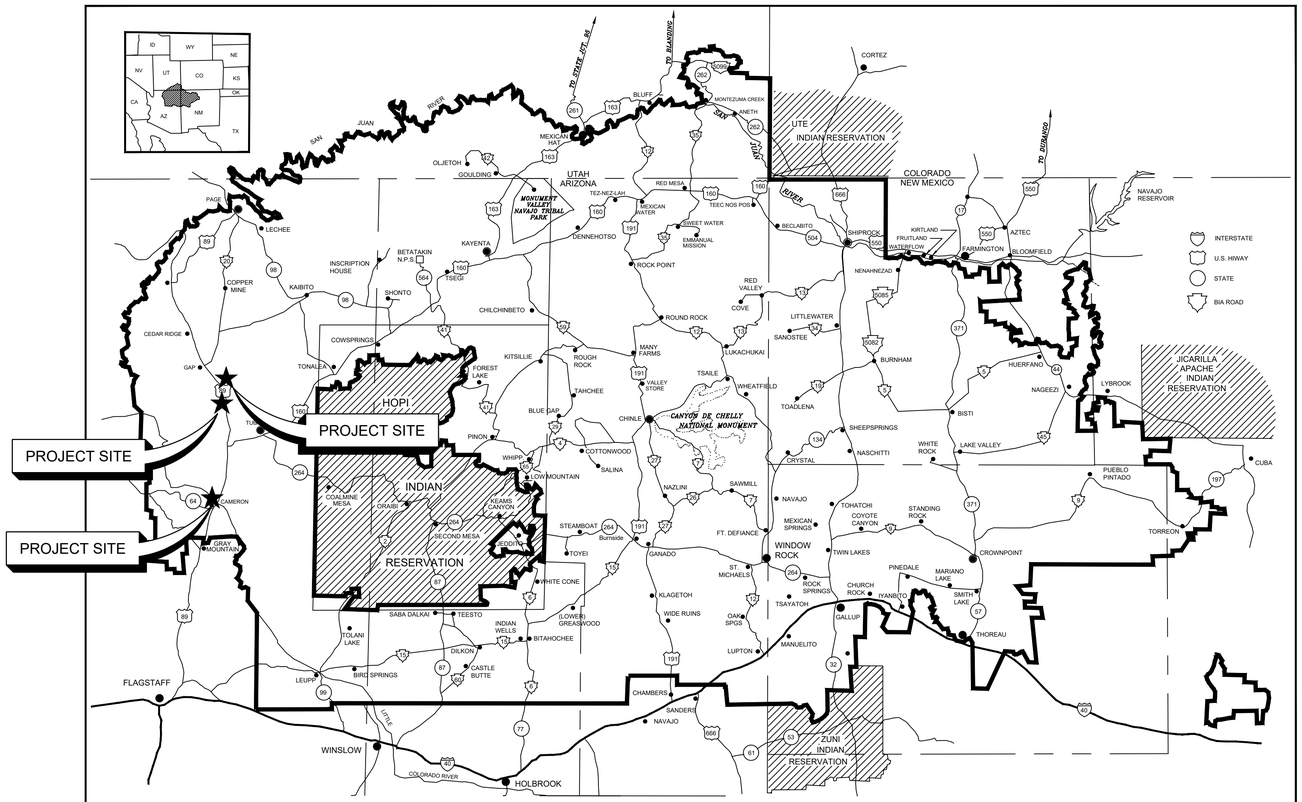
NAVAJO NATION

WESTERN NAVAJO PIPELINE PHASE I
CAMERON PUMP STATIONS AND PRV STATIONS
AUGUST 2024



NAVAJO INDIAN RESERVATION PLAN

LOCATION MAP
PLAN
NOT TO SCALE

PLAN NORTH

Call at least two full working days before you begin excavation.

ARIZONA 811
Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Civil)
CERTIFICATE NO.
63511
STEVEN
GRESCHLEY
Date Signed 8/1/2024
ARIZONA, U.S.A.
Expires 3/31/26

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
G-000.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

GENERAL

COVER

DRAWING NUMBER
G-000

SHEET NUMBER
1 OF 61

Path: C:\BCPWD1020439 FILENAME: G-000.DWG PLOT DATE: 7/23/2024 12:14 PM CAD USER: NATE WHIRITY

GENERAL

SHEET NO.	DWG NO.	DWG TITLE
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3	G-002	STANDARD SYMBOLS
4	G-003	STANDARD ABBREVIATIONS
5	G-004	VICINITY MAP

SURVEY

SHEET NO.	DWG NO.	DWG TITLE
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7	V-002	RESULTS OF SURVEY PUMP STATION NO. 2
8	V-003	RESULTS OF SURVEY PUMP STATION NO. 3

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10	C-002	CONTROL COORDINATES
11	C-003	MISCELLANEOUS DETAILS
12	C-004	CONNECTION DETAILS
13	C-100	CAMERON PUMP STATION NO. 1 GRADING PLAN
14	C-101	CAMERON PUMP STATION NO. 1 PIPING PLAN
15	C-110	CAMERON PUMP STATION NO. 2 GRADING PLAN
16	C-111	CAMERON PUMP STATION NO. 2 PIPING PLAN
17	C-120	CAMERON PUMP STATION NO. 3 GRADING PLAN
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23	C-170	CAMERON PRESSURE REDUCING VALVE NO. 5 SITE PLAN
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28	M-120	CAMERON PUMP STATION NO. 3 PLAN AND SECTION

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SHEET NO.	DWG NO.	DWG TITLE
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57	P-100	HYDRAULIC GRADE LINE DIAGRAM

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59	H-101	PUMP HOUSE HVAC PLAN & SECTION
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NTUA STANDARD DETAILS FOR WATER

DWG NO.	DWG TITLE
WS-4b & WS-4c	4" X 2" PRV DETAIL
WS-11	2" FLUSH VALVE DETAIL
WS-13	MARKER POST DETAIL
WS-14	WATER MAIN VALVE INSTALLATION
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DWG NO.	DWG TITLE
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W-40	STRAW BALES

NTUA TECHNICAL PROVISIONS

DWG NO.	DWG TITLE
1 OF 6	PLC CONTROL PANEL COVER SHEET
2 OF 6	PLC CONTROL PANEL DISCRETE I/O (BOOSTER WITH BOOSTERPAQ)
3 OF 6	PLC CONTROL PANEL ANALOG INPUT (BOOSTER WITH BOOSTERPAQ)
3a OF 6	PLC CONTROL PANEL ANALOG OUTPUT (BOOSTER WITH BOOSTERPAQ)
4 OF 6	PLC CONTROL PANEL POWER DISTRIBUTION
5 OF 6	PLC CONTROL PANEL BACKPLANE
6 OF 6	PLC CONTROL PANEL CABLE PINOUT

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SALT LAKE CITY, UTAH

Registered Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN C. GRESCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J. YAZZIE
DRAWN:	T. PRIDEMORE
CHECKED:	J. YAZZIE
CHECKED:	D. DAVIDSE
APPROVED:	S. BRENCHLEY

FILENAME
G-001.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

GENERAL

DRAWING INDEX

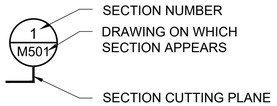
DRAWING NUMBER

G-001

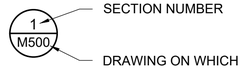
SHEET NUMBER
2 OF 61

SECTION AND DETAIL DESIGNATION

(1) SECTION CUT ON DWG M500



(2) ON DWG M501 THIS SECTION IS IDENTIFIED



(3) DETAILS ARE CROSS-REFERENCED IN A SIMILAR MANNER. EXCEPT THAT DETAILS ARE IDENTIFIED BY LETTER RATHER THAN BY NUMBER.

DRAWING NUMBERING SYSTEM

1. THE DRAWINGS ARE SUBDIVIDED BY DISCIPLINE AS FOLLOWS:

G	GENERAL
C	CIVIL
A	ARCHITECTURAL
S	STRUCTURAL
M	MECHANICAL
H	HVAC
E	ELECTRICAL
I	INSTRUMENTATION
P	PROCESS
U	PLUMBING
WS	NTUA
W	IHS

GENERAL SYMBOLS

	NEW FACILITIES
	PROPERTY LINE
	RIGHT OF WAY (EASEMENT)
	EDGE OF PAVEMENT
	CENTERLINE
	HIDDEN LINE
x x x	FENCE
	WATER SURFACE
@	AT
&	AND
Ø	DIAMETER
℄	CENTER LINE
'	FEET
"	INCHES

	NATURAL GROUND OR GRADE
	COMPACTED GRADE OR FILL
	GRANULAR MATERIAL/ AGGREGATE BASE
	AC PAVEMENT IN PLAN OR SECTION
	GRAVEL SURFACE WITH GEOTEXTILE IN PLAN
	PAVEMENT IN PLAN

1. ADDITIONAL DISCIPLINE SPECIFIC SYMBOLS ARE INCLUDED IN THE DISCIPLINE DRAWINGS.

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DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
G-002.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

GENERAL

STANDARD SYMBOLS

DRAWING NUMBER

G-002

SHEET NUMBER
3 OF 61

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A	**AMPERE**
AC	ASPHALTIC CONCRETE
A/C	AIR CONDITIONING
ACC	AREA CONTROL CENTER
ACP	ASBESTOS CEMENT PIPE
ACST	ACOUSTIC
ACU	AIR CONDITIONING UNIT
AF	AIR FILTER
AHU	AIR HANDLING UNIT
AMD	AIR MONITORING DEVICE
.ANC	ANCHOR
AR	AIR RETURN
ARV	AIR RELEASE VALVE
AS	AIR SUPPLY
ATP	VERTICAL TURBINE PUMP AIR RELEASE VALVE
ATS	AUTOMATIC TRANSFER SWITCH
AV	ANGLE VALVE
BAC	BACTERIOLOGICAL
BAV	BALL VALVE
BC	BEGINNING OF CURVE
BCR	BEGINNING OF CURVE RETURN
BC	**BARE COPPER**
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BGAT	BOOLEAN GATE
BF	BLIND FLANGE
BHP	BRAKE HORSEPOWER
BSN	BAR SCREEN
BUV	BUTTERFLY VALVE
CAB	DIRECT BURIAL CABLE
CAF	COMBUSTION AIR FAN
CC	COOLING COIL
C-C	CENTER TO CENTER
CCP	CONCRETE CYLINDER PIPE
CCSP	CONCRETE LINED AND COATED STEEL PIPE
CD	CEILING DIFFUSER
CDR	CONDUCTOR
CDU	CONDENSING UNIT
CED	CEILING EXHAUST DIFFUSER
CER	CEILING EXHAUST REGISTER
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFR	CODE OF FEDERAL REGULATIONS
CHR	CHILLER
CIRC	CIRCUMFERENCE
CK	CHECKER(ED)
CKPL	CHECKER PLATE
C	CENTERLINE
CL	CLEARANCE
CL2	CHLORINE
CM	MANUAL CONTROL STATION
CMA	MANUAL-AUTO CONTROL STATION
CMC	CEMENT MORTAR COATED
CML	CEMENT MORTAR LINED
CMPA	ASBESTOS PROTECTED CORRUGATED METAL PIPE
CNTL	CONTROL
CO2	CARBON DIOXIDE
COD	CHEMICAL OXYGEN DEMAND
COF	COOLING AIR FAN
COM	COMMINUTOR
CON	CONVEYOR
COND	CONDUCTIVITY
CONN	CONNECTION
CJ	CONSTRUCTION JOINT
CONT	CONTINUED
CP	COMPRESSOR
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CONDUIT RACK
CRF	CHEMICAL FEEDER
CRN	CRANE
CREJ	CORRUGATED RUBBER EXPANSION JOINT
CSD	CEILING SUPPLY DIFFUSER
CTF	CENTRIFUGE
CTR	CONTRACTOR, CONTROL UNIT
CV	CONTROL VALVE
DB	DUCT BANK
DE	DENSITY METER
DF	DRINKING FOUNTAIN
DFD	DUCT FIRE DAMPER
DG	DOOR GRILLE
DI	**DUCTILE IRON**
DM	DAMPER MOTOR
DR	DRAIN ROCK
DT	DRAIN TRAP
DU	DRIVE UNIT
DWF	DRY WEATHER FLOW
EA	EXHAUST AIR / ENVIRONMENTAL ASSESSMENT
EAT	ENTERING AIR TEMPERATURE
EAU	ENGINE ALTERNATOR UNIT
EC	END OF CURVE
ECU	EVAPORATIVE COOLING UNIT
ED	EXTRACTOR DAMPER, EQUIPMENT DRAIN
EE	EACH END
EF	EXHAUST FAN
EFF	EFFLUENT
EG	EXHAUST GRILLE
EJ	**EXPANSION JOINT**
EL	**ELEVATION**
ELL	**ELBOW**
EMBD	EMBEDDED
ENCL	**ENCLOSURE**
E/P	ELECTRIC/PNEUMATIC
EPR	EVAPORATOR
EQ	**EQUAL**
EQUIP	**EQUIPMENT**
ES	EXISTING SURFACE
EWEF	**EACH WAY EACH FACE**
EWT	ENTERING WATER TEMPERATURE
EXG	EXHAUST GRILLE
EXIST	**EXISTING**
F	FAHRENHEIT, FACE, FUSE(D), FAN
FAI	FRESH AIR INTAKE
FB	FLAT BAR, FLOOR BEAM
FC	FAIL CLOSED
FCL	FREE CHLORINE
FCR	FINE CRUSHED ROCK
FE	**FLOWMETER**
FF	**FAR FACE / FINISHED FLOOR**
F-F	FACE TO FACE
FH	FIRE HYDRANT, FLATHEAD
FIN	**FINISHED**
FIT	FLOW INDICATING TRANSMITTER
FL	FLOW LINE
FLC	FLOCCULATOR
FLP	FLUID POWER UNIT
FLR	FLOOR
FLT	FILTER
FM	FORCE MAIN , FLOW METER
FMH	FLEXIBLE METAL HOSE
FMX	FLASH MIXER
FO	FAIL OPEN
FP	FILTER PRESS
FPC	FLEXIBLE PIPE COUPLING
FPC-T	FPC TO TAKE TENSION
FRS	FREEZESTAT
FS	FLOW SWITCH, FIRESTAT
FT	FLASH TANK
G	POWER ACTUATED GATE
GAC	GRANULATING ACTIVATED CARBON
GB	GRADE BREAK
GBV	GLOBE VALVE
GDR	GRINDER
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTOR
GPD	GALLONS PER DAY
GRDR	GRINDER
GRT	GROUT
GSP	GALVANIZED STEEL PIPE
GT	GATE
GV	GATE VALVE
H/A	HAND AUTO
HC	HEATING COIL
HEX	HEAT EXCHANGER
HDOT	HEAVY DUTY OILTIGHT
HG	MERCURY, HAND GRADE
HHV	HEAT HOSE VALVE
HOA	HAND-OFF-AUTO
HOR	HORIZONTAL
HP	HIGH PRESSURE, HIGH POINT, HORSEPOWER
HR	HANDRAIL, HEAT RESERVOIR
HSS	HIGH SIGNAL SELECT
HTV	HIGH TEMPERATURE VENT
HV	HOSE VALVE
H/V	HEATING AND VENTILATING
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWTR	HIGH WATER
HYDT	HYDRANT
ICN	INCINERATOR
IF	INSIDE FACE
IL	INDICATING LAMP
INF	INFLUENT
INS	INSULATE(D)(ION)
INTER	INTERMEDIATE
INT	INTERIOR
INV	INVERT
IT	INSTRUMENT TAP
JST	JOIST
K	KIP (1000 POUNDS)
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE, LATERAL, LATITUDE
LCP	LOCAL CONTROL PANEL
LE	LEVEL METER
LEL	LOWER EXPLOSIVE LIMIT
LGW	LOWER GREASEWOOD
LIT	LEVEL INDICATION TRANSMITTER
LOD	LIMITS OF DISTURBMENTS
LOS	LOCKOUT STOP
LS	LIMIT SWITCH
MBH	THOUSAND BTU'S PER HOUR
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCU	MASTER CONTROL UNIT
MD	MOTORIZED DAMPER
MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT
MGD	MILLION GALLONS PER DAY
MG/I	MILLIGRAMS PER LITER
MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
MILSPEC	MILITARY SPECIFICATION
MIN	MINIMUM, MINUTE
MJ	MECHANICAL JOINT
ML	MILLILITER
MME	MISCELLANEOUS MECHANICAL EQUIPMENT
MOP	MOTOR OPERATOR
MOV	MOTOR OPERATED VALVE
MUL/DIV	MULTIPLY/DIVIDE
MV	MUD VALVE, MILLIVOLT
MX	MIXER
N	NEUTRAL
NA	NONAUTOMATIC
NAOH	SODIUM HYDROXIDE
NEG	NEGATIVE
NF	NONFUSED
NOX	NITRATES AND NITRITES
NPSH	NET POSITIVE SUCTION HEAD
NRS	NONRISING STEM
OA	OUTSIDE AIR, OVERALL
OAI	OUTSIDE AIR INTAKE
OB	OPPOSED BLADE
OL	OVERLOAD
O-O	OUT TO OUT
ORF	ODOR REMOVAL FILTER
ORP	OXIDATION REDUCTION POTENTIAL
ORT	ODOR REMOVAL TOWER
OSA	OUTSIDE AIR
OSC	ODOR SCRUBBER
P	PUMP
PAR	PARALLEL
PC	PLAIN CONCRETE, PIPE COUPLING
PCC	PLANT CONTROL CENTER
PCHV	PINCH VALVE
PCP	PLAIN CONCRETE PIPE
PC-T	PIPE COUPLING TO TAKE TENSION
PCU	PHOTOELECTRIC CONTROL UNIT
P/E	PNEUMATIC/ELECTRIC
PF	POWER FACTOR
PI	PROPORTIONAL PLUS INTEGRAL CONTROL , PRESSURE GAUGE
PID	PROPORTIONAL PLUS INTEGRAL PLUS DERIVATIVE CONTROL
PIT	PRESSURE INDICATING TRANSMITTER
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL	PROPERTY LINE, PIPELINE, PLATE
PLV	PLUG VALVE
PLYWD	PLYWOOD
PMP	PUMP
PNL	PANEL, PANELBOARD
PO4	PHOSPHATE
POP	PNEUMATIC OPERATOR
PP	POWER POLE
PRES	PRESSURE
PRD	PRESSURE RELIEF DAMPER
PRV	PRESSURE REGULATING (REDUCING) (RELIEF) VALVE
PRS	PRESSURE REDUCING STATION
PS	PRESSURE SWITCH, PRESSURE SENSOR , PUMP STATION
PSIA	POUND PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PV	PLUG VALVE, PROCESS VARIABLE
PVL	PRESSURE VESSEL
PVT	PAVEMENT
Q	RATE OF FLOW
QCPLG	QUICK COUPLING
R	RADIUS
RA	RETURN AIR
RAF	ROLL TYPE AIR FILTER
RCR	RECORDER
REC	RECEIVER
RECD	RECEIVED
RECP	RECEPTACLE
RED	REDUCE(R)
REG	REGULATOR
REL	RELAY
RT	RIGHT
RTP	REINFORCED THERMOSET PLASTIC
RTU	REMOTE TERMINAL UNIT
RGS	RIGID GALVANIZED STEEL
RL	REDUCED LEVEL
RW	RECLAIMED WATER
RWCD	RECALIMED WATER CONSERVATION DISTRICT
RWL	RAINWATER LEADER
S	SOUTH, SILENCER
SB	SIGNAL BOX
SBD	SWITCHBOARD
SCR	SCRUBBER
SD	SPLITTER DAMPER, SMOKE DETECTOR
SEP	SEPARATOR
SG	SUPPLY GRILLE, SLUICE GATE
SI	SPEED INCREASER
SIM	SIMILAR
SL	SLOPE
SLG	SLIDE GATE
SLR	SILENCER
SN	SCREEN
SP	SPACE, SET POINT, STATIC PRESSURE
SPG	SPACING
SPT	SOUND POWERED TELEPHONE
SO2	SULFUR DIOXIDE
SPL	SPLICE
SR	SPEED REDUCER, SALT RIVER PROJECT
SRV	SAFETY RELIEF VALVE
SRG	SPLIT-RANGING
SS	STAINLESS STEEL, SANITARY SEWER, SPEED SELECTOR
SSC	SOLID STATE CONTROLLER
SSFH	STAINLESS STEEL FLAT HEAD
SSK	SERVICE SINK
ST	START
STD	STANDARD
STGA	STARTING AIR
SUB	SUBSTITUTE
SUP	SUMP PUMP
SV	SOLENOID VALVE
SWB	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
TP	TANGENT POINT
TB	TERMINAL BOX
T/B	TOP OF BANK
TBN	TURBINE
T/C	TOP OF CURB
TCL	TOTALLY CLOSED
TCP	TEMPERATURE CONTROL PANEL
TD	TIME DELAY RELAY
TFR	TRANSFORMER
TNK	TANK
TOA	TEST-OFF-AUTO
TOC	TOTAL ORGANIC CARBON
TPG	TOPPING
TPLX	TRIPLEXED
TR	TIMING RELAY, STAIR TREAD
TRM	TRANSMITTER
TRN	TRANSDUCER
TRS	TRANSFER SWITCH
TS	TEMPERATURE SWITCH
TV	THERMOSTATIC VALVE
UG	UNDERGROUND
UL	ULTIMATE LOAD
UN	UNION
UP	UTILITY POLE
UPS	UNINTERRUPTIBLE POWER SUPPLY
US	UTILITY STATION
USS	UNIT SUBSTATION
V	VALVE, VOLTS
VAC	VOLTS ALTERNATING CURRENT
VAR	VARIES, VARIABLE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VD	VOLUME DAMPER
VDC	VOLTS DIRECT CURRENT
VEN	VENTILATOR
VFD	VARIABLE FREQUENCY DRIVE
VFT	VACUUM FILTER
VP	VAPOR PRESSURE, VACUUM PUMP
VSC	VARIABLE SPEED COUPLING
VTR	VENT THROUGH ROOF
VV	VARIABLE VOLUME BOX
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WEG	WALL EXHAUST GRILLE
WER	WALL EXHAUST REGISTER
WF	WIDE FLANGE
WG	WASTE GAS
WM	WATER METER
WSR	WALL SUPPLY REGISTER, WASHER
WSTP	WATERSTOP
WT	WATERTIGHT
WTP	WATER TREATMENT PLANT
WV	WATER VALVE
WWF	WELDED WIRE FABRIC, WET WEATHER FLOW
X	SPARE CONDUIT
XLP	CROSS LINKED POLYETHYLENE
XP	EXPLOSION-PROOF
YCO	YARD CLEANOUT
ZS	POSITION SWITCH

NOTES:
1. ADDITIONAL ABBREVIATIONS ARE DEFINED IN ANSI Y1.1-1972.
2. ABBREVIATIONS FOR PIPING SYSTEMS ARE SPECIFIED IN SECTION 15050.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer CERTIFICATE NO. 63511 STEVEN M. GRENCHLEY Date Signed 3/31/2024 ARIZONA, U.S.A.

Expires 3/31/26

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BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

GENERAL

STANDARD ABBREVIATIONS

DRAWING NUMBER

G-003

SHEET NUMBER 4 OF 61

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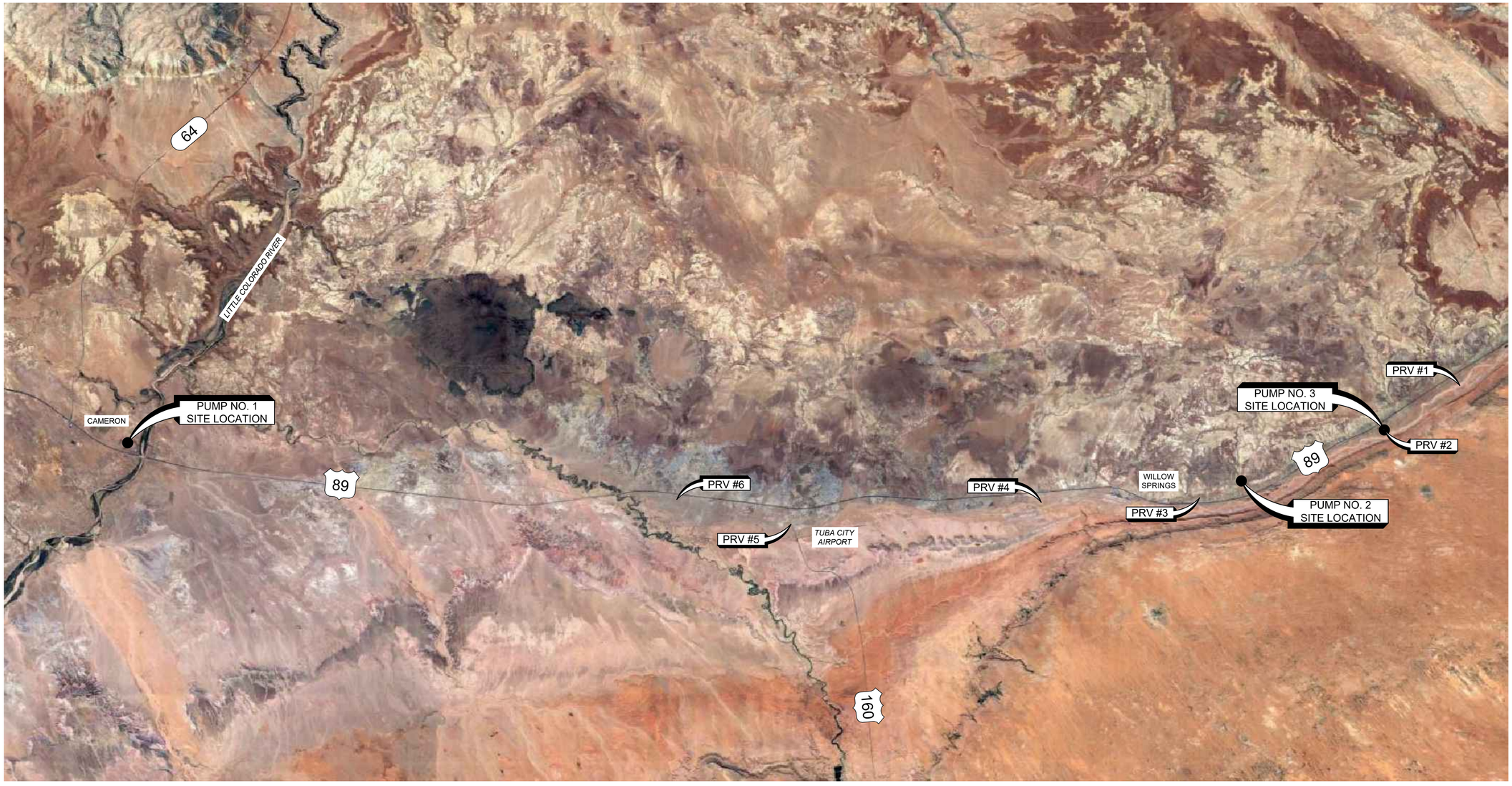

VICINITY MAP
PLAN
SCALE : NTS

PLAN
NORTH

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63511
STEVEN
BRENCHLEY
State of Arizona
ARIZONA, U.S.A.
Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
G-004.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

GENERAL

VICINITY MAP

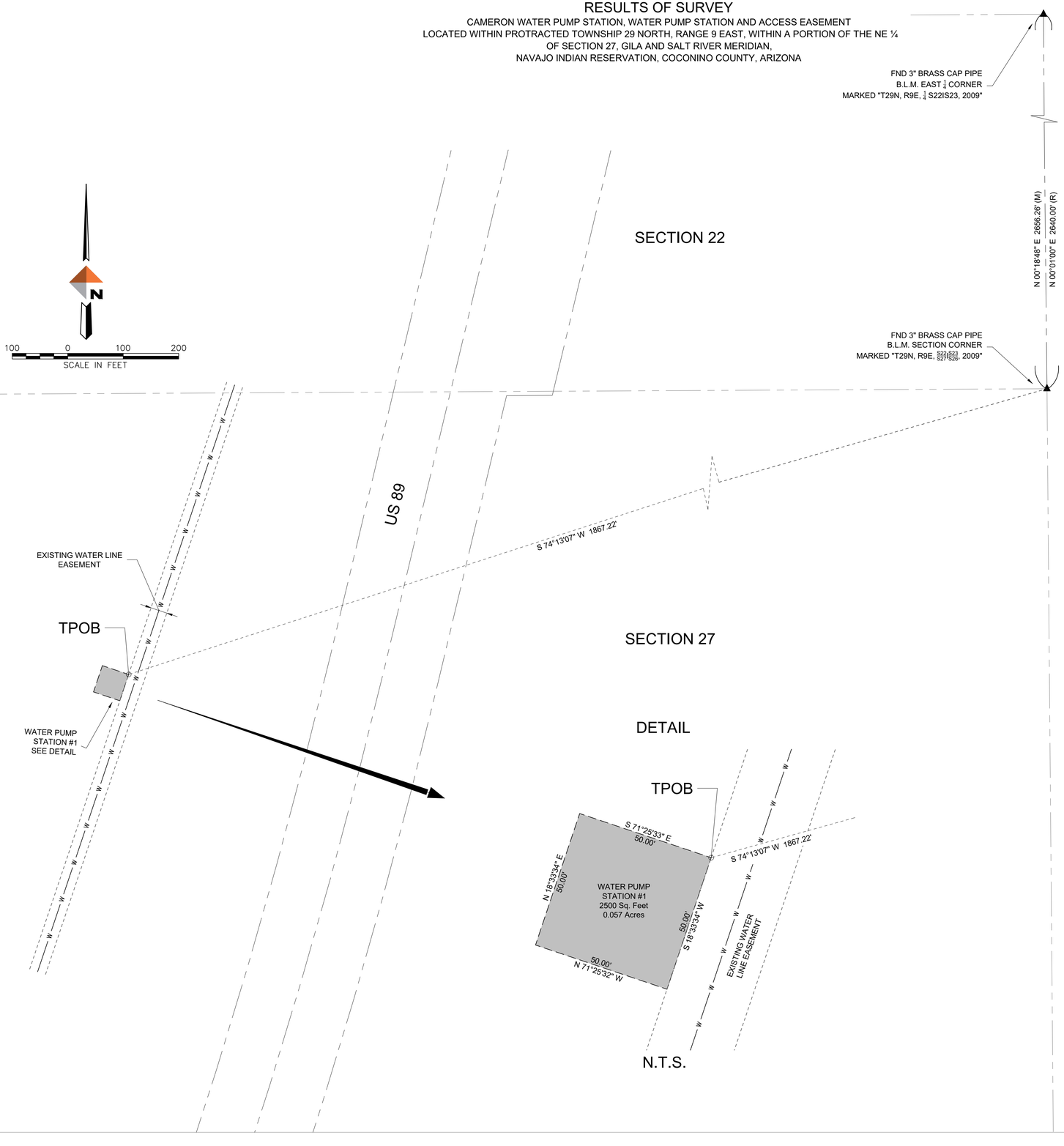
DRAWING NUMBER
G-004

SHEET NUMBER
5 OF 61

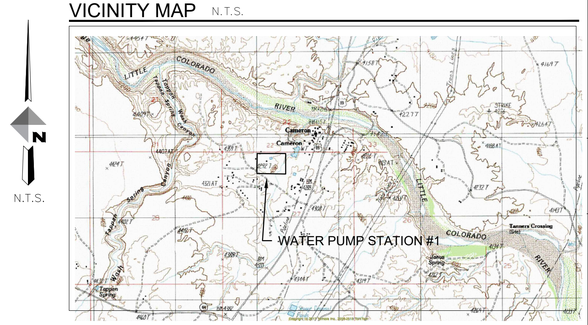
Path: C:\BCPWD\1020439 FILENAME: G-004.DWG PLOT DATE: 7/23/2024 12:15 PM CAD USER: NATE WHIRTY

RESULTS OF SURVEY

CAMERON WATER PUMP STATION, WATER PUMP STATION AND ACCESS EASEMENT
LOCATED WITHIN PROTRACTED TOWNSHIP 29 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NE ¼
OF SECTION 27, GILA AND SALT RIVER MERIDIAN,
NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA



VICINITY MAP N.T.S.



LEGEND

- ▲ FOUND B.L.M.SECTION MONUMENT AS NOTED
- MEASURED SECTION LINE
- RECORD SECTION LINE
- TIE LINE

LEGAL DESCRIPTION (PUMP STATION NO. 1)

AN EASEMENT FOR A WATER PUMP STATION, LYING WITHIN TOWNSHIP 29 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NE ¼ OF SECTION 27, GILA AND SALT RIVER MERIDIAN, NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA,MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT CADASTRAL SURVEY 3" BRASS CAP SURVEY MONUMENT MARKED, "T29N R9E, S22/S27IS23/S26, 2009," BEING AT THE NORTHEAST CORNER OF SECTION 27, FROM WHICH A FOUND U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT CADASTRAL SURVEY 3" BRASS CAP SURVEY MONUMENT MARKED, "T29N R9E ¼ S22IS23, 2009", BEING AT THE EAST 1/4 CORNER OF SAID SECTION 22, BEARS NORTH 00°18'48" EAST A DISTANCE OF 2656.26 FEET:

THENCE FROM SAID **COMMENCEMENT POINT**, SOUTH 74°13'07" WEST A DISTANCE OF 1867.22 FEET TO THE **TRUE POINT OF BEGINNING**,
THENCE SOUTH 18°33'34" WEST A DISTANCE OF 50.00 FEET TO A POINT;
THENCE NORTH 71°25'32" WEST A DISTANCE OF 50.00 FEET TO A POINT;
THENCE NORTH 18°33'34" EAST A DISTANCE OF 50.00 FEET TO A POINT;
THENCE SOUTH 71°25'33" EAST A DISTANCE OF 50.00 FEET TO SAID **TRUE POINT OF BEGINNING**.

THE ABOVE DESCRIBED EASEMENT CONTAINS APPROXIMATELY 2,500 SQUARE FEET OR 0.057 ACRES MORE OR LESS

CERTIFICATION:

I HEREBY CERTIFY THAT THE SURVEY SHOWN ON THIS DRAWING WAS PERFORMED UNDER MY DIRECTION AND THAT EXISTING OR PROPOSED SURVEY MONUMENTS AND MARKERS SHOWN ARE CORRECTLY DESCRIBED. I FURTHER CERTIFY THAT THIS DRAWING WAS PREPARED UNDER MY DIRECTION.

