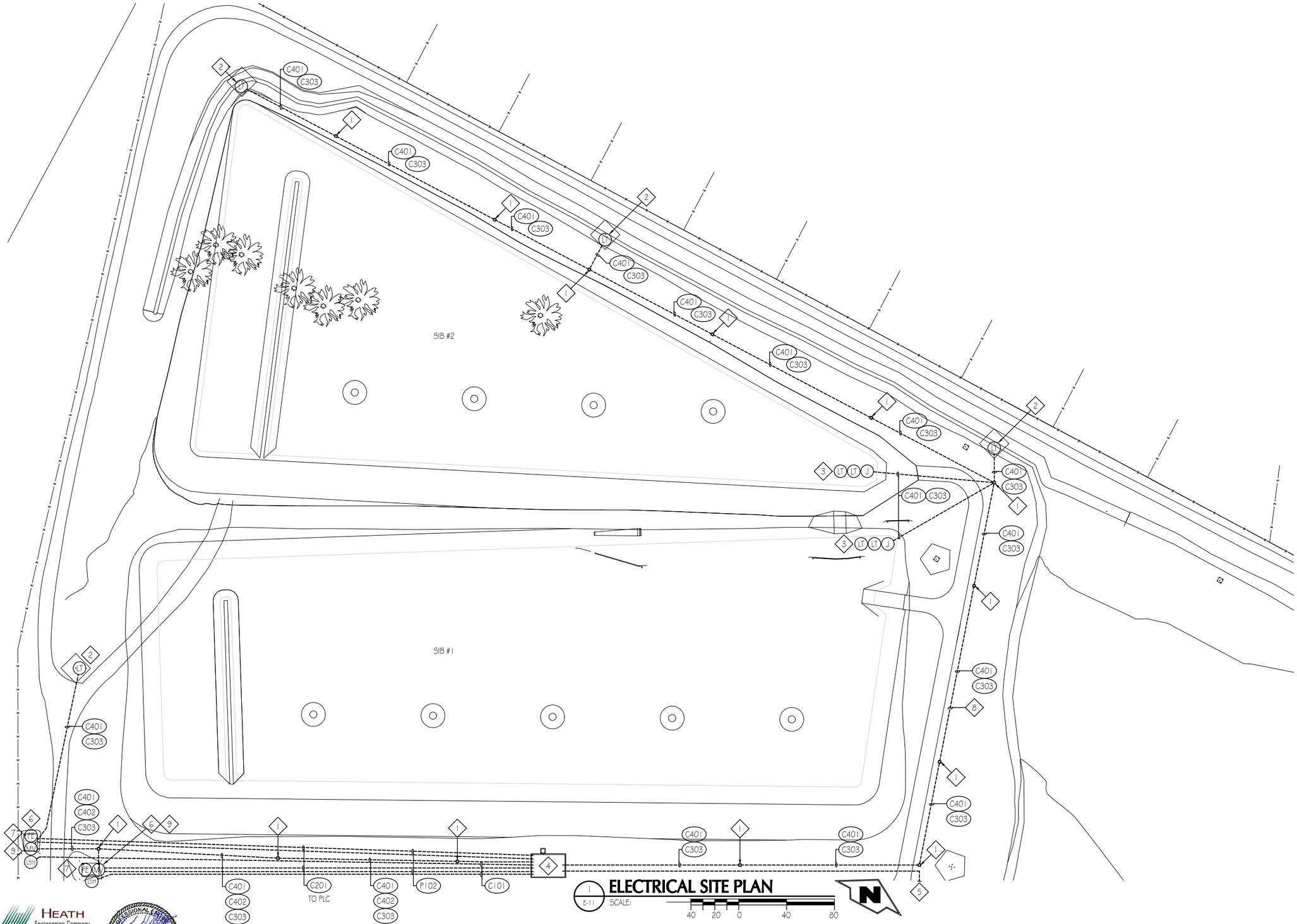
SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SITE PLAN

SHEET E–10

262.08.200



DRAWING NOTES

1. PROVIDE PULL BOXES EVERY 150FT OR AS NEEDED FOR A SMOOTH WIRE PULL WITHIN THE RECOMMENDATIONS OF THE WIRE MANUFACTURER, AND AS JUNCTION BOXES.
2. MONITORING WELL. INSTALL (1) IN-SITU LEVEL TROLL 700 SUBMERSIBLE LEVEL TRANSDUCER INTO MONITORING WELL. DRILLED BY OTHERS. SEE DETAIL FOR MOUNTING.
3. SIB LEVEL SENSORS. INSTALL (2) IN-SITU LEVEL TROLL 700 SUBMERSIBLE LEVEL TRANSDUCERS INTO SIB LEVEL MONITORING LOCATION. SEE DETAIL FOR MOUNTING.
4. ASR WELL. SEE ENLARGEMENT.
5. SEE OVERALL SITE PLAN FOR CONDUIT BANK
6. SIB METER VAULT. (1) SIEMENS MG 5100W MAG FLOW METER, AND (1) ACTUATED 10" SEGMENTED BALL VALVE. EVERYTHING NEEDS TO BE NEMA 6P PROLONGED SUBMERGED.
7. COIL ONLY ON THE FLOW METER BRINGING IT BACK TO THE PROFIBUS. SPECIAL FLOW METER WIRE GOES INTO THE BUILDING. HEAD IN THE WELL HOUSE, THEN PROFIBUS TO THE PLC.
8. CONTINUOUS RUNS OF HDPE BECAUSE OF HIGH WATER TABLE AND CORROSIVE SOILS.
9. MOTORIZED VALVE CONTROLLER MOUNTED OUTSIDE SIB METER VAULT.

GENERAL NOTES

A. ALL LT'S WILL BE VISIBLE ON THE WELL HOUSE HMI AND SENT BACK TO SCADA VIA FIBER.

B. RUN POWER AND CONTROL CONDUITS IN SEPARATE TRENCHES. KEEP CONDUITS 10' FROM WATER LINES.

FILE NAME: 4/12/2023 12:49 PM - I:\22113\01 - DWG\ELEC\SHEET\22113-E-11.DWG - KINKADE MINSON
FILE DATE:

HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
DRAFTED	KGM	2				
CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

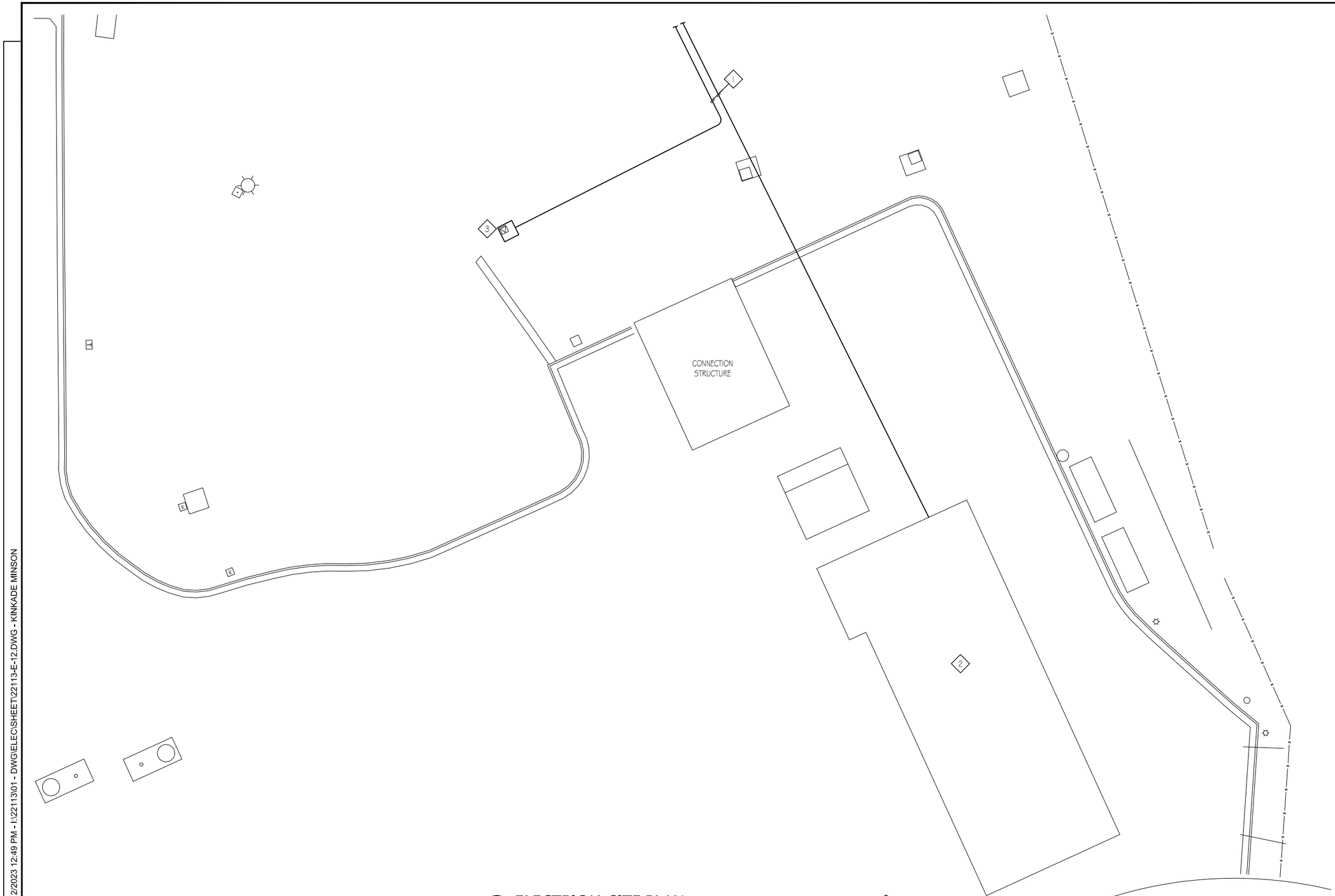
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SITE PLAN

SHEET E-11
262.08.200

DRAWING NOTES

1. SEE OVERALL SITE PLAN ON E-100 FOR THIS CONDUIT.
2. GRAVITY CONTROL VAULT
3. 12470 TAP BOX



1 / E-12 ELECTRICAL SITE PLAN

SCALE: 20 10 0 20 40

N

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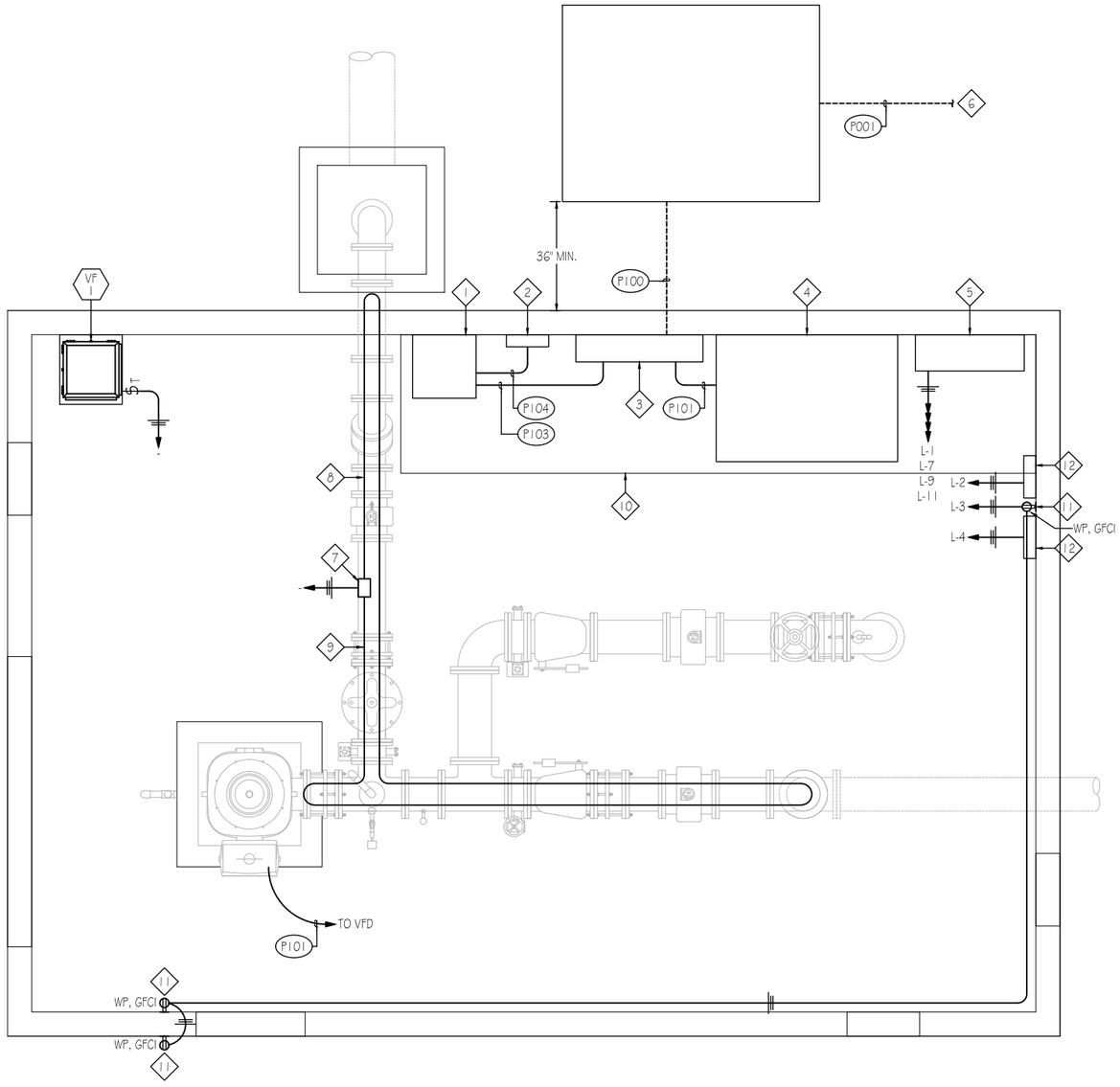
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METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SITE PLAN

SHEET E-12

262.08.200



DRAWING NOTES

1. TRANSFORMER
2. PANEL 'L'
3. MDP
4. VFD
5. PLC
6. SEE SITE PLANS FOR CONDUIT BANK.
7. PIPE TEMP SENSING THERMOSTAT AND HEAT TRACE CONTROLLER.
8. COVER REMOVABLE INSULATION BLANKETS. BY DP INDUSTRIAL OR APPROVED EQUAL.
9. 8 WATT PER FOOT, SELF-REGULATED, FREEZE PROTECTION HEAT TRACE, PENTAIR #8BTV2-CT. INSTALLED AS PER RAYCHEM. WITH E-100-A END SEAL KIT, JBS-100-A ENTRY KIT, JBS-100-ECP-A TEMPERATURE CONTROLLER, ETC-ENGLISH LABELS, PIPE STRAPS AND GLASS TAPE.
10. HOUSEKEEPING PAD, SEE DETAILS.
11. RECEPTACLE SHALL BE SELF SUPPORTED AND NOT ATTACHED TO THE STRUCTURE. SEE DETAIL 9 / E-51.
12. SIB VAULT #1 FLOW TRANSMITTER
13. SIB VAULT #2 FLOW TRANSMITTER

1 / E-13 **ASR WELL HOUSE ELECTRICAL POWER PLAN**

SCALE: 2 0 5

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SCALE: AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

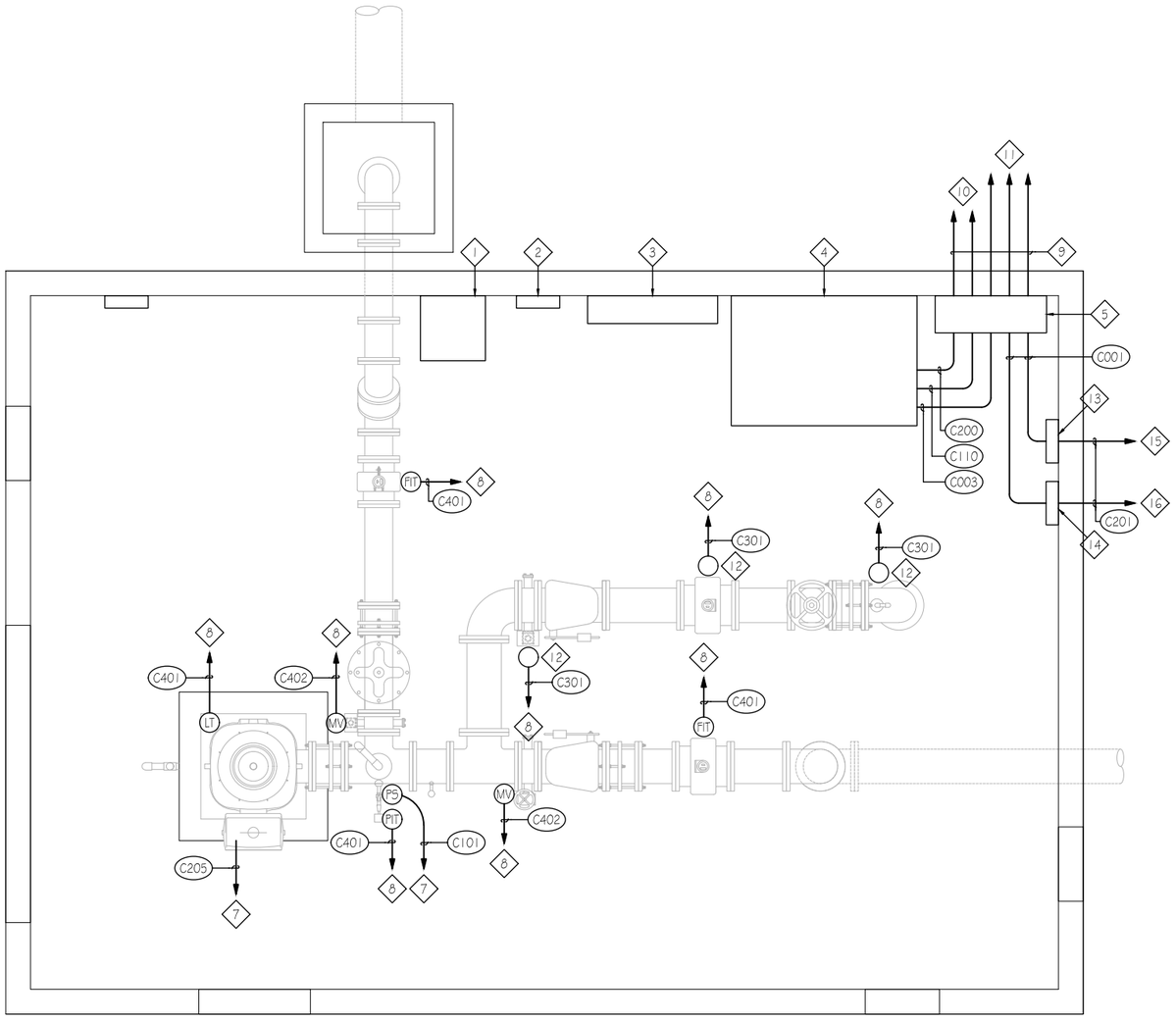
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
ASR WELL HOUSE POWER PLAN

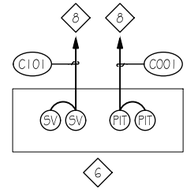
SHEET E–13

262.08.200

DRAWING NOTES

1. TRANSFORMER
2. PANEL 'L'
3. MDP
4. VFD
5. PLC WITH HMI
6. NITROGEN CONTROLLER
7. TO VFD
8. TO PLC. DAISY-CHAIN PROFIBUS CONDUIT RUNS. FIELD COORDINATE.
9. SEE SITE PLANS FOR CONDUIT BANK
10. TO MONITORING WELLS AND SIB LEVEL TRANSMITTER
11. TO GRAVITY FLOW CONTROL VAULT
12. STUB AND CAP FOR FUTURE
13. SIB VAULT #1 FLOW TRANSMITTER
14. SIB VAULT #2 FLOW TRANSMITTER
15. TO SIB VAULT #1 FLOW METER
16. TO SIB VAULT #2 FLOW METER





1 E-14 ASR WELL HOUSE ELECTRICAL CONTROL PLAN

SCALE: 2 0 5

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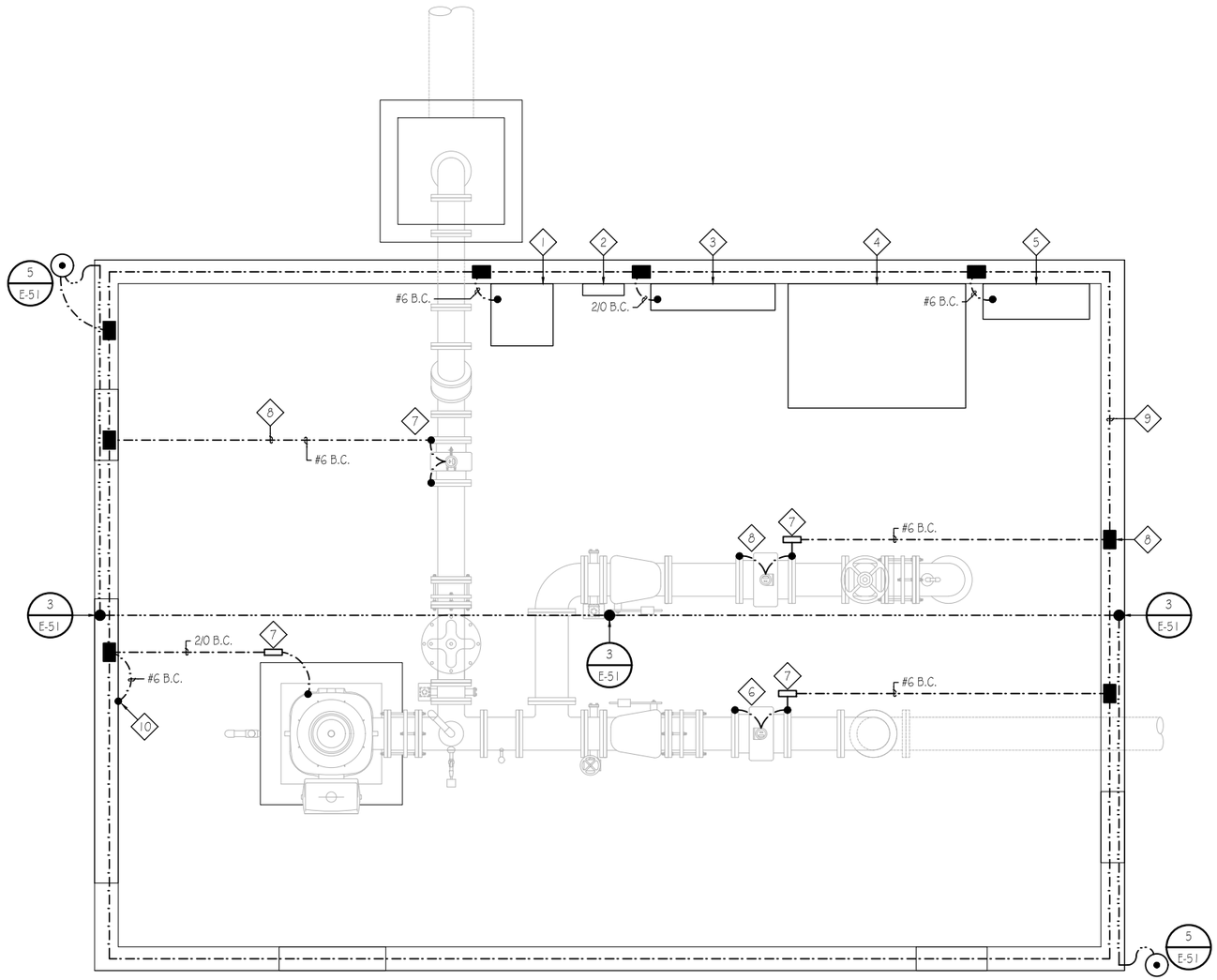
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
ASR WELL HOUSE CONTROL PLAN

SHEET E–14

262.08.200

DRAWING NOTES

1. TRANSFORMER
2. PANEL 'L'
3. MDP
4. VFD
5. PLC
6. SEE FLOW METER GROUNDING DETAIL 7 / E-53
7. SEE GROUND PLATE DETAIL
8. EXOTHERMIC, TYPICAL.
9. 2/0 B.C. GROUND RING ATTACHED TO UFER GROUND.
10. BOND TO METAL OF BUILDING



1 E-15 SCALE:

ASR WELL HOUSE ELECTRICAL GROUNDING / LIGHTNING PROTECTION PLAN

2 0 5

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SCALE: AS SHOWN

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3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