MICHAEL F. YORK, RLS
REGISTERED LAND SURVEYOR
RLS NUMBER 19862

GENERAL NOTE

- THIS SURVEY IS BASED ON NAD 83 AND THE ARIZONA STATE PLANE CENTRAL ZONE MEASURED IN INTERNATIONAL FEET.
- SURVEY ELEVATIONS ARE BASED ON NAVD 88 EXPRESSED IN U.S. SURVEY FEET.
- SHOWN MEASUREMENTS ARE AT GROUND VALUES NOT GRID VALUES. TO OBTAIN SPC GRID VALUES MULTIPLY THE DISTANCES SHOWN BY THE COMBINED SPC GRID FACTOR OF 0.999727331

BASIS OF BEARING

THE EAST SECTION LINE OF SECTION 22, T34N, R9E, WITH ARIZONA STATE PLANE COORDINATE CENTRAL ZONE GRID BEARING OF N 00°18'48" E
UNITS: INTERNATIONAL FEET

REFERENCES:

R1) BUREAU OF LAND MANAGEMENT SURVEY FIELD NOTES IN BOOK 5910, DATED 01/22/2010

Brown AND Caldwell
SALT LAKE CITY, UTAH
DOWL
WWW.DOWL.COM
222 N. 32nd Street, #700
Billings, Montana 59101

Registered Professional Surveyor
CERTIFICATE NO.
19862
MICHAEL F. YORK
Date Signed 4/26/19
ARIZONA, U.S.A.
Expires 12/31/19

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS	
DATE	DESCRIPTION

LINE IS 2 INCHES

DESIGNED:	
DRAWN:	M. BAKER
CHECKED:	F. ORMSBY
CHECKED:	
APPROVED:	M.YORK

FILENAME
SA16-VM-BA-21254-01-CAMERON-ROS.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
4028.21254.01

SURVEY

RESULTS OF SURVEY

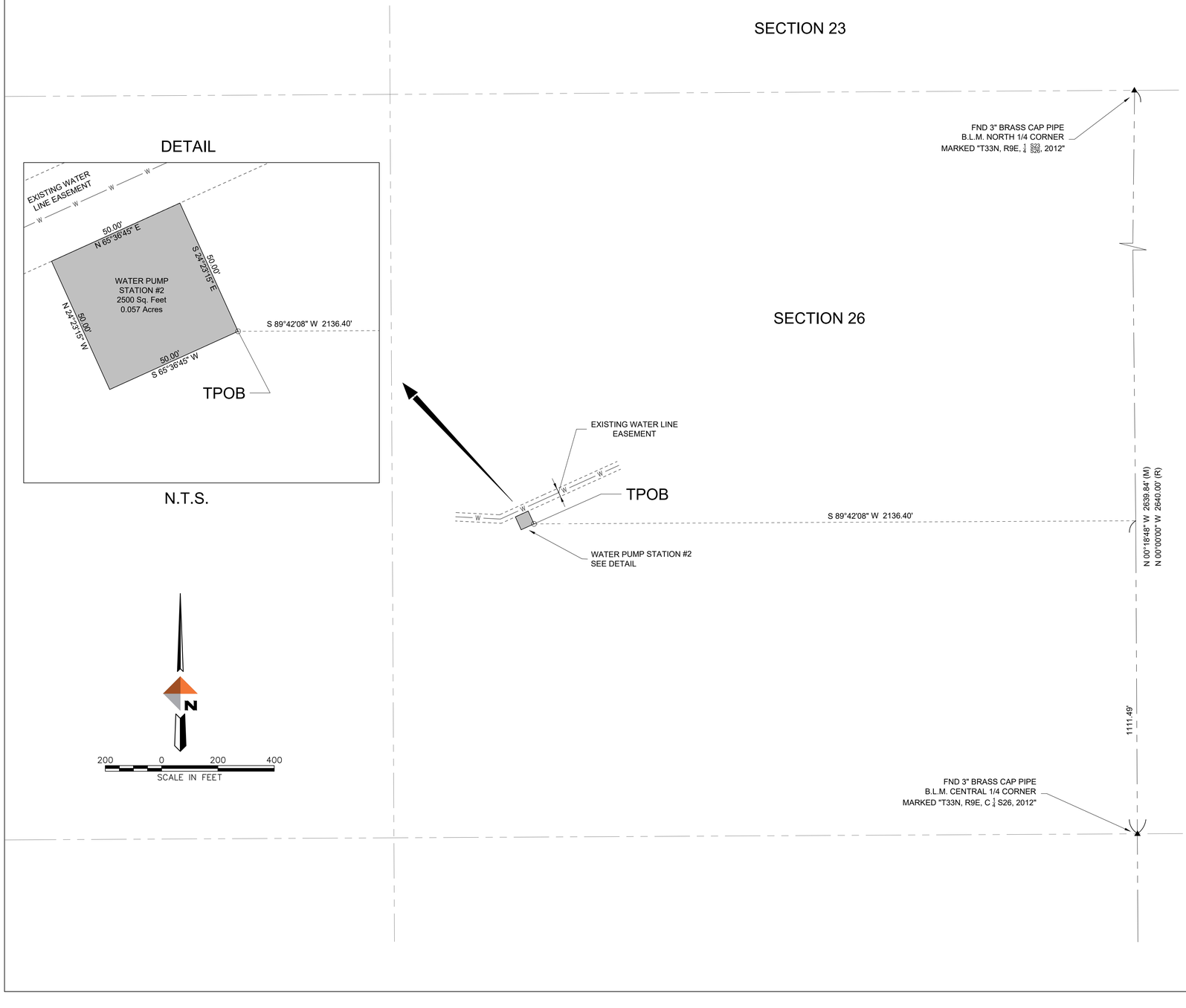
PUMP STATION NO. 1

DRAWING NUMBER
V-001

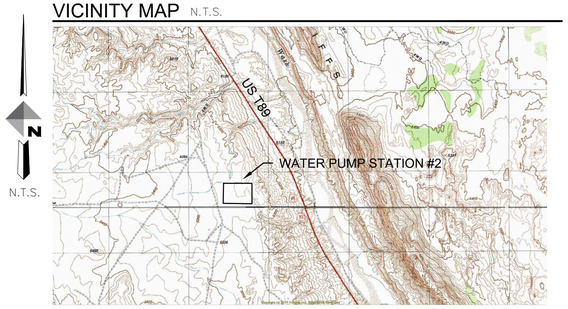
SHEET NUMBER
SURVEY 6 OF 65

RESULTS OF SURVEY

CAMERON WATER PUMP STATION, WATER PUMP STATION AND ACCESS EASEMENT
LOCATED WITHIN PROTRACTED TOWNSHIP 33 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NW ¼
OF SECTION 26, GILA AND SALT RIVER MERIDIAN,
NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA



VICINITY MAP N.T.S.



LEGEND

- FOUND B.L.M.SECTION MONUMENT AS NOTED
- MEASURED SECTION LINE
- RECORD SECTION LINE
- TIE LINE

LEGAL DESCRIPTION (PUMP STATION NO. 2)

AN EASEMENT FOR A WATER PUMP STATION, LYING WITHIN TOWNSHIP 33 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NW ¼ OF SECTION 26, GILA AND SALT RIVER MERIDIAN, NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT CADASTRAL SURVEY 3" BRASS CAP SURVEY MONUMENT MARKED, "T33N R9E C ¼ S26, 2012," BEING AT THE CENTRAL 1/4 CORNER OF SECTION 9, FROM WHICH A FOUND U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT CADASTRAL SURVEY 3" BRASS CAP SURVEY MONUMENT MARKED, "T33N R9E, 1/4 S23/S26, 2012", BEING AT THE NORTH 1/4 CORNER OF SAID SECTION 26, BEARS NORTH 00°18'48" WEST A DISTANCE OF 2639.84 FEET:

THENCE FROM SAID **COMMENCEMENT POINT**, ALONG THE CENTRAL LINE OF SECTION 26, NORTH 00°18'48" WEST A DISTANCE OF 1111.49 FEET TO A POINT;
THENCE S 89°42'08" W A DISTANCE OF 2136.40 FEET TO THE **TRUE POINT OF BEGINNING**;
THENCE S 65°36'45" W A DISTANCE OF 50.00 FEET TO A POINT;
THENCE N 24°23'15" W A DISTANCE OF 50.00 FEET TO A POINT;
THENCE N 65°36'45" E A DISTANCE OF 50.00 FEET TO A POINT;
THENCE S 24°23'15" E A DISTANCE OF 50.00 FEET TO SAID **TRUE POINT OF BEGINNING**.

THE ABOVE DESCRIBED EASEMENT CONTAINS APPROXIMATELY 2,500 SQUARE FEET OR 0.057 ACRES MORE OR LESS

CERTIFICATION:

I HEREBY CERTIFY THAT THE SURVEY SHOWN ON THIS DRAWING WAS PERFORMED UNDER MY DIRECTION AND THAT EXISTING OR PROPOSED SURVEY MONUMENTS AND MARKERS SHOWN ARE CORRECTLY DESCRIBED. I FURTHER CERTIFY THAT THIS DRAWING WAS PREPARED UNDER MY DIRECTION.

MICHAEL F. YORK, RLS
REGISTERED LAND SURVEYOR
RLS NUMBER 19862

GENERAL NOTE

- THIS SURVEY IS BASED ON NAD 83 AND THE ARIZONA STATE PLANE CENTRAL ZONE MEASURED IN INTERNATIONAL FEET.
- SURVEY ELEVATIONS ARE BASED ON NAVD 88 EXPRESSED IN U.S. SURVEY FEET.
- SHOWN MEASUREMENTS ARE AT GROUND VALUES NOT GRID VALUES. TO OBTAIN SPC GRID VALUES MULTIPLY THE DISTANCES SHOWN BY THE COMBINED SPC GRID FACTOR OF 0.999704823

BASIS OF BEARING

THE EAST SECTION LINE OF SECTION 26, T33N, R9E, WITH ARIZONA STATE PLANE COORDINATE CENTRAL ZONE GRID BEARING OF
N 00°18'48" W
UNITS: INTERNATIONAL FEET

REFERENCES:

R1) BUREAU OF LAND MANAGEMENT SURVEY FIELD NOTES IN BOOK 5988, DATED 05/10/2013

Brown AND Caldwell
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www.dowl.com
222 N. 32nd Street, #700
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406-656-6399

Registered Professional Land Surveyor
CERTIFICATE NO.
19862
MICHAEL F. YORK
Date Signed 4/26/19
ARIZONA, U.S.A.
Expires 12/31/19

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

	DATE	DESCRIPTION

LINE IS 2 INCHES

DESIGNED:	
DRAWN:	M. BAKER
CHECKED:	F. ORMSBY
CHECKED:	
APPROVED:	M.YORK
FILENAME	SA16-VM-BA-21254-01-CAMERON-ROS.DWG
BC PROJECT NUMBER	150360
CLIENT PROJECT NUMBER	4028.21254.01

SURVEY

RESULTS OF SURVEY

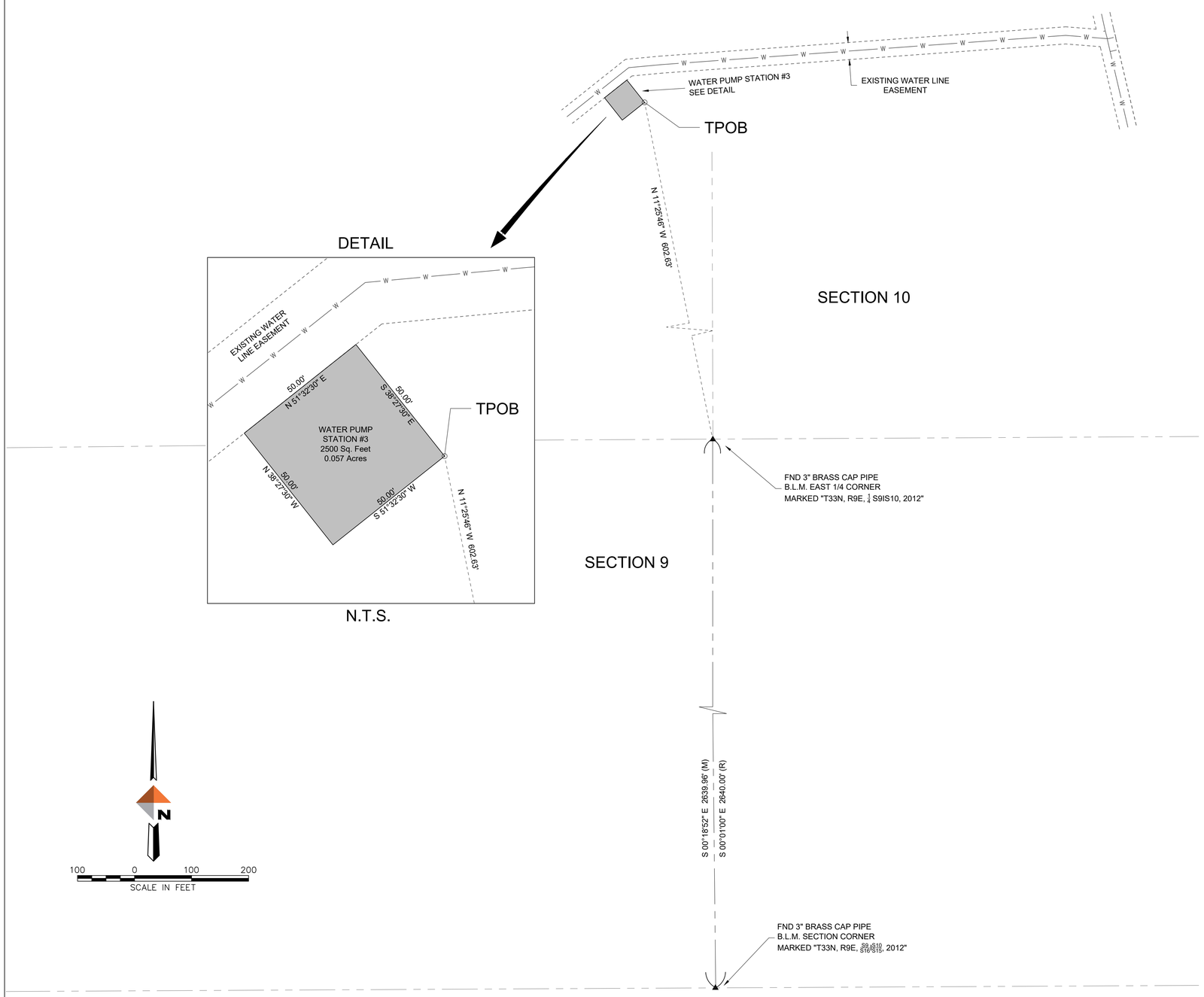
PUMP STATION NO. 2

DRAWING NUMBER
V-002

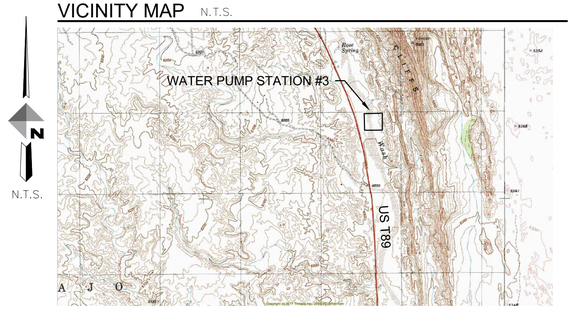
SHEET NUMBER
SURVEY 7 OF 65

RESULTS OF SURVEY

CAMERON WATER PUMP STATION, WATER PUMP STATION AND ACCESS EASEMENT
LOCATED WITHIN PROTRACTED TOWNSHIP 33 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NE ¼
OF SECTION 9, GILA AND SALT RIVER MERIDIAN,
NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA



VICINITY MAP N.T.S.



LEGEND

- FOUND B.L.M.SECTION MONUMENT AS NOTED
- MEASURED SECTION LINE
- RECORD SECTION LINE
- TIE LINE

LEGAL DESCRIPTION (PUMP STATION NO. 3)

AN EASEMENT FOR A WATER PUMP STATION, LYING WITHIN TOWNSHIP 33 NORTH, RANGE 9 EAST, WITHIN A PORTION OF THE NE ¼ OF SECTION 9, GILA AND SALT RIVER MERIDIAN, NAVAJO INDIAN RESERVATION, COCONINO COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

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THENCE FROM SAID **COMMENCEMENT POINT,** NORTH 11°25'46" WEST A DISTANCE OF 602.63 FEET TO THE **TRUE POINT OF BEGINNING**,
THENCE S 51°32'30" W A DISTANCE OF 50.00 FEET TO A POINT;
THENCE N 38°27'30" W A DISTANCE OF 50.00 FEET TO A POINT;
THENCE N 51°32'30" E A DISTANCE OF 50.00 FEET TO A POINT;
THENCE S 38°27'30" E A DISTANCE OF 50.00 FEET TO SAID **TRUE POINT OF BEGINNING**.

THE ABOVE DESCRIBED EASEMENT CONTAINS APPROXIMATELY 2,500 SQUARE FEET OR 0.057 ACRES MORE OR LESS

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MICHAEL F. YORK, RLS
REGISTERED LAND SURVEYOR
RLS NUMBER 19862

GENERAL NOTE

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BASIS OF BEARING

THE EAST SECTION LINE OF SECTION 9, T33N, R9E, WITH ARIZONA STATE PLANE COORDINATE CENTRAL ZONE GRID BEARING OF S 00°18'52" E
UNITS: INTERNATIONAL FEET

REFERENCES:

R1) BUREAU OF LAND MANAGEMENT SURVEY FIELD NOTES IN BOOK 5988, DATED 05/10/2013

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Registered Professional Land Surveyors
CERTIFICATE NO.
19862
MICHAEL F. YORK
Date Signed 4/26/19
ARIZONA, U.S.A.
Expires 12/31/19

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:
DRAWN: M. BAKER
CHECKED: F. ORMSBY
CHECKED:
APPROVED: M.YORK
FILENAME SA16-VM-BA-21254-01-CAMERON-ROS.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER 4028.21254.01

SURVEY

RESULTS OF SURVEY

PUMP STATION NO. 3

DRAWING NUMBER
V-003

SHEET NUMBER
SURVEY 8 OF 65

CIVIL SYMBOLS

W	WATERLINE
W	EXISTING WATERLINE
OHP	OVERHEAD POWER LINE
OHP	EXISTING OVERHEAD POWER LINE
UGTEL	EXISTING UNDERGROUND TELEPHONE LINE
G	EXISTING GAS LINE
O O	FENCE
X X	EXISTING FENCE
	CONTOUR LINE
	EXISTING CONTOUR LINE
	GATE VALVE
WV	EXISTING GATE VALVE
	WELL
W	EXISTING WELL
	POWER POLE
	EXISTING POWER POLE
	EXISTING GUY WIRE
	REDUCER
	EXISTING REDUCER
	FLUSH VALVE
	AIR RELEASE VALVE

GENERAL CIVIL NOTES

GENERAL CIVIL NOTES

1. CONTRACTOR SHALL VERIFY (POTHOLE IF NECESSARY) ALL EXISTING UTILITIES (VERTICAL AND HORIZONTAL LOCATION), CONDUITS, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS PRIOR TO THE START OF WORK.
2. FENCES, SIGNS, CURBS, LIGHT POLES, IRRIGATION PIPING, CONTROL WIRING, AND SPRAY HEADS, ETC. SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK. UNLESS OTHERWISE INDICATED, ALL SUCH WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE PROJECT. ALL DISTURBED AREAS INCLUDING CONCRETE STEPS, TIMBER STEPS, RETAINING WALLS, CONCRETE SIDEWALKS, PAVEMENT, LIGHT POSTS, CURBS, UNDERGROUND PIPING AND STRUCTURES SHALL BE RESTORED TO MATCH EXISTING UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE LIMIT OF WORK SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
5. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, AND EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS.
6. THE CONTRACTOR SHALL GRADE PROPOSED SLOPES TO MEET EXISTING SLOPES WHERE SHOWN ON PLANS.
7. THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL DEVICES.
8. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 72 HOURS PRIOR TO EXCAVATING NEAR ANY UTILITIES.
9. CONTRACTOR LAYOUT AREAS SHALL BE COORDINATED AND APPROVED BY THE CONSTRUCTION MANAGER AND OWNER. LIMITED SPACE IS AVAILABLE WITHIN THE SITE. THE OWNER SHALL NOT BE RESPONSIBLE FOR PROTECTING OR SECURING CONTRACTOR LAYOUT AND STORAGE AREAS, AND OWNER SHALL NOT BE LIABLE FOR THEFT OR DAMAGE TO CONTRACTORS STORED MATERIALS OR EQUIPMENT.
10. ALL EXISTING UTILITY INFORMATION WAS OBTAINED FROM ARIZONA BLUESTAKES. THIS INFORMATION MAY NOT BE COMPLETELY ACCURATE OR INDICATE ALL OF THE UTILITIES, UNDERGROUND PIPING, OR BURIED STRUCTURES PRESENT.
11. ALL TRENCH EXCAVATIONS SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING. COVERING WITH STEEL PLATES MAY BE ALLOWED IF APPROVED BY THE CONSTRUCTION MANAGER.

GENERAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS AND SPECIFICATION SECTIONS 02100 AND 02200.
2. EQUIPMENT AND MATERIALS THAT ARE TO BE SALVAGED SHALL BE PROTECTED BY THE CONTRACTOR AND STORED AT A DESIGNATED LOCATION AS DETERMINED BY THE OWNER.

GENERAL SITE GRADING NOTES

1. STRIPPING OF TOPSOIL SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02200, EARTHWORK.
2. ALL ROAD AND PARKING AREA SURFACES SHALL PITCH 2 PERCENT MINIMUM UNLESS OTHERWISE NOTED. REFER TO DRAWING FOR DETAILS.
3. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
4. ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
5. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS AND EXCESS EXCAVATED MATERIAL FROM WITHIN THE CONSTRUCTION LIMIT OF WORK, TO A SUITABLE SITE IN COMPLIANCE WITH ALL NAVAJO NATION REGULATIONS.
6. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE CONSTRUCTION MANAGER.
7. CONTRACTOR TO STRIP, SAVE AND REPLACE TOP SOIL PER CONSTRUCTION MANAGER.
8. CONTRACTOR TO REGRADE, AND RESEED ALL DISTURBED AREAS PER CONSTRUCTION MANAGER.

GENERAL SITE PIPING NOTES

1. REFER TO SPEC. SECTION 15050 FOR PIPE SCHEDULE AND ADDITIONAL PIPING NOTES.
2. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED LINES SHALL BE RESTRAINED JOINTS. PROVIDE ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
3. ALL BURIED CONNECTIONS TO STRUCTURES SHALL HAVE SLEEVE TYPE (SOLID SLEEVE) FLEXIBLE CONNECTIONS APPROXIMATELY 4 FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED.

GENERAL SITE PIPING NOTES (CONT'D.)

4. OPENINGS FOR PIPE IN PRECAST MANHOLE BASES SHALL BE CAST IN THE REQUIRED LOCATIONS DURING MANHOLE MANUFACTURE. FIELD CUT OPENINGS WILL NOT BE PERMITTED UNLESS APPROVED BY THE CONSTRUCTION MANAGER.
5. PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CAST-IN-PLACE CONCRETE FOUNDATIONS, WALLS AND SLABS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE WATERSTOPS. SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS.
6. A MINIMUM OF 42-INCHES OF COVER REQUIRED ON PIPES UNLESS NOTED OTHERWISE.
7. MANHOLES ARE 4 FEET IN DIAMETER UNLESS OTHERWISE NOTED. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS. PIPES WITHIN VALVE PITS SHALL BE SUPPORTED 12 INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLE SUPPORTS, UNLESS OTHERWISE INDICATED.
8. REFER TO SPECIFICATION SECTION 02200 AND CIVIL DETAILS FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.
9. COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200, EARTHWORK. ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
10. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
11. REFER TO THE SPECIFICATIONS FOR INFORMATION REGARDING ANY NECESSARY COORDINATION WITH OTHERS, INCLUDING RESPONSIBILITIES AND RELATED COSTS.
12. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL EXCAVATE A TEST PIT TO VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION BEFORE ORDERING MATERIALS.
13. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION.
14. POTABLE WATER LINES SHALL BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE POTABLE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED.

GENERAL SITE PIPING NOTES (CONT'D.)

15. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE CONSTRUCTION MANAGER.
16. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE THROUGHOUT THE PROJECT, UNLESS OTHERWISE NOTED.
17. ALL EXISTING UTILITIES REPLACED OR RELOCATED SHALL BE CONSTRUCTED OF NEW MATERIALS, APPROVED BY THE CONSTRUCTION MANAGER, SIMILAR TO THOSE OF THE THE EXISTING UTILITY.
18. WHERE PIPES ARE TO BE ABANDONED, FILL WITH CONCRETE SLURRY PRIOR TO INSTALLING CAP.
19. UNLESS OTHERWISE INDICATED, CONCRETE USED FOR ENCASEMENT, ANCHOR BLOCKS, BACKING, PIPE CRADLES, ARCHES AND FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
20. SURVEY COORDINATES AND ELEVATIONS SHALL BE PROVIDED FOR ALL BURIED PIPING BENDS AND VALVES ON AS-BUILT DRAWINGS.
21. PROVIDE VALVE BOXES FOR ALL BURIED VALVES.
22. CONTRACTOR SHALL POTHOLE AND FIELD INVESTIGATE PIPING AND INTERFERENCES WITH EXISTING FACILITIES PRIOR TO BEGINNING WORK. CONTRACTOR SHALL FIELD ROUTE NEW LINES AS NECESSARY TO AVOID EXISTING FACILITIES AND SHALL COORDINATE FIELD ROUTING WITH CONSTRUCTION MANAGER.
23. UNLESS NOTED OTHERWISE ALL UNDERGROUND PIPING SHALL BE INSTALLED PER DETAIL D, SHEET C-003.
24. ASPHALT SURFACES DISTURBED DURING UNDERGROUND PIPING INSTALLATION, DUCT BANK INSTALLATION AND OTHER ACTIVITIES SHALL BE REPAIRED.
25. FIELD ROUTE ALL PIPING TO AVOID CONFLICTS WITH EXISTING PIPING AND FACILITIES. CONTRACTOR TO FIELD INVESTIGATE ALL PIPING ROUTES AND COORDINATE ANY NECESSARY ROUTING CHANGES WITH CONSTRUCTION MANAGER.

GENERAL SITE LAYOUT NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS.
2. CONTROL POINTS ON SHEET C-002 DEFINE THE CONSTRUCTION CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE CONSTRUCTION MANAGER.

GENERAL SITE LAYOUT NOTES (CONT'D.)

3. IN GENERAL, THE GIVEN STRUCTURE LOCATIONS ARE TO THE OUTSIDE FACE OF THE STRUCTURE FOUNDATION WALL, NOT FOOTINGS. REFER TO THE CIVIL AND STRUCTURAL DRAWINGS FOR STRUCTURE DIMENSIONS. RADII SHOWN FOR ROADS ARE TO EDGE OF PAVEMENT.
4. THE LOCATION AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND CONSTRUCTION MANAGER. THE CONTRACTOR SHALL LIMIT THEIR ACTIVITIES TO THESE AREAS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTING ALL EXISTING PROPERTY MONUMENTS DISTURBED BY THEIR OPERATIONS. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF ARIZONA AT NO ADDITIONAL COST TO THE OWNER.
6. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE CONSTRUCTION MANAGER.

PERMITS AND NOTIFICATION NOTES

1. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PRIOR TO BEGINNING CONSTRUCTION, PER SECTION 01561.
2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER TWENTY-FOUR (24) HOURS PRIOR TO COMMENCING PERMITTED WORK, TWENTY-FOUR (24) HOURS PRIOR TO ANY REQUIRED INSPECTION, AND AFTER COMPLETING WORK COVERED BY THE PERMIT.
3. A REQUEST FOR SHUTDOWN SHALL BE REQUIRED WHENEVER CONNECTIONS ARE MADE TO ANY UTILITY LINE, INCLUDING ELECTRIC POWER AND COMMUNICATION LINES; GAS, WATER, AND SANITARY SEWERS OR STORM SEWERS. CONNECTIONS TO ANY UTILITY WITHOUT AN APPROVED REQUEST WILL MAKE THE CONTRACTOR LIABLE TO THE OWNER FOR CORRECTION OF ANY DEFICIENCIES AND/OR RESULTING PROBLEMS, INCLUDING (BUT NOT LIMITED TO) HEALTH, SAFETY, AND FINANCIAL PROBLEMS. THE CONTRACTOR SHALL REQUEST PERMISSION AT LEAST FOUR (4) WORKING DAYS PRIOR TO THE DAY PLANNED FOR ANY UTILITY SHUT-DOWN. ALL UTILITY SHUT-DOWNS ARE SUBJECT TO APPROVAL BY THE OWNER.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN GREGORY CHRISTLEY Date Signed 3/31/2026 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME C-001.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

CIVIL

GENERAL CIVIL NOTES AND SYMBOLS

DRAWING NUMBER

C-001

SHEET NUMBER 9 OF 61

TABLE 1 – PUMP NO. 1 GRADING

MARK	NORTHING	EASTING	FINISHED GRADE ELEVATION	DESCRIPTION
1	1773533.40	848954.90	4285.50	NW CORNER OF PUMP NO. 1
2	1773508.73	848959.27	4285.50	SE CORNER OF PUMP NO. 1
3	1773503.54	848935.40	4285.05	FENCE CORNER
4	1773548.11	848950.33	4285.05	FENCE CORNER
5	1773536.98	848983.51	4284.50	FENCE CORNER
6	1773492.42	848968.58	4284.80	FENCE CORNER
7	1773496.88	848955.31	4285.05	FENCE CORNER
8	1773500.69	848943.93	4285.05	FENCE CORNER
9	1773471.29	848925.82	4284.41	EDGE OF GRAVEL
10	1773471.52	848935.22	4284.02	EDGE OF GRAVEL
11	1773500.37	848944.88	4285.05	EDGE OF GRAVEL
12	1773497.19	848954.36	4285.05	EDGE OF GRAVEL
13	1773444.43	848936.70	4284.41	EDGE OF GRAVEL
14	1773441.26	848936.70	4284.51	EDGE OF GRAVEL

TABLE 2 – PUMP NO. 1 FITTINGS

MARK	DESCRIPTION	ELEVATION	NORTHING	EASTING
15	6" TEE		1773529.82	849002.21
16	6" 90d BEND		1773542.52	848964.38
17	6"x6"x2" TEE		1773536.81	848981.40
18	6"x6"x2" TEE		1773519.57	848975.62
19	6" TEE		1773512.56	848996.42
20	4" 90d BEND		1773532.01	848940.19

TABLE 7 – PRV LOCATIONS

MARK	DESCRIPTION	ELEVATION	NORTHING	EASTING
300	CENTER OF PRV		1921427.48	841626.01
400	CENTER OF PRV		1914301.43	846897.58
500	CENTER OF PRV		1894742.05	854392.86
600	CENTER OF PRV		1877444.51	854093.15
700	CENTER OF PRV		1847846.96	857051.89
800	CENTER OF PRV		1836628.53	855136.32

TABLE 3 – PUMP NO. 2 GRADING

MARK	NORTHING	EASTING	FINISHED GRADE ELEVATION	DESCRIPTION
100	1898936.16	852034.86	5430.50	NW CORNER OF PUMP NO. 2
101	1898934.32	852051.80	5430.50	SE CORNER OF PUMP NO. 2
102	1898958.60	852058.56	5030.10	FENCE CORNER
103	1898931.26	852070.92	5030.10	FENCE CORNER
104	1898911.88	852028.11	5030.10	FENCE CORNER
105	1898939.21	852015.74	5030.10	FENCE CORNER
106	1898946.43	852031.68	5030.10	FENCE CORNER
107	1898951.38	852042.62	5030.10	FENCE CORNER
108	1898964.68	852020.67	5029.34	EDGE OF GRAVEL
109	1898967.22	852041.47	5028.75	EDGE OF GRAVEL
110	1898960.19	852037.53	5029.59	EDGE OF GRAVEL
111	1898950.97	852041.71	5030.10	EDGE OF GRAVEL
112	1898946.84	852032.60	5030.10	EDGE OF GRAVEL
113	1898961.78	852025.83	5029.49	EDGE OF GRAVEL

TABLE 4 – PUMP NO. 2 FITTINGS

MARK	DESCRIPTION	ELEVATION	NORTHING	EASTING
114	4" TEE		1898962.44	852006.48
115	4" 90d BEND		1898924.31	852023.77
116	4"x4"x2" TEE		1898926.79	852029.23
117	4"x4"x2" TEE		1898943.21	852060.94
118	4" 90d BEND		1898944.45	852063.68
119	4" TEE		1898980.89	852047.16
120	4" 45d BEND		1898921.36	852053.11
121	4" 45d BEND		1898918.71	852052.11

TABLE 5 – PUMP NO. 3 GRADING

MARK	NORTHING	EASTING	FINISHED GRADE ELEVATION	DESCRIPTION
200	1914216.23	846066.33	5137.50	E CORNER OF PUMP NO. 3
201	1914213.90	846049.45	5137.50	E CORNER OF PUMP NO. 3
202	1914230.55	846053.27	5137.10	FENCE CORNER
203	1914241.43	846066.98	5137.00	FENCE CORNER
204	1914217.92	846085.62	5137.00	FENCE CORNER
205	1914188.71	846048.80	5137.00	FENCE CORNER
206	1914212.21	846030.16	5137.00	FENCE GATE
207	1914223.09	846043.87	5137.10	FENCE GATE
208	1914284.60	846082.17	5132.25	EDGE OF GRAVEL
209	1914255.22	846045.17	5135.98	EDGE OF GRAVEL
210	1914227.12	846041.95	5136.50	EDGE OF GRAVEL
211	1914223.71	846044.65	5137.10	EDGE OF GRAVEL
212	1914229.93	846052.48	5137.10	EDGE OF GRAVEL
213	1914233.34	846049.78	5136.50	EDGE OF GRAVEL
214	1914247.39	846051.39	5135.48	EDGE OF GRAVEL
215	1914276.79	846088.41	5132.44	EDGE OF GRAVEL

TABLE 6 – PUMP NO. 3 FITTINGS

MARK	DESCRIPTION	ELEVATION	NORTHING	EASTING
216	4" TEE		1914260.28	846050.50
217	4" 90d BEND		1914228.94	846075.38
218	4"x4"x2" TEE		1914227.08	846073.03
219	4"x4"x2" TEE		1914203.46	846046.25
220	4" 90d BEND		1914199.73	846041.55
221	4" TEE		1914232.50	846015.52
222	4" 90d BEND		1914201.32	846072.86

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN C. WILLMORE Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-002.DWG

BC PROJECT NUMBER
150360

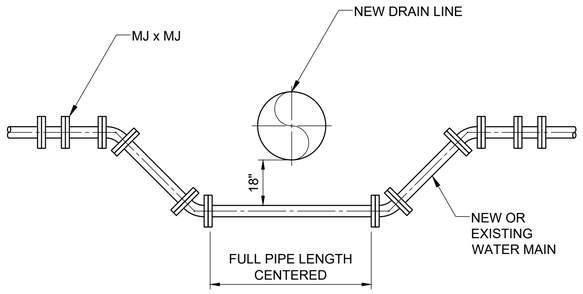
CLIENT PROJECT NUMBER
C010232

CIVIL

CONTROL COORDINATES

DRAWING NUMBER
C-002

SHEET NUMBER
10 OF 61



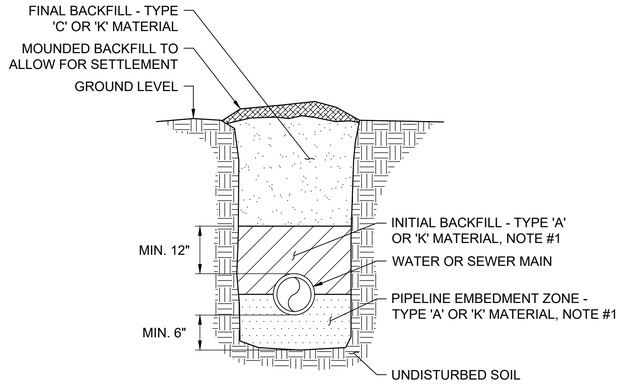
NOTES:

1. PIPE SHALL BE DUCTILE IRON AND CONFORM TO AWWA C151, THICKNESS CLASS 50.
2. MECHANICAL JOINT PIPE SHALL CONFORM TO AWWA C104, JOINTS TO CONFORM TO AWWA C111.
3. MECHANICAL JOINT FITTINGS SHALL CONFORM TO AWWA C153, JOINTS TO CONFORM TO AWWA C11.
4. MECHANICAL JOINT PIPE AND FITTINGS SHALL BE RESTRAINED EBBA IRON MEGALUGS, OR EQUAL.

WATER MAIN LOOP

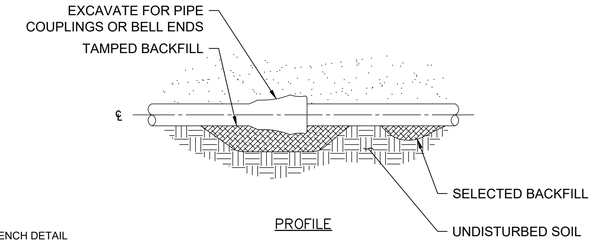
DETAIL C/-

NOT TO SCALE



NOTES:

1. HAND COMPACTED IN 6" LIFTS FROM BOTTOM OF TRENCH TO 12" ABOVE PIPE CROWN.
2. OPEN CUT OR PAVED OR GRAVEL ROADS (IF REQUIRED), BACK FILL MINIMUM COMPACTION 95% OPTIMUM DENSITY LIFTS.
3. REPAVING AND REGRAVELING WILL BE DONE TO ROAD OWNER'S REQUIREMENTS.
4. KEEP LOWER 5' OF TRENCH WALL VERTICAL, IF POSSIBLE. UPPER PART OF THE TRENCH WILL VARY IN WIDTH TO COMPENSATE FOR UNSTABLE SOIL. APPLICABLE O.S.H.A. REQUIREMENTS SHALL BE MET.