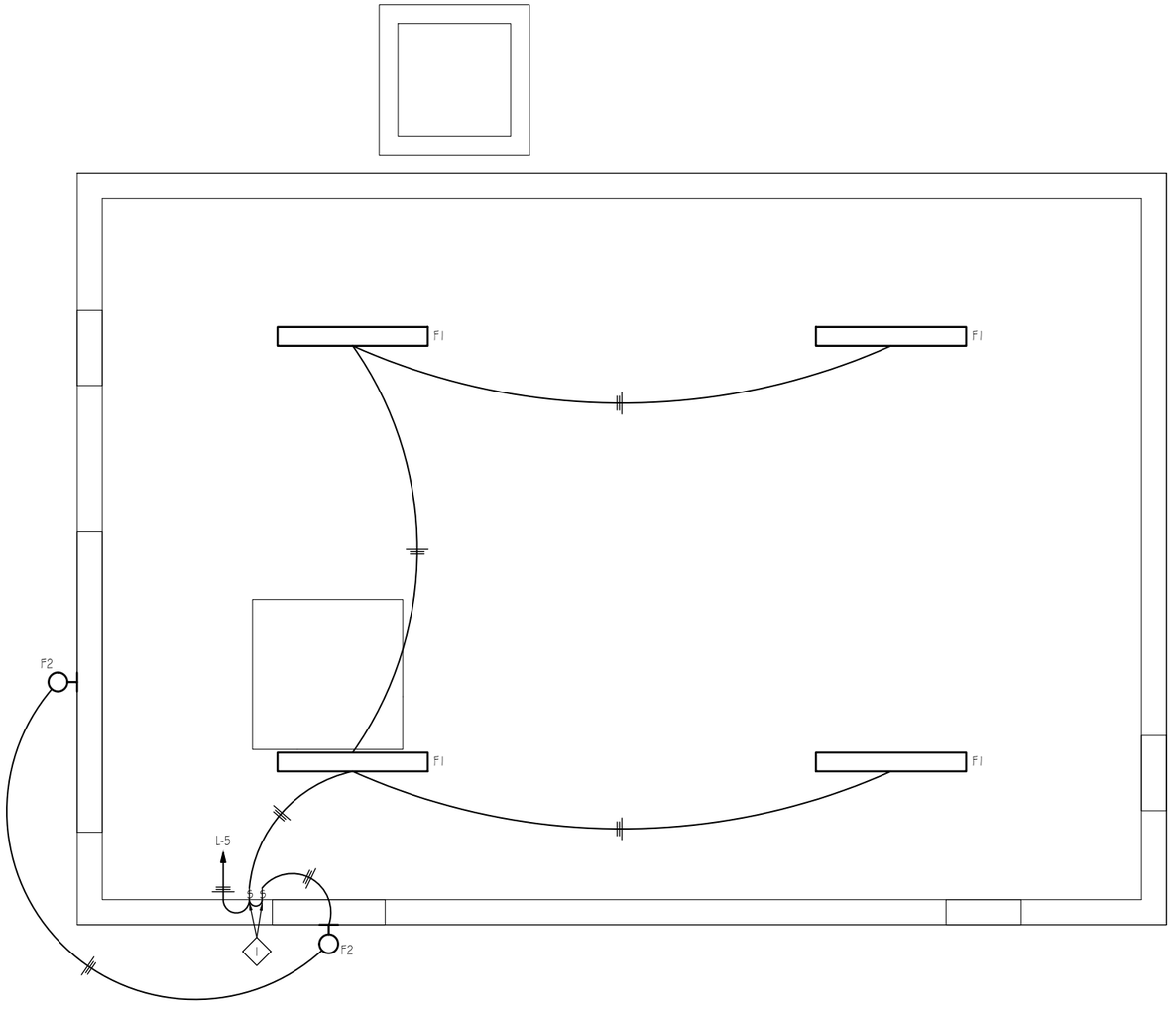
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL ASR WELL HOUSE GROUNDING / LIGHTNING PROTECTION PLAN

SHEET E–15

262.08.200

DRAWING NOTES

1. LIGHT SWITCHES SHALL BE SELF SUPPORTED AND NOT ATTACHED TO THE BUILDING. SEE DETAIL 9 / E-51.



1 E-16 **ASR WELL HOUSE ELECTRICAL LIGHTING PLAN**

SCALE: 2 0 5

N

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SCALE: AS SHOWN

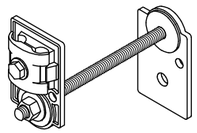
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LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
ASR WELL HOUSE LIGHTING PLAN

SHEET E–16

262.08.200

NO. 40-22618BM, BI-METAL
THRU-ROOF/WALL CONNECTOR



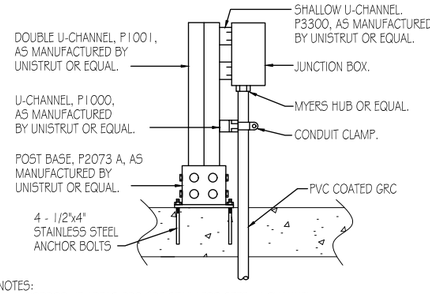
7 E-51 THRU-ROOF/WALL CONNECTOR
SCALE: NONE

NO. 40-206C, COPPER ONE
BOLT PARALLEL SPLICER



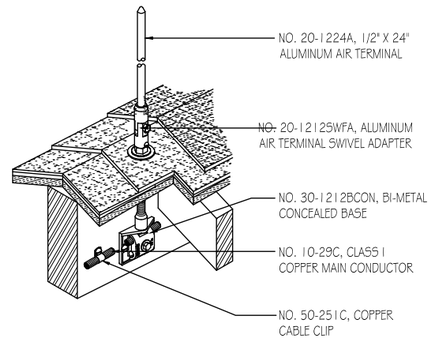
USE TO SPLICE MAIN
SIZE CONDUCTOR TO
MAIN SIZE CONDUCTOR

8 E-51 CABLE CONNECTOR
SCALE: NONE



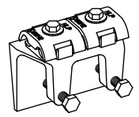
NOTES:
1. IN CORROSIVE AREAS PROVIDE STAINLESS STEEL U-CHANNEL.
2. OMIT POST BASE WHEN MOUNTING TO SIDE OF ABOVE GRADE STRUCTURE.
3. PROVIDE HARDWARE OF SAME MATERIAL AS U-CHANNEL.

9 E-51 JUNCTION BOX MOUNTING DETAIL
SCALE: NONE

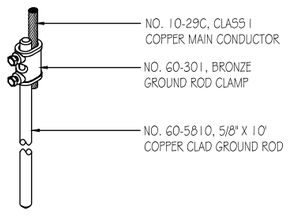


3 E-51 RIDGE AIR TERMINAL
SCALE: NONE

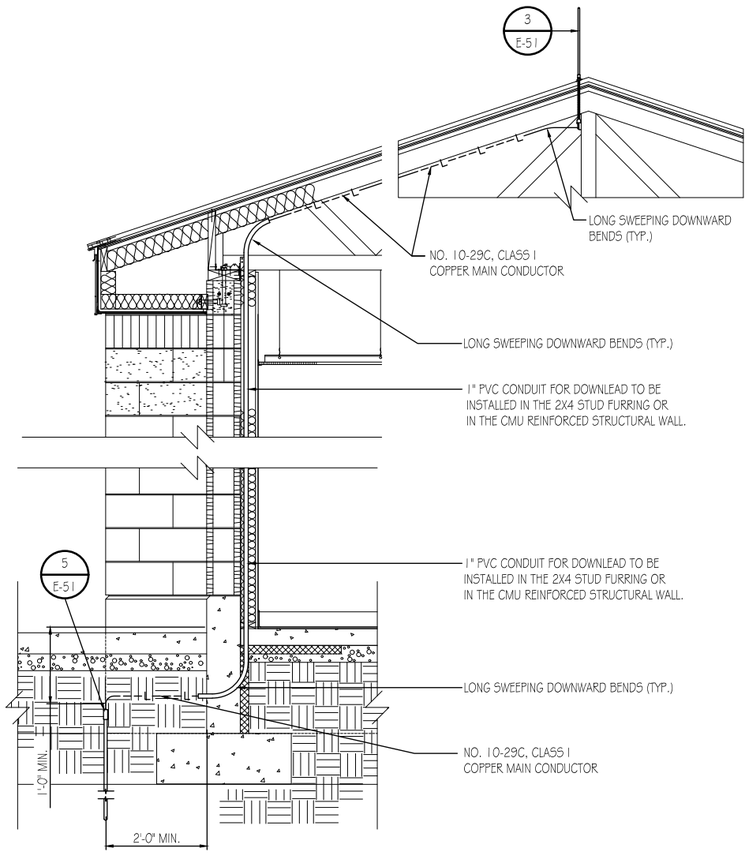
NO. 40-223C, BRONZE
FLANGE BONDING PLATE



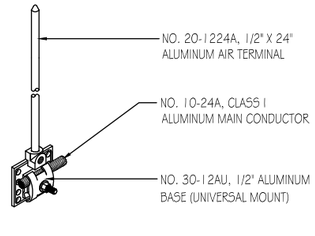
4 E-51 STEEL CONNECTION
SCALE: NONE



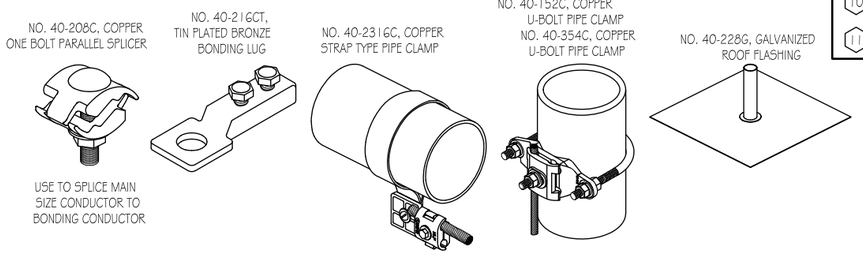
5 E-51 GROUND ROD DETAIL
SCALE: NONE



1 E-51 TYPICAL DOWNLEAD DETAIL
SCALE: NONE



6 E-51 STACK AIR TERMINAL
SCALE: NONE



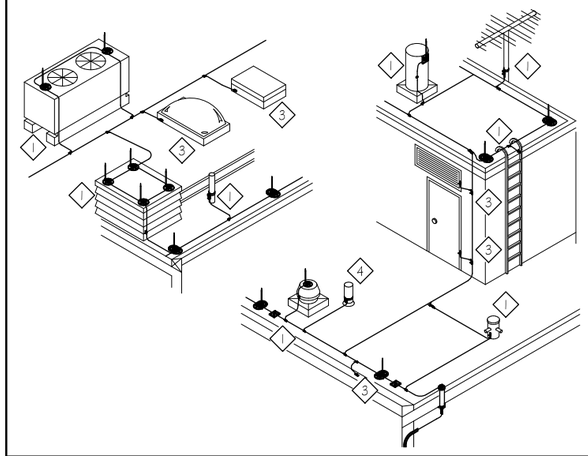
2 E-51 MISCELLANEOUS DETAILS
SCALE: NONE

GENERAL CONSTRUCTION NOTES

1. THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT ENGINEER TO CLARIFY ANY DISCREPANCIES.

GENERAL BONDING NOTES

1. TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.
2. BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.
3. TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.
4. (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.



GENERAL INSTALLATION NOTES

1. LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO INSURE THAT ALL POINTS ARE WITHIN 2'-0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'-0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'-0" (7,520mm) MAX.
2. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.
3. ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'-0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATIONS PRIOR TO INSTALLATION.
4. GROUND ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" (304mm) BELOW GRADE AND 2'-0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'-0" (3,048mm).
5. BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.
6. INTERCONNECT LIGHTNING PROTECTION GROUND TO ELECTRIC, TELEPHONE, AND OTHER BUILDING GROUND SYSTEMS AS SHOWN OR AS REQUIRED BY CODE.
7. SYSTEM SHALL BE INSTALLED AS REQUIRED TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR INSTALLATION VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.
8. RECORD DOCUMENTS SHALL BE SUBMITTED IN ACCORDANCE WITH CERTIFICATION PROCEDURES.
9. ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH "A" LABELS ON CONDUCTORS @ 10'-0" (3,048mm) INTERVALS AND "B" LABELS ON ALL AIR TERMINALS.
10. COMPLETED INSTALLATION SHALL BEAR U.L. MASTER LABEL "C" TO BE SECURED BY SYSTEM INSTALLER PER UL96A.
11. INSTALLATION SHALL BE MADE UNDER THE SUPERVISION OF AN L.P.I. CERTIFIED MASTER INSTALLER.

LEGEND

- AIR TERMINAL AND BASE ASSEMBLY
- MECHANICAL CONNECTION
- THRU-ROOF CONNECTION
- THRU-WALL CONNECTION
- COPPER LIGHTNING PROTECTION CONDUCTOR
- ALUMINUM LIGHTNING PROTECTION CONDUCTOR
- GROUND ROD
- MISCELLANEOUS BOND

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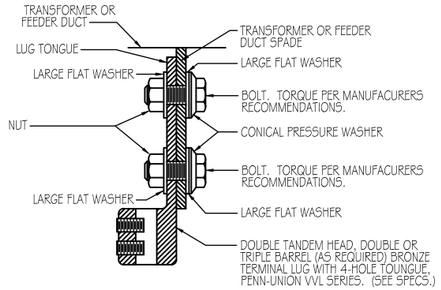
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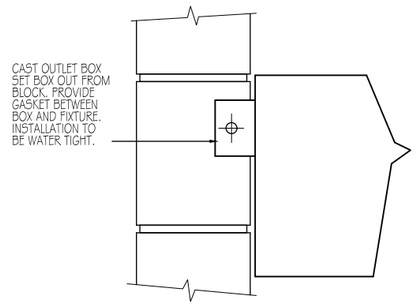
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
DETAILS

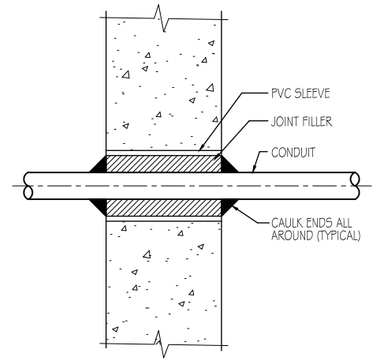
SHEET E–51
262.08.200



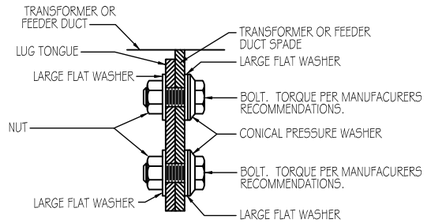
7 LUG TO SPADE CONNECTION DETAIL
7 / E-52 SCALE: NONE



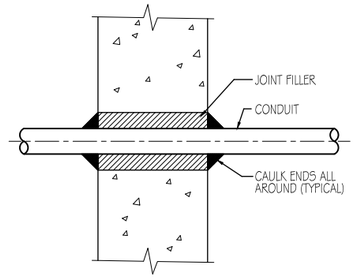
WALL HUNG FIXTURE MOUNTING DETAIL
4 / E-52 SCALE: NONE



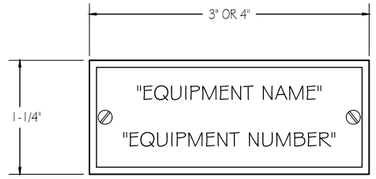
CONDUIT PENETRATION AT NEW WALL OR SLAB
1 / E-52 SCALE: NONE



8 LUG TO SPADE CONNECTION DETAIL
8 / E-52 SCALE: NONE



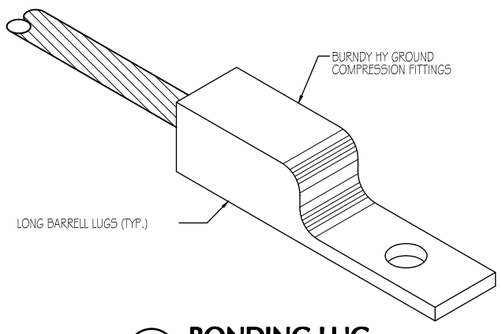
CONDUIT PENETRATION AT EXISTING WALL OR SLAB
5 / E-52 SCALE: NONE



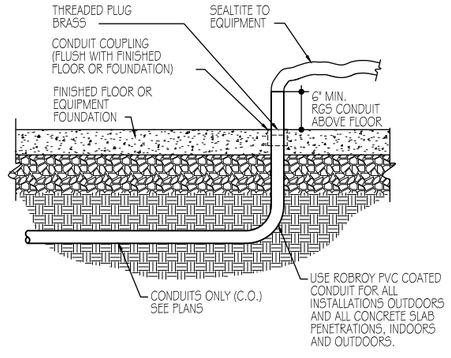
NOTES:

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

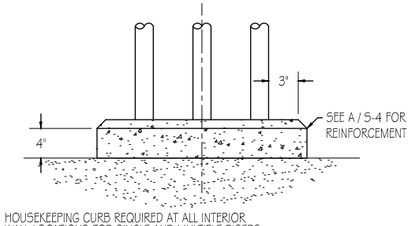
2 NAMEPLATE DETAIL
2 / E-52 SCALE: NONE



9 BONDING LUG
9 / E-52 SCALE: NONE



CONDUIT TERMINATION UNDER EQUIPMENT
6 / E-52 SCALE: NONE



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

CONCRETE HOUSEKEEPING CURB DETAIL
3 / E-52 SCALE: NONE

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HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER * 11573287-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

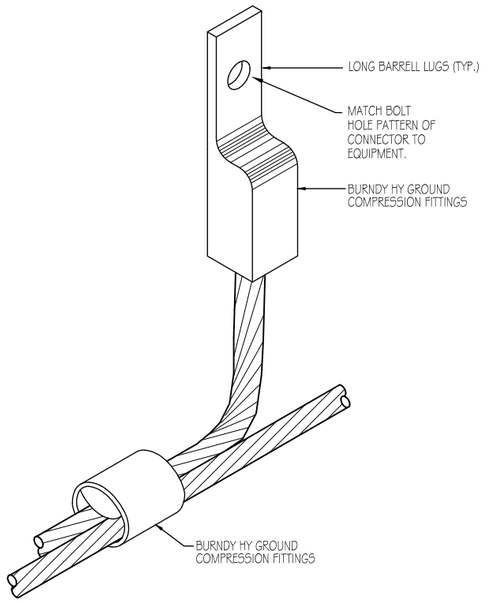
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CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

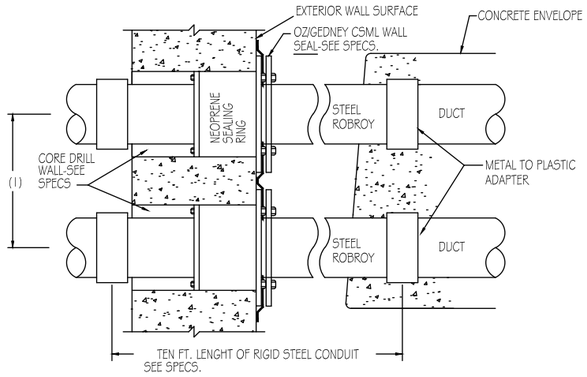
METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
DETAILS

SHEET: E-52
262.08.200

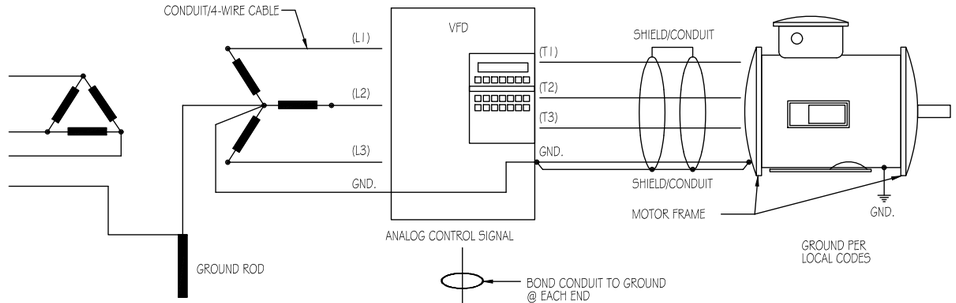


6 EQUIPMENT GROUNDING CONNECTION
6 / E-53 SCALE: NONE

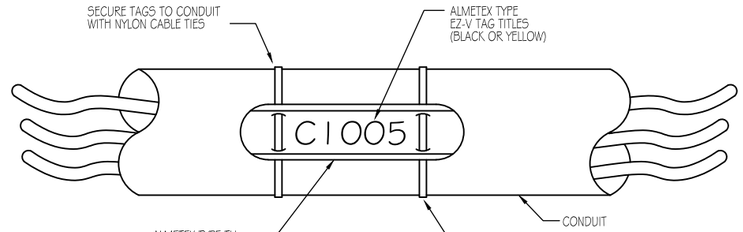


NOTE:
(1) VERIFY WITH SEAL MANUFACTURER BEFORE DRILLING.

4 CONDUIT WALL SEAL SECTION
4 / E-53 SCALE: NONE
(TYPICAL OF ALL CONDUIT ENTERING BUILDINGS FROM EXTERIOR DUCTBANKS)

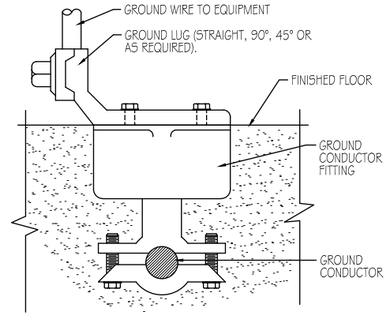


1 VFD GROUNDING DIAGRAM
1 / E-53 SCALE: NONE



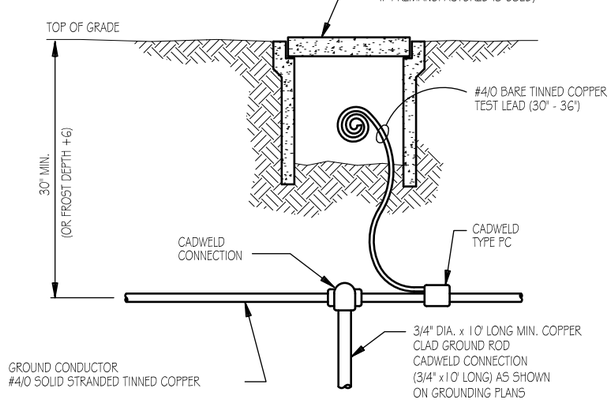
1000-1999 - 480 VOLT SYSTEM
2000-2999 - 277 VOLT SYSTEM
3000-3999 - 208/120 VOLT SYSTEM
4000-4999 - INSTRUMENTATION & CONTROL SYSTEM

2 CONDUIT MARKING SYSTEM
2 / E-53 SCALE: NONE

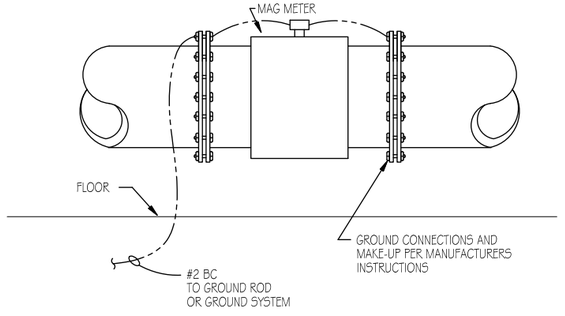


NOTE:
BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE CONNECTOR IS EMBEDDED.

7 GROUND INSERT DETAIL
7 / E-53 SCALE: NONE
TYPICAL OF ALL INTERIOR EQUIPMENT GROUNDING



5 GROUND TEST WELL DETAIL
5 / E-53 SCALE: NONE



3 FLOW METER GROUND RING CONNECTION DETAIL
3 / E-53 SCALE: NONE

FILE NAME: 4/12/2023 12:49 PM - I:\22113\01 - DWG\ELEC\SHEET\22113-E-53.DWG - KINKADE MINSON
FILE DATE:

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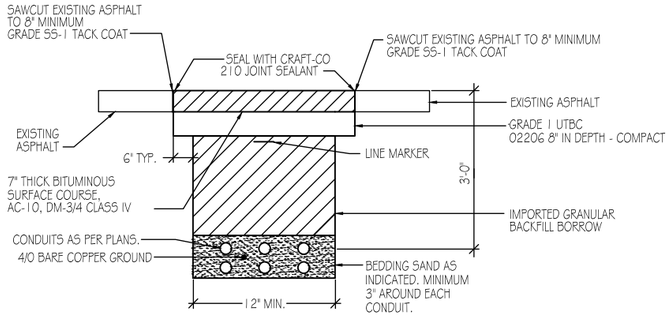
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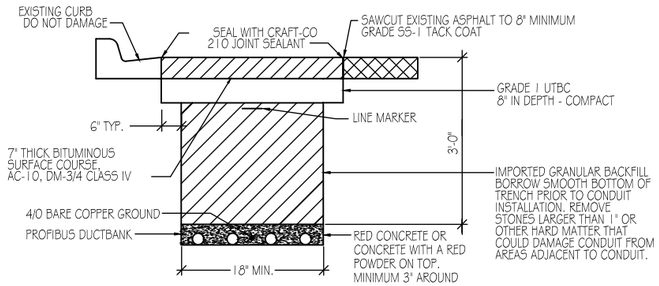
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
DETAILS

SHEET: E–53
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LOW VOLTAGE AND COMMUNICATIONS TRENCH DETAIL-ROADWAY RESTORATION

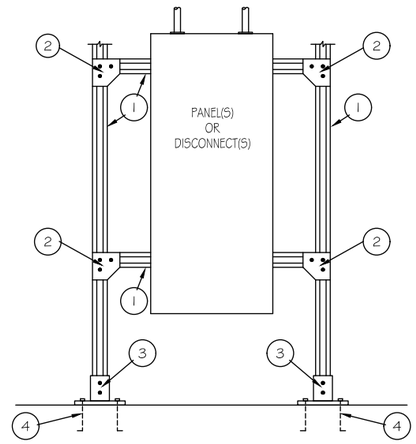
7 / E-54 SCALE: NONE



ROADWAY RESTORATION SIMILAR WHEN CROSSING EXISTING CURBS. DO NOT DISTURB CURBS. INSTALL CONDUIT BENEATH AND RESTORE AS DETAILED.