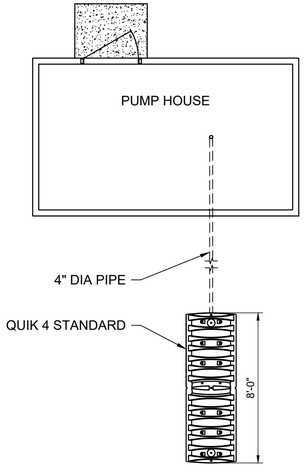


PROFILE

TRENCH DETAIL

DETAIL D/-

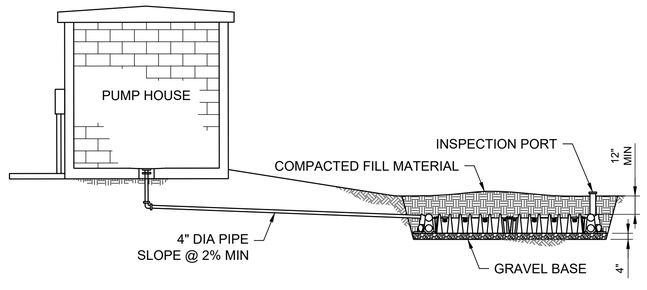
NOT TO SCALE



PLAN

SCALE: NOT TO SCALE

BILL OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	2	QUIK 4 CHAMBER: 34" W x 48" L x 12" H
2	2	QUIK 4 COMBO-END PLATE, SIZE: 34" W x 12" H



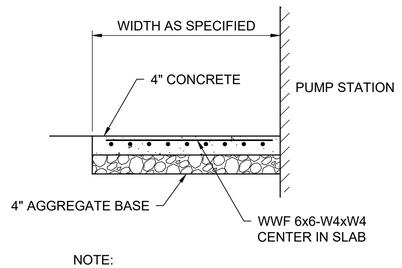
ELEVATION

SCALE: NOT TO SCALE

DRAINAGE PIPE DISCHARGE TO INFILTRATOR

DETAIL B/-

NOT TO SCALE



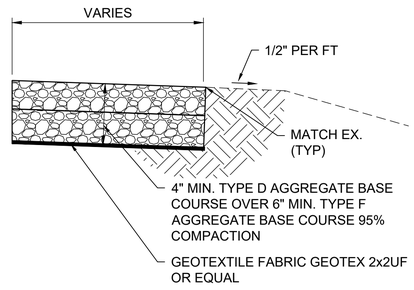
NOTE:

PROVIDE 1/8" X 1/2" DEEP JOINT EVERY 4 FT AND FULL JOINT WITH PREFORMED JOINT FILLER EVERY 20 FT.

CONCRETE PAD

DETAIL E/VAR

NOT TO SCALE



GRAVEL ROAD SECTION

DETAIL F/C-100 \ C-101

NOT TO SCALE

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN GREECHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-003.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

MISCELLANEOUS DETAILS

DRAWING NUMBER

C-003

SHEET NUMBER
11 OF 61

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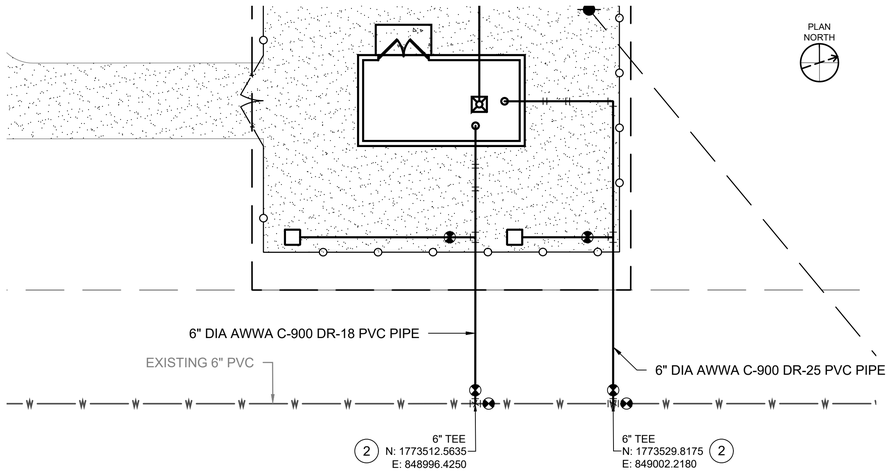
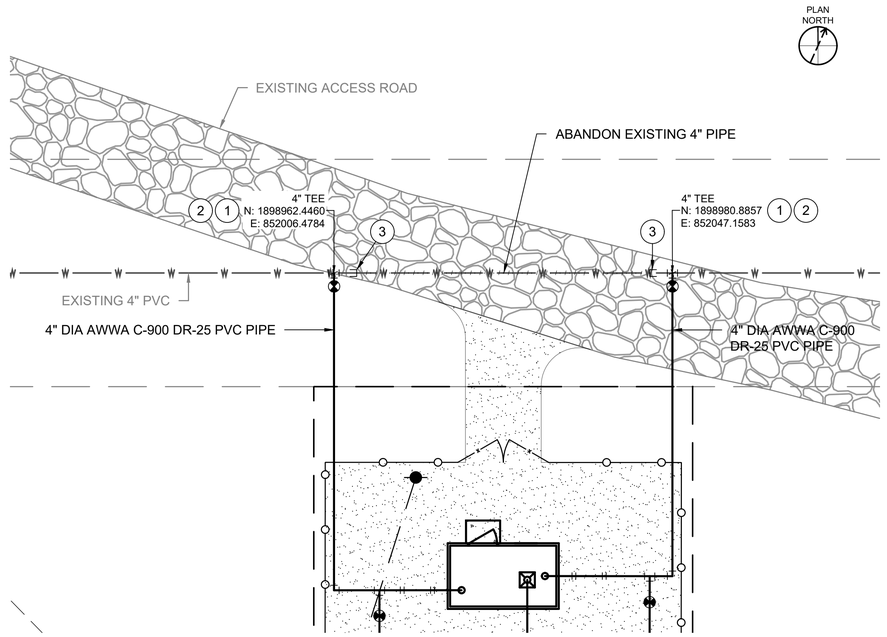


PUMP STATION NO. 1

DETAIL (A / C-101)

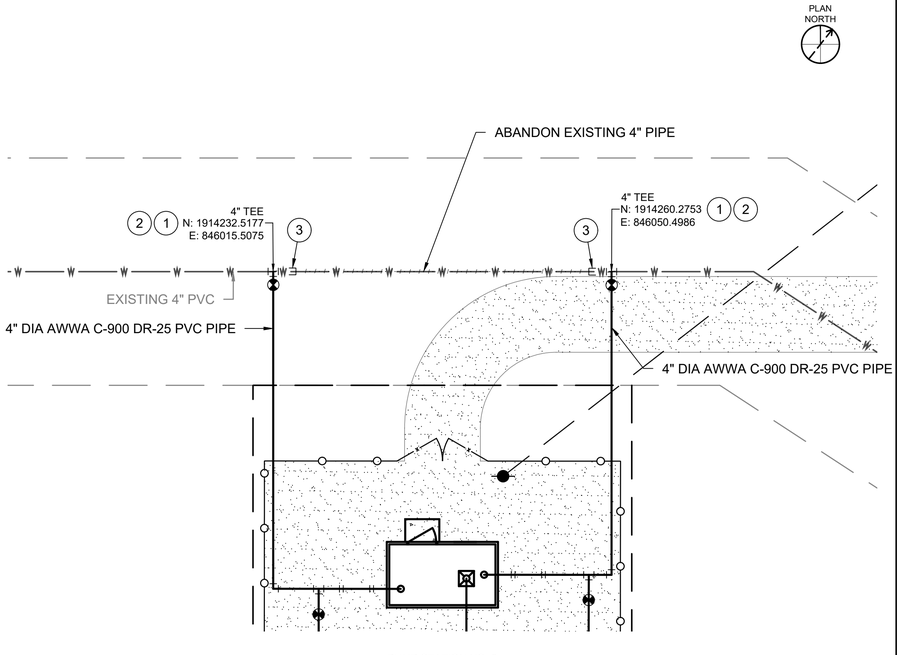
SCALE = 1" : 10'



PUMP STATION NO. 2

DETAIL (B / C-111)

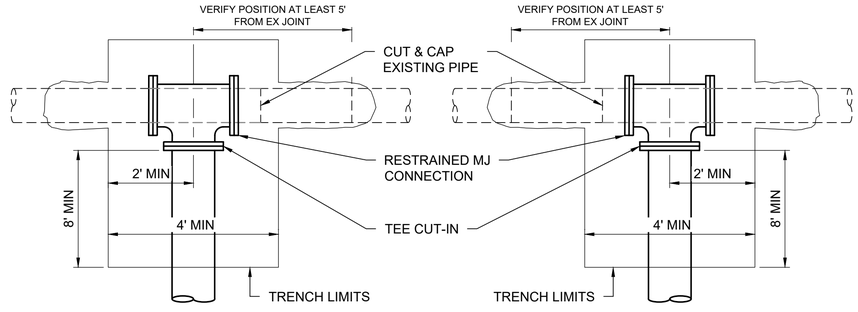
SCALE = 1" : 10'



PUMP STATION NO. 3

DETAIL (C / C-121)

SCALE = 1" : 10'



NOTES:

1. ALL PIPE, FITTINGS, APPURTENANCES AND CONNECTIONS TO EXISTING PIPELINES SHALL BE RATED FOR AND FULLY RESTRAINED FOR THE OPERATING AND TESTING PRESSURES SPECIFIED.
2. SEE NTUA STD DWG WS-19 FOR REQUIRED GRAVITY / THRUST BLOCKS.

CUT & CAP CONNECTION

DETAIL (D / -)

SCALE: N.T.S.

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATION, MATERIAL, DIMENSIONS AND CONDITION OF EXISTING WATER LINE PRIOR TO ORDERING PIPE, FITTINGS AND APPURTENANCES.
2. ALL SITE PIPING TO HAVE FULLY RESTRAINED JOINTS.

KEY NOTES

1. CONSTRUCT CONNECTION TO EXISTING WATER LINE PER DETAIL D/C-004
2. CONTRACTOR TO PROVIDE THRUST RESTRAINT PER NTUA STANDARD DRAWING WS-19.
3. CUT & CAP EXISTING PVC WATER MAIN

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN C. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-004.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CONNECTION DETAILS

DRAWING NUMBER
C-004

SHEET NUMBER
12 OF 61

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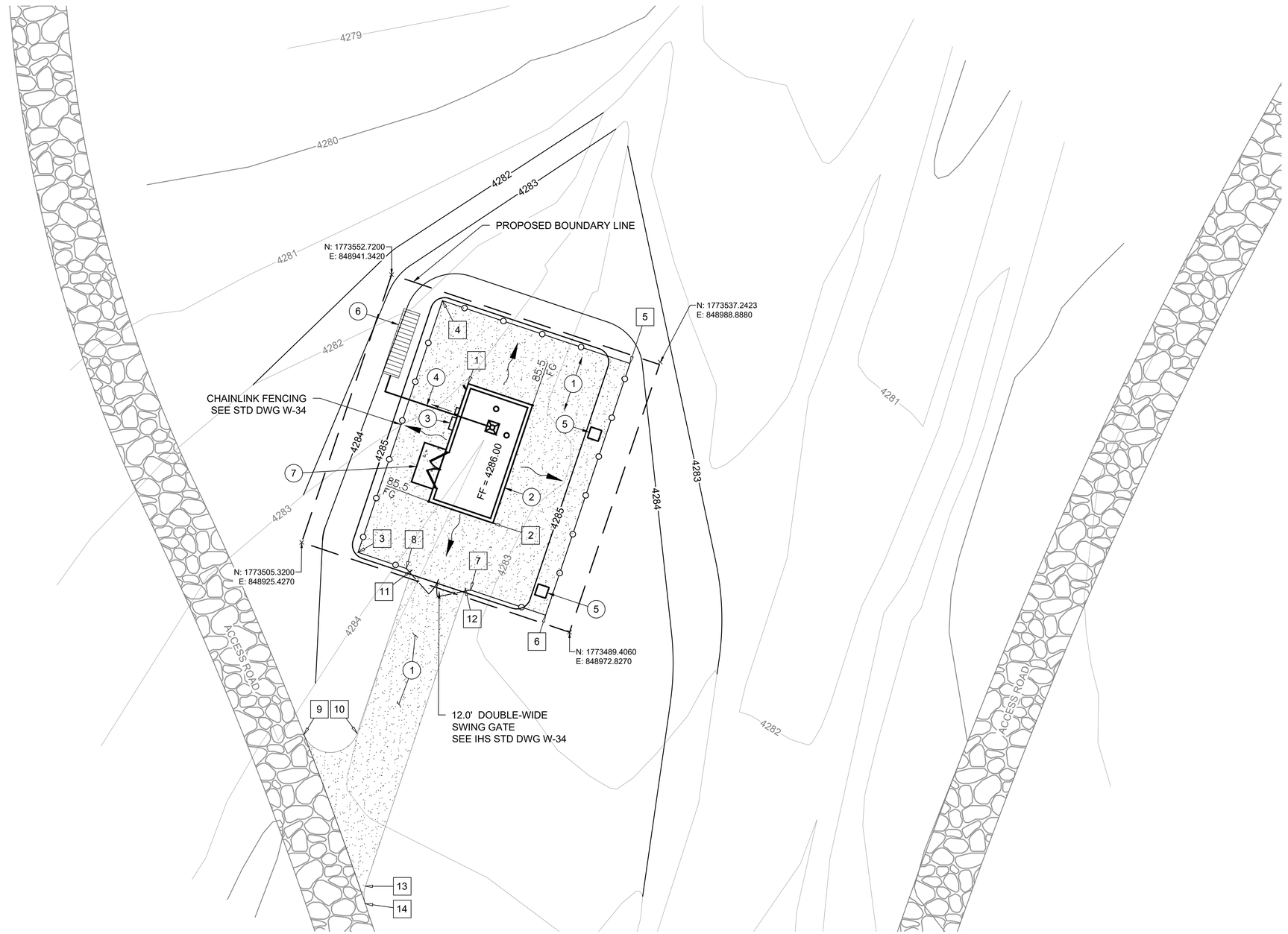

PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. GRADING FROM PROPOSED ENCLOSED AREA TO NATURAL GRADE SHALL NOT EXCEED 4:1 MAX.
2. SEE TABLE 1 / C-002 FOR CONTROL COORDINATE INFORMATION.
3. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. GRAVEL SURFACE W/ GEOTEXILE, SEE DETAIL F/C-003. APPROX. 1810SF.
2. PUMPHOUSE - SEE ARCHITECTURAL AND STRUCTURAL
3. ELECTRICAL EQUIPMENT, SEE ELECTRICAL
4. SLOPE DRAIN PIPE @ 2% MIN TO INFILTRATORS
5. FLUSH LINE SPLASH PAD OUTLET PER NTUA STD DWG WS-11.
6. TWO DRAINAGE INFILTRATORS. SEE DETAIL B/C-003.
7. CONCRETE PAD, SEE DETAIL E/C-003

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Registered Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN C. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

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GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
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DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-100.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PUMP STATION NO. 1 GRADING PLAN

DRAWING NUMBER

C-100

SHEET NUMBER
13 OF 61

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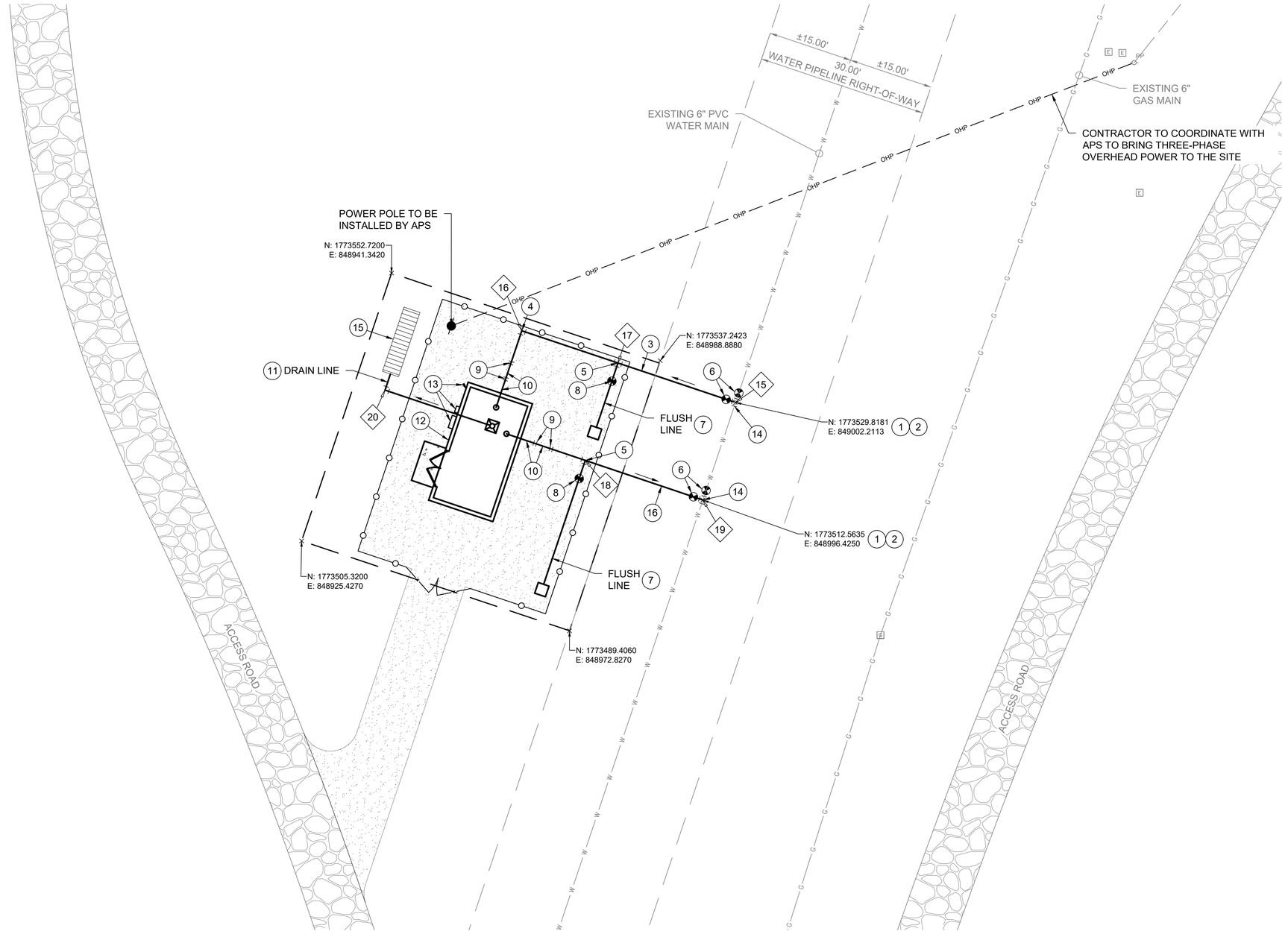

PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. ALL LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY AND POTHOLE AS REQUIRED TO COMPLETE THE WORK.
2. CONTRACTOR TO FIELD VERIFY LOCATION, ELEVATIONS, INVERTS, MATERIAL, DIMENSIONS AND CONDITION OF EXISTING UTILITIES.
3. CONTRACTOR TO PROVIDE THRUST BLOCKS AT ALL ELBOWS, TEES AND CROSSES PER NTUA STD DWG WS-19 OR USE MECHANICAL JOINT FITTINGS AND RESTRAIN WITH EBBA IRON MEGALUGS, OR EQUAL (IF RESTRAINED JOINTS ARE USED PIPE MUST BE RESTRAINED PER MANUFACTURER'S REQUIREMENTS)
4. CONTRACTOR TO INSTALL PIPE IN TRENCH PER DETAIL D/C-003.
5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2/C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 6" TEE
2. SEE CONNECTION DETAIL A / C-004.
3. 6" DIA PVC C900 DR 25
4. 6" DIA 90d BEND
5. 6" x 6" x 2" TEE
6. 6" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
7. SEE NTUA STD DWG WS-11
8. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
9. 6" DIA ROMAC STYLE 501 RESTRAINED FLEXIBLE COUPLING
10. 6" DIA DIP PC 350
11. 4" DIA HDPE PIPE
12. 12'x22' CMU PUMPHOUSE, SEE ARCHITECTURAL AND STRUCTURAL
13. ELECTRICAL EQUIPMENT, SEE ELECTRICAL.
14. CUT EXISTING PIPE TO INSTALL TEE AND VALVES
15. DRAINAGE INFILTRATORS, SEE DETAIL B / SHEET C-003.
16. 6" DIA PVC C900 DR 18

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GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

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DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME C-101.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

CIVIL

CAMERON PUMP STATION NO. 1 PIPING PLAN

DRAWING NUMBER

C-101

SHEET NUMBER 14 OF 61

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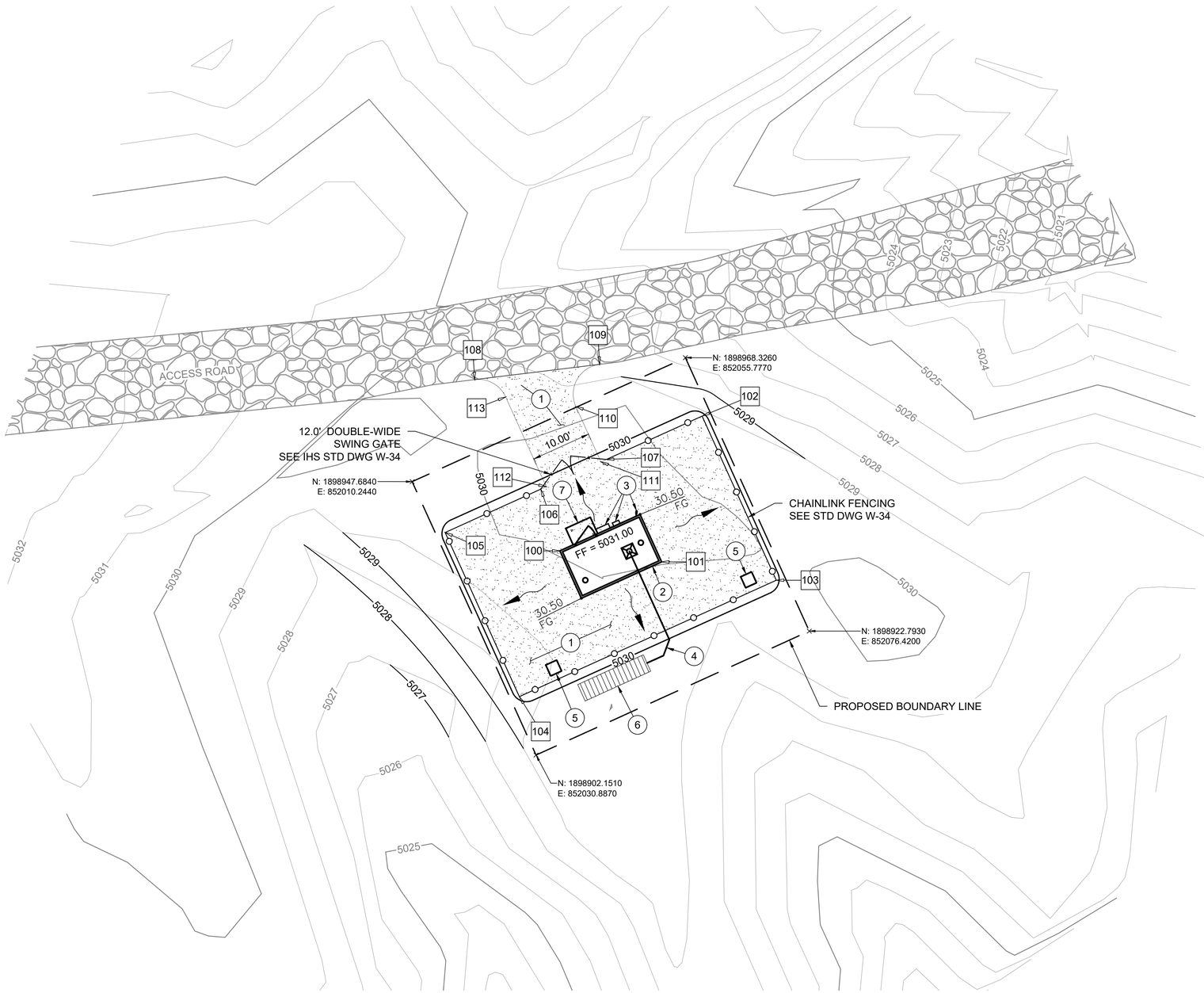

PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. GRADING FROM PROPOSED ENCLOSED AREA TO NATURAL GRADE SHALL NOT EXCEED 4:1 MAX.
2. SEE TABLE 3 / C-002 FOR CONTROL COORDINATE INFORMATION.
3. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. GRAVEL SURFACE W/ GEOTEXILE, SEE DETAIL F / C-003. APPROX. 1461SF.
2. PRECAST PUMPHOUSE SEE IHS STD DWG W-9.
3. ELECTRICAL EQUIPMENT, SEE ELECTRICAL.
4. SLOPE DRAIN PIPE @ 2% MIN TO INFILTRATORS.
5. FLUSH LINE SPLASH PAD PER NTUA STD DWG WS-11.
6. TWO DRAINAGE INFILTRATORS. SEE DETAIL B, SHEET C-003.
7. CONCRETE PAD, SEE DETAIL E/C-003.

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-110.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PUMP STATION NO. 2 GRADING PLAN

DRAWING NUMBER

C-110

SHEET NUMBER
15 OF 61

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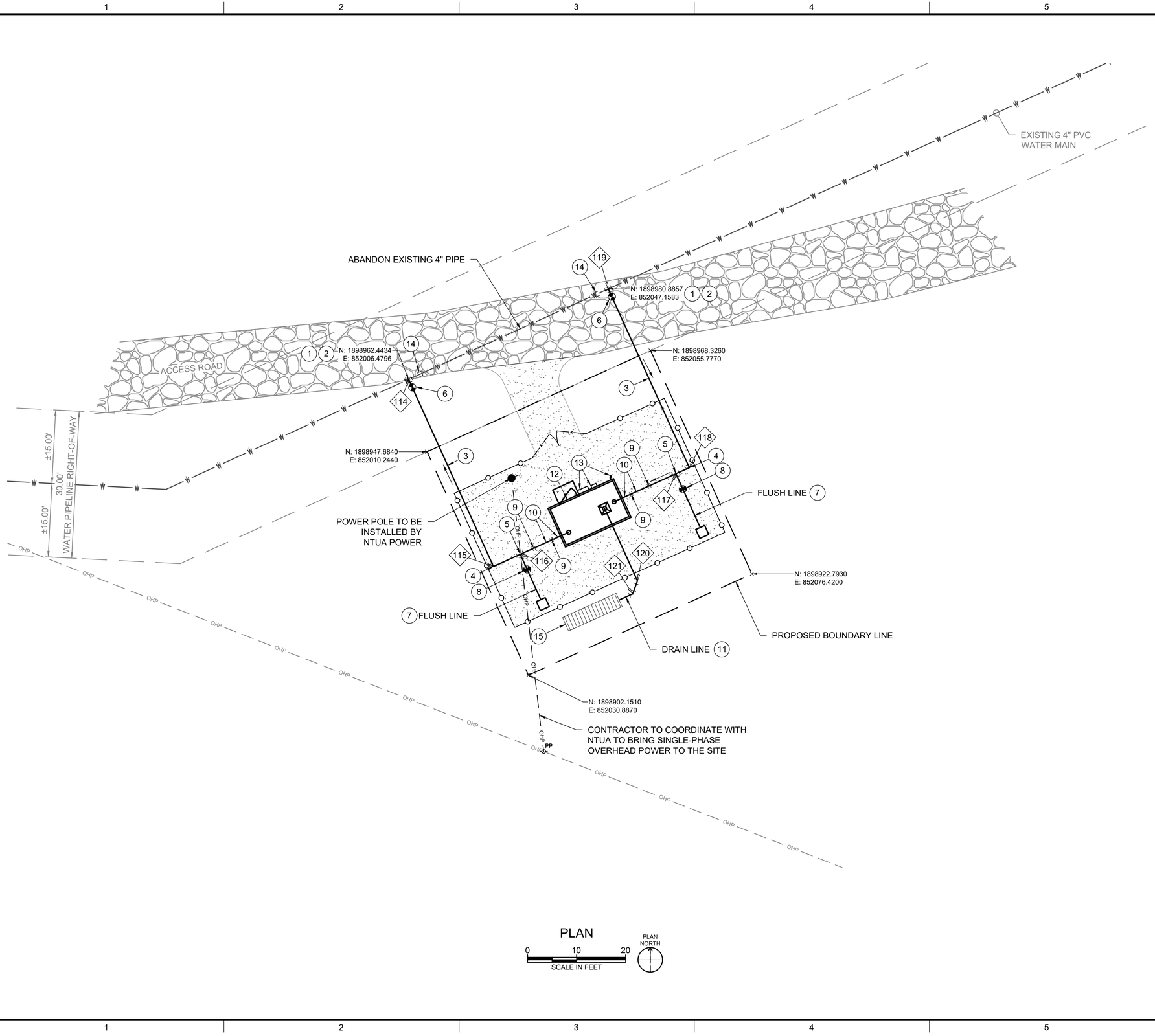

PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. ALL LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY AND POTHOLE AS REQUIRED TO COMPLETE THE WORK.
2. CONTRACTOR TO FIELD VERIFY LOCATION, ELEVATIONS, INVERTS, MATERIAL, DIMENSIONS AND CONDITION OF EXISTING UTILITIES.
3. CONTRACTOR TO PROVIDE THRUST BLOCKS AT ALL ELBOWS, TEES AND CROSSES PER NTUA STD DWG WS-19 OR USE MECHANICAL JOINT FITTINGS AND RESTRAIN WITH EBBA IRON MEGALUGS, OR EQUAL (IF RESTRAINED JOINTS ARE USED PIPE MUST BE RESTRAINED PER MANUFACTURER'S REQUIREMENTS)
4. CONTRACTOR TO INSTALL PIPE IN TRENCH PER DETAIL D/C-003.
5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2/C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 4" TEE, SEE DETAIL D / C-004.
2. SEE CONNECTION DETAIL B / C-004.
3. 4" DIA PVC C900 DR 25
4. 4" DIA 90d BEND
5. 4" x 4" x 2" TEE
6. 4" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
7. SEE NTUA STD DWG WS-11
8. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
9. 4" DIA ROMAC STYLE 501 RESTRAINED FLEXIBLE COUPLING
10. 4" DIA DIP, PC 350
11. 4" DIA HDPE PIPE
12. PRECAST PUMPHOUSE SEE STD DWG W-9.
13. ELECTRICAL EQUIPMENT, SEE ELECTRICAL.
14. CUT & CAP, SEE DETAIL D / SHEET C-004.
15. DRAINAGE INFILTRATORS, SEE DETAIL B / SHEET C-003.

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Arizona Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN S. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-111.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PUMP STATION NO. 2 PIPING PLAN

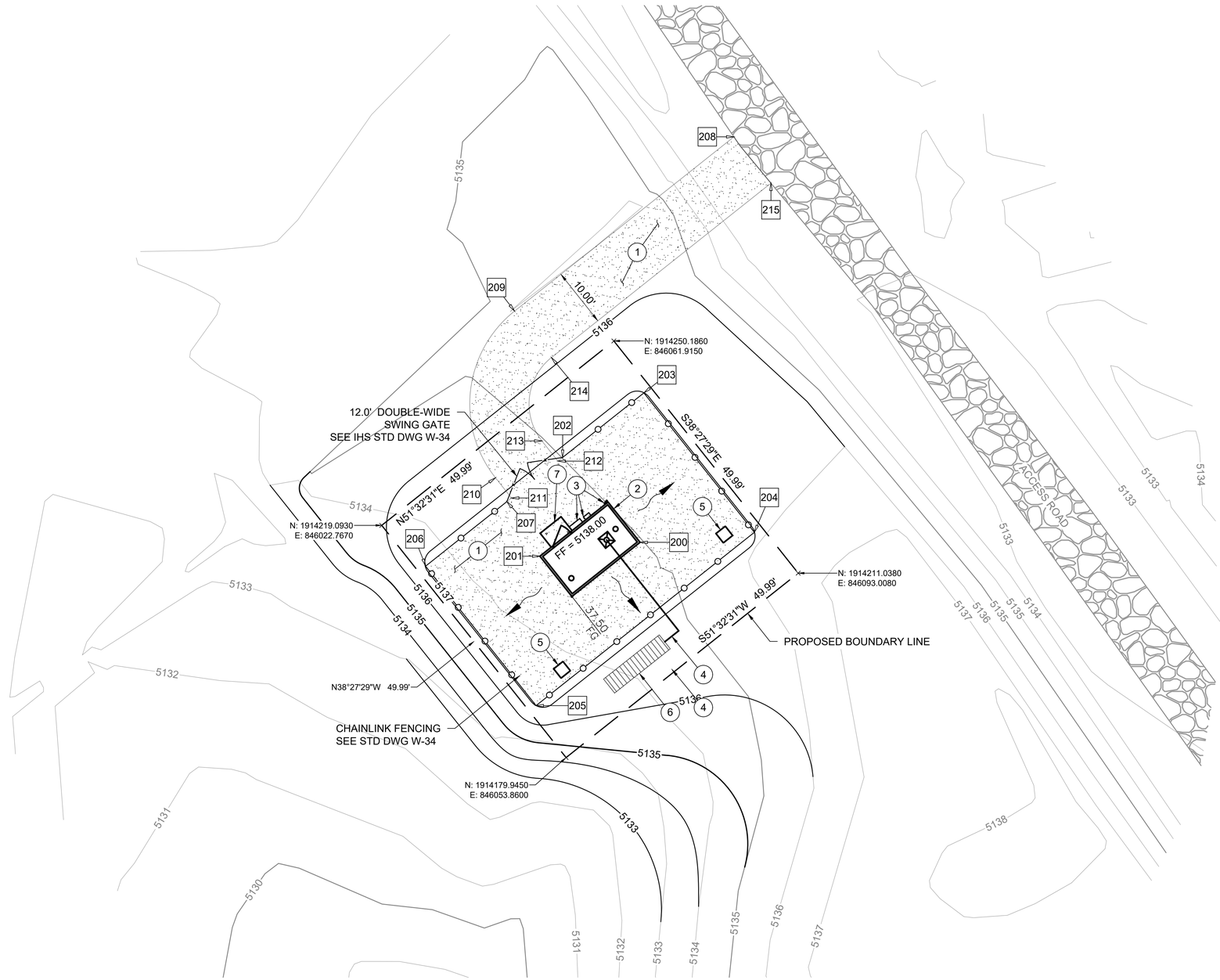
DRAWING NUMBER

C-111

SHEET NUMBER

16 OF 61

Path: C:\BCPWD1020433 FILENAME: C-111.DWG PLOT DATE: 7/23/2024 12:17 PM CAD USER: NATE WHIRTY



PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

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2. SEE TABLE 5 / C-002 FOR CONTROL COORDINATE INFORMATION.
3. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

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Expires 3/31/26

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CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-120.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PUMP STATION NO. 3 SITE PLAN

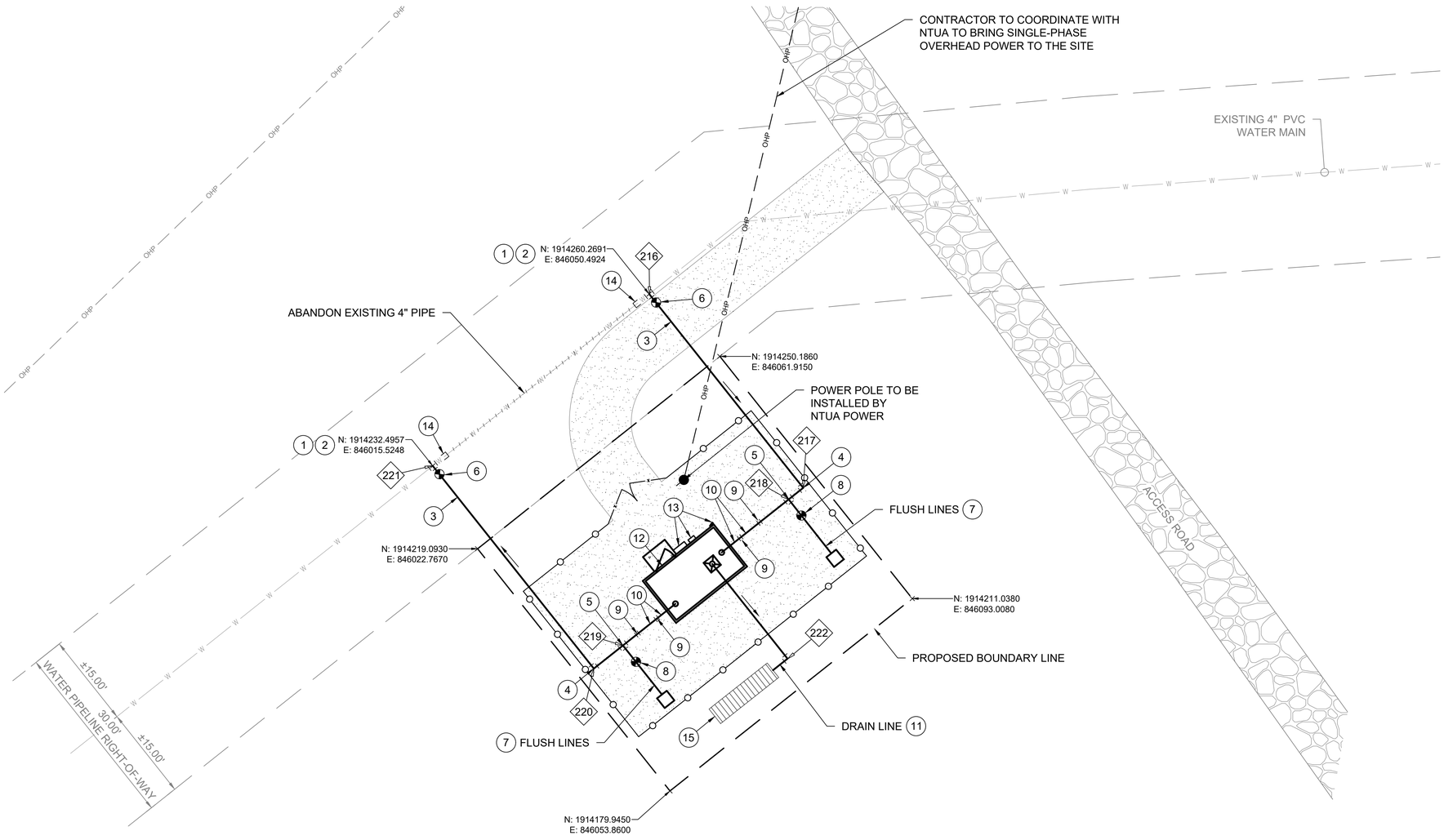
DRAWING NUMBER

C-120

SHEET NUMBER

17 OF 61

Path: C:\BCPWD\1020433 FILENAME: C-120.DWG PLOT DATE: 7/23/2024 12:18 PM CAD USER: NATE WHIRTY



PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

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4. CONTRACTOR TO INSTALL PIPE IN TRENCH PER DETAIL D/C-003.
5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2 / C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 4" TEE, SEE DETAIL D / C-004.
2. SEE CONNECTION DETAIL C / C-004.
3. 4" DIA PVC C900 DR 25
4. 4" DIA 90d BEND
5. 4" x 4" x 2" TEE
6. 4" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
7. SEE NTUA STD DWG WS-11
8. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
9. 4" DIA ROMAC STYLE 501 RESTRAINED FLEXIBLE COUPLING
10. 4" DIA DIP, PC 350
11. 4" DIA HDPE PIPE
12. PRECAST PUMPHOUSE SEE STD DWG W-9.
13. ELECTRICAL EQUIPMENT, SEE ELECTRICAL.
14. CUT & CAP, SEE DETAIL D / SHEET C-004.
15. DRAINAGE INFILTRATORS, SEE DETAIL B / SHEET C-003.