MEDIUM VOLTAGE TRENCH DETAIL-ROADWAY RESTORATION

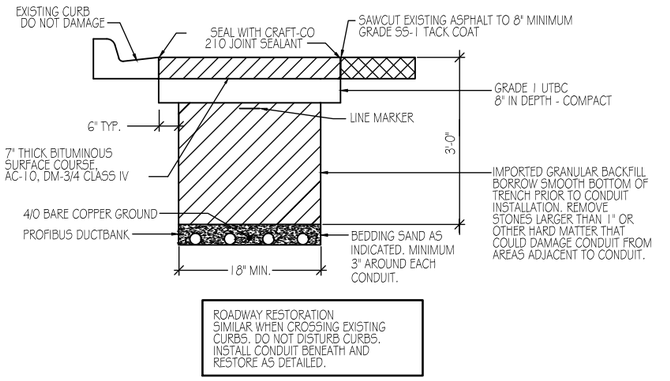
4 / E-54 SCALE: NONE



1. UNISTRUT P1000 CHANNEL - STAINLESS OR FIBERGLASS
2. UNISTRUT P1334 FLAT PLATE - STAINLESS OR FIBERGLASS
3. UNISTRUT P2072A POST BASE - STAINLESS OR FIBERGLASS
4. 3/8"Ø S.S. ANCHOR BOLT, ADHESIVE TYPE, INTO EXISTING CONCRETE FLOOR (4 PER POST BASE)

PANEL SUPPORT RACK

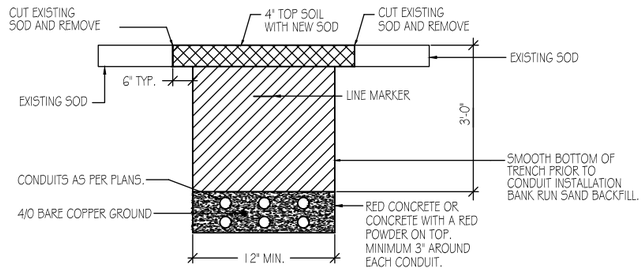
1 / E-54 SCALE: NONE



ROADWAY RESTORATION SIMILAR WHEN CROSSING EXISTING CURBS. DO NOT DISTURB CURBS. INSTALL CONDUIT BENEATH AND RESTORE AS DETAILED.

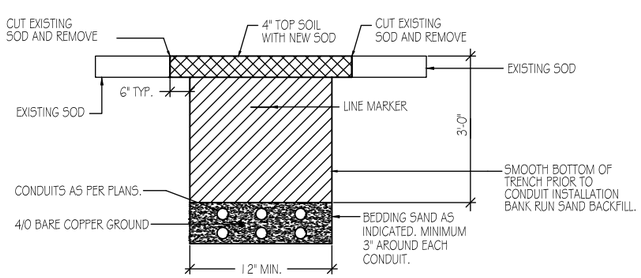
LOW VOLTAGE AND COMMUNICATIONS TRENCH DETAIL-ROADWAY RESTORATION

8 / E-54 SCALE: NONE



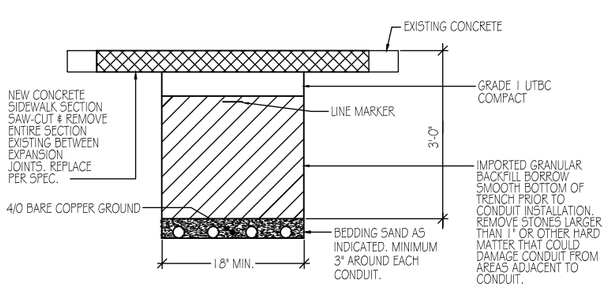
MEDIUM VOLTAGE TRENCH DETAIL-SOD RESTORATION

5 / E-54 SCALE: NONE



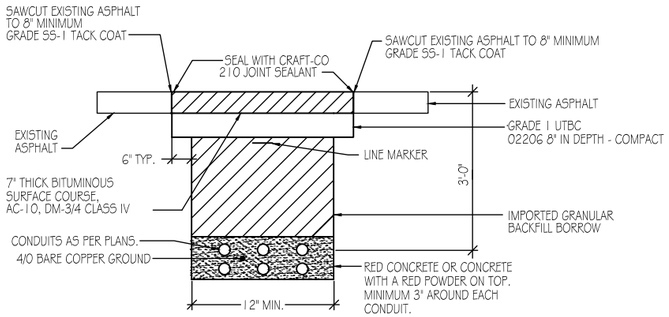
LOW VOLTAGE AND COMMUNICATIONS TRENCH DETAIL-SOD RESTORATION

9 / E-54 SCALE: NONE



LOW VOLTAGE AND COMMUNICATIONS TRENCH DETAIL-SIDEWALK RESTORATION

6 / E-54 SCALE: NONE



MEDIUM VOLTAGE TRENCH DETAIL-SIDEWALK RESTORATION

2 / E-54 SCALE: NONE

MEDIUM VOLTAGE TRENCH DETAIL-ROADWAY RESTORATION

3 / E-54 SCALE: NONE

FILE NAME: 4/12/2023 12:49 PM - I:\22113\01 - DWG\ELEC\SHEET\22113-E-54.DWG - KINKADE MINSON
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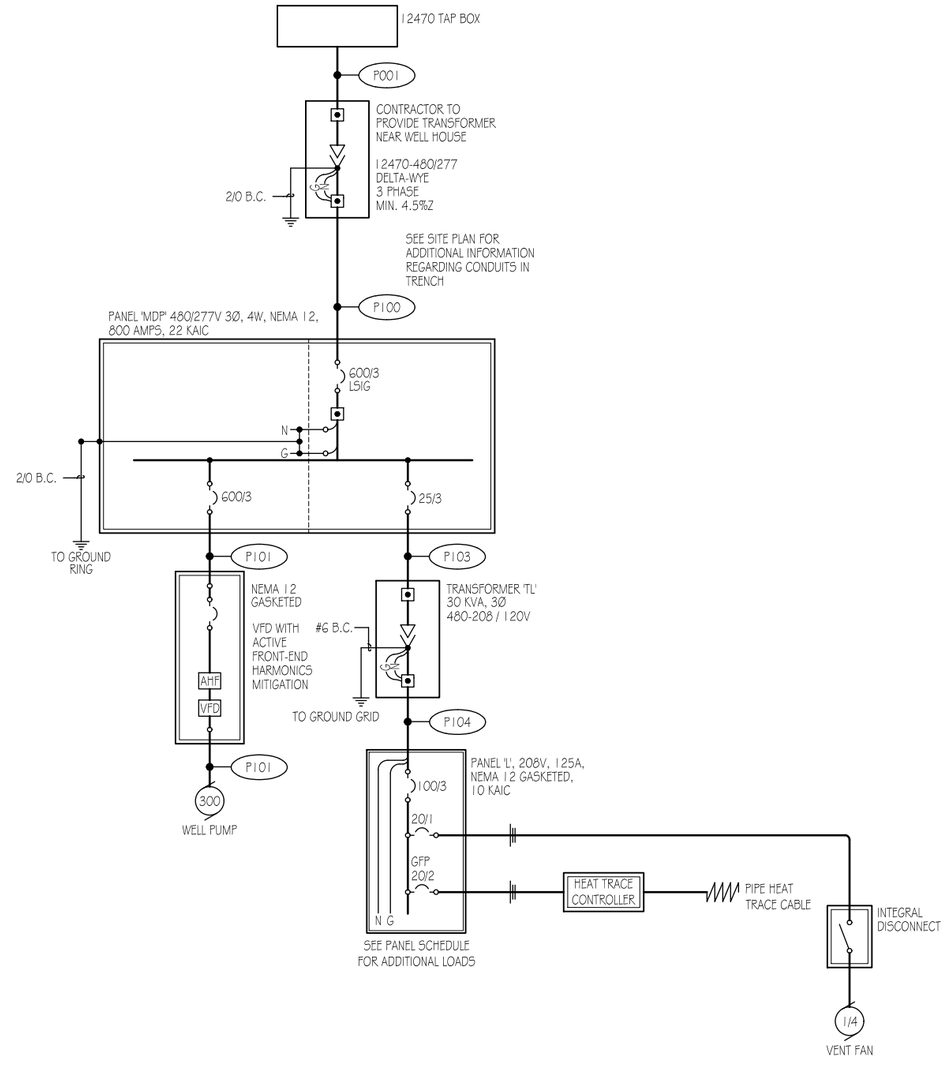
SCALE: NONE

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DETAILS

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ONE-LINE DIAGRAM

SCALE: NONE

FILE NAME: I:\22113\01 - DWG\ELEC\SHEET\22113-E-61.DWG - KINKADE MINSON
FILE DATE: 4/12/2023 12:49 PM

HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

11573207-2202
ROBERT J. HILLVER
04/12/23
STATE OF UTAH

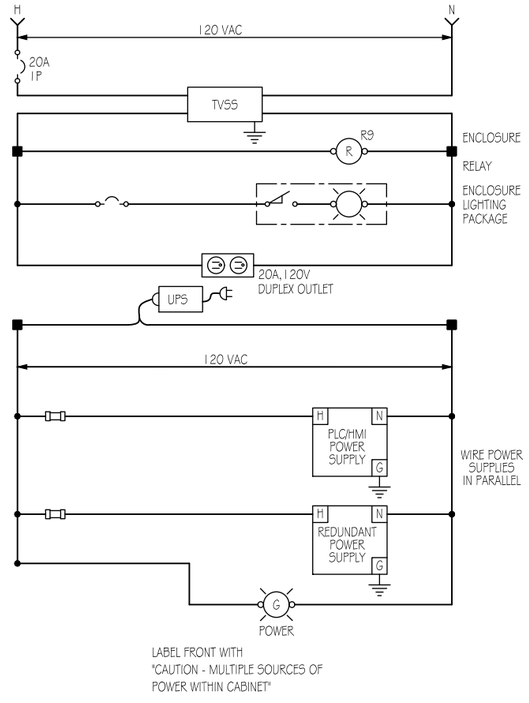
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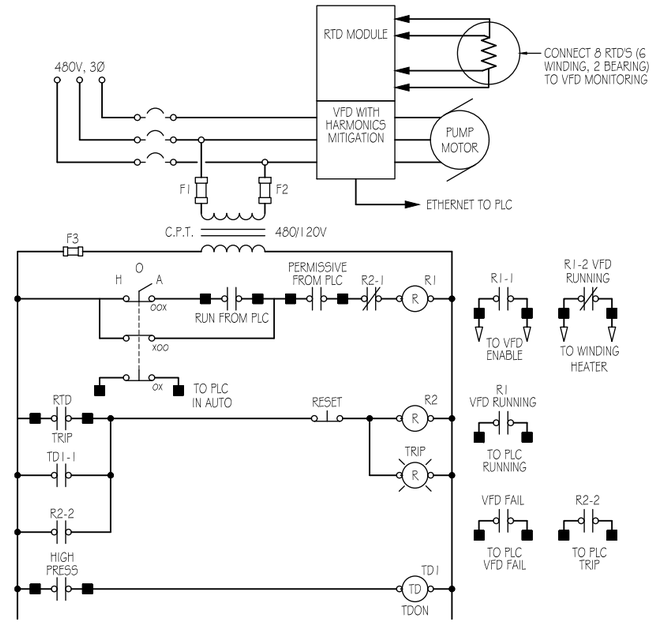
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
SCHEDULES