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Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-121.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PUMP STATION NO. 3 PIPING PLAN

DRAWING NUMBER

C-121

SHEET NUMBER
18 OF 61

Path: C:\BCPWD\D1020433 FILENAME: C-121.DWG PLOT DATE: 7/23/2024 4:34 PM CAD USER: NATE WHIRTY

PLAN

0 5 10

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

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6. SEE TABLE 2 / C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 6" DIA TEE, SEE DETAIL D / C-004.
2. 6" DIA PVC C900 DR 25
3. 6" DIA 90d BEND
4. 4"x2" TEE
5. 6" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
6. 6" x 4" DIP MJ x MJ REDUCER
7. 4" DIA DI PC 350
8. SEE NTUA STD DWG WS-11
9. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
10. 4" x 2" PRV, SEE NTUA STD DWG, WS-4b & WS-4c. SEE SHEET P-100 FOR PRV SETTINGS.
11. CUT & CAP, SEE DETAIL D SHEET C-004.
12. ABANDON EXISTING VAULT IN PLACE. REMOVE ALL PIPING & APPURTENANCES. FILL ABANDONED VAULT WITH SPOILS FROM INSTALLATION OF NEW VAULT
13. REMOVE VALVE BOXES AND ABOVE GROUND PIPING

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Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-130.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PRESSURE REDUCING VALVE NO. 1 SITE PLAN

DRAWING NUMBER

C-130

SHEET NUMBER
19 OF 61

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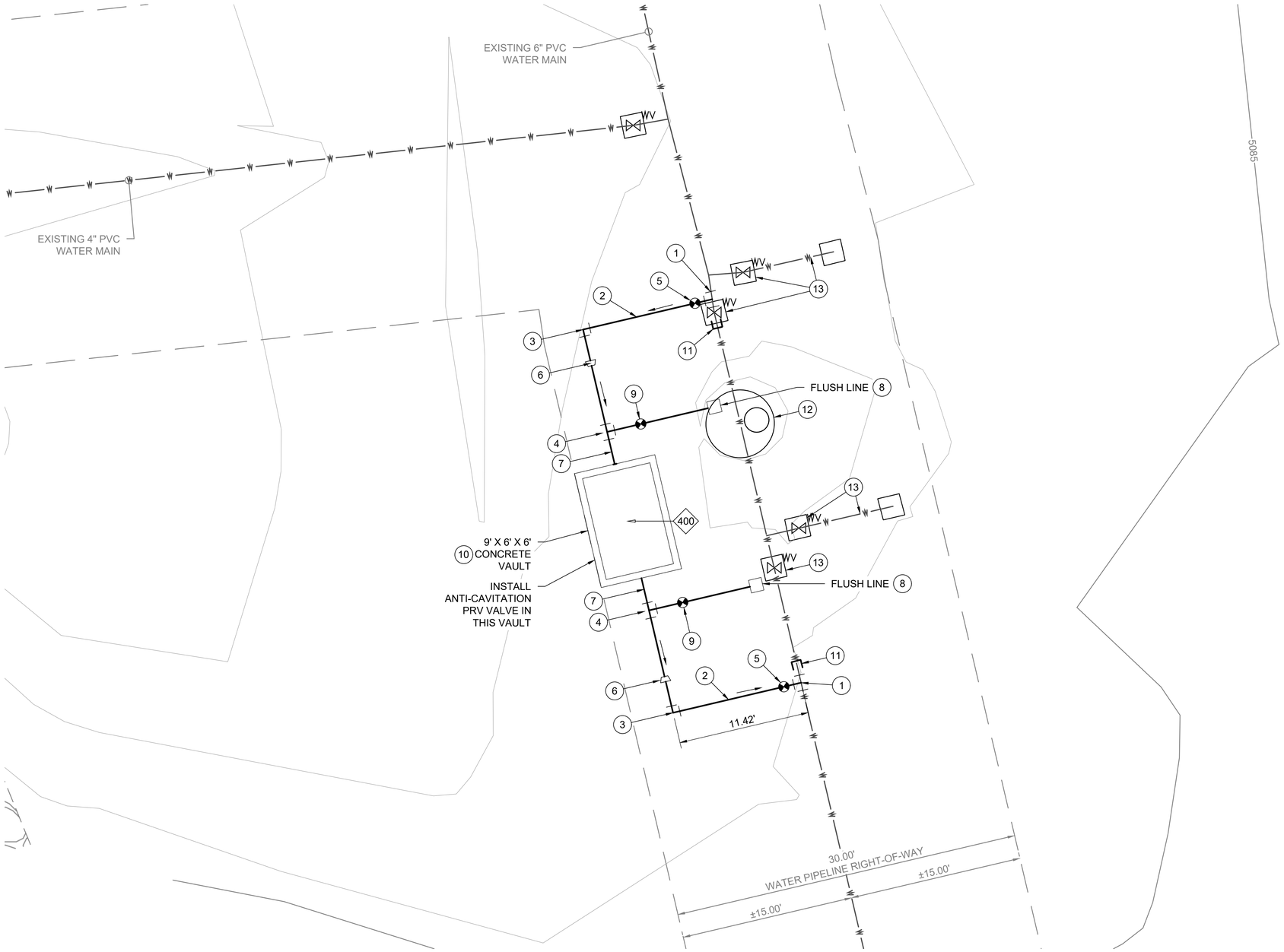

PLAN

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SCALE IN FEET

PLAN NORTH

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5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2 / C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR LEGEND.

KEY NOTES

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3. 6" DIA 90d BEND
4. 4"x2" TEE
5. 6" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
6. 6" x 4" DIP MJ x MJ REDUCER
7. 4" DIA DI PC 350
8. SEE NTUA STD DWG WS-11
9. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
10. 4" x 2" PRV, SEE NTUA STD DWG, WS-4b & WS-4c. SEE SHEET P-100 FOR PRV SETTINGS.
11. CUT & CAP, SEE DETAIL D SHEET C-004.
12. ABANDON EXISTING VAULT IN PLACE. REMOVE ALL PIPING & APPURTENANCES. FILL ABANDONED VAULT WITH SPOILS FROM INSTALLATION OF NEW VAULT
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SALT LAKE CITY, UTAH

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Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S.BRENCHLEY

FILENAME
C-140.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

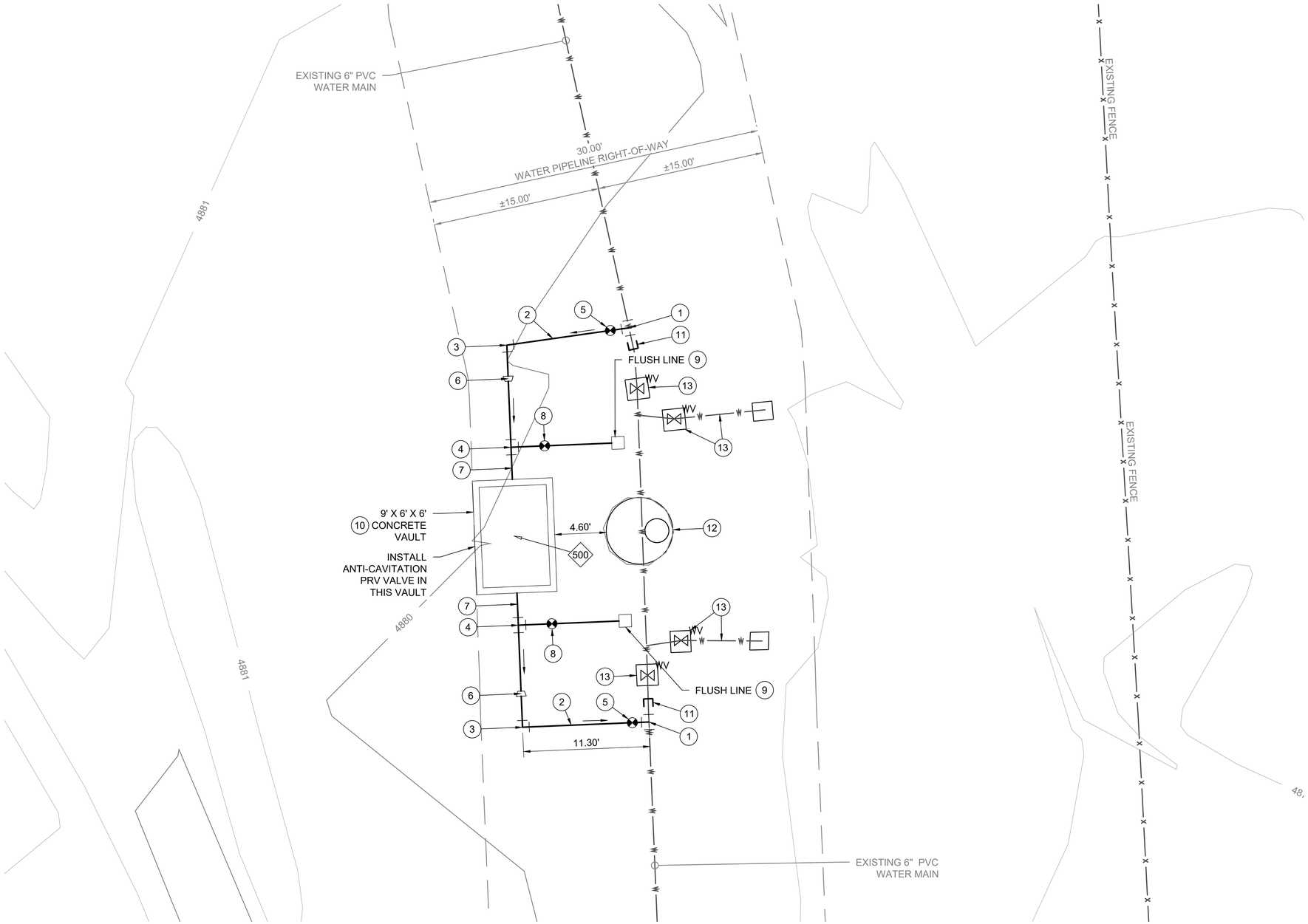
CAMERON PRESSURE REDUCING VALVE NO. 2 SITE PLAN

DRAWING NUMBER

C-140

SHEET NUMBER
20 OF 61

Path: C:\BGPWD\1020433 FILENAME: C-140.DWG PLOT DATE: 7/23/2024 12:19 PM CAD USER: NATE WHIRTY



PLAN

0 5 10
SCALE IN FEET

PLAN NORTH

GENERAL NOTES

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KEY NOTES

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Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN S. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.
Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J. YAZZIE
DRAWN:	T. PRIDEMORE
CHECKED:	J. YAZZIE
CHECKED:	D. DAVIDSE
APPROVED:	S. BRENCHLEY

FILENAME
C-150.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

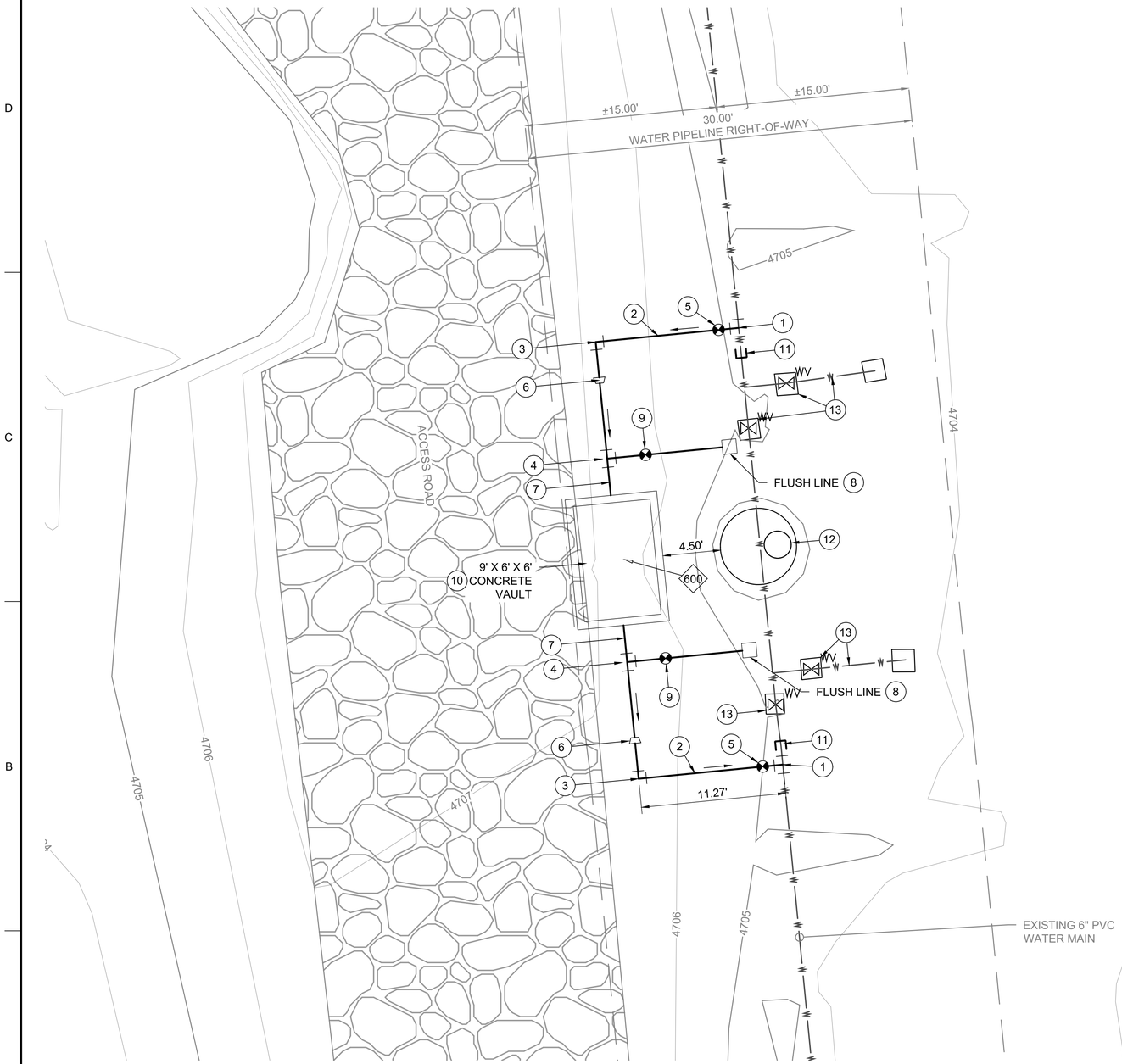
CIVIL

CAMERON PRESSURE REDUCING VALVE NO. 3 SITE PLAN

DRAWING NUMBER
C-150

SHEET NUMBER
21 OF 61

Path: C:\BCPWD\1020433 FILENAME: C-150.DWG PLOT DATE: 7/23/2024 12:19 PM CAD USER: NATE WHIRTY



PLAN

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SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN V. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-160.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

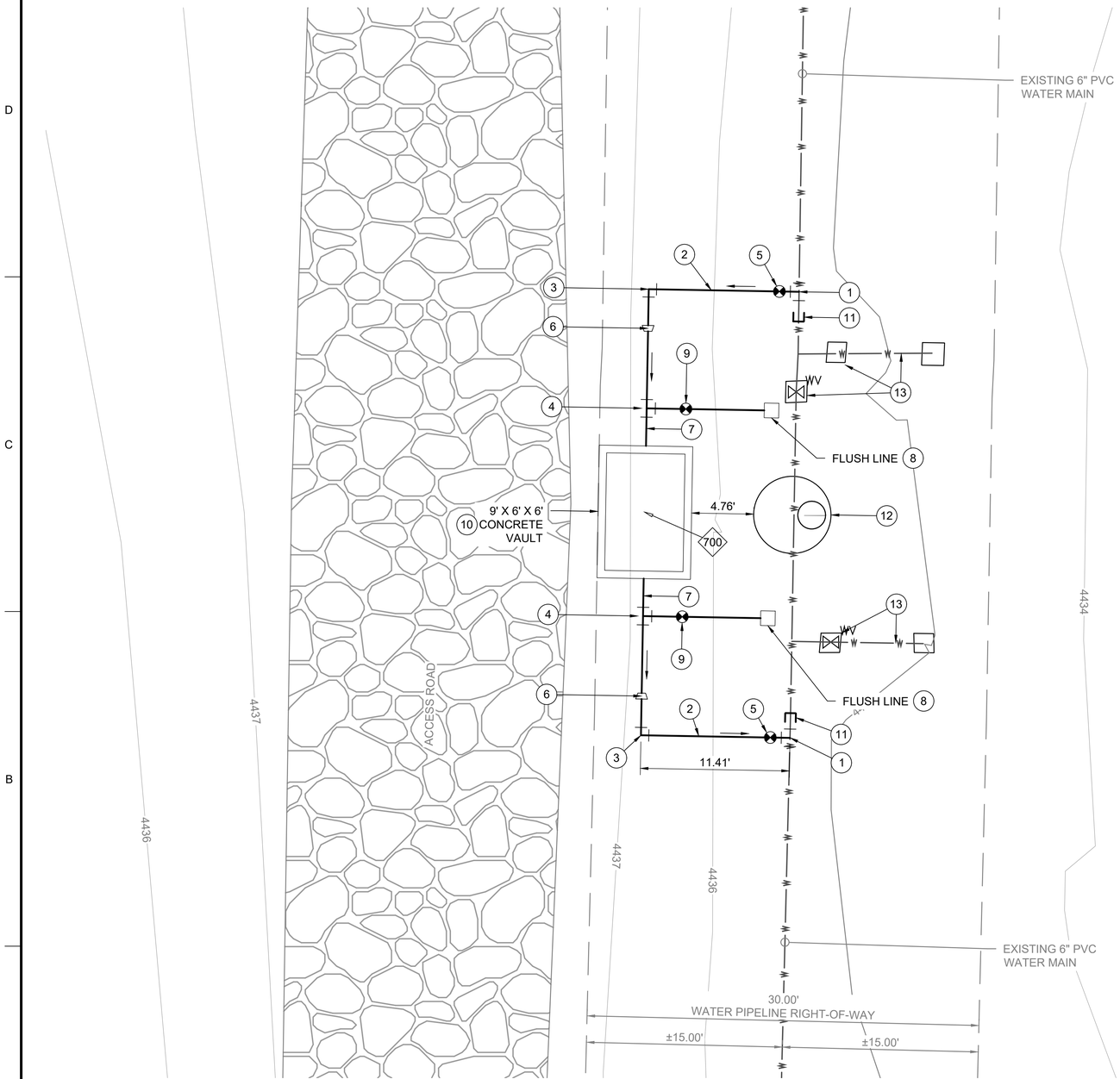
CAMERON PRESSURE REDUCING VALVE NO. 4 SITE PLAN

DRAWING NUMBER

C-160

SHEET NUMBER
22 OF 61

Path: C:\BCPWD\1020433 FILENAME: C-160.DWG PLOT DATE: 7/23/2024 12:19 PM CAD USER: NATE WHIRTY



PLAN

0 5 10

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. ALL LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY AND POTHOLE AS REQUIRED TO COMPLETE THE WORK.
2. CONTRACTOR TO FIELD VERIFY LOCATION, ELEVATIONS, INVERTS, MATERIAL, DIMENSIONS AND CONDITION OF EXISTING UTILITIES.
3. CONTRACTOR TO PROVIDE THRUST BLOCKS AT ALL ELBOWS, TEES AND CROSSES PER NTUA STD DWG WS-19 OR USE MECHANICAL JOINT FITTINGS AND RESTRAIN WITH EBBA IRON MEGALUGS, OR EQUAL (IF RESTRAINED JOINTS ARE USED PIPE MUST BE RESTRAINED PER MANUFACTURER'S REQUIREMENTS)
4. CONTRACTOR TO INSTALL PIPE IN TRENCH PER DETAIL D/C-003.
5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2 / C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 6" DIA TEE, SEE DETAIL D / C-004.
2. 6" DIA PVC C900 DR 25
3. 6" DIA 90d BEND
4. 4"x2" TEE
5. 6" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
6. 6" x 4" DIP MJ x MJ REDUCER
7. 4" DIA DI PC 350
8. SEE NTUA STD DWG WS-11
9. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
10. 4" x 2" PRV, SEE NTUA STD DWG, WS-4b & WS-4c. SEE SHEET P-100 FOR ORV SETTINGS.
11. CUT & CAP, SEE DETAIL D SHEET C-004.
12. ABANDON EXISTING VAULT IN PLACE. REMOVE ALL PIPING & APPURTENANCES. FILL ABANDONED VAULT WITH SPOILS FROM INSTALLATION OF NEW VAULT
13. REMOVE VALVE BOXES AND ABOVE GROUND PIPING

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN W. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
C-170.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

CIVIL

CAMERON PRESSURE REDUCING VALVE NO. 5 SITE PLAN

DRAWING NUMBER

C-170

SHEET NUMBER
23 OF 61

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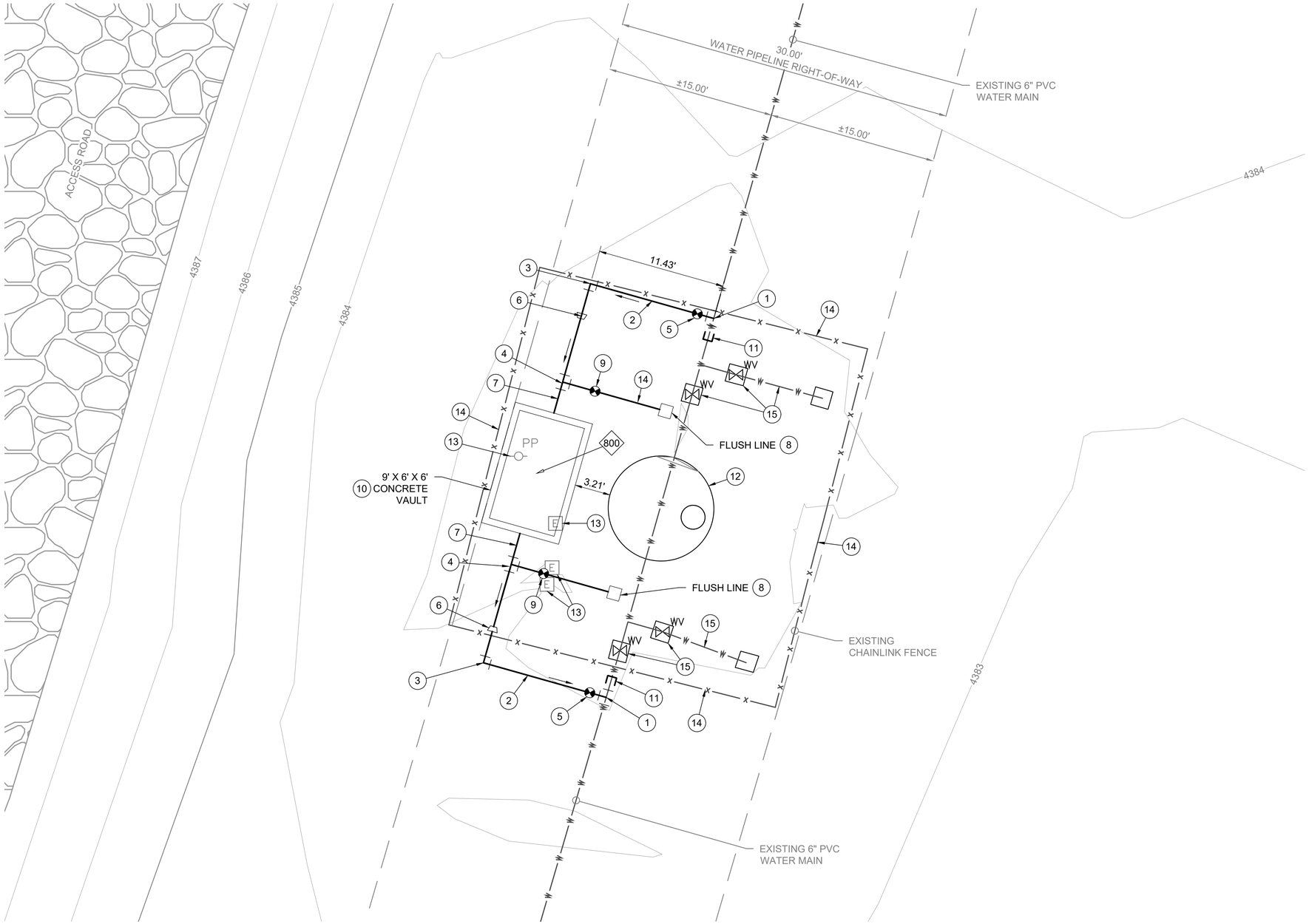

PLAN

0 5 10

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. ALL LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY AND POTHOLE AS REQUIRED TO COMPLETE THE WORK.
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4. CONTRACTOR TO INSTALL PIPE IN TRENCH PER DETAIL D/C-003.
5. CONTRACTOR TO INSTALL MARKER POSTS PER NTUA STD DWG WS-13.
6. SEE TABLE 2 / C-002 FOR COORDINATE CONTROL INFORMATION.
7. SEE SHEET G-003 FOR STANDARD ABBREVIATIONS.

KEY NOTES

1. 6" DIA TEE, SEE DETAIL D / C-004.
2. 6" DIA PVC C900 DR 25
3. 6" DIA 90d BEND
4. 4" X 2" TEE
5. 6" DIA GATE VALVE PER NTUA STD DWG WS-14 AND SECTION 15102
6. 6" x 4" DIP MJ x MJ REDUCER
7. 4" DIA DI PC 350
8. SEE NTUA STD DWG WS-11
9. 2" DIA GATE VALVE PER NTUA STD DWG WS-11 AND SECTION 15102
10. 4" x 2" PRV, SEE NTUA STD DWG, WS-4b & WS-4c. SEE SHEET P-100 FOR PRV SETTINGS.
11. CUT & CAP, SEE DETAIL D SHEET C-004.
12. ABANDON EXISTING VAULT IN PLACE. REMOVE ALL PIPING & APPURTENANCES. FILL ABANDONED VAULT WITH SPOILS FROM INSTALLATION OF NEW VAULT
13. REMOVE EXISTING POWER POLE AND POWER BOXES
14. REMOVE EXISTING CHAINLINK FENCE
15. REMOVE VALVE BOXES AND ABOVE GROUND PIPING

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN C. GREECHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME C-180.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

CIVIL

CAMERON PRESSURE REDUCING VALVE NO. 6 SITE PLAN

DRAWING NUMBER

C-180

SHEET NUMBER

24 OF 61

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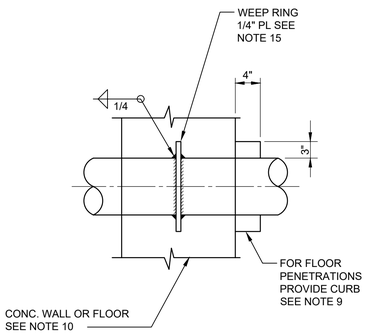


FOR WALLS, FLOORS, AND CEILINGS

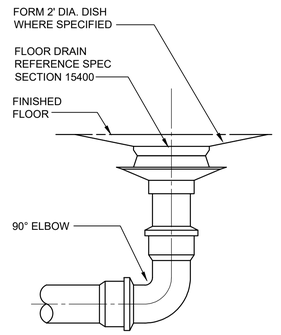
D13002 TYPE K PIPE PENETRATION
NO SCALE

PIPE PENETRATION TYPES					
	CONDITION		TYPE		
	FROM	TO	STEEL PIPE	CAST IRON	PLASTIC PIPE
1	TANK	TANK BELOW W.S.	E, H OR K	E, F, G OR J	E
2	TANK	TANK ABOVE W.S.	D OR E	D OR E	D OR E
3	PASSAGE	TANK BELOW W.S.	E, H OR K	E, F, G OR J	E
4	PASSAGE	TANK ABOVE W.S.	A, C, D OR E	A, C, D OR E	A, C, D OR E
5	PASSAGE	PASSAGE	B OR C SEE NOTE 6	B OR C SEE NOTE 6	B OR C SEE NOTE 6
6	PASSAGE	OUTSIDE WALL	D OR E	D OR E	D OR E
7	PASSAGE	ROOF	AS SHOWN		
8	TANK	OUTSIDE WALL	E OR F	E, F OR G	E

PIPE PENETRATION NOTES:

1. WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE, EXCEPT AS OTHERWISE SPECIFIED.
2. IN TABLE, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
3. IN TABLE, "PASSAGE" SHALL MEAN ANY ROOM, GALLERY, TUNNEL, OR SIMILAR ENCLOSURE.
4. IN TABLE, WATER SURFACE "WS" SHALL MEAN AN ELEVATION 9-INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
5. ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
6. IN CONDITION 5, PENETRATION TYPE E,H,J, OR K SHALL BE USED WHERE ONE SIDE IS DESIGNATED AS HAZARDOUS (CLASSIFIED), WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
7. SEAL FLANGES SHALL BE FACED AND DRILLED TO 150 POUND STANDARD. EACH JOINT SHALL BE FULL FACE GASKETED.
8. WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
9. PROVIDE CURB WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATION TYPES A AND C. CURB SHALL BE 4" HIGH BY 3" WIDE.
10. PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
11. FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED.
12. RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE WITH AWWA MANUAL MII, FIGURES 19.15 AND 19.16. AWWA MANUAL M11, TABLE 19.7 SHALL BE UTILIZED.
13. UNLESS OTHERWISE SPECIFIED, INSULATION SHALL NOT EXTEND THROUGH SLEEVES. CHILLED WATER MUST PENETRATE WITH INSULATION.
14. WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE TYPE L PENETRATION.
15. WEEP RINGS SHALL HAVE A MINIMUM DIAMETER 3-INCHES GREATER THAN THE OUTSIDE PIPE DIAMETER.
16. "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH, OR OUTSIDE ATMOSPHERE.
17. SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR A HAZARDOUS (CLASSIFIED) AREA

D10001 PENETRATION TYPES AND STANDARD NOTES
NO SCALE



D72002 TYPE II FLOOR DRAIN
NO SCALE

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN W. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
M-001.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

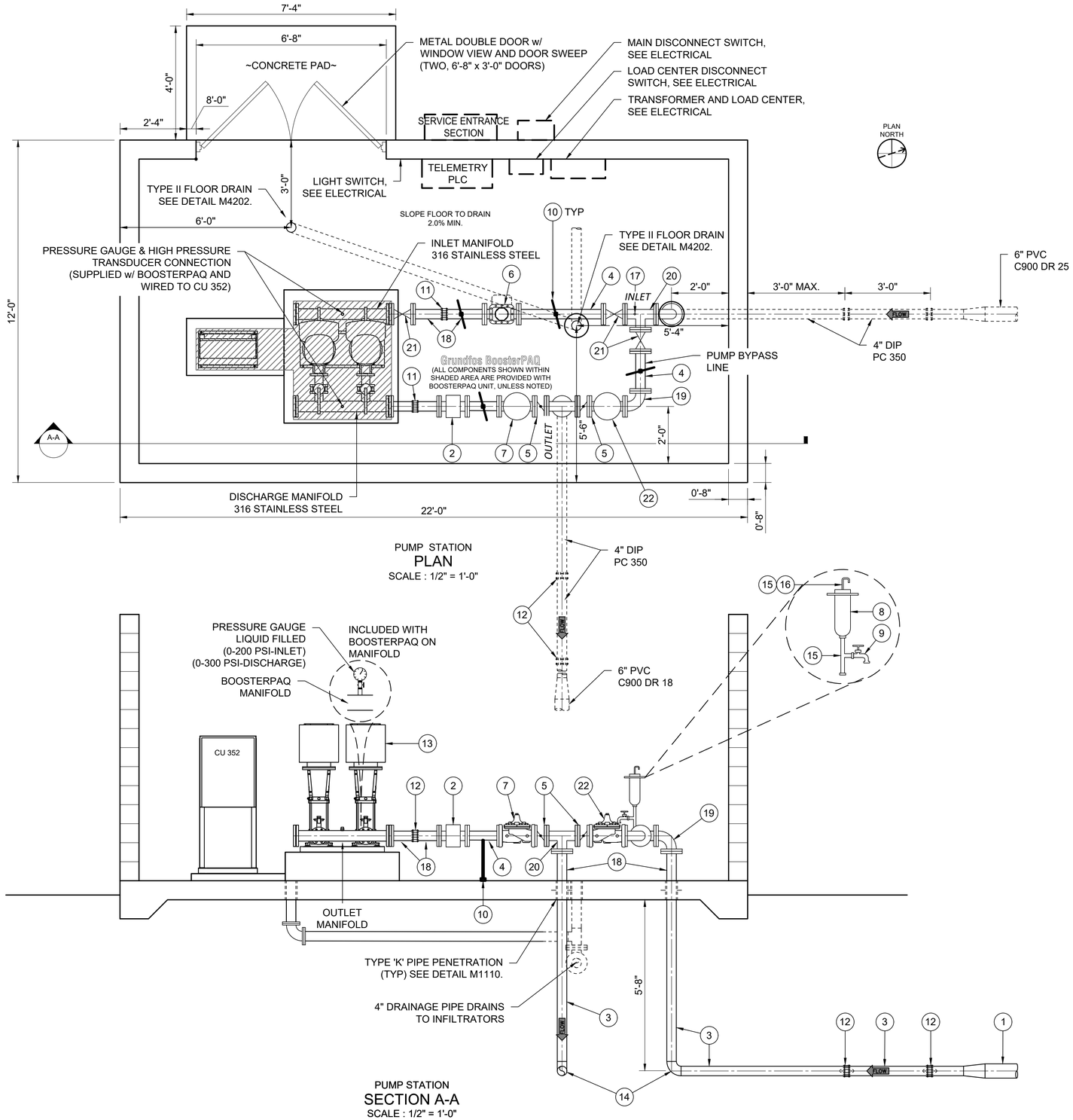
MECHANICAL

STANDARD DETAILS

DRAWING NUMBER

M-001

SHEET NUMBER
25 OF 61



GENERAL NOTES

1. BOOSTER STATION PIPING DIAMETER VARIES TO FACILITATE: 1) MATCHING MANIFOLD DIAMETER SIZE; 2) DESIGN FLOW OF BOOSTER STATION; 3) AND MAXIMUM ELECTROMAGNETIC METER VELOCITY LIMITS.

KEY NOTES

1. 6" PVC PIPE, C900 DR 25
2. X43H STRAINER
3. 4" DI PIPE, PC 350 (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
4. 4" FLGxFLG DUCTILE IRON PIPE. PC-350 (TYP).
5. 4" MUELLER LINESEAL III BUTTERFLY VALVE, FLANGED ENDS
6. 4" evoQ4 ELECTROMAGNETIC METER 4"
7. CLA-VAL 50-01
8. 3/4" COMBINATION AIR/VACUUM VALVE, SEE SPECIFICATION 15150.
9. 3/4" HOSE BIB
10. COATED STEEL PIPE SUPPORT w/ ADJUSTABLE NUT (TYP).
11. 4" ROMAC STYLE 501 FLEXIBLE COUPLING
12. 6" ROMAC STYLE 501 FLEXIBLE COUPLING
13. GRUNDFOS HYDRO MPC E 2CRE32-4-2
14. DIP MJ x MJ 90° BEND W/ THRUST BLOCK AND MEGALUG RESTRAINED JOINTS (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
15. 3/4" GALV. PIPE AND FITTINGS AS REQUIRED
16. INSECT SCREEN W/ SS CLAMP
17. TAPPING BOSS IN TEE, AS REQUIRED FOR 3/4" AIR RELEASE PIPING
18. 4" DUCTILE IRON FLGxPE SPOOL (TYP).
19. 4" FLG'D 90 DEG BEND.
20. 4" FLG'D TEE.
21. 4" FLG'D GATE VALVE.
22. 4" CLA-VAL 210-01 ALTITUDE VALVE.

Brown AND Caldwell

BUSINESS NAME (ONLY IF REQUIRED)
REGISTRATION NUMBER (ONLY IF REQUIRED)

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN GREG CHLEY Fecha Signado 6/30/2025 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME
M-100.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

MECHANICAL

CAMERON PUMP STATION NO. 1 PLAN AND SECTION

DRAWING NUMBER

M-100

SHEET NUMBER
26 OF 61

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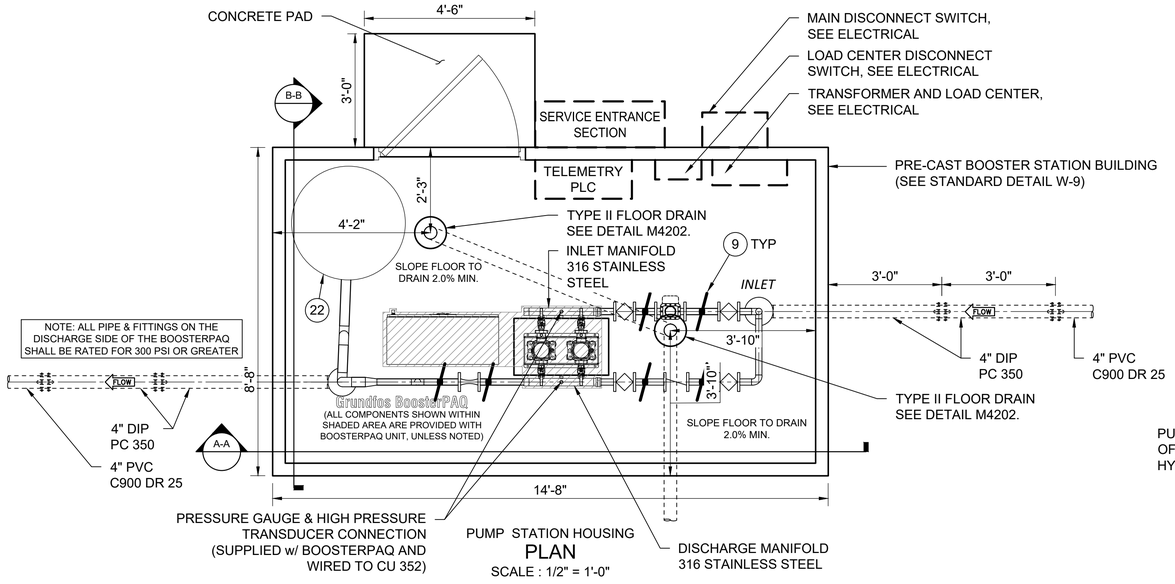
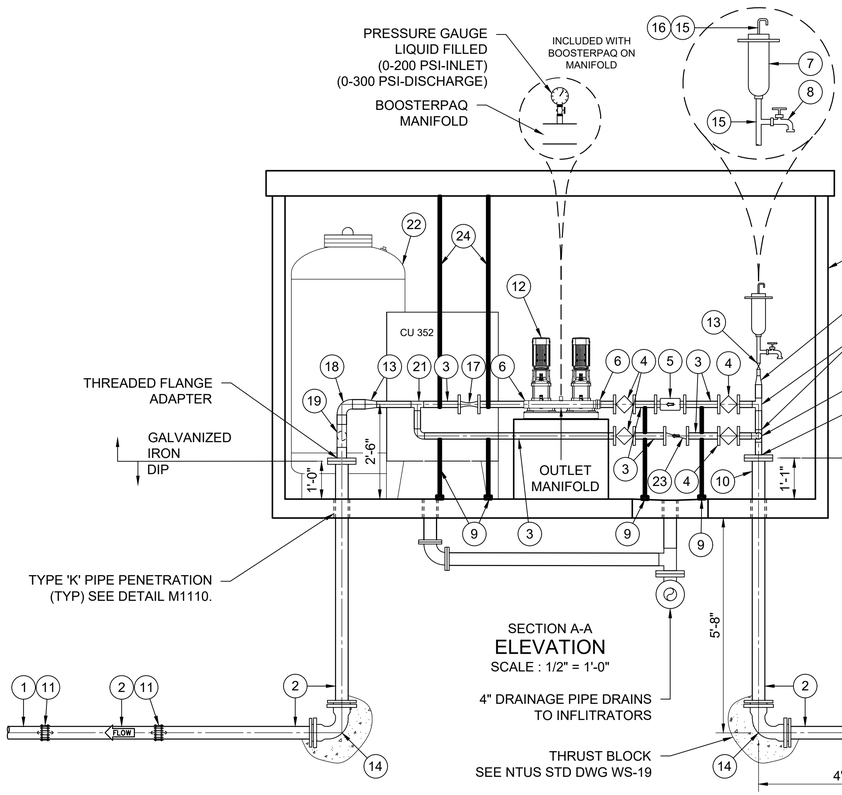
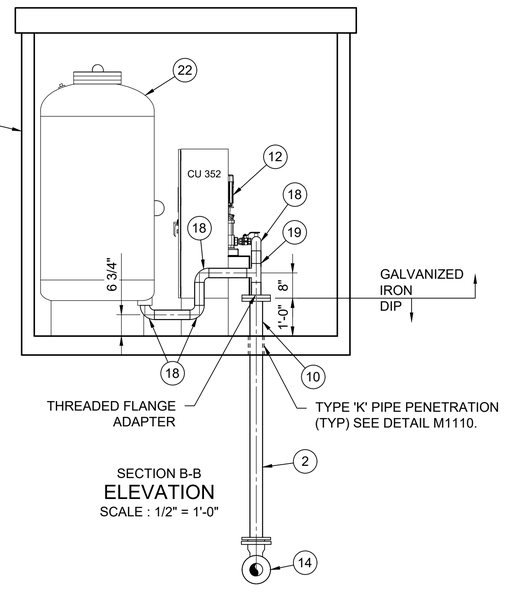


PUMP STATION NO. 2 SETTINGS - 35 GPM. PUMP ON AT 75 PSI - 174 FT OF HEAD, OFF 95 PSI - 219 FT OF HEAD, 95 PSI PRESSURE OF BLADDER IN HYDROPNEUMATIC TANK. PRESSURE TO CUSTOMER 42 - 62 PSI.





GENERAL NOTES

1. BOOSTER STATION PIPING DIAMETER VARIES TO FACILITATE: 1) MATCHING MANIFOLD DIAMETER SIZE; 2) DESIGN FLOW OF BOOSTER STATION; 3) AND MAXIMUM ELECTROMAGNETIC METER VELOCITY LIMITS.

KEY NOTES

1. 4" PVC PIPE, C900 DR 25
2. 4" DI PIPE. PC 350 (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
3. 2" GALVANIZED IRON PIPE CUT TO LENGTH AS NEEDED (TYP.)
4. 2" BALL VALVE
5. 2" evoQ4 ELECTROMAGNETIC METER
6. 2" UNION
7. 3/4" COMBINATION AIR/VACUUM VALVE, SEE SPECIFICATION 15150.
8. 3/4" HOSE BIB
9. COATED STEEL PIPE SUPPORT w/ ADJUSTABLE NUT
10. 4" DI FL x PE SPOOL
11. 4" ROMAC STYLE 501 FLEXIBLE COUPLING
12. GRUNDFOS HYDRO MPC E 2CR5-4
13. 3" x 2" REDUCER
14. DIP MJ x MJ 90° BEND (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
15. 3/4" GALV. PIPE AND FITTINGS AS REQUIRED
16. INSECT SCREEN W/ SS CLAMP
17. 2" PINCH VALVE
18. 3" 90° BEND
19. 3" TEE
20. 2" x 3/4" REDUCER
21. 2" TEE
22. AMTROL WELL-X-TROL WX-453C FULL ACCEPTANCE BLADDER WELL TANK
23. 2" CHECK VALVE
24. PIPE HANGERS

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN W. BRENCHLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. WILLMORE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	C. WILLMORE
APPROVED:	S. BRENCHLEY

FILENAME M-110.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

MECHANICAL

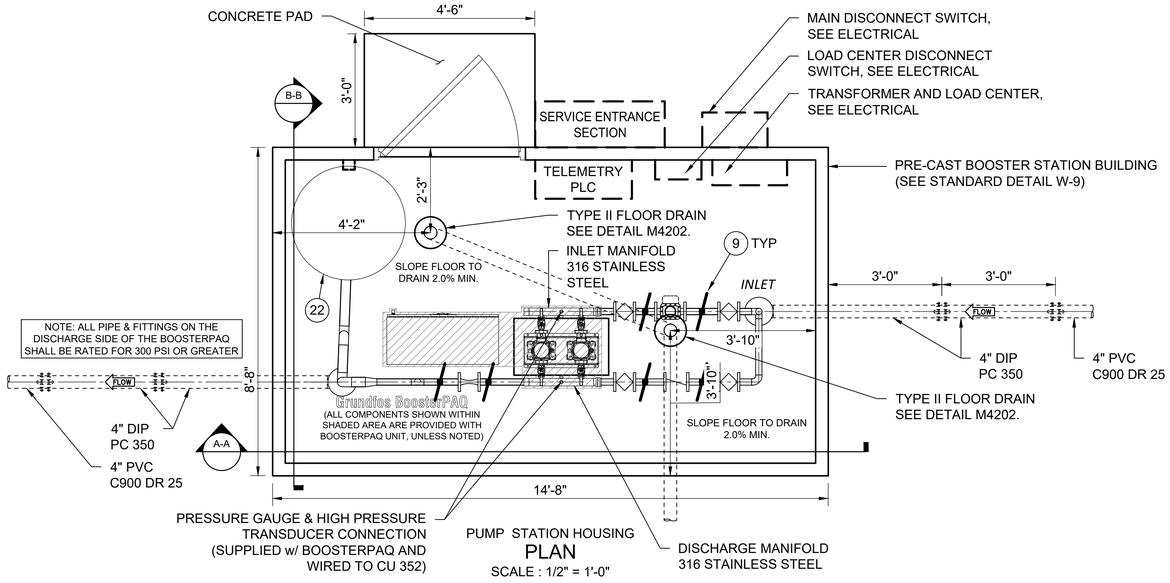
CAMERON PUMP STATION NO. 2 PLAN AND SECTION

DRAWING NUMBER

M-110

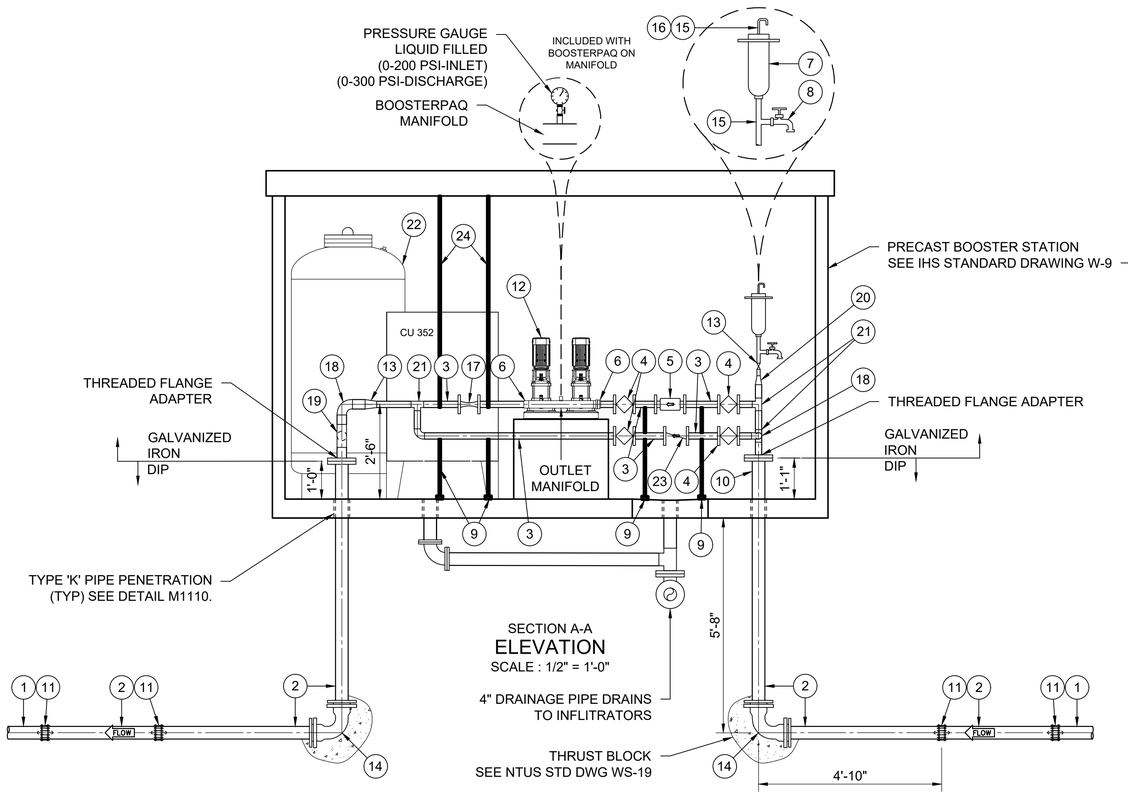
SHEET NUMBER

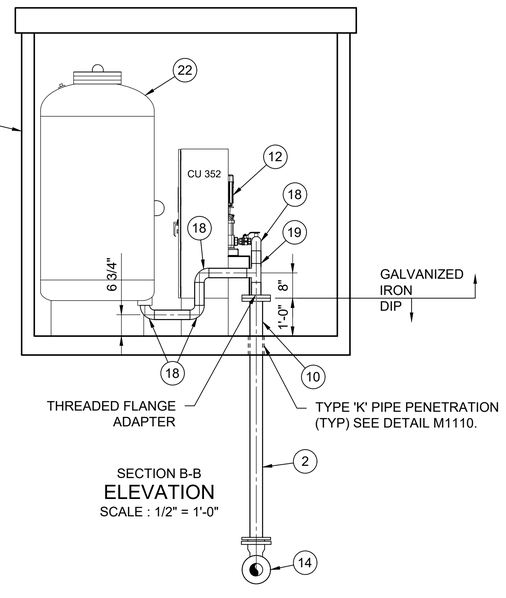
27 OF 61



PLAN NORTH

PUMP STATION NO. 3 SETTINGS - 30 GPM. PUMP ON AT 140 PSI - 323.4 FT OF HEAD, OFF 160 PSI - 369.6 FT OF HEAD, 160 PSI PRESSURE OF BLADDER IN HYDROPNEUMATIC TANK. PRESSURE TO CUSTOMER 50 - 70 PSI.





GENERAL NOTES

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KEY NOTES

1. 4" PVC PIPE, C900 DR 25
2. 4" DI PIPE. PC 350 (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
3. 2" GALVANIZED IRON PIPE CUT TO LENGTH AS NEEDED (TYP.)
4. 2" BALL VALVE
5. 2" evoQ4 ELECTROMAGNETIC METER
6. 2" UNION
7. 3/4" COMBINATION AIR/VACUUM VALVE, SEE SPECIFICATION 15150.
8. 3/4" HOSE BIB
9. COATED STEEL PIPE SUPPORT w/ ADJUSTABLE NUT
10. 4" DI FL x PE SPOOL
11. 4" ROMAC STYLE 501 FLEXIBLE COUPLING
12. GRUNDFOS HYDRO MPC E 2CR5-4
13. 3" x 2" REDUCER
14. DIP MJ x MJ 90° BEND (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYTENE)
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16. INSECT SCREEN W/ SS CLAMP
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18. 3" 90° BEND
19. 3" TEE
20. 2" x 3/4" REDUCER
21. 2" TEE
22. AMTROL WELL-X-TROL WX-453C FULL ACCEPTANCE BLADDER WELL TANK
23. 2" CHECK VALVE
24. PIPE HANGERS

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer (Civil) CERTIFICATE NO. 63511 STEVEN GREGORLEY Date Signed 8/1/2024 ARIZONA, U.S.A.

Expires 3/31/26

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J. YAZZIE
DRAWN:	D. DAVIDSE
CHECKED:	M. KOBE
CHECKED:	D. DAVIDSE
APPROVED:	S. BRENCHLEY

FILENAME
M-120.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

MECHANICAL

CAMERON PUMP STATION NO. 3 PLAN AND SECTION

DRAWING NUMBER

M-120

SHEET NUMBER
28 OF 61

GENERAL

G 1 SCOPE
THE GENERAL NOTES AND STANDARD DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

G 2 PRECEDENCE
IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT AND DIMENSIONS RELATED TO EXISTING FACILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS & CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G 8 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE. THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.

D 2 LIVE LOADS
1. PUMP STATION ROOF LIVE LOAD..... 20 PSF

D 3 SNOW LOADS
PUMP STATION
GROUND SNOW LOAD ..... p_g = 30 PSF
SNOW EXPOSURE FACTOR ..... C_e = 0.9
THERMAL FACTOR ..... C_t = 1.1
SNOW LOAD IMPORTANCE FACTOR ..... I_s = 1.2
FLAT ROOF SNOW LOAD ..... p_f = 30 PSF
PLUS DRIFT LOADS IN ACCORDANCE WITH ASCE 7-10

D 4 WIND
RISK CATEGORY IV
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR ..... K_{ZT}= 1.0
PUMP STATION
BASIC WIND SPEED (ULTIMATE)..... 115 MPH

D 5 SEISMIC
MCE ACCELERATION, SHORT PERIOD ..... S_S = 0.362 g
MCE ACCELERATION, 1-SEC PERIOD ..... S_1 = 0.103 g
SITE CLASS C
DESIGN ACCEL, SHORT PERIOD ..... S_{DS} = 0.314 g
DESIGN ACCEL, 1-SEC PERIOD ..... S_{D1} = 0.103 g
RISK CATEGORY IV
SEISMIC IMPORTANCE FACTOR ..... I_e = 1.5 I_p = 1.5,
SEISMIC DESIGN CATEGORY C
PUMP STATION BUILDING
ORDINARY REINFORCED MASONRY SHEAR WALLS
(ASCE 7-10, TABLE 12.2-1) ..... R = 2 Ω_o = 2.5
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT, "CAMERON BOOSTER PUMP STATIONS & CEDAR RIDGE ALTERNATE PIPELINE ALIGNMENT, NAVAJO INDIAN RESERVATION, ARIZONA", BY WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. DATED APRIL 12, 2019. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE CONSTRUCTION MANAGER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.

F 2 ALLOWABLE BEARING PRESSURE
SHALLOW FOUNDATIONS SHALL BEAR ON AT LEAST 1 FOOT OF STRUCTURAL FILL AND HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF.

F 3 MINIMUM FOUNDATION PREPARATION
ALL NEW FOUNDATIONS, BEDDING MATERIAL AND SLAB ON GRADE FLOORS SHALL BE SUPPORTED ON A MINIMUM OF 1 FOOT OF PROPERLY PLACED AND COMPACTED STRUCTURAL FILL (SEE GEOTECHNICAL REPORT).

F 4 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.

F 5 EXCAVATION, DE-WATERING & SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE-WATERING OF EXCAVATIONS, AND DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.

F 6 STRUCTURAL BACKFILL
UNLESS NOTED OTHERWISE, STRUCTURAL BACKFILL SHALL BE PLACED IN UNIFORM LAYERS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE STRUCTURE. ADDITIONALLY, BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF FOUNDATION WALLS. SEE SPECIFICATION 02200 FOR ADDITIONAL INFORMATION.

CONCRETE

C 1 APPLICABLE CODES
CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES:
ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.

C 3 DESIGN STRENGTH
1. STRUCTURAL CAST-IN-PLACE CONCRETE ..... f'c = 4,500 PSI
2. REINFORCING STEEL ..... ASTM A615, GRADE 60 DEFORMED BARS UNLESS OTHERWISE NOTED

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 318 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER:
1. CONCRETE CAST AGAINST EARTH .....3"
2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .....2"
3. CONCRETE NOT EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .....1-1/2"

C 5 BAR DEVELOPMENT AND LAP SPLICE LENGTH
SEE TABLE AT THE END OF THESE STRUCTURAL NOTES. IN SLABS, BEAMS, GIRDERS AND HORIZONTAL REINFORCING AT WALLS, SPLICES OF ADJACENT REINFORCING STEEL BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH, UNLESS OTHERWISE SPECIFIED.

C 6 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-14. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB EDGES / INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 7 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 8 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL UNLESS OTHERWISE NOTED (SEE SPECIFICATIONS).

CONCRETE (continued)

C9 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

C10 VAPOR BARRIER BELOW SLAB ON GRADE
VAPOR BARRIER, WHERE NOTED ON THE DRAWINGS, SHALL BE 10 MIL MINIMUM CLASS A OR B PLASTIC WATER VAPOR RETARDER PER ASTM E1745. INSTALL PER ASTM E1643. LAP JOINTS 6" AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE OR ADHESIVE.

GROUT

GR 1 EQUIPMENT GROUTING
SEE MECHANICAL SPECIFICATIONS AND SPECIFICATION SECTION 03600, GROUT.

GR 2 EPOXY ADHESIVE GROUT AT ANCHORS INTO CONCRETE: HILTI HIT-RE 500v3 EPOXY ADHESIVE ANCHOR SYSTEM BY HILTI INC. OR EQUAL APPROVED BY ENGINEER OF RECORD. INSTALLERS OF HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS SHALL BE CERTIFIED IN ACCORDANCE WITH THE ACI / CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.

GR 3 MASONRY ADHESIVE ANCHORS: HILTI HIT-HY 270.

REINFORCED CONCRETE MASONRY

MA 1 CONCRETE MASONRY UNITS (CMU) SHALL BE HOLLOW LOAD BEARING UNITS CONFORMING TO ASTM C90, MEDIUM WEIGHT.

MA 2 SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) = 2,000 PSI.

MA 3 CMU WALLS SHALL BE SOLID GROUTED.

MA 4 MORTAR SHALL BE TYPE S CONFORMING TO ASTM C270.

MA 5 CMU AND MORTAR AT WEATHER ENCLOSURE WALLS OR AT ELECTRICAL CONTROL ROOMS IN HIGH MOISTURE ENVIRONMENTS SHALL CONTAIN "DRY BLOCK ADMIXTURE" AS MANUFACTURED BY W.R. GRACE CO., AMOUNT PER MANUFACTURER'S RECOMMENDATION.

MA 6 GROUT SHALL BE f'c = 2,000 PSI CONFORMING TO ASTM C476.

MA 7 REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 DEFORMED BARS.

MA 8 RUNNING BOND SHALL BE USED THROUGHOUT.

MA 9 USE 3/8" FLUSH MORTAR JOINTS THROUGHOUT, TOOLED CONCAVE.

STEEL

ST 1 ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360-10) AND AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303-10).

ST 2 MATERIALS
1. STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
2. ALL STAINLESS STEEL SHALL BE TYPE 316 MEETING ASTM A276 FOR BARS AND SHAPES, AND ASTM A240 FOR PLATES, UNLESS OTHERWISE SPECIFIED. ALL STAINLESS STEEL SHALL BE PASSIVATED PER ASTM A380.

ST 3 WELDING
1. WELDING SHALL CONFORM TO AWS D1.1-1 AND AISC 341-10.
2. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5, CLASS E70XX.
3. STAINLESS STEEL WELDING SHALL CONFORM TO AWS D1.6 WITH A5.4 OR A5.9 ELECTRODES.

ST 4 BOLTS
STRUCTURAL BOLTS AT STEEL FRAMING SHALL BE GALVANIZED AND CONFORM TO ASTM A325N (TYPE 1) FOR CONNECTION OF GALVANIZED OR PAINTED FRAMING. HIGH STRENGTH BOLTS SHALL BE FULLY TENSIONED UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED. STAINLESS STEEL TYPE 316 BOLTS SHALL BE USED FOR CONNECTION OF STAINLESS STEEL FRAMING.

ST 5 EXPANSION ANCHORS SHALL BE STAINLESS STEEL "KWIK BOLT TZ" BY HILTI INC. OR EQUAL APPROVED BY OWNER.

STEEL ROOF DECK

SD 1 DECKING SHALL BE VERCO MANUFACTURING COMPANY TYPE PLB-36 PROFILE, 1 1/2" DEEP, 20 GAUGE, GALVANIZED (G-50), OR EQUAL AS APPROVED BY OWNER.

SD 2 ALL STEEL ROOF DECK FLASHING SHALL BE 22 GAUGE MINIMUM, G-60 GALVANIZED STEEL UNLESS NOTED OTHERWISE ON DRAWINGS.

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SALT LAKE CITY, UTAH

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME
S-001.DWG
BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
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STRUCTURAL

GENERAL STRUCTURAL NOTES

DRAWING NUMBER
S-001
SHEET NUMBER
29 OF 61

TABLE 1
REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOILS	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	
	VERIFY SOIL MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		X	
	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	
	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X	SEE TABLE 2
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X		SEE TABLE 2
	PROOF ROLLING OF SOILS DISTURBED BY GROUND IMPROVEMENTS		X	
	SHORING SYSTEM WELDING	X		
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE		X	PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS: - HORIZONTAL AND UPWARDLY INCLINED ADHESIVE ANCHORS - OTHER ANCHORS UNLESS ICC REPORT REQUIRED CONTINUOUS INSPECTION	X	X	INSPECTION TO CONFORM TO IBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
	CEMENTITIOUS GROUTING OF BASE PLATES AND EPOXY GROUTING FOR EQUIPMENT MOUNTING	X		
STRUCTURAL STEEL	FABRICATION OF STRUCTURAL ELEMENTS			FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH IBC, CHAPTER 17 TO PERFORM WORK WITHOUT SPECIAL INSPECTION
	VERIFY MATERIAL OF ANCHOR BOLTS AND THREADED RODS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS

TABLE 1
REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
MASONRY	VERIFY PROPORTIONS OF SITE -PREPARED MORTAR AND GROUT		X	AT START OF MASONRY CONSTRUCTION
	VERIFY SPECIFIED TYPE, GRADE AND SIZE OF REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	VERIFY MATERIALS FOR MASONRY UNITS, MORTAR, GROUT, ANCHORS, TIES AND ACCESSORIES		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED COMPLIANCE REPORTS
	VERIFY TYPE, SIZE, LOCATION AND INSTALLATION OF EMBEDDED CONNECTORS AND ANCHORS		X	
	VERIFY SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X	
	VERIFY TYPE, SIZE AND LOCATION OF ANCHORAGE OF MASONRY TO OTHER CONSTRUCTION		X	
	VERIFY PROTECTION PROVISIONS FOR COLD AND HOT WEATHER MASONRY CONSTRUCTION		X	
	PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS		X	
	REINFORCING STEEL PLACEMENT		X	
	VERIFY GROUT SPACE IS CLEAN		X	
	VERIFY PROPORTIONS OF GROUT; USE OF REQUIRED GROUT MIX DESIGN		X	
	OBSERVE GROUT PLACEMENT	X		
	OBSERVE PREPARATION OF ANY GROUT OR MORTAR SPECIMENS AND/OR PRISMS	X		CONTINUOUS DURING PREPARATION OF SAMPLES

QUALITY ASSURANCE NOTES

1. THE QUALITY OF THE WORKMANSHIP AND THE QUALITY OF THE MATERIALS OF CONSTRUCTION ARE GOVERNED BY THE INTERNATIONAL BUILDING CODE, 2018 EDITION (IBC).
2. ALL NEW STRUCTURES AND MODIFICATIONS TO EXISTING STRUCTURES TO BE CONSTRUCTED AS A PART OF THIS PROJECT ARE CLASSIFIED AS RISK CATEGORY IV IN ACCORDANCE WITH THE IBC. THE STRUCTURES ARE CLASSIFIED AS SEISMIC DESIGN CATEGORY C.
3. TO ASSURE THE QUALITY OF THE CONSTRUCTION OF THIS PROJECT, STRUCTURAL TESTS, SPECIAL INSPECTION AND STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE WITH IBC, CHAPTER 17.
4. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDING FULL-TIME OBSERVATION OF THE WORK REQUIRING SPECIAL INSPECTION.
5. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).
6. SPECIAL INSPECTIONS ARE IN addition TO INSPECTIONS BY THE BUILDING OFFICIALS. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL. COORDINATE WITH BUILDING DEPARTMENT TO DETERMINE REQUIRED INSPECTIONS.
7. CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL PROVIDE NOTIFICATION IN ADVANCE OF REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS.

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CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME S-002.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER 4028.21254.01

STRUCTURAL

SPECIAL INSPECTIONS 1

DRAWING NUMBER
S-002

SHEET NUMBER
30 OF 61

SPECIAL INSPECTIONS

SI 1 AN INDEPENDENT TESTING COMPANY RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING (SEE EXPANDED LIST ON DRAWING S-003, SPECIFICATIONS AND GOVERNING CODE):

1. SOIL COMPACTION AT FOUNDATIONS.
2. REINFORCING BAR, CONCRETE PLACEMENT AND TAKING OF CONCRETE TEST SPECIMENS.
3. ANCHOR BOLTS.
4. HIGH STRENGTH BOLTING.
5. MECHANICAL AND ELECTRICAL EQUIPMENT, PERIODIC SPECIAL INSPECTION OF STRUCTURAL COMPONENTS FOR SEISMIC RESISTANCE:
   A. ANCHORAGE OF ELECTRICAL EQUIPMENT.
   B. INSTALLATION OF COMPONENTS WHERE THE COMPONENT IMPORTANCE FACTOR IS 1.5.

SI 2 CONTRACTOR SHALL NOTIFY THE TESTING COMPANY FOR ALL INSPECTIONS.

STRUCTURAL OBSERVATIONS

SO 1 THE OWNER SHALL RETAIN A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS. THE CONSTRUCTION MANAGER SHALL NOTIFY THE OWNER AT LEAST 48 HOURS BEFORE A DESIGNATED WORK IS TO BE COVERED. REFER TO SPECIFICATION 01400 FOR ADDITIONAL REQUIREMENTS.

SO 2 REQUIRED STRUCTURAL OBSERVATIONS INCLUDE:

1. STRUCTURAL FILL.
2. FOUNDATIONS PREPARED FOR CONCRETE PLACEMENT.
3. PRIOR TO GROUTING FIRST LIFT OF MASONRY CONSTRUCTION.
4. COMPLETION OF LATERAL FORCE RESISTING ELEMENTS INCLUDING DIAPHRAGMS AND OTHER ELEMENTS.

STRUCTURAL DEFERRED SUBMITTALS (IBC 2018, SECTION 107.3.4.1)

SDS 1 THE CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN ARIZONA TO THE ENGINEER FOR REVIEW. STRUCTURAL DEFERRED SUBMITTALS INCLUDE:

1. ANCHOR BOLTS FOR ALL EQUIPMENT ANCHORAGE.
2. CONSTRUCTION SHORING IF REQUIRED.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL-WEIGHT CONCRETE WITH f_c' = 4,000 PSI OR HIGHER

THIS TABLE IS GOOD ONLY FOR CENTER/CENTER SPACING OF REINFORCING BARS EQUAL TO THE MINIMUM SHOWN OR GREATER. NO TRANSVERSE REINFORCING ASSUMED.

BAR SIZE	APPLICATION	CONCRETE COVER = 1.50 IN.			CONCRETE COVER = 2.00 IN.			CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING
#3	DEVELOPMENT	12	12	3.50	12	12	4.50	12	12	6.50
	LAP SPLICE	16	16	3.75	16	16	4.75	16	16	6.75
#4	DEVELOPMENT	15	12	3.50	15	12	4.50	15	12	6.50
	LAP SPLICE	20	16	4.00	20	16	5.00	20	16	7.00
#5	DEVELOPMENT	19	15	3.75	19	15	4.75	19	15	6.75
	LAP SPLICE	24	19	4.25	24	19	5.25	24	19	7.25
#6	DEVELOPMENT	22	17	3.75	22	17	4.75	22	17	6.75
	LAP SPLICE	29	22	4.50	29	22	5.50	29	22	7.50
#7	DEVELOPMENT	37	28	4.00	33	25	5.00	33	25	7.00
	LAP SPLICE	48	37	4.75	42	33	5.75	42	33	7.75
#8	DEVELOPMENT	47	36	4.00	37	29	5.00	37	29	7.00
	LAP SPLICE	60	47	5.00	48	37	6.00	48	37	8.00

NOTES:

1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-14, SECTIONS 25.4.2.3 AND 25.5, RESPECTIVELY.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d (ACI 318-14, SECTION 25.5.2).
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS. NOTE THAT IN ADDITION TO TOP BARS IN BEAMS AND SLABS, ALL HORIZONTAL BARS IN WALLS ARE CONSIDERED TO BE TOP BARS.