SHEET E–61
262.08.200



PLC POWER CONTROL DIAGRAM

SCALE: NONE



WELL VFD WIRING DIARAM

SCALE: NONE

FILE NAME: 4/12/2023 12:49 PM - I:\22113\01 - DWG\ELEC\SHEET\22113-E-62.DWG - KINKADE MINSON

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LC063 ASR PILOT TESTING – PHASE 1
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SCHEDULES

SHEET: E–62

262.08.200

P&ID INTERFACE SYMBOLS

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

- AAA BBB/X — PILOT LIGHT X= LENS COLOR R= RED, G= GREEN, A= AMBER, B= BLUE W= WHITE
- AAA BBB/CCC — FIELD DEVICE OR INSTRUMENT
- AAA BBB/CCC — PANEL DEVICE
- AAA BBB/CCC — DEVICE MOUNTED IN SUBPANEL
- BBB/CCC — PLC OR REMOTE I/O TERMINAL
- BBB/CCC — HMI OR OIT FUNCTION
- DISCRETE IN
- DISCRETE OUT
- ANALOG IN
- ANALOG OUT
- PULSE INPUT
- I/X — INTERLOCK DEVICE OR RELAY, X= NOTE REF.
- I/I — DUAL CHANNEL CURRENT ISOLATOR

TAG NUMBERS AND ADDITIONAL DESIGNATIONS

- XXX/000 — FIRST LETTER; SUCCEEDING LETTERS; LOOP NUMBER
- XX — ADDITIONAL IDENTIFICATION, SEE ABBREVIATIONS AND HAND SWITCH DESIGNATIONS

PRIMARY ELEMENT SYMBOLS

- PARSHALL FLUME
- ORIFICE PLATE
- FLOW TUBE
- ROTAMETER
- ULTRASONIC FLOWMETER
- ELECTROMAGNETIC FLOWMETER
- PROPELLER METER
- LEVEL (BUBBLE TUBE)
- LEVEL (CONDUCTIVE)
- DM — DENSITY METER
- PRESSURE SENSING ANNULAR RING TYPE SEAL
- STATIC MIXER
- AE DO — DO SENSOR
- AE ORP — ORP SENSOR
- AE pH — pH SENSOR
- AIT DO — DO ANALYZER
- AIT ORP — ORP ANALYZER
- AIT pH — pH ANALYZER
- LS — FLOAT SWITCH
- HS HOA — HAND SWITCH
- PRESSURE SENSING DIAPHRAGM SEAL, DISK TYPE
- R BEACON — BEACON
- YL/G STOP — INDICATING LIGHT
- FIT — INSERTION TYPE MASS FLOW METER
- FIT MASS — MASS FLOW METER ANNUBAR TYPE
- LE — ULTRASONIC OR RADAR LEVEL TRANSDUCER

ABBREVIATIONS

A	AMPERE OR AIR
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CAPACITY
AM	AUTO-MANUAL
ARV	AIR RELIEF VALVE
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
BFP	BELT FILTER PRESS
BR	BRINE SOLUTION
BW	BACKWASH
BWL	BOTTOM WATER LEVEL
CB	CIRCUIT BREAKER
CD	CYCLONE DRAIN
CL2	CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATION)
CNDT	CONDUCTIVITY
CP-X	CONTROL PANEL NO. X
CPM	CUSTOMER POWER MONITORING UNIT
CON	CONTACTOR
CSI	CYCLONE SEPARATOR INFLUENT
CU	COPPER, BARE
CV	CONTROL VALVE
CW	CYCLONE WASTE
DC	DIRECT CURRENT
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT OR DISSOLVED OXYGEN
DP	DIFFERENTIAL PRESSURE
DSW	DRUM SCREEN WASTE
DWG	DRAWING
E	VOLTAGE
ETM	ELAPSED TIME METER
ETMf	ELAPSED TIME METER (FAST SPEED)
ETMs	ELAPSED TIME METER (SLOW SPEED)
EOL	ELECTRONIC OVERLOAD
ES	EMERGENCY STOP
EXIST, (E)	EXISTING
FA	FOUL AIR
FC	FAIL CLOSED
FE	FINAL EFFLUENT
FLT	FILTER
FMR	FEEDER MANAGEMENT RELAY
FR	FORWARD-REVERSE
FVNR	FULL VOLTAGE NON-REVERSING
FW	FINISHED WATER
GAL	GALLONS
GCP	GENERATOR CONTROL PANEL
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H, HI	HIGH
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
I	CURRENT
ICR	INTERMITTENT CYCLE
IO	REACTOR INPUT/OUTPUT
IOE	INTERNAL - OFF - EXTERNAL
IS	INTERCHANGE SLUDGE
JB	JUNCTION BOX
L, LO	LOW
LAN	LOCAL AREA NETWORK
LC	LOOP CONTROLLER
LCP	LOCAL CONTROL PANEL
LEL	LOWER EXPLOSIVE LIMIT
M	MOTOR
MA	MANUAL/AUTO, MILLIAMPS
MC	MANUFACTURER CABLE
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR MAIN CONTROL INSTRUMENT PANEL
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MH	MANHOLE
ML	MIXED LIQUOR
MLR	MIXED LIQUOR RECYCLE
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
MO	MOISTURE
MOD	MODULATED
MOG	MOTOR OPERATED GATE
MS	MOISTURE SWITCH
MTU	MASTER TELEMETRY UNIT
NADH	NICOTINAMIDE ADENINE DINUCLEOTIDE
NIA	NOT IN AUTO
NPW	NON-POTABLE WATER
NS	NITROGEN SUPPLY
NTU	TURBIDITY
OC	OPEN/CLOSE
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
ORP	OXYGEN REDUCTION POTENTIAL
OTA	OVER TORQUE ALARM
OTW	OVER TORQUE WARNING
P	PRESSURE
PD	PLANT DRAIN
PER	PERMISSIVE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PO	PULSE OUTPUT
POS	POSITION
POT	POTENTIOMETER
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRES	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
PWR	POWER
RAS	RETURN ACTIVATED SLUDGE
RAW	RAW WATER
REM	REMOTE
RF	RADIO FREQUENCY
RIO	REMOTE INPUT/OUTPUT
RS	RAW SEWAGE, RUNNING STATUS
RSP	RAW SEWAGE PUMP
RST	RESET
RTU	REMOTE TELEMETRY UNIT
RUNf	RUN (FAST SPEED)
RUNs	RUN (SLOW SPEED)
SB	SLUDGE BLANKET
SCC	SCUM SECONDARY CLARIFIER
SE	SECONDARY EFFLUENT
SEQ	SERVICE ENTRANCE EQUIPMENT
SES	SERVICE ENTRANCE SECTION
SHC	SODIUM HYPOCHLORITE
SLC	SINGLE LOOP CONTROLLER
SLG	SLUICE GATE
SO2	SULFUR DIOXIDE
SOV	SOLENOID OPERATED VALVE
SP	SET POINT
SPC	SET POINT CONTROLLER
SPD	SPEED
SPR	SPARE
SSS	SOLID STATE STARTER (SOFT START)
T/M	TEMPERATURE AND/OR MOISTURE
TEMP	TEMPERATURE
TSS	TOTAL SUSPENDED SOLIDS
TWL	TOP WATER LEVEL
Tu	TURBIDITY
UG	UNDERGROUND
UW	UTILITY WATER
V	VOLT
V*	VENDOR EQUIPMENT
VFD	VARIABLE FREQUENCY DRIVE
VTP	VERTICAL TURBINE PUMP
VIB	VIBRATION
W	WATT, WIRE
WAS	WASTE ACTIVATED SLUDGE
WS	WASTE SLUDGE

HAND SWITCH DESIGNATIONS

ES	EMERGENCY STOP
HOA	HAND - OFF - AUTO
HOR	HAND - OFF - REMOTE
HORA	HAND - OFF - REMOTE - AUTO
JOA	JOG - OFF - AUTO
JR	JOG REVERSE
LOAR	LOWER - OFF - AUTO - RAISE
LOR	LOCAL - OFF - REMOTE
LOS	LOCKOUT STOP
LR	LOCAL - REMOTE
OC	OPEN - CLOSE
OCA	OPEN - CLOSE - AUTO
OO	ON - OFF
OOA	ON - OFF - AUTO
OSC	OPEN - STOP - CLOSE
SS	START/STOP (MAINTAINED)
USD	UP/STOP/DOWN

VALVE SYMBOLS

- GATE VALVE
- E — MOTOR OPERATED GATE VALVE
- A — ALTITUDE VALVE
- K — KNIFE GATE VALVE
- BUTTERFLY VALVE
- E — MOTOR OPERATED BUTTERFLY VALVE
- GLOBE VALVE
- BALL VALVE
- V — VEE-BALL VALVE
- PLUG VALVE
- E — MOTOR OPERATED PLUG VALVE
- SEAT PORT ECCENTRIC PLUG VALVE
- E — MOTOR OPERATED ECCENTRIC PLUG VALVE
- DIAPHRAGM VALVE
- PINCH VALVE
- E — MOTOR OPERATED PINCH VALVE
- NEEDLE VALVE
- SWING CHECK VALVE
- T — SWING CHECK VALVE WITH MANUAL GATE
- S — SOLENOID VALVE
- A — ALTITUDE VALVE
- DOUBLE LEAF CHECK VALVE
- RPBP — BACKFLOW PREVENTER (REDUCED PRESSURE ZONE TYPE)
- BALL CHECK VALVE
- MULTI-PORT VALVES (BALL VALVE SHOWN, FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- TELESCOPING VALVE
- S — SAMPLE TAP
- MUD VALVE
- PRESSURE RELIEF VALVE
- AIR AND/OR VACUUM RELEASE VALVE
- REGULATED SIDE PRESSURE CONTROL VALVE
- AIR RELEASE VALVE (ARV) OR COMBINATION AIR-VACUUM RELIEF VALVE (CAV)
- RUPTURE DISK
- E — MOTOR OPERATED SLEEVE VALVE
- SURGE ANTICIPATOR VALVE
- IPS CORP. STOP
- PVC DIFFUSER W/ IPS CORP. STOP

MISCELLANEOUS MECHANICAL SYMBOLS

- M — FLOCCULATOR OR SUBMERSIBLE MIXER
- M — AERATOR
- M — MOTOR
- DIFFUSERS
- CL2 — CHLORINE TANK
- FILTER
- SILENCER
- INLET SILENCER AND FILTER

P&ID LINE TYPES

- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- EXISTING OR FUTURE MAJOR PROCESS PIPING OR FLOW CHANNEL
- EXISTING OR FUTURE SECONDARY PROCESS PIPING
- EXISTING OR FUTURE MISCELLANEOUS PIPING
- PROCESS LINES CROSSING (NOT CONNECTED)
- FLOW ARROW FOR PROCESS PIPING
- EXISTING PIPING OR EQUIPMENT OR FUTURE PIPING OR EQUIPMENT
- ? ? — PROCESS OR SIGNAL LINE GOING TO ANOTHER SHEET
- ? ? — PROCESS OR SIGNAL LINE FROM ANOTHER SHEET (MATCH LETTERS)
- L L — HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- DISCRETE SIGNAL
- A — ANALOG SIGNAL
- P — PULSE SIGNAL
- INTERNAL SYSTEM SIGNAL LINK (SOFTWARE OR DATA LINK)
- ELECTRICAL DIRECTION ARROW
- SIGNAL CONNECTION POINT
- PACKAGED SYSTEMS
- PROFIBUS

PUMP AND COMPRESSOR SYMBOLS

- XX — CENTRIFUGAL PUMP (DRY PIT)
- XX — CENTRIFUGAL WET PIT PUMP
- XX — PERISTALTIC CHEMICAL FEED PUMP
- XX — DIAPHRAGM PUMP
- XX — GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- XX — METERING PUMP WITH MANUAL STROKE CONTROL
- XX — PROGRESSIVE CAVITY PUMP
- XX — AIR OPERATED DOUBLE DIAPHRAGM PUMP
- XX — PISTON PUMP
- XX — GEAR PUMP OR BLOWER
- XX — PROGRESSING CAVITY PUMP
- XX — COMPRESSOR (CENTRIFUGAL)
- XX — COMPRESSOR (PISTON)
- XX — ROTARY LOBE PUMP
- XX — BLOWER OR FAN (CENTRIFUGAL)
- XX — VERTICAL TURBINE PUMP