TABLE 2
REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL			
PREPARED SUBGRADE DENSITY	ASTM D6938	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31,ASTM C39,ASTM C172	SEE SPECIFICATION 03300	
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CAST	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMENTITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TO THE FIELD
MASONRY			
COMPRESSIVE STRENGTH,f'_m, OF MASONRY ASSEMBLIES			PRIOR TO START OF MASONRY CONSTRUCTION, CONTRACTOR SHALL SUBMIT VERIFICATION OF COMPRESSIVE STRENGTH FOR EACH TYPE OF MASONRY ASSEMBLY. PRISM TEST METHOD SHALL BE USED.
MASONRY UNIT STRENGTH	ASTM C140	(12) UNITS PER EACH 50000 UNITS	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS FOR EACH TYPE OF MASONRY UNIT
GROUT STRENGTH	ASTM C1019	EACH 5000 SF OF WALL	COMPRESSIVE STRENGTH, AIR CONTENT, SLUMP, TEMPERATURE OF FILL FOR MASONRY ASSEMBLIES SHALL BE TESTED PER CONCRETE REQUIREMENTS ABOVE.
PRISM STRENGTH OF MASONRY ASSEMBLY	ASTM C1314	(3) PRISMS FOR EACH 5000 SF OF WALL	A SET OF TESTS IS REQUIRED FOR EACH TYPE OF MASONRY ASSEMBLY

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

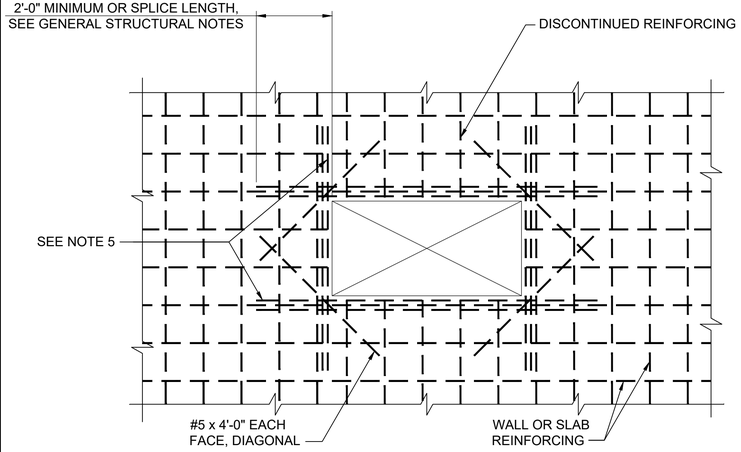
FILENAME S-003.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER 4028.21254.01

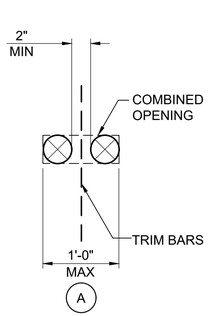
STRUCTURAL

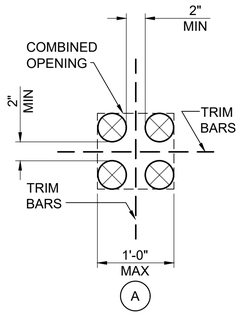
SPECIAL INSPECTIONS 2

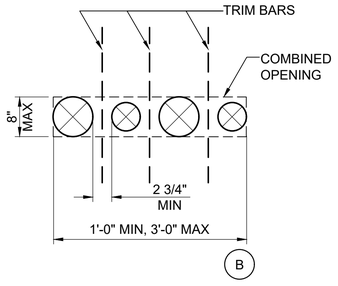
DRAWING NUMBER
S-003

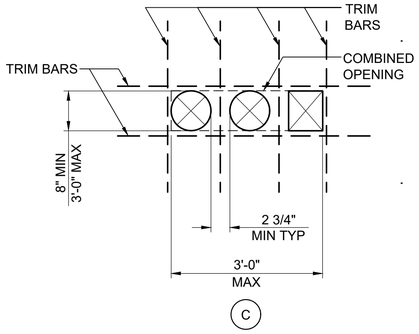
SHEET NUMBER
31 OF 61

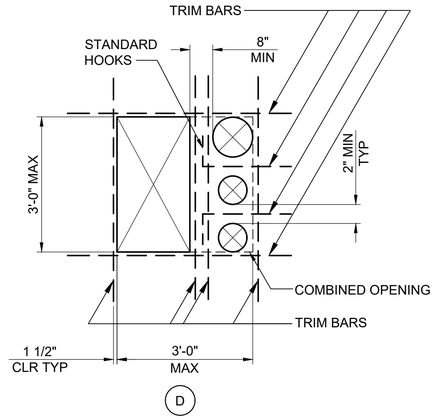












1. OPENINGS IN CONCRETE WHICH ARE CLOSER TO ONE ANOTHER THAN THE DIAMETER OR SHORTER SIDE OF THE LARGER OF THE TWO ARE CONSIDERED TO FORM A COMBINED OPENING.
2. THESE DIAGRAMS ARE FOR COMBINED OPENINGS WHOSE LARGER DIMENSION DOES NOT EXCEED 3'-0". SEE DRAWINGS FOR OPENINGS LARGER THAN 3'-0".
3. TRIM BAR EXTENSION PAST EDGES OF COMBINED OPENINGS SHALL BE 1'-0" FOR #4 BARS, 1'-6" FOR #5 BARS, AND ONE DEVELOPMENT LENGTH FOR LARGER BARS.
4. DISPLACE PRINCIPAL REINFORCEMENT TO EACH SIDE OF COMBINED OPENING OR PLACE BETWEEN INDIVIDUAL OPENINGS. DO NOT CUT PRINCIPAL REINFORCEMENT.
5. SEE DETAIL A FOR TRIM BARS FOR INDIVIDUAL OPENINGS.
6. SUBMIT SPECIAL SITUATIONS TO ENGINEER FOR REVIEW.

TRIM BAR REQUIREMENTS:

(A) IF THE COMBINED OPENING IS SMALLER THAN 1'-0", PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS.

(B) IF THE LARGER DIMENSION OF A COMBINED OPENING EXCEEDS 1'-0" BUT THE SMALLER DIMENSION IS LESS THAN OR EQUAL TO 8", AND PROVIDED THE COMBINED OPENING IS ALIGNED WITH THE PRINCIPAL REINFORCEMENT, PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS.

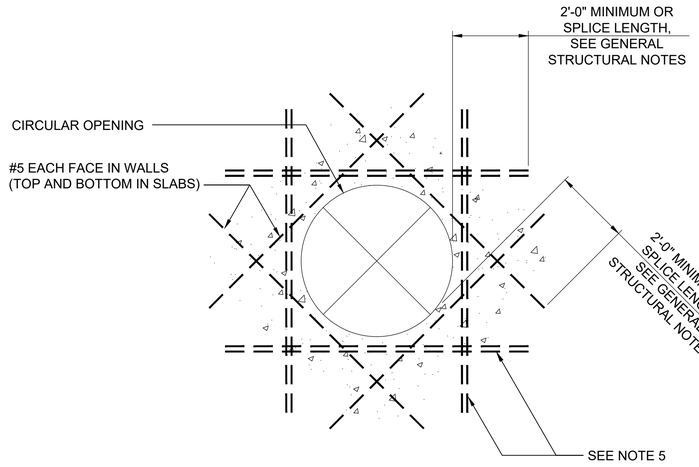
(C) IN ALL OTHER CASES WHERE OPENINGS ARE ARRANGED IN A SINGLE LINE, PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS AND (1) #5 EACH FACE AROUND PERIMETER OF COMBINED OPENING.

(D) WHERE INDIVIDUAL OPENINGS OF A COMBINED OPENING FORM TWO OR MORE ROWS, THE ROWS SHALL BE SEPARATED BY AT LEAST 8" OF CONCRETE. PROVIDE (2) #5 EACH FACE BETWEEN ROWS OF OPENINGS, (1) #5 EACH FACE BETWEEN OPENINGS IN THE PERPENDICULAR DIRECTION, AND (1) #5 EACH FACE AROUND THE PERIMETER OF COMBINED OPENINGS. PROVIDE STANDARD HOOKS WHERE BARS TERMINATE WITHIN THE COMBINED OPENING.

COMBINED OPENING TRIM BARS

DETAIL B VAR

SCALE: NONE



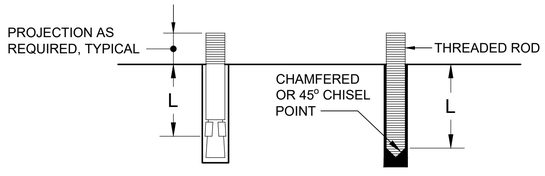
NOTES:

1. THIS DETAIL APPLIES TO UP TO 8'-0" MAXIMUM DIMENSION FOR RECTANGULAR OPENINGS AND UP TO 8'-0" DIAMETER FOR CIRCULAR OPENINGS.
2. AT OPENINGS 12" OR LESS, NO ADDITIONAL #5 DIAGONAL REINFORCING IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCING SHALL BE OFFSET, STILL MAINTAINING REQUIRED SPACING, TO ALLOW FOR OPENING WHERE PRACTICAL, OR CUT AT THE OPENING AND ADDITIONAL REINFORCING ADDED PER NOTE 5.
3. OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL AND OTHER CONTRACT DRAWINGS.
4. ADDITIONAL REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
5. ADDITIONAL REINFORCING (4) SIDES OF OPENING EQUAL TO NUMBER AND SIZE OF DISCONTINUOUS REINFORCING. WHERE AN ODD NUMBER OF REBAR ARE DISCONTINUOUS, PROVIDE (ODD NO. +1)/2 EACH SIDE OF OPENING.

ADDITIONAL REINFORCING AT OPENINGS

DETAIL A VAR

SCALE: NONE



MINIMUM EMBEDMENT LENGTH, L		
DIAMETER	EXPANSION ANCHOR	ADHESIVE ANCHOR
3/8"	3 1/2"	4 1/2"
1/2"	4 3/4"	6"
5/8"	5 1/2"	7 1/2"
3/4"	6 1/2"	9"
7/8"	-	10 1/2"
1"	-	12"

NOTES:

1. MINIMUM EMBEDMENT LENGTH PER SCHEDULE UNLESS INDICATED OTHERWISE ON DRAWINGS.
2. CONFORM TO ICC EVALUATION SERVICE REPORT (ES REPORT) REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
3. EXPANSION ANCHORS AND THREADED RODS SHALL BE TYPE 316 STAINLESS STEEL MATERIAL UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
4. HOLE DIAMETER SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CONCRETE ANCHORS

DETAIL C VAR

SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME S-004.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER 4028.21254.01

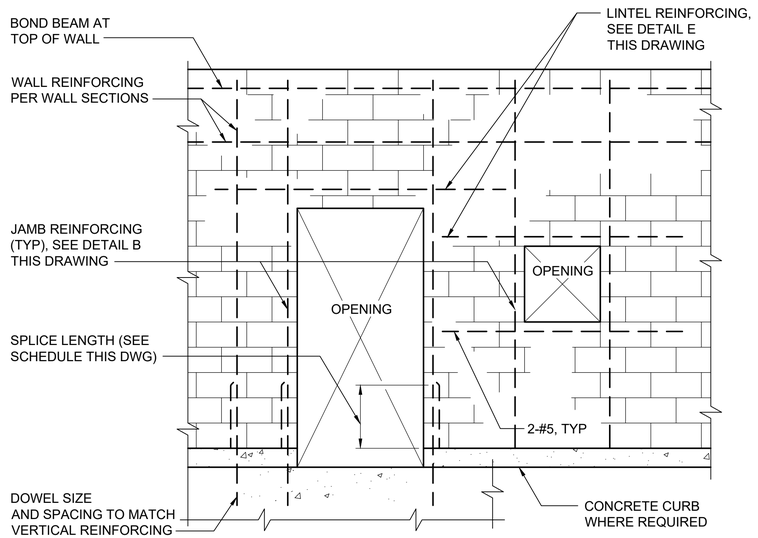
STRUCTURAL

STANDARD DETAILS 1

DRAWING NUMBER

S-004

SHEET NUMBER 32 OF 61



NOTES:
1. GROUT ALL CELLS SOLID UNLESS OTHERWISE NOTED.
2. ADDED REINFORCING AROUND OPENINGS, SUCH AS JAMB AND LINTEL REINFORCING, SHALL EXTEND PAST THE OPENING A MINIMUM DISTANCE AS SPECIFIED IN TABLE OF LAP SPLICE LENGTHS, OR BE HOOKED 180° A MIN OF 2'-0" PAST THE OPENING.

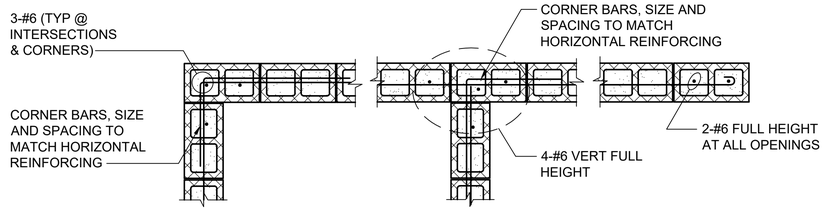
TYPICAL MASONRY WALL ELEVATION

DETAIL A/VAR

SCALE: NONE

MINIMUM CMU WALL REINFORCING SCHEDULE (UNO)		
WALL THICKNESS	VERT REINF	HORIZONTAL REINF
0'-8"	#5 @ 24" CENTERED	#5 @ 24" CENTERED

LENGTH OF LAP SPLICE FOR REINFORCEMENT (INCHES) (UNLESS NOTED OTHERWISE ON DRAWINGS)	
BAR SIZE	LENGTH
4	36
5	45
6	54



PLAN VIEW - 8" CMU

HORIZONTAL REINFORCING AT CMU WALL INTERSECTIONS

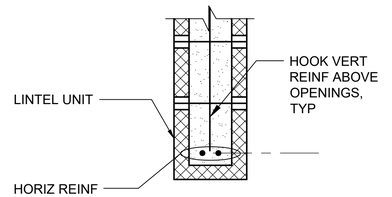
DETAIL B/VAR

SCALE: NONE

NOT USED

DETAIL D/VAR

SCALE: NONE



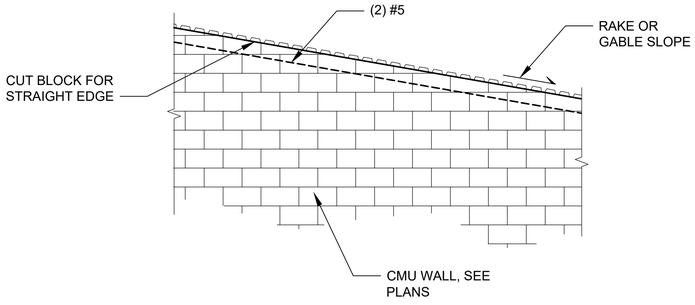
OPENING WIDTH	HORIZ REINF	LINTEL DEPTH
< 4'-0"	2-#5	8"
4'-0" TO < 6'-0"	2-#6	16"
6'-0" TO 11'-6"	2-#7	16"

WHERE LINTEL DEPTH >8", MAY USE 8" DEEP LINTEL BLOCK AND 8" CMU BLOCKS WITH INNER WEB REMOVED. FILL LINTEL DEPTH WITH ONE MONOLITHIC CONCRETE GROUT POUR.

CMU WALL LINTEL

DETAIL C/VAR

SCALE: NONE



EXTERIOR WALL

SLOPING BOND BEAM NOTE:
CUT BLOCK AND KNOCK-OUT CELL WALLS AS REQUIRED TO SEAT REINFORCING AND PROVIDE 8" HIGH x CMU WIDTH NOMINAL GROUT AREA.

SLOPING BOND BEAM

DETAIL E/VAR

SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME S-005.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER 4028.21254.01

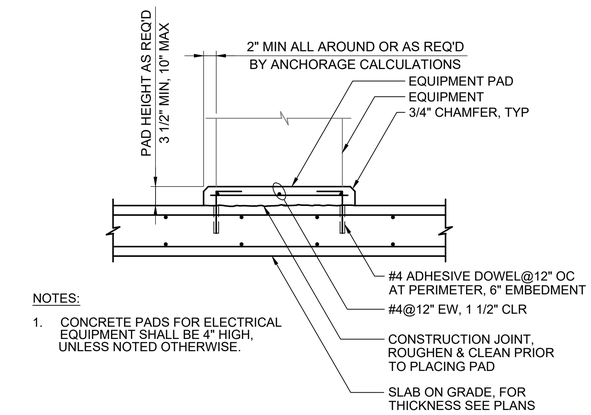
STRUCTURAL

STANDARD DETAILS 2

DRAWING NUMBER

S-005

SHEET NUMBER 33 OF 61



NOTES:

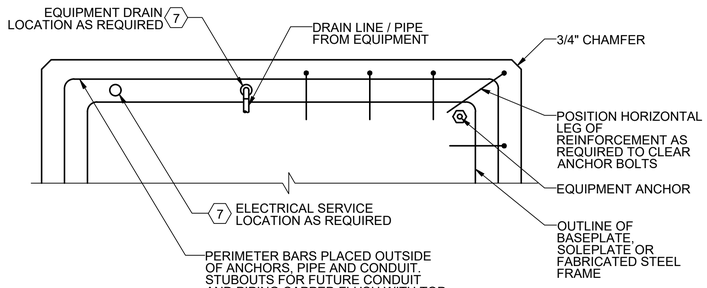
1. CONCRETE PADS FOR ELECTRICAL EQUIPMENT SHALL BE 4" HIGH, UNLESS NOTED OTHERWISE.

CONCRETE REINFORCEMENT PADS

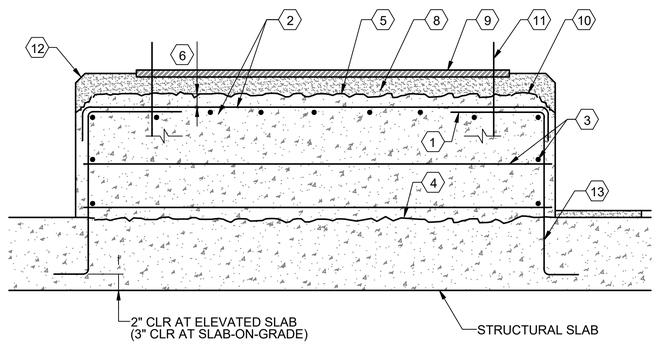
DETAIL A / VAR

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

EQUIPMENT PAD DIMENSIONS										
AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7 1/2	9 1/2	11	12 1/2	14	17 1/2	19	20 1/2	24	27
MIN AB EDGE DISTANCE	4 1/2	4 1/2	4 1/2	5 1/4	6	7 1/2	8 1/4	9	10 1/2	12



PLAN



SECTION

DETAIL B / VAR

SCALE: NONE

KEY NOTES:

1 #4 AT 12" DOWELS FOR PADS ≤ 12" HIGH (#5 AT 12" FOR PADS > 12" HIGH)WITH 90 DEGREE STANDARD HOOK. PROVIDE 10" EMBEDMENT INTO STRUCTURAL SLAB OR HOOK BARS AT BOTTOM OF SLAB IF SLAB IS LESS THAN 12" THICK.

2 #4 AT 12" EACH WAY. TERMINATE WITH STANDARD HOOKS OR CLASS B LAP SPLICE WITH DOWEL HOOKS.

3 #4 CLOSED TIES AT 8" WITH 135° END HOOKS OR U-SHAPED BARS WITH LAP SPLICES.

4 ROUGHEN SLAB SURFACE TO 1/4" AMPLITUDE. REMOVE ALL LAITANCE AND LOOSE MATERIAL. APPLY BONDING AGENT 30 MINUTES OR LESS BEFORE PLACING CONCRETE. EXTENT OF ROUGHENED AREA SHALL BE 2 INCHES INSIDE THE PERIMETER OF THE EQUIPMENT PAD.

5 AFTER THE CONCRETE IS FULLY CURED, ROUGHEN TOP OF EQUIPMENT PAD PER SPECIFICATION SECTION 40 05 13.

6 MINIMUM 1" CLEAR AFTER ROUGHENING TOP OF EQUIPMENT PAD.

7 COORDINATE LOCATION OF ELECTRICAL CONDUIT AND DRAINAGE PIPING PENETRATIONS WITHIN THE EQUIPMENT PAD. ALL PENETRATIONS STUB-UP ON THE SAME SIDE OF THE EQUIPMENT AS REQUIRED FOR CONNECTION TO EQUIPMENT. LOCATE EQUIPMENT PAD DRAINS AT DRAINAGE CONNECTIONS FROM EQUIPMENT. CONFIGURE EQUIPMENT PAD ACCORDINGLY.

8 EQUIPMENT PAD GROUT. MINIMUM THICKNESS PER GROUT MANUFACTURER'S INSTRUCTIONS.

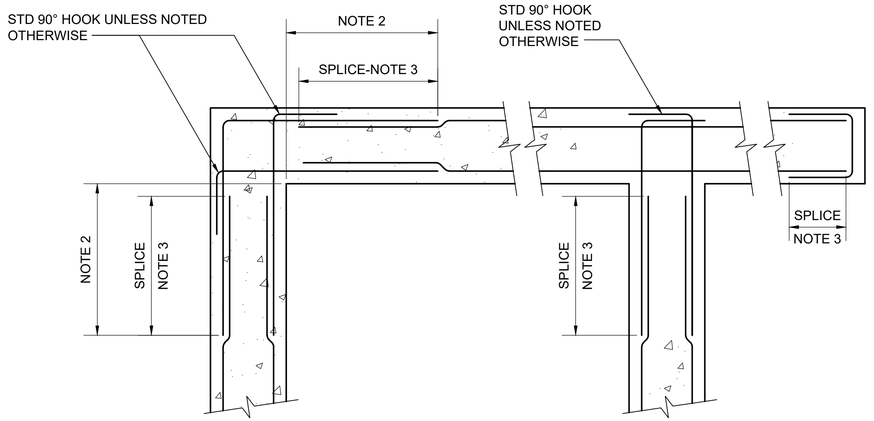
9 BASE PLATE, SOLE PLATE OR FABRICATED STEEL FRAME (MOUNTING PLATE).

10 2-INCH ROUGHENED CHAMFER IN CONCRETE EQUIPMENT PAD ALL AROUND WHERE GROUT EXTENDS TO EDGE OF PAD.

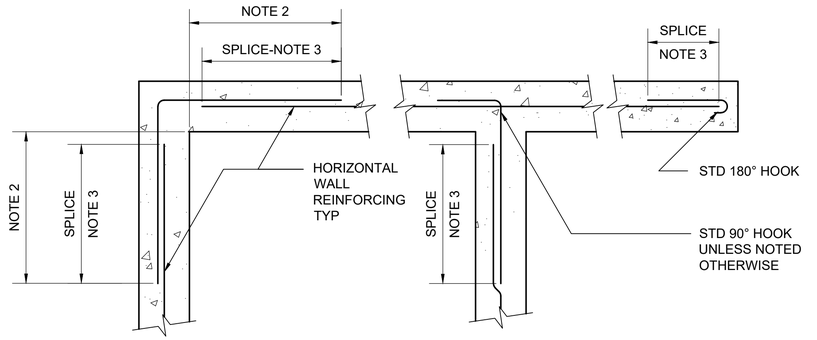
11 PRIOR TO CONCRETE PLACEMENT, SET EQUIPMENT ANCHORS USING THE EQUIPMENT MANUFACTURER'S MOUNTING TEMPLATE. SECURE TEMPLATE AND EQUIPMENT ANCHORS TO PREVENT SHIFTING DURING CONCRETE PLACEMENT. EQUIPMENT ANCHOR EMBEDDED IN EQUIPMENT PAD OR IN SUPPORTING FLOOR/FOUNDATION, AS SPECIFIED.

12 3/4-INCH CHAMFER IN EQUIPMENT PAD GROUT ALL AROUND.

13 FOR CONDITION WHERE STRUCTURAL SLAB IS EXISTING, DRILL HOLE AND ADHESIVE GROUT DOWELS A MINIMUM OF 6" INTO THE SLAB FOR #4 DOWELS AND 7 1/2" FOR #5 DOWELS.



DOUBLE MAT REINFORCING



SINGLE MAT REINFORCING

NOTES:

1. UNLESS NOTED OTHERWISE, SIZE AND SPACING OF CORNER OR INTERSECTION REINFORCING SHALL MATCH HORIZONTAL REINFORCING SHOWN IN SPECIFIC SECTIONS OR DETAILS. VERTICAL REINFORCING NOT SHOWN FOR CLARITY.
2. UNLESS NOTED OTHERWISE, BAR SPLICE SHALL BE LOCATED OUTSIDE OF CORNER OR INTERSECTION AREA TO AVOID CONGESTION. CONTRACTORS OPTION TO PROVIDE SINGLE BENT BAR IN LIEU OF SPLICE CONFIGURATION AT ONE END ONLY.
3. SEE GENERAL STRUCTURAL NOTES FOR SPLICE LENGTH. HORIZONTAL WALL BARS SHALL BE CONSIDERED TOP BARS FOR DEVELOPMENT AND SPLICE LENGTHS.

TYPICAL HORIZONTAL WALL REINFORCING

DETAIL C / VAR

SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	S. BELLIS
DRAWN:	T. BOWMAN
CHECKED:	J. HARPER
CHECKED:	
APPROVED:	S. BRENCHLEY

FILENAME
S-006.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
4028.21254.01

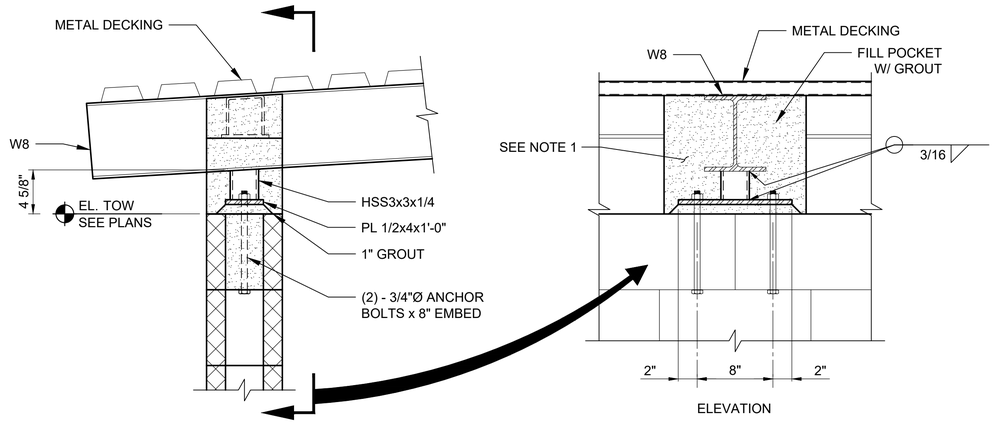
STRUCTURAL

STANDARD DETAILS 3

DRAWING NUMBER

S-006

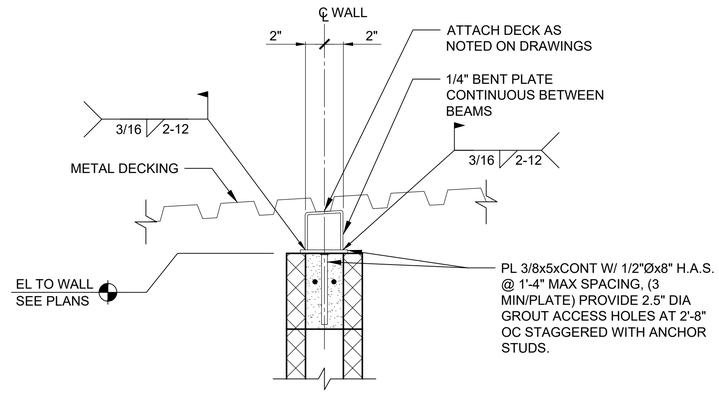
SHEET NUMBER
34 OF 61



NOTE:
1. AT BEAM LOCATIONS, NO CMU WILL BE INSTALLED.

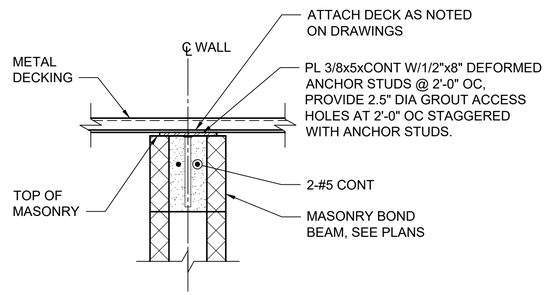
DETAIL A S-100

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



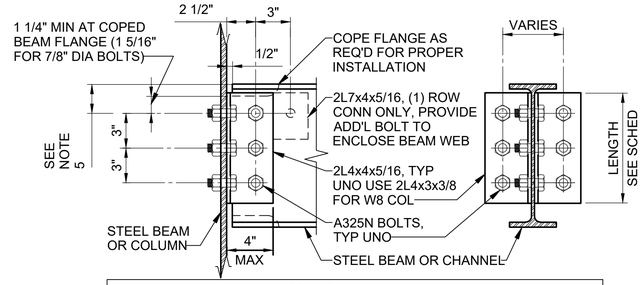
DETAIL B S-100

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



DETAIL C S-100

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



DOUBLE ANGLES				
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA	LENGTH OF DOUBLE ANGLE, INCHES	COMMENTS
36	10	7/8"	2' - 5 1/2"	-
33	9	7/8"	2' - 2 1/2"	-
30	8	7/8"	1' - 11 1/2"	-
27	7	3/4"	1' - 8 1/2"	-
24	6	3/4"	1' - 5 1/2"	-
21	5	3/4"	1' - 2 1/2"	-
16 - 18	4	3/4"	0' - 11 1/2"	-
12 - 15	3	3/4"	0' - 8 1/2"	-
8 - 10	2	3/4"	0' - 5 1/2"	-
5 - 6	1	3/4"	0' - 3"	SEE NOTE 3
4	1	3/4"	0' - 2 3/4"	SEE NOTE 3

NOTES:
1. UNLESS NOTED OTHERWISE, NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSE BEAM WEB.
2. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.
3. FOR NOMINAL BEAM DEPTHS LESS THAN 8", EXTEND LONG LEG OF DOUBLE ANGLE ALONG BEAM WEB AND PROVIDE ADDITIONAL BOLT TO ENCLOSE BEAM WEB AS SHOWN.
4. PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHERE REQUIRED.
5. DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.
6. PER OSHA 1926.756(C) ISSUED 1-23-01, AN ERECTION SEAT, DESIGNED AND DETAILED BY THE STEEL FABRICATOR SHALL BE PROVIDED AT DOUBLE CONNECTIONS AT COLUMN AND/OR AT BEAM WEBS OVER A COLUMN IF THE FOLLOWING CONDITION CANNOT BE MET: WHEN BEAMS ON OPPOSITE SIDES OF A COLUMN, OR A BEAM WEB OVER A COLUMN, ARE CONNECTED SHARING COMMON CONNECTION HOLES, AT LEAST ONE BOLT WITH ITS WRENCH-TIGHT NUT SHALL REMAIN CONNECTED TO THE FIRST BEAM ERECTED (I.E. TWO BEAMS OF SIMILAR DEPTH WITH THE SAME NUMBER OF BOLT ROWS WILL REQUIRE AN ERECTION SEAT). THE ERECTION SEAT SHALL BE DESIGNED BY THE FABRICATOR TO SUPPORTS THE CONSTRUCTION LOAD DURING THE DOUBLE CONNECTION PROCESS.

DETAIL D S-100

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

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOWMAN
CHECKED: J. HARPER
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME
S-007.DWG

BC PROJECT NUMBER
150360

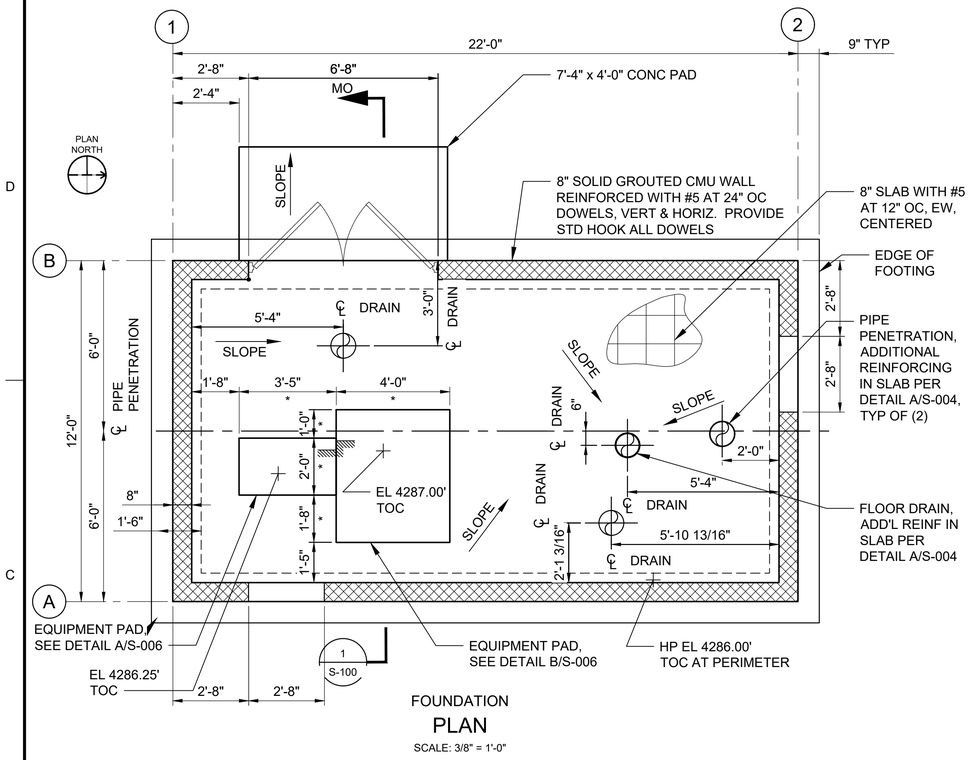
CLIENT PROJECT NUMBER
4028.21254.01

STRUCTURAL

STANDARD DETAILS
4

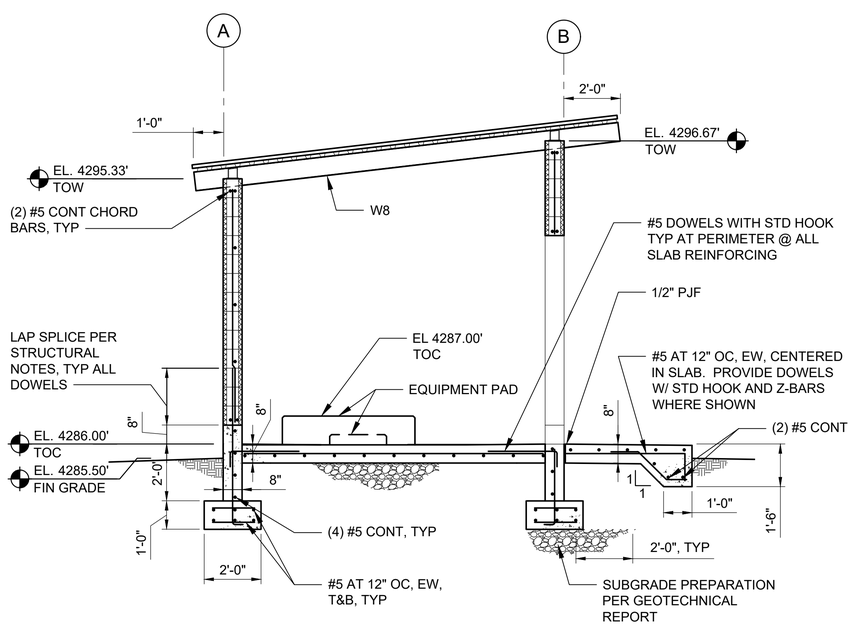
DRAWING NUMBER
S-007

SHEET NUMBER
35 OF 61



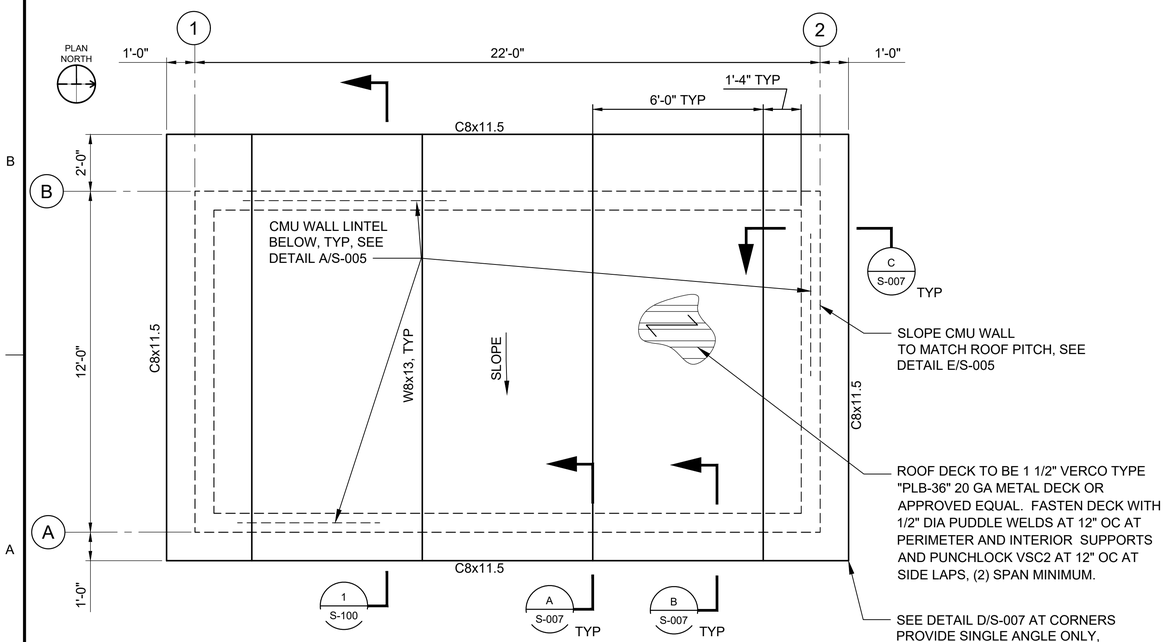
FOUNDATION PLAN

SCALE: 3/8" = 1'-0"



SECTION 1 / S-100

SCALE: 3/8"=1'-0"



ROOF FRAMING PLAN

SCALE: 3/8" = 1'-0"

GENERAL NOTES

1. SEE CIVIL FOR BUILDING COORDINATES.
2. SEE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
3. COORDINATE ALL OPENINGS WITH ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS.
4. METAL DECK SHALL SPAN CONTINUOUSLY OVER TWO SUPPORTS, MINIMUM.

* VERIFY WITH APPROVED EQUIPMENT SUBMITTAL.

KEY NOTES

Brown AND Caldwell

##########

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	S. BELLIS
DRAWN:	T. BOWMAN
CHECKED:	J. HARPER
CHECKED:	#
APPROVED:	S. BRENCHLEY

FILENAME S-100.DWG

BC PROJECT NUMBER ######

CLIENT PROJECT NUMBER ##########

##########

CAMERON PUMP STATION NO. 1 BUILDING PLANS

DRAWING NUMBER

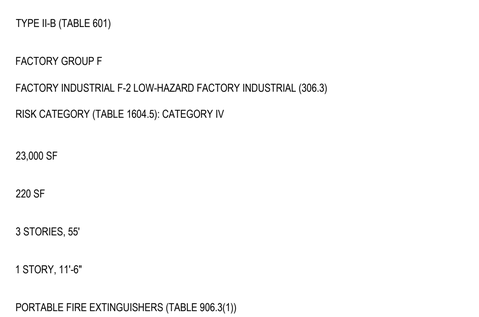
S-100

SHEET NUMBER 36 OF 61

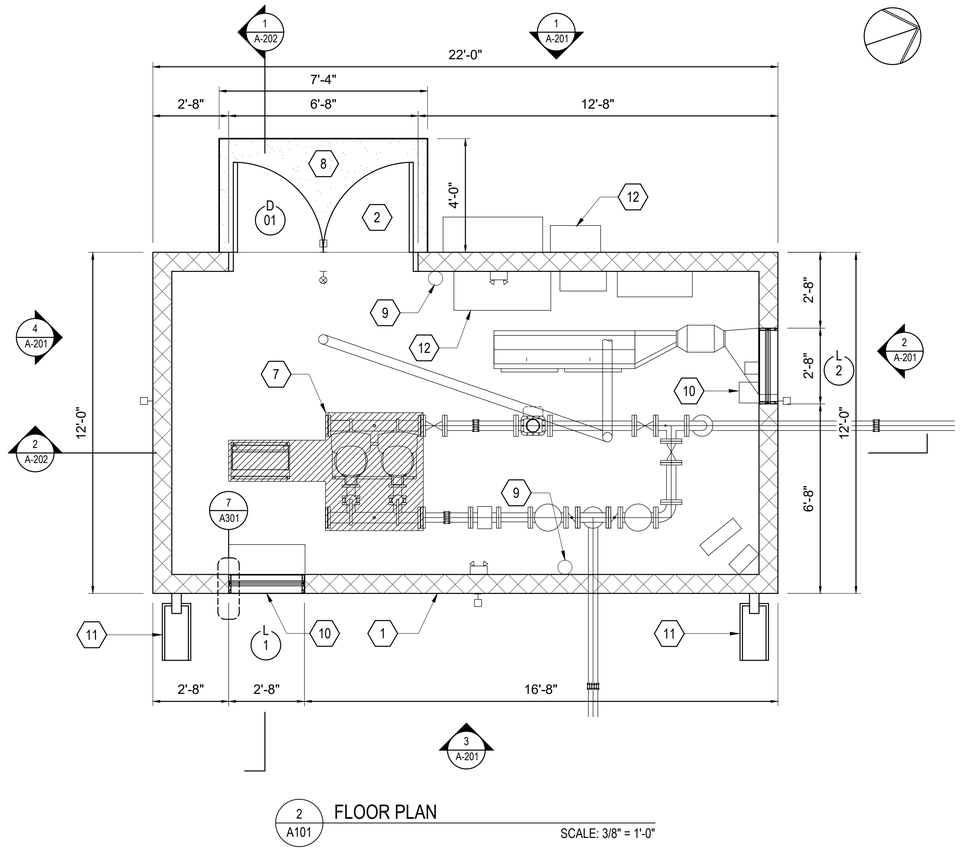
Path: C:\BCPWD\1020445 FILENAME: S-100.DWG PLOT DATE: 9/25/2024 12:47 PM CAD USER: TODD BOWMAN

BUILDING CODE ANALYSIS

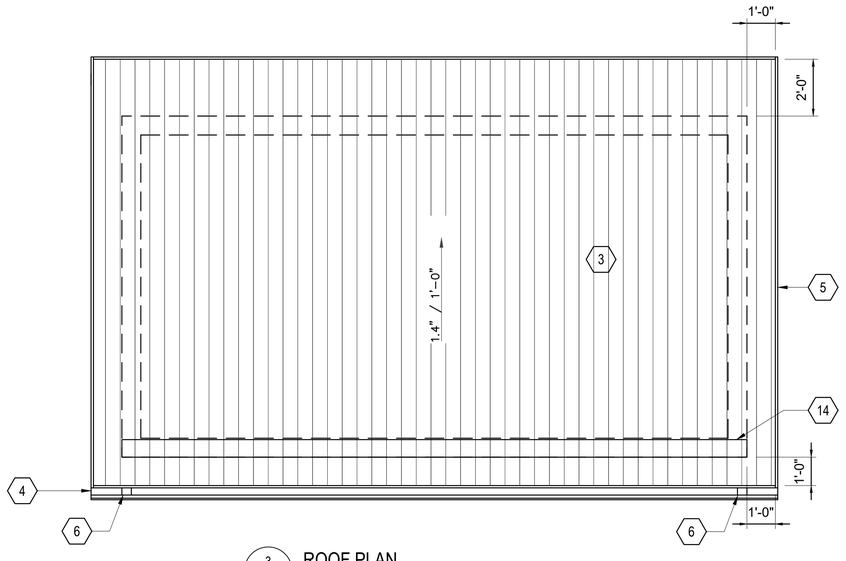
AHJ:	NAVAJO NATION (STRUCTURAL DESIGN CRITERIA: COCONINO COUNTY)
BUILDING CODES:	2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE 2018 INTERNATIONAL PLUMBING CODE 2017 INTERNATIONAL ENERGY CONSERVATION CODE 2012 NATIONAL ELECTRICAL CODE
APPLICABLE STANDARDS:	COCONINO COUNTY DESIGN CRITERIA WIND LOAD: 115 MPH, EXPOSURE 'C' SEISMIC DESIGN CATEGORY C GROUND SNOW LOAD: 30 PSF ROOF SNOW LOAD: 30 PSF
CONSTRUCTION TYPE:	TYPE II-B (TABLE 601)
OCCUPANCY:	FACTORY GROUP F FACTORY INDUSTRIAL F-2 LOW-HAZARD FACTORY INDUSTRIAL (306.3) RISK CATEGORY (TABLE 1604.5): CATEGORY IV
ALLOWABLE AREAS:	23,000 SF
ACTUAL AREAS:	220 SF
ALLOWABLE HEIGHTS:	3 STORIES, 55'
ACTUAL HEIGHT:	1 STORY, 11'-6"
FIRE PROTECTION SYSTEMS:	PORTABLE FIRE EXTINGUISHERS (TABLE 906.3(1)) MAX FLOOR AREA PER EXTINGUISHER = 11,250 SF MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER: 75 FT
MEANS OF EGRESS:	OCCUPANT LOAD (TABLE 1004.5): MECHANICAL EQPT RM = 300 GSF PER OCCUPANT = 1 OCCUPANT EXIT ACCESS: COMMON PATH OF EGRESS TRAVEL (TABLE 1006.2.1): F(OCC LOAD <30, NO SPRINKLERS) = 75 FT MAX EXITS: SPACES WITH ONE EXIT (TABLE 1006.2.1) FOR <49 OCCUPANT LOAD: 1 EXIT HARDWARE: MANUALLY OPERATED FLUSH BOLTS (1010.1.9.5, EXC. 2&3): MANUALLY OPERATED FLUSH BOLTS OR SURFACE BOLTS ARE NOT PERMITTED. EXC 1. WHERE A PAIR OF DOORS SERVES A STORAGE OR EQUIPMENT ROOM, MANUALLY OPERATED EDGE- OR SURFACE-MOUNTED BOLTS ARE PERMITTED ON THE INACTIVE LEAF. EXC 2. WHERE A PAIR OF DOORS SERVES AN OCCUPANT LOAD OF LESS THAN 50 PERSONS IN A GROUP B OR F OCCUPANCY, MANUALLY OPERATED EDGE- OR SURFACE-MOUNTED BOLTS ARE PERMITTED ON THE INACTIVE LEAF. THE INACTIVE LEAF SHALL NOT CONTAIN DOORKNOBS, PANIC BARS OR SIMILAR OPERATING HARDWARE.
ACCESSIBILITY:	EQUIPMENT SPACES (1103.2.9): SPACES FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE, REPAIR, OR OCCASIONAL MONITORING OF EQUIPMENT ARE NOT REQUIRED TO BE ACCESSIBLE.
KEY BOXES:	IFC 506.1: KEY BOXES PER UL 1037 IS WILL BE PROVIDED IN LOCATIONS APPROVED BY THE FIRE CODE OFFICIAL



1 A101 CODE PLAN
SCALE: 1/4" = 1'-0"



2 A101 FLOOR PLAN
SCALE: 3/8" = 1'-0"



3 A101 ROOF PLAN
SCALE: 3/8" = 1'-0"

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, PLAN DIMENSIONS ARE TO NOMINAL SURFACE OF MASONRY AND CONCRETE.
2. DIMENSIONS OF DOORS, WINDOWS & OTHER ITEMS IN WALLS ARE BASED ON NOMINAL MASONRY COURSING OR ROUGH OPENING DIMENSIONS. FIELD VERIFY AND/OR COORDINATE DIMENSIONS OF ITEMS W/MASONRY &/OR FRMG CONSTRUCTION AS REQUIRED.
3. "FINISH FLOOR" REFERS TO TOP OF CONCRETE SLABS. FOR DEPRESSED FLOOR, PADS AND CURBS, SEE STRUCT DRAWINGS. SEE BUILDING SECTIONS FOR VARYING CONDITIONS.
4. REPETITIVE FEATURES ARE NOT DRAWN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
5. VERIFY ACTUAL SIZES OF ALL EQUIPMENT TO BE PROVIDED IN THIS CONTRACT OR BY OTHERS & COORD ALL ROUGH-IN & SUBSTRATE DIMENSIONS TO DETERMINE ACTUAL REQUIRED SIZES OF & LOCATIONS OF PADS, CURBS, KNOCKOUTS, BLOCKOUTS, ETC.
6. VERIFY AND COORD SIZE AND LOCATION OF ACCESS DOORS, CURBS, PADS, WALL MOUNTED EQUIPMENT AND ACCESSORIES TO PROVIDE ALL OPENINGS THROUGH FLOORS AND WALLS AND/OR ALL BASES, ANCHORS, INSERTS & BLOCKING.
7. NOTES ON DRAWINGS INDICATE SOME OF THE ITEMS TO BE PAINTED. REFER TO SPECIFICATIONS FOR OTHER REQUIREMENTS FOR ITEMS TO BE PAINTED AND PAINT SYSTEMS FOR EACH SUBSTRATE AND/OR MATERIAL.
8. REFER TO PROCESS, ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OF DRAWINGS FOR ADDITIONAL NOTES.
9. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL ESTABLISH LOCATION OF ALL PARTITIONS, OPENINGS, EQUIPMENT, ETC.
10. LARGER SCALE DRAWINGS AND DETAILS HAVE PRIORITY OVER SMALLER SCALE DRAWINGS.
11. CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IN THE DRAWINGS AND/OR SPECIFICATIONS TO REQUEST AND RECEIVE AN INTERPRETATION OR CLARIFICATION BEFORE PROCEEDING WITH CONSTRUCTION.
12. CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.

KEY NOTES

1. 8" CMU WALL, WATER REPELLENT FULL EXTENT
2. HM DOOR AND FRAME, PAINT, RE: DOOR SCHEDULE
3. STANDING SEAM METAL ROOF
4. GUTTER - PRE-FINISHED SHEET METAL
5. FASCIA - PRE-FINISHED SHEET METAL
6. DOWNSPOUT - PRE-FINISHED SHEET METAL
7. EQUIPMENT, RE: MECH
8. CONCRETE PAD, RE: CIVIL
9. FIRE EXTINGUISHER
10. INTAKE LOUVER, RE: MECH
11. CONCRETE SPLASHBLOCK
12. ELECTRICAL EQUIPMENT, RE: ELECTRICAL
13. INLINE EXHAUST FAN, MOTORIZED DAMPER, AND LOUVER, RE: MECH
14. SNOW GUARD

Brown AND Caldwell
SALT LAKE CITY, UT
SHORT AND BRENNAN ARCHITECTS
1 Broadway, Suite 4001
Denver, Colorado 80203
t 303.321.2043
www.shortbrennan.com

REGISTERED ARCHITECT
CERTIFICATE NO.
59478
GREGORY T. SHORT
Date Signed 08/14/2024
ARIZONA U.S.A.

NAVAJO TRIBAL UTILITY AUTHORITY
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UTILITIES FOR THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. CARDONA
DRAWN:	C. CARDONA
CHECKED:	G. SHORT
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APPROVED:	G. SHORT

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CAMERON PUMP STATION_A_BASE
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CLIENT PROJECT NUMBER
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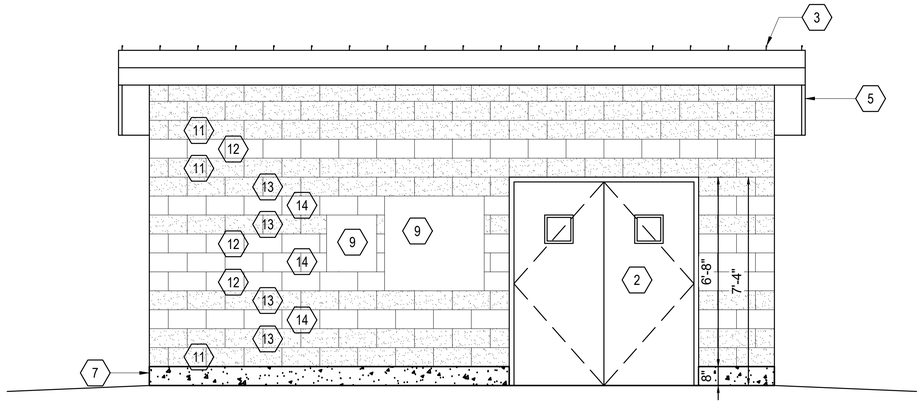
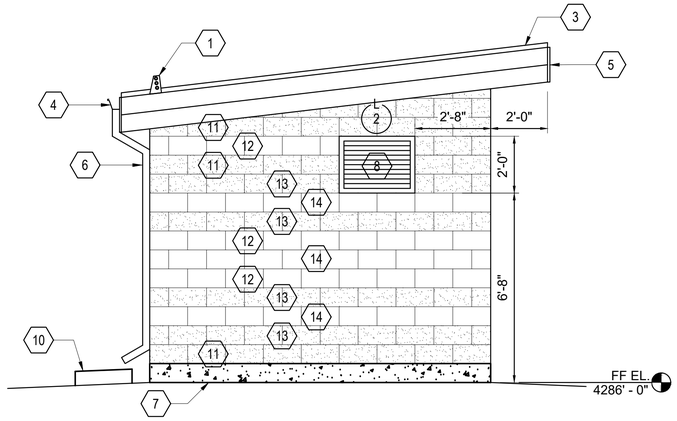
CAMERON PUMP STATION NO. 1 CODE PLAN, FLOOR PLAN & ROOF PLAN

DRAWING NUMBER
A-101
SHEET NUMBER
37 OF 61



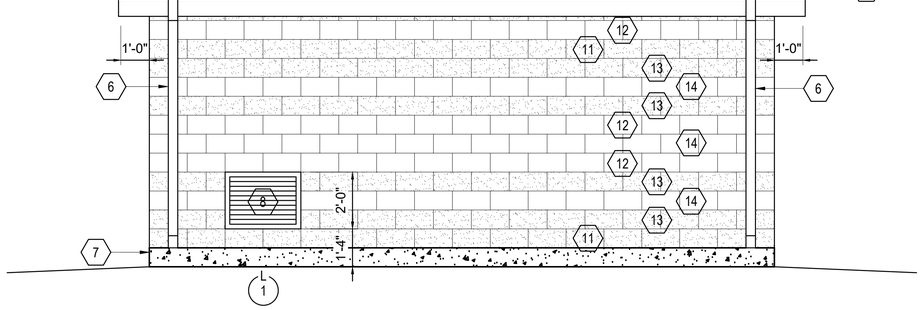
1 A201 WEST ELEVATION

3/8"=1'-0"



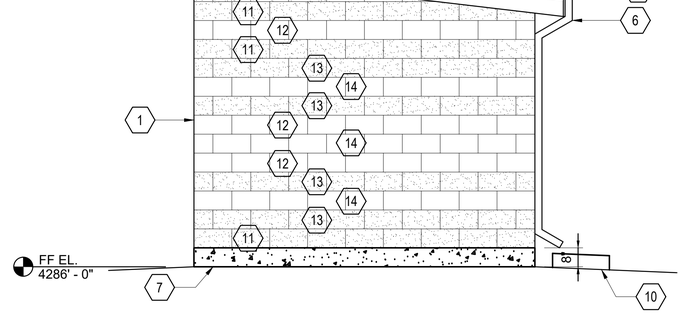
2 A201 NORTH ELEVATION

3/8"=1'-0"



3 A201 EAST ELEVATION

3/8"=1'-0"



4 A201 SOUTH ELEVATION

3/8"=1'-0"

KEY NOTES

1. SNOW GUARD
2. HM DOOR AND FRAME, PAINT, RE: DOOR SCHEDULE
3. STANDING SEAM METAL ROOF OVER METAL DECK
4. GUTTER - PRE-FINISHED SHEET METAL
5. FASCIA - PRE-FINISHED SHEET METAL
6. DOWNSPOUT - PRE-FINISHED SHEET METAL
7. CONCRETE CURB, RE: STRUCT
8. LOUVER, RE: MECH
9. ELECTRICAL EQUIPMENT, RE: ELECTRICAL
10. CONCRETE SPLASHBLOCK
11. 8" CMU WALL, SPLIT FACE COLOR A
12. 8" CMU WALL, SMOOTH FACE COLOR B
13. 8" CMU WALL, SPLIT FACE COLOR C
14. 8" CMU WALL, SMOOTH FACE COLOR D

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SHORT AND BRENNAN ARCHITECTS
1 Broadway, Suite 4001
Denver, Colorado 80203
303.321.2049
www.shortbrennan.com

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CERTIFICATE NO.
59478
GREGORY T. SHORT
Date Signed 08/01/2024
ARIZONA U.S.A.

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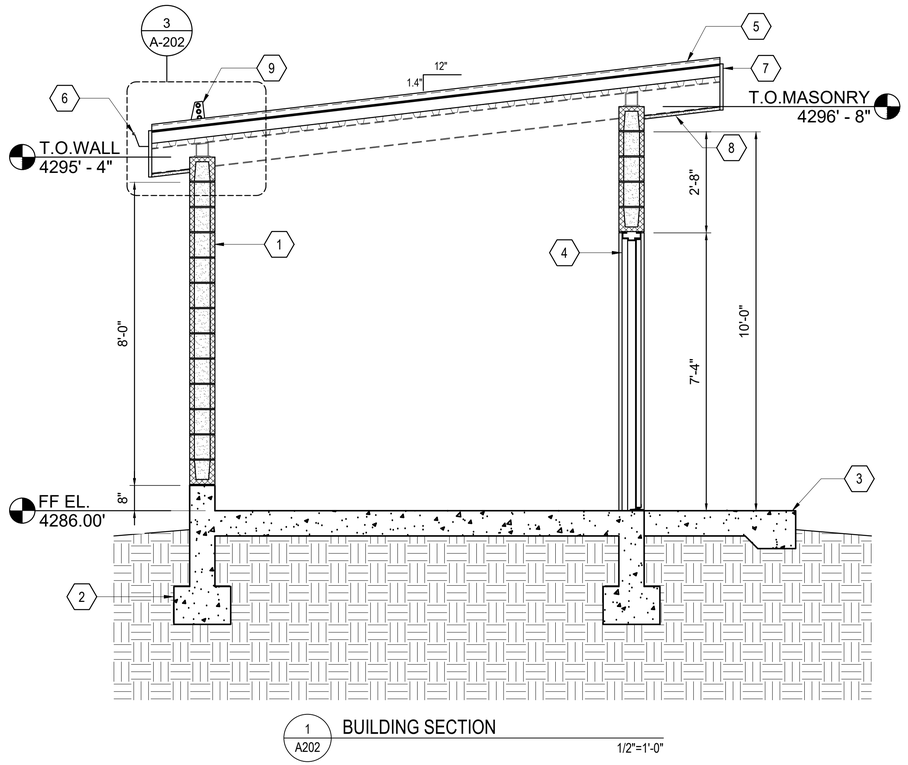
CAMERON PUMP STATION NO. 1 BUILDING ELEVATIONS

DRAWING NUMBER
A-201

SHEET NUMBER
38 OF 61

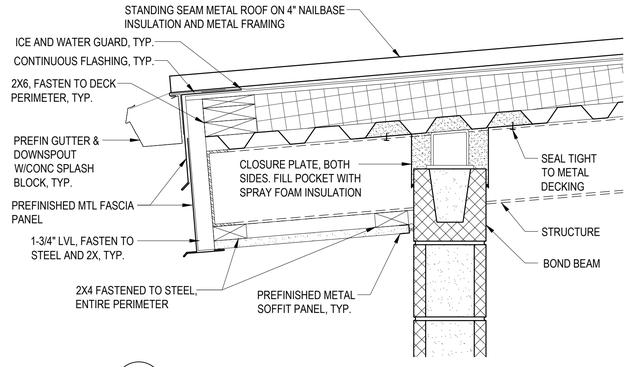


1 A202 BUILDING SECTION

1/2"=1'-0"

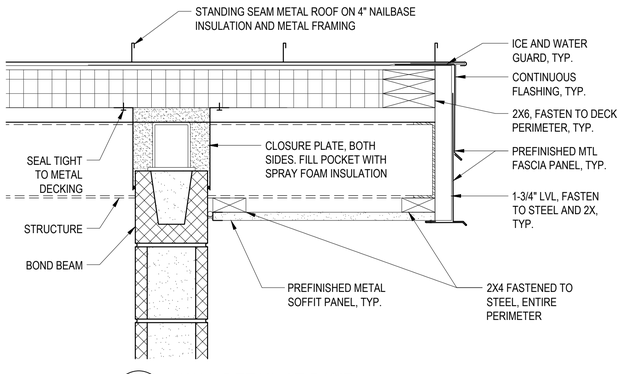
KEY NOTES

1. 8" CMU WALL, PAINT INTERIOR, FULL EXTENT
2. CONCRETE FOUNDATION, RE: STRUCT
3. CONCRETE PAD, RE: CIVIL
4. HM DOOR AND FRAME, PAINT, RE: DOOR SCHEDULE
5. STANDING SEAM METAL ROOF ON 2 LAYERS 30# BUILDING FELT OVER SELF-ADHERING UNDERLAYMENT, 4" NAILBASE INSULATION, AND METAL FRAMING
6. GUTTER - PRE-FINISHED SHEET METAL
7. FASCIA - PRE-FINISHED SHEET METAL
8. SOFFIT - PRE-FINISHED SHEET METAL
9. SNOW GUARD



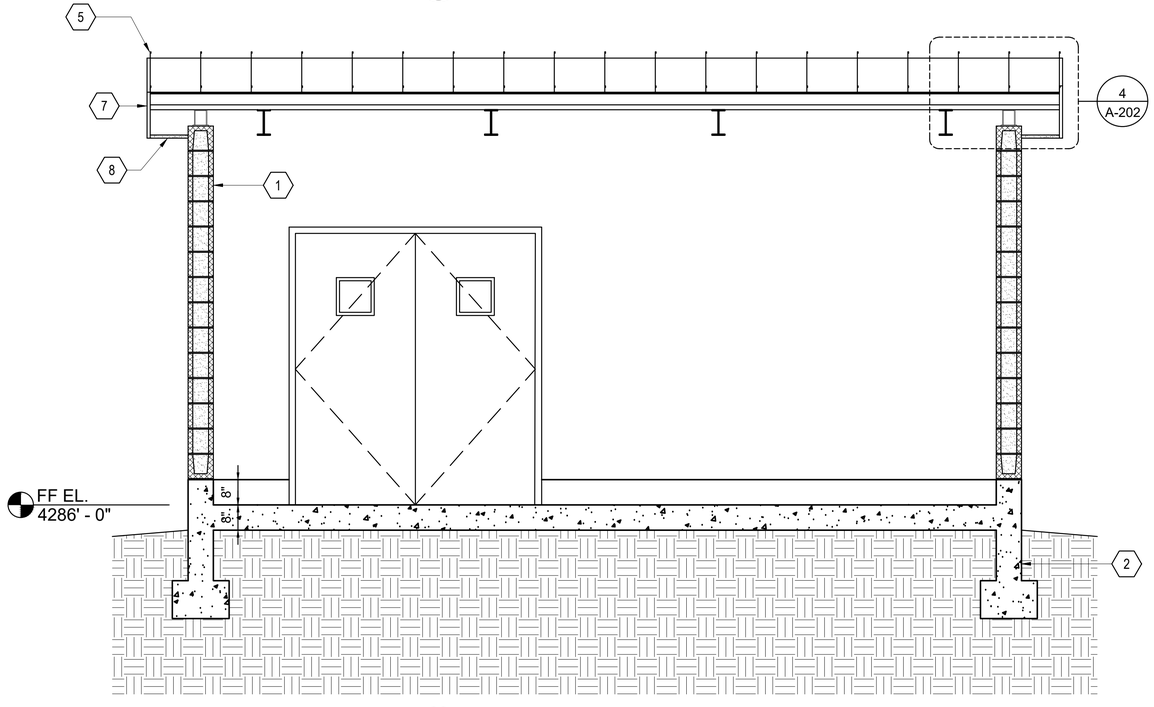
3 A202 WALL DETAIL AT EAVE

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



4 A202 WALL DETAIL AT RAKE

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



2 A202 BUILDING SECTION

1/2"=1'-0"

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SHORT AND BRENNAN ARCHITECTS
1 Broadway, Suite 4001
Denver, Colorado 80203
303.321.2043
www.shortbrennan.com

REGISTERED ARCHITECT
CERTIFICATE NO.
59478
GREGORY T. SHORT
Not Signed until 12/31/2024
ARIZONA U.S.A.

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CAMERON PUMP STATION NO. 1 BUILDING SECTIONS

DRAWING NUMBER
A-202

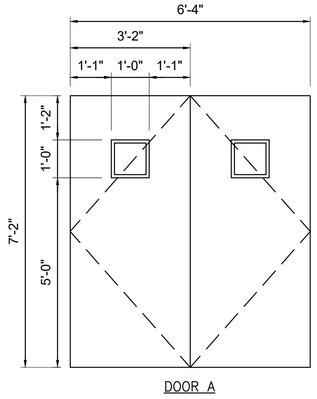
SHEET NUMBER
39 OF 61

DOOR SCHEDULE

D — DOOR DESIGNATION
1 — DOOR NUMBER

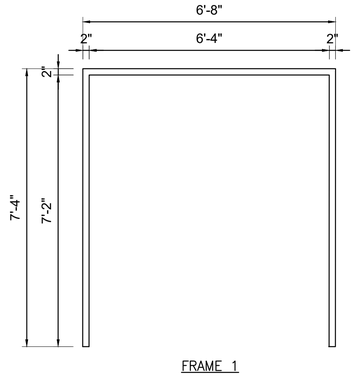
DOORS							GEN.	FRAMES						
DOOR NO.	TYPE	DIMENSIONS			MATERIAL	FINISH	HDWRE	TYPE	DETAILS			MATERIAL	FINISH	REMARKS / RATING
		W	H	TH					SILL	HEAD	JAMB			
1	A	6'-4"	7'-2"	1-3/4"	HM	PAINT	1	1	3/A301	1/A301	2/A301	HM	PAINT	---

CLEAR INSULATING GLASS:
1. OVERALL UNIT THICKNESS: 1 INCH
2. MINIMUM THICKNESS OF EACH GLASS LITE: 6 MM
3. OUTDOOR LITE: FULLY TEMPERED FLOAT GLASS
4. INTERSPACE CONTENT: AIR
5. INDOOR LITE: FULLY TEMPERED FLOAT GLASS
6. SAFETY GLAZING REQUIRED



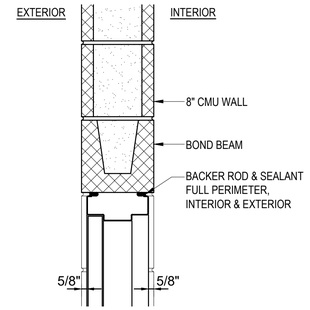
DOOR A

DOOR ELEVATIONS
1/2" = 1'-0"

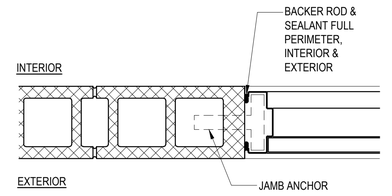


FRAME 1

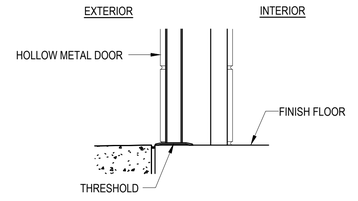
FRAME ELEVATIONS
1/2" = 1'-0"



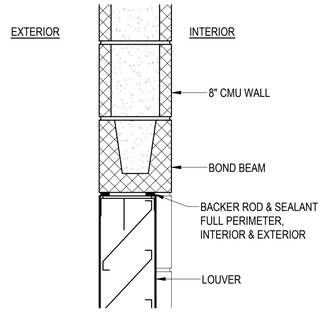
1 / A301 DOOR HEAD DETAIL
1-1/2"=1'-0"



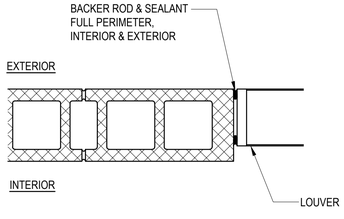
2 / A301 DOOR JAMB DETAIL
1-1/2"=1'-0"



3 / A301 DOOR SILL DETAIL
1-1/2"=1'-0"



4 / A301 LOUVER HEAD/SILL DETAIL
1-1/2"=1'-0"



5 / A301 LOUVER JAMB DETAIL
1-1/2"=1'-0"

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SHORT AND BRENNAN ARCHITECTS
1 Broadway, Suite 4001
Denver, Colorado 80203
T 303.321.2043
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CAMERON PUMP STATION NO. 1 DOOR AND WINDOW SCHEDULE

DRAWING NUMBER
A-301

SHEET NUMBER
40 OF 61

Path: C:\USERS\CCARDONA\DOCUMENTS\SERVER FILES\WORKING\CAMERON FILENAME: CAMERON PUMP STATION_A_BASE.DWG PLOT DATE: 7/24/2024 1:25 PM CAD USER: CARRIE CARDONA

SYMBOLS:

CIRCUIT AND RACEWAYS:

- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED, UON.
- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL. CONCEALED IN WALL OR ABOVE CEILING, UON.
- RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR, OR CONCEALED IN OR BEHIND STRUCTURE OR EQUIPMENT, OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASEMENT.
- ELECTRICAL DUCTBANK
- EMH — ELECTRICAL MANHOLE
- EPB, IPB — ELECTRICAL PULLBOX, INSTRUMENT PULLBOX.
- PNL-A-1,3,5 — HOME RUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE. EXAMPLE: TO PANELBOARD PNL-A, CIRCUITS 1, 3, AND 5.
- RACEWAY OR WIRING SYSTEM: UP ON PLAN DRAWINGS
- RACEWAY OR WIRING SYSTEM: DOWN ON PLAN DRAWINGS
- RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION
- EMPTY CONDUIT STUB AND CAP
- SHH23 — SIGNAL (S), LOW VOLTAGE (L), OR MEDIUM VOLTAGE (M), HANDHOLE (HH) OR MANHOLE (MH) WITH DESIGNATION. EXAMPLE: SIGNAL HANDHOLE NUMBER 23.
- JB 2700A — JUNCTION BOX WITH OPTIONAL IDENTIFIER.
- JUNCTION BOX, WALL MOUNTED.
- TB 1035 — TERMINAL BOX WITH OPTIONAL IDENTIFIER EXAMPLE: TERMINAL BOX #1035

GROUNDING:

- GROUND ROD, 3/4" x 10'-0", COPPERCLAD
- GROUND ROD AND TEST WELL
- LIGHTNING ROD
- GROUND CONNECTION
- G — G — GROUNDING SYSTEM CONDUCTOR
- L — L — LIGHTNING SYSTEM CONDUCTOR
- G — EQUIPMENT GROUND PLATE
- OHE — OHE — OVERHEAD POWER LINE

METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED):

- ID# — POWER MONITOR (PM), POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM), MOTOR MONITOR AND PROTECTION RELAY (MPR), FEEDER PROTECTION RELAY (FPR)

POWER DISTRIBUTION EQUIPMENT:

APPROXIMATE SHAPE AND SCALE WITH ESTIMATED SIZE AND NUMBER OF SECTIONS

- FLOOR MOUNTED SWITCHBOARD OR MOTOR CONTROL CENTER
- MCC 1100 OR MCC-M — EQUIPMENT NUMBER
- WALL MOUNTED PANELBOARD OR CABINET
- PBD 1200 — EQUIPMENT NUMBER

LUMINARIES:

- NUMBER OF FIXTURES (OPTIONAL)
- FIXTURE TYPE PER LUMINAIRE SCHEDULE
- MOUNTING TYPE: G = GROUND, L = POLE, P = PENDANT, R = RECESSED, S = SURFACE, W = WALL
- 5 / XX / 2/40 / R / PC / 8'-6" — MOUNTING HEIGHT: FLOOR TO CENTER OF FIXTURE. AHAP = AS HIGH AS POSSIBLE
- LAMP NUMBER AND WATTAGE
- CONTROL: PHOTOCELL, SWITCH, CONTACTOR
- RECESSED MOUNTED FIXTURE
- SUSPENDED PENDANT MOUNTED FIXTURE
- SURFACE MOUNTED FIXTURE
- RECESSED, SURFACE OR PENDANT
- WALL MOUNTED
- DIRECTIONAL LIGHT
- POLE-MOUNTED AREA LIGHT: ONE POLE AND TWO FIXTURES SHOWN
- EMERGENCY LIGHTING UNIT WITH BATTERY CHARGER

EXIT LIGHTS WITH DARK QUADRANTS INDICATE ILLUMINATED FACES:

- SURFACE ON CEILING
- WALL MOUNTED
- EXIT DIRECTIONAL ARROWS

LIGHTING CONTROL AND CIRCUITING:

- 3a — LIGHTING CIRCUIT IDENTIFIER: 3a INDICATES FIXTURE POWERED FROM CIRCUIT 3 AND CONTROLLED BY SWITCH a
- NL — EMERGENCY LIGHTING FIXTURES WITH EMERGENCY BALLAST. NL = UNSWITCHED POWER SOURCE
- PCU — PHOTOELECTRIC CONTROL UNIT

CIRCUIT IDENTIFICATION:

P101-1: 3-1/0, 6G, 2"C	CIRCUIT P101-1: THREE 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND WIRE IN 2" CONDUIT
P101-2: 2 [3-1/0, 6G, 2"C]	P101-2: TWO PARALLEL SETS OF THREE 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND EACH IN 2" CONDUIT
C113: 12/C #14, 2"C	CONTROL CIRCUIT C113: ONE-TWELVE CONDUCTOR #14 AWG CONTROL CABLE
S111: 2-1 PR #16S, 1"C	SIGNAL CIRCUIT S111: TWO SIGNAL CABLES OF ONE PAIR 16 AWG TWISTED SHIELDED CABLES IN 1" CONDUIT
S112: 1-4 PR #16S, 1"C	SIGNAL CIRCUIT S112: ONE - FOUR PAIR 16 AWG SHIELDED IN 1" CONDUIT

TELEPHONE SYSTEMS:

- EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET

WIRING DEVICES:

SWITCHES:

- $ — SINGLE POLE SWITCH.
- $$ — GANGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE
- $ (a / 3) — SWITCH SUPERSCRIPT MODIFIER: LOWER CASE LETTER INDICATES LUMINAIRE CONTROLLED (I.E. a, b, c, ect). MAY BE COMBINED WITH CIRCUIT NUMBER (I.E. 1a, 4b, ect.)
- SWITCH SUBSCRIPT MODIFIER: UPPER CASE LETTER OR NUMBER
  - 2 = DOUBLE POLE
  - 3 = THREE WAY
  - 4 = FOUR WAY
  - K = KEY OPERATED
  - M = HORSEPOWER RATED MANUAL STARTER
  - MC = MOMENTARY CONTACT, THREE POSITION
  - MS = MANUAL (MOTOR) STARTER OR SWITCH
  - R = RHEOSTAT (DIMMER OR SPEED CONTROL)
  - F = FLUSH MOUNTED
  - WP = WEATHERPROOF

RECEPTACLES:

- 3, GF — SINGLE STROKE - SINGLE OUTLET; DOUBLE STROKE - DUPLEX OUTLET
- RECEPTACLE MODIFIERS:
  - 3 = BRANCH CIRCUIT NUMBER
  - C = CLOCK HANGER
  - GF = GROUND FAULT CIRCUIT INTERRUPTER
  - WP = WEATHERPROOF
- 480V RECEPTACLE
- 10-50R — SPECIAL RECEPTACLE. RATING OR NEMA CONFIGURATION. EXAMPLE: NEMA 10-50R, 125/250V, 3 POLE, 3 WIRE, 50 AMP, NON-GROUNDING TYPE
- RECESSED FLOOR RECEPTACLE
- SURFACE FLOOR RECEPTACLE
- GANGED RECEPTACLES: IN COMMON BOX WITH COMMON WALL PLATE

EQUIPMENT AND AREA CLASSIFICATIONS:

- M — MOTOR
- INDIVIDUAL MOTOR STARTER
- COMBINATION MOTOR STARTER
- 100A — NON-FUSED DISCONNECT: 100A, 3POLE
- F, 60A — FUSED DISCONNECT
- FIELD INSTRUMENT
- FIELD INSTRUMENT MOUNTED ON CONTROL STATION MOUNTING STAND. TYPICAL FOR ALL EQUIPMENT.
- CS — CONTROL STATION. CONFIGURATION ACCORDING TO CONTROL DIAGRAMS. REFER TO P&ID FOR HAND STATION EQUIVALENT DEVICES.
- HS 1311 — HAND STATION EQUIPMENT DESIGNATOR
- CI-D1, CI-D2 — HAZARDOUS AREA CLASSIFICATION
- UNCLASSIFIED — UNCLASSIFIED AREA
- CORROSIVE — CORROSIVE AREA
- ANTENNA

ABBREVIATIONS:

NOTES:
1. ABBREVIATIONS SHOWN ON ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ASME STANDARD Y14.38A
2. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION TO THE ABBREVIATIONS DEFINED ON OTHER DRAWINGS.
3. ABBREVIATIONS HERE IN SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.
4. ABBREVIATIONS ARE NOT EQUIPMENT NUMBERING PREFIXES LISTED ON OTHER DRAWINGS.