NOTE: XX:AS — ADJUSTABLE SPEED
CS-1 CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)

PROCESS DEVICE SYMBOLS

- SIGHT GLASS
- CARTRIDGE FILTER
- STRAINER
- DRAIN
- CAP OR PLUG
- BLIND FLANGE
- PRESSURE REGULATOR
- AIR FILTER
- PULSATION DAMPENER
- WATER LEVEL
- QUICK DISC. COUPLING
- EXPANSION JOINT
- DIAPHRAGM
- DIAPHRAGM WITH POSITIONER
- CL2 FLOW METER
- SAMPLER
- EJECTOR
- WEIGHT SCALE

GATE SYMBOLS

- SLIDE GATE
- SLUICE GATE
- WEIR GATE (DOWNWARD OPENING)
- BUTTERFLY GATE
- FLAP GATE
- STOP GATE

ACTUATOR SYMBOLS

- P — PNEUMATIC
- E — ELECTRIC WITH POSITIONER
- P — PNEUMATIC WITH POSITIONER
- E — ELECTRIC
- H — HYDROLIC
- S — SOLENOID
- XX — FO = FAIL OPEN; FC = FAIL CLOSED; FLP = FAIL LAST POSITION

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

MISCELLANEOUS ELECTRICAL SYMBOLS

- 120/1 — VOLTAGE & POWER SUPPLY PHASE(S) AS NOTED
- ISR — INTRINSICALLY SAFE RELAY
- PLUG
- E/E — CONVERTER
- S — SMOKE DETECTOR
- DIESEL GENERATOR

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FILE DATE:

HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3					
DRAFTED	KGM	2					
CHECKED	RJH	1					
DATE	April 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
P&ID SYMBOL LEGEND

SHEET: I–01
262.08.200

ISA INSTRUMENT IDENTIFICATION TABLE

	FIRST LETTERS		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYZER		ALARM		AUTO
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT		
F	FLOW	RATIO			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTION OR MOISTURE				MIDDLE
N	INTRUSION				NORMAL
O	TORQUE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT CONNECTION		STOP
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT	RESET	RUN OR REMOTE
S	SPEED OR FREQUENCY	SAFETY		SWITCH	START
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, LOUVER	
W	WEIGHT OR FORCE		WELL		
X	MOTOR	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z-AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

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HEATH Engineering Company

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROFESSIONAL ENGINEER # 11573287-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
DRAFTED	KGM	2				
CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

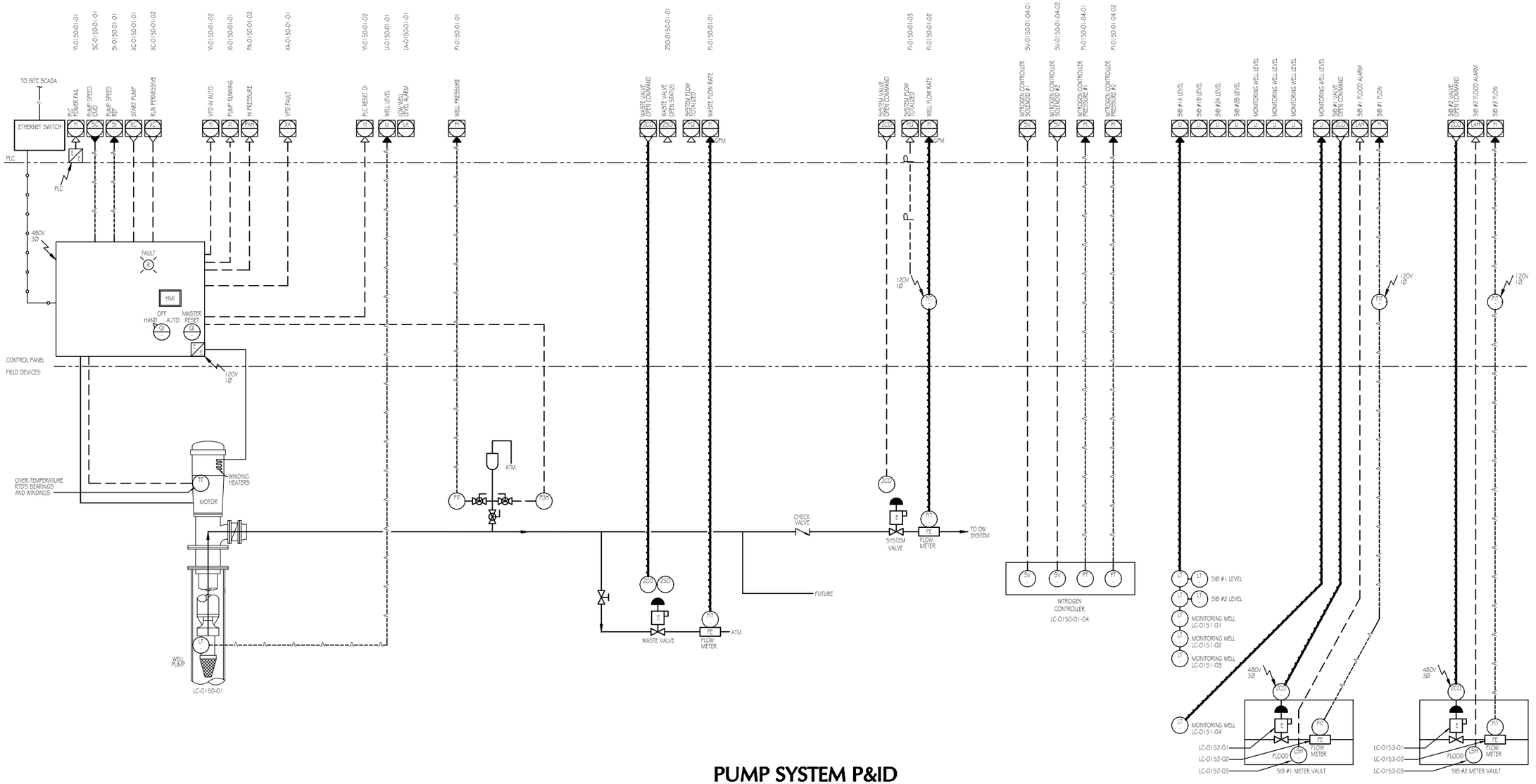
LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
P&ID SYMBOL LEGEND

SHEET: I–02
262.08.200

ASR WELL - 0150-01-XX

ASR WELL WIRE TAG - XX-0150-01-XX-XX (WIRE NUMBER)

REFER TO AND FOLLOW METROPOLITAN WATER DISTRICT OF SALT LAKE AND SANDY DISTRICT ENGINEERING GUIDES - INSTRUMENTATION AND CONTROL DESIGN GUIDELINES.



PUMP SYSTEM P&ID

SCALE: NONE

OPEN TAGS IF NEEDED:
LC-0153-XX
LC-0154-XX

FILE NAME: 4/12/2023 12:50 PM - I:\22113\01 - DWG\ELEC\SHEET\22113-I-61.DWG - KINKADE MINSON
FILE DATE:

HEATH Engineering Company

HANSEN ALLEN & LUCE, inc. ENGINEERS

PROFESSIONAL ENGINEER # 11573207-2202 ROBERT J. HILLYER 04/12/23 STATE OF UTAH

DESIGNED	RJH	3				
DRAFTED	KGM	2				
CHECKED	RJH	1				
DATE	April 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
ELECTRICAL
P&ID DIAGRAM

SHEET I-61

262.08.200

VENTILATION FAN

SYMBOL	AIR FLOW CFM	TOTAL STATIC PRESS IN WC @ ALTITUDE	FAN MAX RPM	FAN ELECTRICAL				BHP	DRIVE	SONES	LWA	COOK MODEL	DUTY	WEIGHT LBS	REMARKS
				VOLTS	HERTZ	PHASE	MOTOR HP								
VF-1	1200	0.5	1524	115	60	1	1/4	.23	DIRECT	9.4	71	120 SQN17D (VF)	WELL HOUSE	140	EC MOTOR, FAN MOUNTED SPEED CONTROL

FILTER SECTION

SYMBOL	FILTER SIZE	FILTER THICKNESS	FILTER TYPE	FARR MODEL	DUTY	NO. AND SIZE OF FILTERS	REMARKS
FS-1	32"x32"	2"	PLEATED	30-30	WELL HOUSE INTAKE	(4)16"x16"	UNIVERSAL CLIP FILTER RACK

LOUVER

SYMBOL	APPROXIMATE SIZE	CFM	MAX. P.D. H20	RUSKIN MODEL	DUTY	REMARKS
L-1	32"x32"	1200	0.1"	ELF6375DX	WELL HOUSE VENTILATION	INSTALL LOUVER 24" ABOVE GRADE TO BOTTOM OF LOUVER. FIELD COORDINATE EXACT LOCATION.
L-2	24"x24"	1200	0.1"	ELF6375DX	WELL HOUSE VENTILATION	INSTALL LOUVER 80" ABOVE GRADE TO BOTTOM OF LOUVER. FIELD COORDINATE EXACT LOCATION.

MOTORIZED DAMPERS

SYMBOL	DAMPER SIZE		BLADE ORIENTATION	RUSKIN MODEL	NORMAL POSITION	SERVICE	REMARKS
	WIDTH (IN)	HEIGHT (IN)					
MD-1	32	32	OPPOSED	CD-50	CLOSED	WELL HOUSE VENTILATION	INTERLOCK WITH VF-1. FURNISH WITH 120 VOLT BELIMO DAMPER ACTUATOR SIZED TO ACCOMMODATE DAMPER SIZE.
MD-2	24	24	OPPOSED	CD-50	CLOSED	WELL HOUSE VENTILATION	INTERLOCK WITH VF-1. FURNISH WITH 120 VOLT BELIMO DAMPER ACTUATOR SIZED TO ACCOMMODATE DAMPER SIZE.

CONTROL SEQUENCES

WELL HOUSE VENTILATION SYSTEM (VF-1, MD-1, & MD-2)

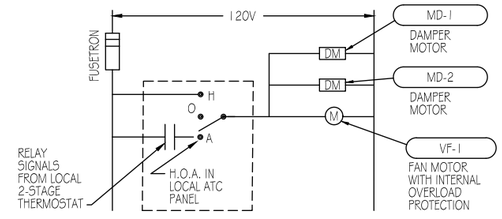
1. VENTILATION FAN VF-1 IS CONTROLLED FROM A WALL MOUNTED LINE VOLTAGE THERMOSTAT AND OPERATES IN COOLING MODE TO MAINTAIN SPACE SETPOINT TEMPERATURE OF 85°F (ADJUSTABLE).
2. WHENEVER VF-1 RUNS MOTORIZED DAMPERS MD-1 & 2 OPEN.

HVAC SYMBOL LEGEND

	RETURN AIR OR EXHAUST DIRECTION	(C)	HOLDING COILING-MOTOR STARTER OR AUX. RELAY
	OPPOSED BLADE DAMPER	(TS)	TIMER SWITCH
	PARALLEL BLADE DAMPER	PS	PRESSURE SWITCH
O.A.	OUTSIDE AIR		SUPPLY DUCT (CROSS SECTION)
S.A.	SUPPLY AIR		RETURN AIR OR EXHAUST DUCT (CROSS SECTION)
E.A.	EXHAUST AIR		ROUND DUCT (CROSS SECTION)
V.A.	VENTILATION AIR	24"x12"	DUCT SIZE, INSIDE CLEAR DIMENSION IN INCHES
(T)	THERMOSTAT		DROP OR RISE IN SUPPLY DUCT
(S)	WALL SENSOR		SUPPLY AIR OR OUTSIDE AIR DIRECTION
(R)	RELAY		

GENERAL NOTES

1. EQUIPMENT MANUFACTURERS AND MODEL NUMBERS ON DRAWING SCHEDULES ARE PROVIDED FOR REFERENCE ONLY IN ORDER TO ESTABLISH SIZES. DO NOT LIMIT EQUIPMENT SELECTION TO SHOWN MAKES. APPROVED EQUAL MANUFACTURERS WILL BE ACCEPTED.
2. SIZES OF EQUIPMENT PADS, ROOF, FLOOR, AND WALL PENETRATIONS ARE GIVEN FOR REFERENCE ONLY AND SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR ORDERING EQUIPMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE FINAL SIZE AND LOCATION OF ROOF AND WALL OPENINGS REQUIRED FOR THE HVAC EQUIPMENT INSTALLATION.
4. ALL EQUIPMENT MOTORS SHALL BE DERATED FOR AN ELEVATION OF 4800 FT ABOVE SEA LEVEL.



1 H-1 **VENTILATING SYSTEM CONTROL DIAGRAM**

SCALE: NONE

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HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 564772-2202 KARSON DAVID HALVERSON 04/12/23 STATE OF UTAH

DESIGNED	KDH	3					
DRAFTED	KGM	2					
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DATE	April 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

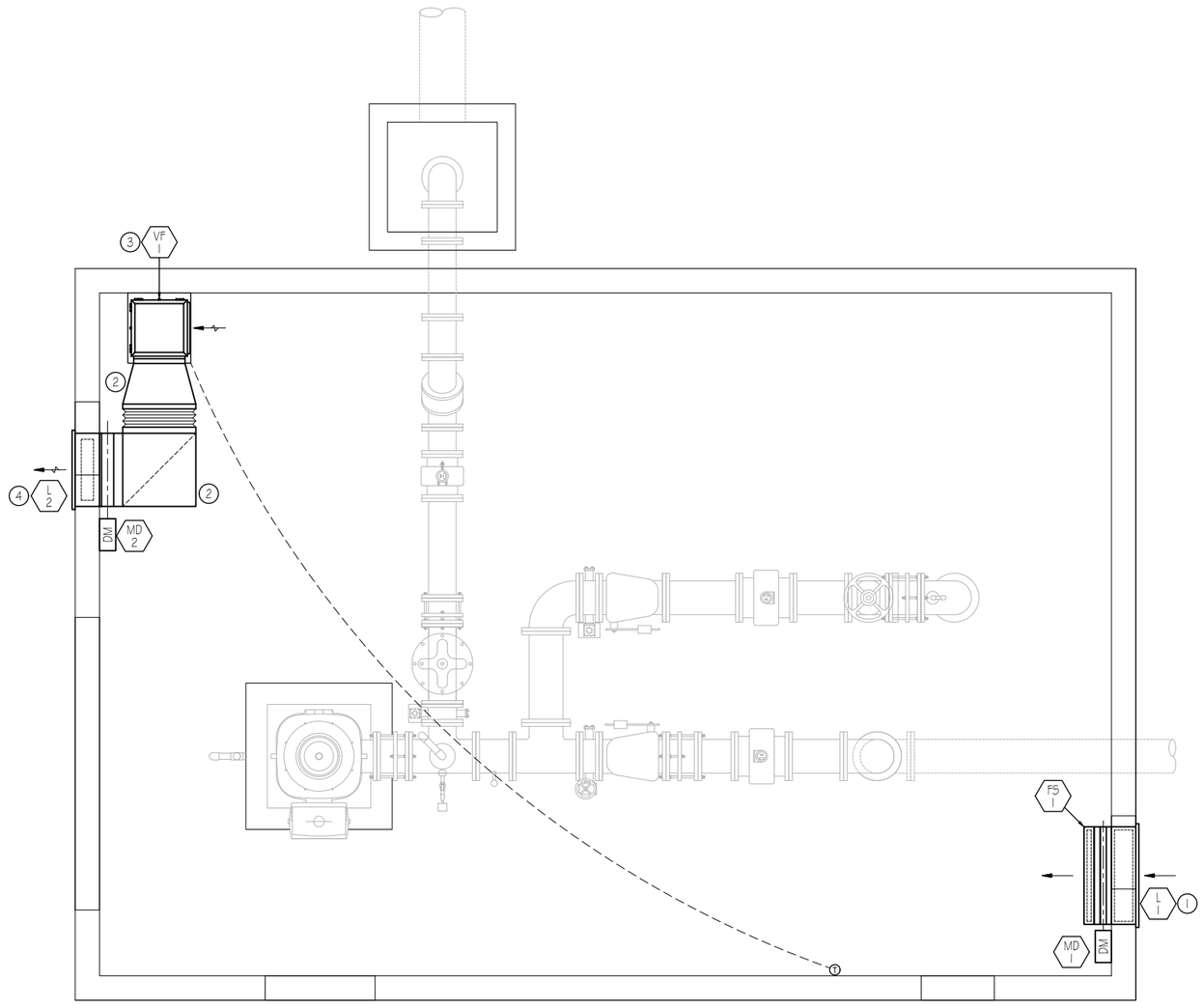
LC063 ASR PILOT TESTING – PHASE 1
HVAC
SYMBOL LEGEND, SCHEDULES, DIAGRAMS

SHEET H–01

262.08.200

DRAWING NOTES

1. BOTTOM OF LOUVER TO BE 24" ABOVE GRADE. FIELD COORDINATE EXACT LOCATION.
2. TRANSITION AS REQUIRED FROM FAN OUTLET TO 24"x24"+1" AL. RISE UP AND CONNECT TO MOTORIZED DAMPER MD-2 AND LOUVER L-2 AS SHOWN. CONNECT DUCTWORK TO THE FAN USING A FLEXIBLE CONNECTION. SUPPORT ALL DUCTWORK FROM THE SLAB BELOW PER SMACNA GUIDELINES.
3. INSTALL VENTILATION FAN VF-1 PER MANUFACTURERS REQUIREMENTS. MOUNT FAN ON A FAN STAND USING SPRING TYPE VIBRATION ISOLATORS. ANCHOR THE FAN STAND TO THE SLAB. SEISMICALLY STRAP THE FAN TO THE NEAREST BUILDING STRUCTURE. APPROXIMATE MOUNTING HEIGHT TO THE BOTTOM OF THE FAN IS 36". FIELD COORDINATE EXACT LOCATION. REFERENCE DETAILS FOR ADDITIONAL DETAIL.
4. BOTTOM OF LOUVER TO BE 80" ABOVE GRADE. FIELD COORDINATE EXACT LOCATION.



1 ASR WELL HVAC PLAN
H-11 SCALE: 2 0 5

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HEATH Engineering Company

HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 6647773-2202 KARSON DAVID HALVERSON 09/12/23 STATE OF UTAH

DESIGNED	KDH	3				
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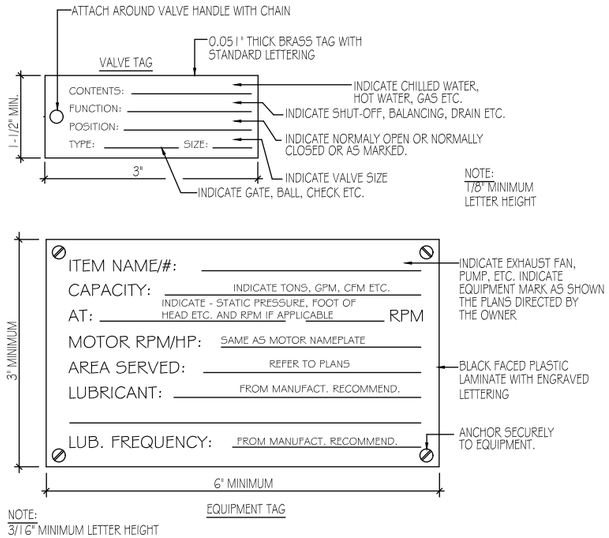
SCALE AS SHOWN

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
HVAC
ASR WELL PLAN

SHEET H–11

262.08.200



5 H-51 IDENTIFICATION TAG DETAIL

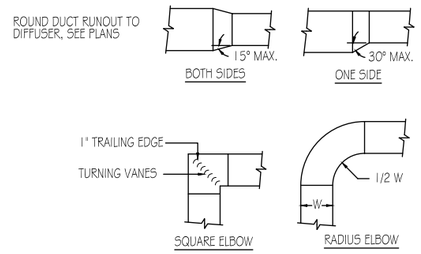
SCALE: NONE

DIMENSION OF LONGEST SIDE, (INCHES)	SHEET METAL GAGE (ALL FOUR SIDES)	TRANSVERSE REINFORCING *										
			AT JOINTS									
		MINIMUM REINFORCING ANGLE SIZE & MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING	MIN H, IN.	DRIVE SLIP / PLAIN S SLIP	HEMMED S SLIP	ALT. BAR SLIP	REIN-FORCED BAR SLIP	BAR SLIP / ANGLE SLIP		STD. SEAM / ANGLE REINFORCED STD. SEAM	POCKET LOCK / ANGLE REINFORCED POCKET LOCK	
				RECOM-MENDED GAGE	RECOM-MENDED GAGE	RECOM-MENDED GAGE	RECOM-MENDED GAGE	RECOM-MENDED GAGE	REINFORCED ANGLE SIZE	REINFORCED ANGLE SIZE	RECOM-MENDED GAGE	REINFORCED ANGLE SIZE
UP THRU 12	24	NONE REQ.	1	26	26	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
13-18	24	NONE REQ.	1	24	24	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
19-30	24	1x1x1/8 @60in.	1	-	24	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
31-42	22	1x1x1/8 @60in.	1	-	-	22	22	22	NOT REQ.	NOT REQ.	22	NOT REQ.
43-54	22	1-1/2x1-1/2x1/8 @60in.	1-1/2	-	-	22	22	22	1-1/2x1-1/2x1/8	NOT REQ.	22	NOT REQ.
55-60	20	1-1/2x1-1/2x1/8 @60in.	1-1/2	-	-	-	22	22	1-1/2x1-1/2x1/8	NOT REQ.	22	NOT REQ.
61-84	20	1-1/2x1-1/2x1/8 @60in.	1-1/2	-	-	-	22	22	1-1/2x1-1/2x1/8	1-1/2x1-1/2x1/8	22	1-1/2x1-1/2x1/8

* TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

3 H-51 SHEETMETAL DUCT CONSTRUCTION DETAIL

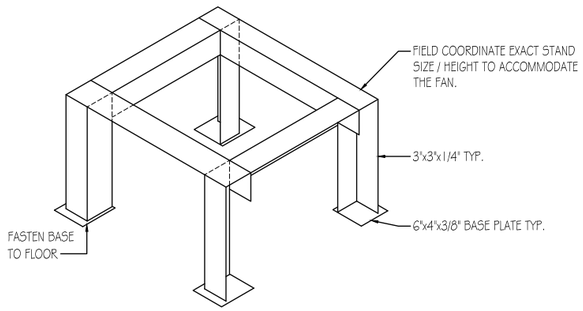
SCALE: NONE



NOTES:
1. ALL DUCTS (SUPPLY, RETURN AND EXHAUST) TO HAVE TURNING VANES IN SQUARE ELBOW.
2. INSIDE SQUARE, OUTSIDE RADIUS ELBOWS NOT ALLOWED.

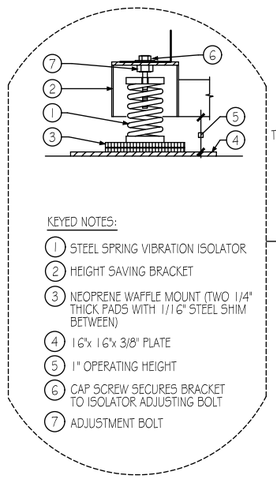
1 H-51 RECTANGULAR DUCT FITTING DETAIL

SCALE: NONE



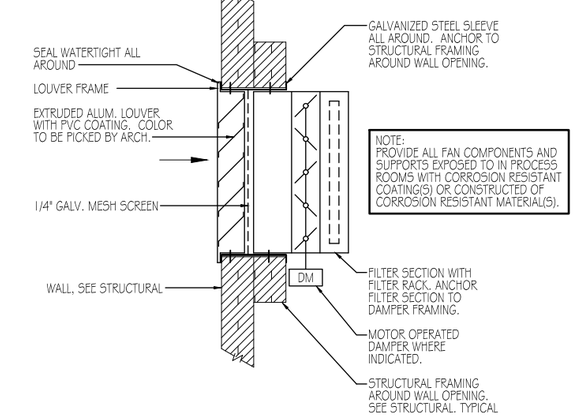
4 H-51 FAN STAND DETAIL

SCALE: NONE



4 H-51 VENTILATION FAN DETAIL

SCALE: NONE



2 H-51 INLET LOUVER WITH FILTER DETAIL

SCALE: NONE

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HEATH Engineering Company
HANSEN ALLEN & LUCE inc ENGINEERS

PROFESSIONAL ENGINEER 6647772-2202 KARSON DAVID HALVERSON 04/12/23 STATE OF UTAH

		NO.	DATE	REVISIONS	BY	APVD.
DESIGNED	KDH	3				
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CHECKED	KDH	1				
DATE	April 2023					

SCALE: NONE

METROPOLITAN WATER DISTRICT OF SALT LAKE & SANDY
3430 EAST DANISH ROAD
COTTONWOOD HEIGHTS, UT 84093

LC063 ASR PILOT TESTING – PHASE 1
HVAC
DETAILS

SHEET H–51
262.08.200