A, AMP	AMP(S), AMPERE(S)	HH	HANDHOLE	OWS	OPERATOR WORKSTATION
AC	ALTERNATING CURRENT	HID	HIGH INTENSITY DISCHARGE	P	POLE, PHASE
AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER	PB	PUSH-BUTTON, PULLBOX
AHAP	AS HIGH AS POSSIBLE	HPS	HIGH PRESSURE SODIUM	PCP	PROCESS CONTROL PANEL
AIC	AMPS INTERRUPTING CAPACITY, SYMM.	HTR	HEATER	PF	POWER FACTOR
AL	ALUMINUM	HV	HIGH VOLTAGE	PH	PHASE
ARCH	ARCHITECT(URAL)	HVAC	HEATING, VENTILATION, & AIR CONDITIONING	PLC	PROGRAMMABLE LOGIC CONTROLLER
ASYM	ASYMMETRICAL	HZ	HERTZ (CYCLES PER SECOND)	PMM	POWER MONITORING MODULE
AUTO	AUTOMATIC	I/O	INPUT / OUTPUT	PNL	PANEL
AUX	AUXILIARY	ICOM	INTERCOM	PP	POWER PANEL
AWG	AMERICAN WIRE GAUGE	ID	INSIDE DIAMETER	PRI	PRIMARY
BC	BARE COPPER	IMC	INDIVIDUAL MOTOR CONTROLLER	PT	POTENTIAL TRANSFORMER
BLDG	BUILDING	INCAND	INCANDESCENT	PVC	POLYVINYL CHLORIDE
BOT	BOTTOM	INST	INSTANTANEOUS, INSTRUMENT	PWR	POWER
C	CONDUCTOR, CONDUIT	INTLK	INTERLOCK	RCPT	RECEPTACLE
CB	CIRCUIT BREAKER	IPB	INSTRUMENT PULLBOX	RE STL	REINFORCED STEEL
CKT	CIRCUIT	JB	JUNCTION BOX	REF	REFERENCE
CLG	CEILING	KCMIL	1000 CIRCULAR MIL	REQD	REQUIRED
CM	CENTIMETERS	kV	KILOVOLT	RMS	ROOT MEAN SQUARE
CNTL	CONTROL	kVA	KILOVOLT-AMPERE	RTD	RESISTANCE TEMPERATURE DETECTOR
CONC	CONCRETE	KVAR	KILOVOLT-AMPERE REACTIVE	RTU	REMOTE TERMINAL UNIT
CPT	CONTROL POWER TRANSFORMER	KW	KILOWATT	SA	SURGE ARRESTOR
CT	CURRENT TRANSFORMER	KWH	KILOWATT HOUR	SCR	SILICON CONTROLLED RECTIFIER
CU	COPPER	L	LONG	SD	SMOKE DETECTOR
DB	DIRECT BURIAL	LA	LIGHTNING ARRESTOR	SEC	SECONDARY
DC	DIRECT CURRENT, DATA CABLE	LCP	LOCAL CONTROL PANEL	SEL	SELECTOR
DET	DETAIL	LT	LONG TIME	SPD	SURGE PROTECTIVE DEVICE
DIAG	DIAGRAM	LTG	LIGHTING	SPEC	SPECIFICATION
DISC	DISCONNECT	LV	LOW VOLTAGE	SPKR	SPEAKER
DWG	DRAWING	M	METER	ST	SHORT TIME
EA	EACH	MA	MILLIAMPERE	SUB	SUBSTATION
EC	EMPTY CONDUIT	MBS	MANUAL BYPASS SWITCH	SW	SWITCH
ECP	EQUIPMENT CONTROL PANEL	MCC	MOTOR CONTROL CENTER	SWBD	SWITCHBOARD
EDB	ELECTRICAL DUCTBANK	MCP	MOTOR CIRCUIT PROTECTOR	SWGR	SWITCHGEAR
EG	ENGINE GENERATOR SET	MECH	MECHANICAL	SYMM	SYMMETRICAL
EL	ELEVATION	MFR	MANUFACTURE	SYS	SYSTEM
ELEC	ELECTRIC(AL)	MH	MANHOLE, METAL HALIDE	TB	TERMINAL BOX
EMER	EMERGENCY	MIC	MICROPHONE	TEL	TELEPHONE
EMH	ELECTRICAL MANHOLE	MISC	MISCELLANEOUS	TEMP	TEMPERATURE
ENCL	ENCLOSURE / ENCLOSED	MM	MILLIMETER	TFR	TRANSFORMER
EP	EXPLOSION PROOF	MOV	MOTOR OPERATED VALVE	TRI	TRIAD
EPB	ELECTRICAL PULLBOX	MPC	MINI POWER CENTER	TV	TELEVISION
EQUIP	EQUIPMENT	MTS	MANUAL TRANSFER SWITCH	TYP	TYPICAL
EX	EXISTING	MV	MILLIVOLT, MEDIUM VOLTAGE	U/G	UNDERGROUND
F.O.	FAIL OPENED	MVMC	MEDIUM VOLTAGE MOTOR CONTROL	UON	UNLESS OTHERWISE NOTED
FDR	FEEDER	N.C.	NORMALLY CLOSED	UPS	UNINTERRUPTIBLE POWER SUPPLY
FL	FLUORESCENT	N.O.	NORMALLY OPENED	V	VOLT
FLA	FULL LOAD AMPS	N/A	NOT APPLICABLE	VA	VOLT-AMPERE
FLEX	FLEXIBLE CONDUIT	NEUT,N	NEUTRAL	VAR	VOLT-AMPERE REACTIVE
FM	FLOW METER	NF	NON-FUSED	VC	VACUUM CONTACTOR
FO	FIBER OPTIC	NIC	NOT IN CONTRACT	W	WATT, WIRE, WIDE
FUT	FUTURE	NO.	NUMBER	W/	WITH
GDR	GROUNDING RESISTOR	NOM	NOMINAL	W/O	WITHOUT
GEC	GROUND ELECTRODE CONDUCTOR	NP	NAMEPLATE	WG	WITH GROUND
GF	GROUND FAULT	NTS	NOT TO SCALE	WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER	OC	ON CENTER	WW	WIREWAY
GND, G	GROUND	OD	OUTSIDE DIAMETER	XMTR	TRANSMITTER
GRS	GALVANIZED RIGID STEEL	OH	OVERHEAD	Z	IMPEDANCE
H	HIGH	OIS	OPERATOR INTERFACE STATION		
HGT	HEIGHT	OT	OIL TIGHT		

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Certificate No. Electrical) — CERTIFICATE — 36697 — KENNETH W. CHANDLER — Date Signed 08/31/2024 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME E-001.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

ELECTRICAL

SYMBOLS, ABBREVIATIONS, AND NOTES

DRAWING NUMBER

E-001

SHEET NUMBER 41 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-001.DWG PLOT DATE: 7/29/2024 11:02 AM CAD USER: QUENTIN SMITH

CONTROL DIAGRAMS:

LINEWORK:

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED

MISCELLANEOUS:

- MCP, 15 AMP — MOTOR CIRCUIT PROTECTOR (MCP) MAGNETIC-ONLY CIRCUIT BREAKER
- 15 AMP — THERMAL-MAGNETIC CIRCUIT BREAKER
- FU 2B, 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION
- FU 2B, 15 AMP — FUSE WITH BLOWN FUSE INDICATOR
- SIZE — DISCONNECT SWITCH
- MTR — MOTOR (PHASES AS REQUIRED)
- SOLENOID VALVE OR OVERLOAD TRIP UNIT
- 250W — SPACE HEATER AND WATTAGE
- 480V / 120V, 250VA — CONTROL TRANSFORMER. PRIMARY & SECONDARY VOLTAGE SHOWN, SIZE OPTIONAL
- 50/3, CT (3) — CURRENT TRANSFORMER WITH PRIMARY / SECONDARY TURNS RATIO
- HORN / SIREN
- KVAR — POWER FACTOR CORRECTION CAPACITOR
- XX — MOTOR STARTER TERMINATION POINT
- XX — PLC I/O POINTS:
  - DO = DIGITAL OUT SIGNAL
  - DI = DIGITAL IN SIGNAL
  - AO = ANALOG OUT SIGNAL
  - AI = ANALOG IN SIGNAL

STATUS INDICATORS:

SHOWN WITH DESCRIPTION AND COLOR (X):

- A = AMBER
- B = BLUE
- G = GREEN
- R = RED
- W = WHITE

INDICATORS:

- STATUS (X = COLOR)
- X1 — PUSH TO TEST
- TEST — REMOTE TEST
- BACK-LIT PUSH-BUTTON

DESCRIPTION (TYP)

COILS:

- C — LTG CTK #1
- CR, 10 — AUTO ENABLE
- TR, 9 — ON or OFF DELAY, RANGE x to xx SEC/MIN, SET AT x SEC/MIN
- U, L, LR, 8
- OL (SSOL)
- A

A) RELAYS OR CONTACTOR COILS WITH DESCRIPTION OR REFERENCE
- C = CONTACTOR, LIGHTING OR GENERAL USE
- F = FAST OR FORWARD
- IC = ISOLATION CONTACTOR
- M = MAIN OR LINE
- MO = MOTOR OPERATED
- R = RUN OR REVERSE
- S = SLOW OR START
- T = TRIP COIL
- 1M = FIRST MAIN OR WYE
- 2M = SECOND OR DELTA

B) RELAY COILS WITH NUMERIC PREFIX OR SUFFIX
- CR = CONTROL RELAY
- MR = MACHINE TOOL RELAY
- TR = TIMING RELAY

C) TIME DELAY COIL WITH NUMERIC PREFIX OR SUFFIX, DELAY ACTION, TIMING RANGE AND SETTING

D) MECHANICALLY LATCHED RELAY WITH UNLATCH COIL

THERMAL OVERLOAD RELAY OR SOLID STATE OVERLOAD RELAY

METER WITH ALPHA IDENTIFIERS
- ETM = ELAPSED TIME
- A = AMMETER
- V = VOLTMETER

POWER CONTACTORS:

- M, SIZE 3 — AIR-BREAK CONTACTOR WITH NEMA SIZE
- M, SIZE 6 — VACUUM CONTACTOR WITH NEMA SIZE
- M, SIZE 2 — REDUCED VOLTAGE SOLID STATE STARTER

SWITCH OR INTERLOCK CONTACTS:

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
CR12, LINE 12	CR9, LINE 25	CONTROL RELAY CONTACTS
TR3, TC, LINE 43 OR	TR4, TO, LINE 44 OR	ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS TC = NORMALLY OPEN, TIME CLOSED TO = NORMALLY CLOSED, TIME OPENED
TR5, TO, LINE 45 OR	TR6, TC, LINE 46 OR	OFF DELAY (DELAY ON COIL DE-ENERGIZATION) RELAY CONTACTS TO = NORMALLY OPEN, TIME OPENED TC = NORMALLY CLOSED, TIME CLOSED
TR5, INST, LINE 45	TR6, INST, LINE 46	TIME DELAY RELAY INSTANTANEOUS CONTACTS

SWITCHES: (SHOWN WITH OPTIONAL LOCATION REFERENCE)

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
5ZS, VALVE FV010	1ZS, VALVE FV0101	LIMIT: FREE
3ZS, VALVE FV0101	7ZS, VALVE FV0101	LIMIT: HELD
FS3	FS3	FLOW
TS1	TS1	TEMPERATURE
PS1	PS1	PRESSURE
LS5	LS5	LEVEL
WS2	WS2	FORCE OR TORQUE
SS1	SS1	SPEED
HSxxx, AT PNLxxx	HSxxx, AT PNLxxx	MOMENTARY PUSH-BUTTON
STOP, AT DRIVE		MUSHROOM HEAD MOMENTARY PUSH-BUTTON
OFF, ON, DESCRIPTION		MAINTAINED PUSH-BUTTON OR ROCKER SWITCH
1, 2, OX, AT PNLxxx		SELECTOR SWITCH: 2 POSITION MAINTAINED SWITCH POSITION X = CLOSED CONTACT O = OPEN CONTACT
1, 2, XO, OX, AT PNLxxx		SELECTOR SWITCH: 2 POSITION SPRING RETURN X = CLOSED CONTACT O = OPEN CONTACT
1, 2, 3, XOO, OOX, AT PNLxxx		SELECTOR SWITCH: 3 POSITION X = CLOSED CONTACT O = OPEN CONTACT

ONE LINE DIAGRAMS:

- CIRCUIT ROUTED IN UNDERGROUND DUCTBANK
- 12kV — INCOMING POWER SUPPLY
- CABLE TERMINATION: STRESS CONE FOR SHIELDED CABLES.
- LIGHTNING ARRESTOR
- SURGE ARRESTOR
- BUS DUCT OR BUSWAY
- 52A — STAB OR PULL-APART CONNECTION.
- 200A — AIR CIRCUIT BREAKER: TRIP RATING AND I.D.
- 3P, 400AT, 400AF, LSIG — AIR CIRCUIT BREAKER: BREAKER FRAME RATING / TRIP SETTING. SOLID STATE TRIP FEATURES SHOWN:
  - L = LONG DELAY
  - S = SHORT DELAY
  - I = INSTANTANEOUS
  - G = GROUND FAULT
- 52-G1, E, 1000AT, 1200AF — POWER CIRCUIT BREAKER FRAME AND TRIP SETTING AND I.D. SHOWN
- 100A — POWER DISCONNECT OR ISOLATION SWITCH: CONTINUOUS RATING SHOWN. 30A, 3P
- F, OR, 100E, 200A — FUSED SWITCH: WITH TYPE AND RATINGS
- 1500 KVA, 13.2 KV - 480V, 3Ø, 4W — POWER TRANSFORMER: DESIGNATION, SIZE, PRIMARY AND SECONDARY VOLTAGES, AND WINDING CONFIGURATION
- WINDING CONFIGURATION: DELTA
- WYE (GROUNDED)
- 4160V - 120V — POTENTIAL TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGES AND WINDINGS QUANTITIES
- 250/5 — CURRENT TRANSFORMER: RATIO, QUANTITIES
- xS — METER SWITCH:
  - AS = AMMETER SWITCH
  - VS = VOLTMETER SWITCH
- A, 0 - 1000 AMPS — METER WITH RANGE:
  - A = AMMETER
  - W = WATTMETER
  - KWH = KILOWATT-HOUR METER
  - F = FREQUENCY METER
  - VAR = VAR METER
  - V = VOLTMETER
- 64 N, 3 — ANSI C37.2 DEVICE WITH QUANTITIES
- 600kW, 60 HZ, 480V, 3P,4W, OR, G — GENERATOR WITH RATING
- GDR, 50 AMP, 10 SEC — NEUTRAL GROUNDING RESISTOR: CURRENT / TIME RATING SHOWN
- K — KEY INTERLOCK
- 5 — MOTOR WITH HORSEPOWER
- NORMAL, EMERGENCY, MTS10, 60A, 3P, LOAD — POWER TRANSFER SWITCH WITH DESIGNATIONS, RATING AND CONFIGURATION
  - MTS = MANUAL TRANSFER SWITCH
  - ATS = AUTOMATIC TRANSFER SWITCH
- FVNR, 31 — MOTOR CONTACTOR (SIZE 1)
  - FVR = FULL VOLTAGE, REVERSING STARTER
  - FVNR = FULL VOLTAGE NON-REVERSING
  - RVSS = REDUCED VOLTAGE SOLID-STATE
  - 2S2W = TWO SPEED, TWO WINDING STARTER
- GROUND ROD ELECTRODE
- CONTROL STATION PER CONTROL DIAGRAMS
- FIELD INSTRUMENT OR DEVICE
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR: KVAR RATING

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE
2. NOT ALL SYMBOLS OR ABBREVIATIONS SHOWN ON DRAWINGS E-001 AND E-002 ARE USED IN SUBSEQUENT DRAWINGS.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Licensed Professional Engineer — CERTIFICATE NO. 36697 — KENNETH W. CHANDLER — Date Signed 08/31/2024 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME: E-002.DWG

BC PROJECT NUMBER: 150360

CLIENT PROJECT NUMBER: C010232

ELECTRICAL

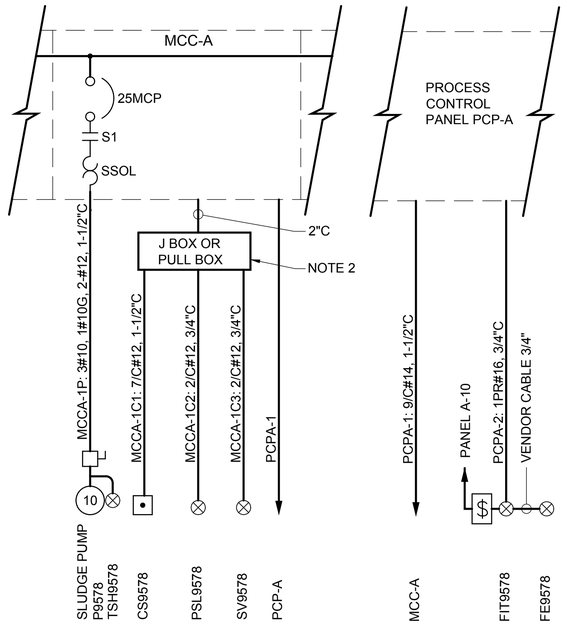
CONTROL AND ONE-LINE DIAGRAM LEGENDS AND SYMBOLS

DRAWING NUMBER

E-002

SHEET NUMBER 42 OF 61

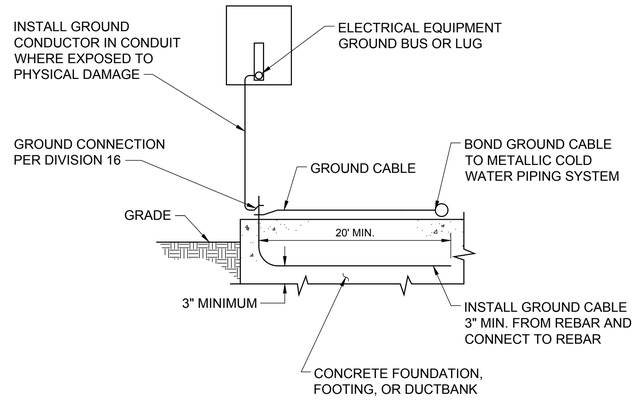
Path: C:\BCPW\D1020438 FILENAME: E-002.DWG PLOT DATE: 7/29/2024 11:02 AM CAD USER: QUENTIN SMITH



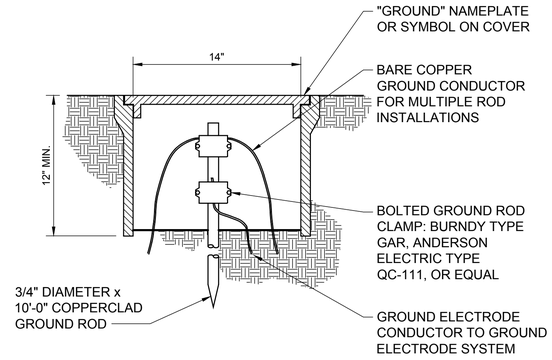
NOTES:

1. MOTOR CONTROL CENTER AND PROCESS CONTROL PANEL HOMERUN CIRCUIT DESIGNATIONS: REFER TO PLAN DRAWINGS.
2. PROVIDE TERMINATION BOX, PULL BOX FITTINGS, OR DUCTBANK TRANSITION, AS REQUIRED.

SINGLE-LINE DIAGRAM
TYPICAL
DETAIL E1001
NO SCALE



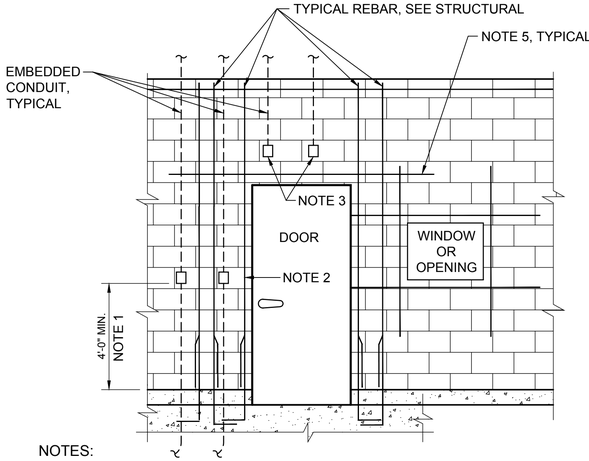
GROUND ELECTRODE
CONCRETE ENCASED
DETAIL E3001
NO SCALE



NOTES:

1. TEST WELL OF CONCRETE, PVC, OR FRP MATERIAL.
2. H-20 LOAD RATED COVER FOR TEST WELL IN TRAFFIC AREA.

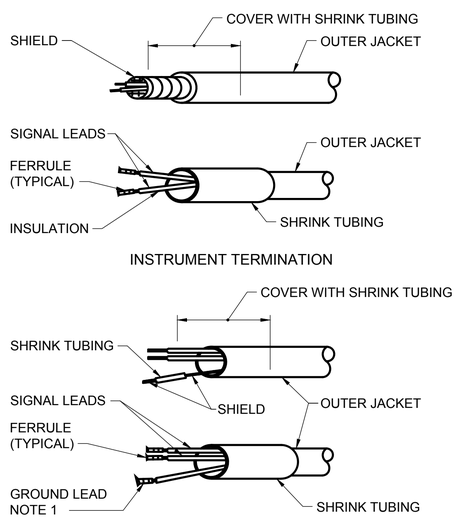
GROUND ELECTRODE
TEST WELL
DETAIL E3002
NO SCALE



NOTES:

1. ALL EMBEDDED BOXES ABOVE GROUT LIFTS, AND BOND BEAMS.
2. EMBEDDED BOXES ARE NOT ALLOWED IN WALL BLOCK CELLS WITH VERTICAL REBAR.
3. EMBEDDED BOXES FOR EXIT LIGHTS, FIRE ALARMS, INTRUSION SWITCHES, ETC. ABOVE HORIZONTAL LINTEL. SEE STRUCTURAL FOR LINTEL HEIGHTS.
4. CUT OPENINGS IN CMU FOR EMBEDDED BOXES.
5. HORIZONTAL CONDUIT RUNS ARE NOT ALLOWED IN BOND BEAM OR LINTEL.
6. ELECTRICAL EQUIPMENT WEIGHING OVER 200 POUNDS MAY NOT BE ATTACHED TO WALLS. PROVIDE EQUIPMENT RACK PER DETAIL E4001.

EMBEDDED RACEWAYS
CMU WALLS
DETAIL E2211
NO SCALE



NOTE:

1. GROUND SHIELD AT PANEL NOT AT INSTRUMENT.

SHIELDED CABLE TERMINATION
DETAIL E / TYP.
NO SCALE

Brown AND Caldwell

SALT LAKE CITY, UTAH

CERTIFICATE OF REGISTRATION — Professional Engineer — Electrical
36697
KENNETH W. CHANDLER
Date Signed 08/31/2024
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-003.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

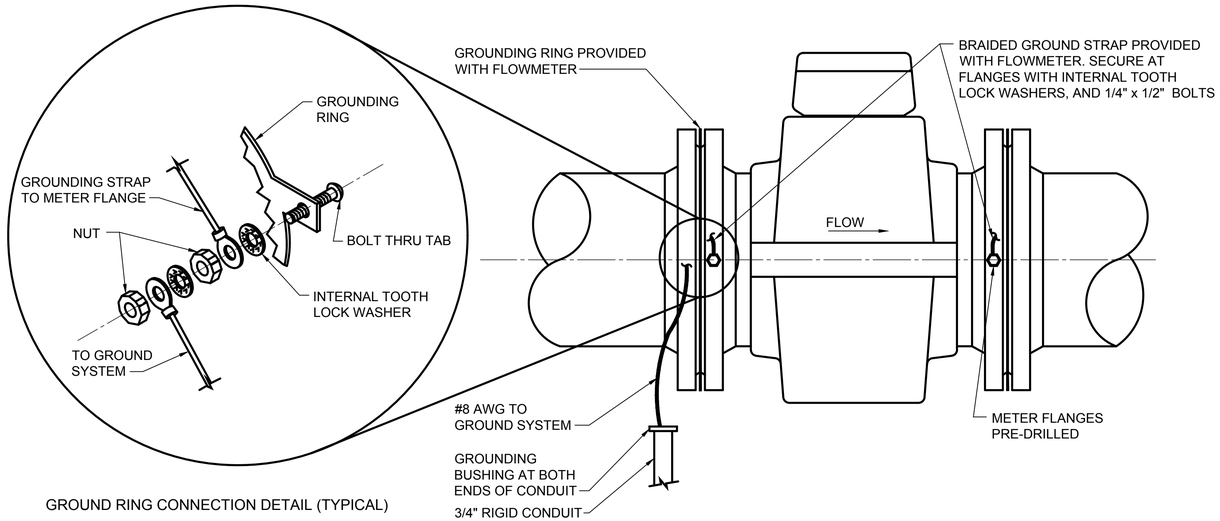
ELECTRICAL

STANDARD DETAILS
1

DRAWING NUMBER
E-003

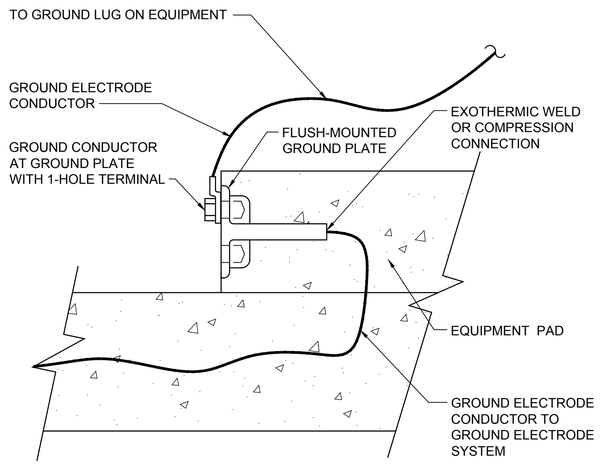
SHEET NUMBER
43 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-003.DWG PLOT DATE: 7/29/2024 11:03 AM CAD USER: QUENTIN SMITH



GROUND RING CONNECTION DETAIL (TYPICAL)

FLOW TRANSMITTER
MAGNETIC - GROUNDING
DETAIL I4001
SCALE: NONE



NOTE:
1. REQUIRED AT ELECTRICAL EQUIPMENT

EQUIPMENT GROUNDING
GROUND PLATE IN SLAB
DETAIL E3101
SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Arizona) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/31/2024 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-004.DWG
BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

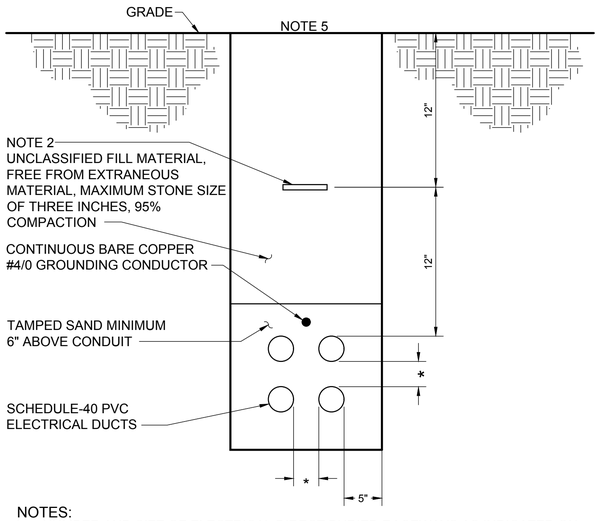
ELECTRICAL

STANDARD DETAILS 2

DRAWING NUMBER
E-004

SHEET NUMBER
44 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-004.DWG PLOT DATE: 7/29/2024 11:03 AM CAD USER: QUENTIN SMITH

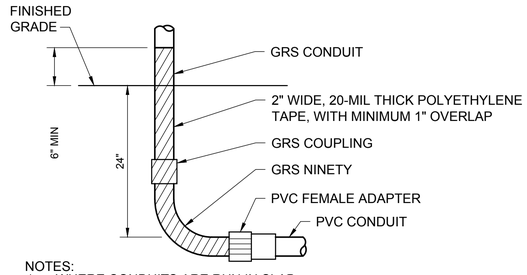


NOTES:
1. NUMBER AND SIZE OF ELECTRICAL DIRECT BURIED RACEWAYS AS INDICATED ON DRAWINGS OR SCHEDULES.
2. OSHA APPROVED 6" WIDE RED WARNING TAPE (IDEAL DU-601 OR EQUAL).
3. DIMENSIONS ARE MINIMUM.
4. BOND GROUNDING CONDUCTOR TO BUILDING GROUNDING ELECTRODES, POWER SOURCE AND LOAD ENCLOSURES.
5. REPLACE GRADING, PAVING AND CONCRETE TO MATCH EXISTING.

UNDERGROUND RACEWAYS DIRECT BURIED

DETAIL A / TYP

SCALE: NONE

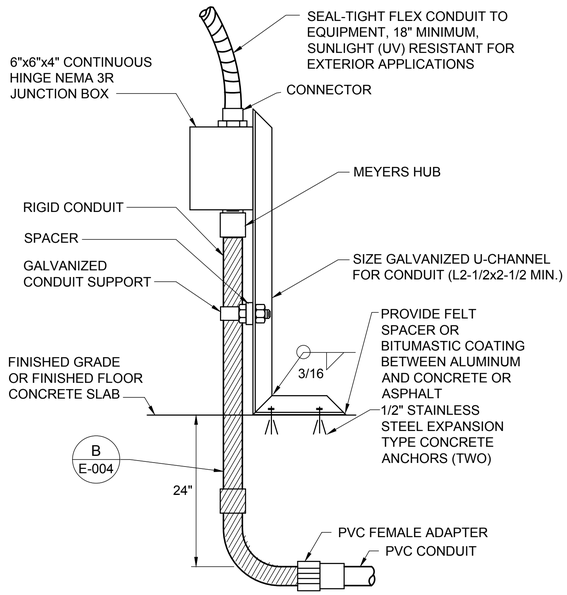


NOTES:
1. WHERE CONDUITS ARE RUN IN SLAB, THE 24" DIMENSION DOES NOT APPLY.

GRS STUB UP

DETAIL B / TYP

SCALE: NONE

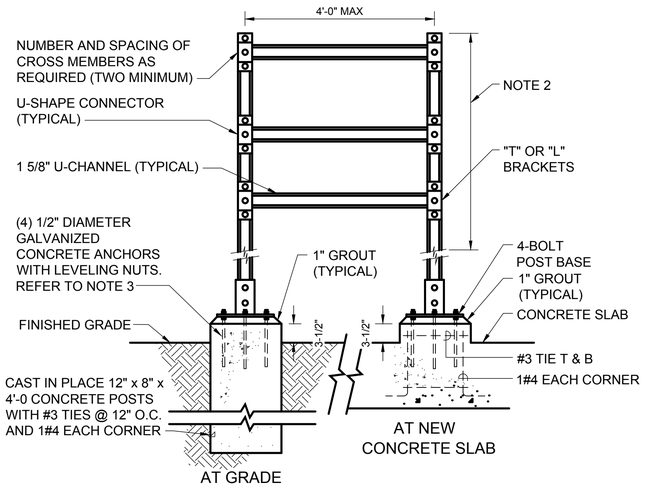


NOTES:
1. WHERE CONDUITS ARE RUN IN SLAB, THE 24" DIMENSION DOES NOT APPLY.

RIGID CONDUIT STUBUP & TRANSITION JB SUPPORT

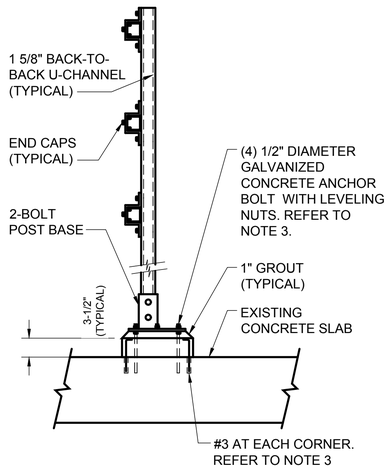
DETAIL C / TYP

SCALE: NONE



AT GRADE

AT NEW CONCRETE SLAB



AT EXISTING CONCRETE SLAB

NOTES:
1. EQUIPMENT RACK SIZING:
   A. ONE ITEM GREATER THAN 150 SQUARE INCHES.
   B. TWO EQUIPMENT ITEMS GREATER THAN 130 SQUARE INCHES.
   C. THREE OR MORE EQUIPMENT ITEMS.
   D. PROVIDE GALVANIZED CHANNEL END-CAPS, AND FITTINGS
   E. PROVIDE 1/4" MINIMUM ALUMINUM PLATE FOR SMALL ITEMS
2. MOUNT INDICATORS OR EQUIPMENT OPERATING HANDLES FOUR FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATION FOR ANCHORAGE MATERIAL AND METHOD REQUIREMENTS.
4. MATERIAL AND HARDWARE PER SPECIFICATION DIVISION 16.

EQUIPMENT RACK

DETAIL D / TYP

NONE

Brown AND Caldwell

SALT LAKE CITY, UTAH

Certified Professional Engineer / Certificate No. 36697 / KENNETH W. CHANDLER / Date Signed 09/30/2024 / ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME E-005.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

ELECTRICAL

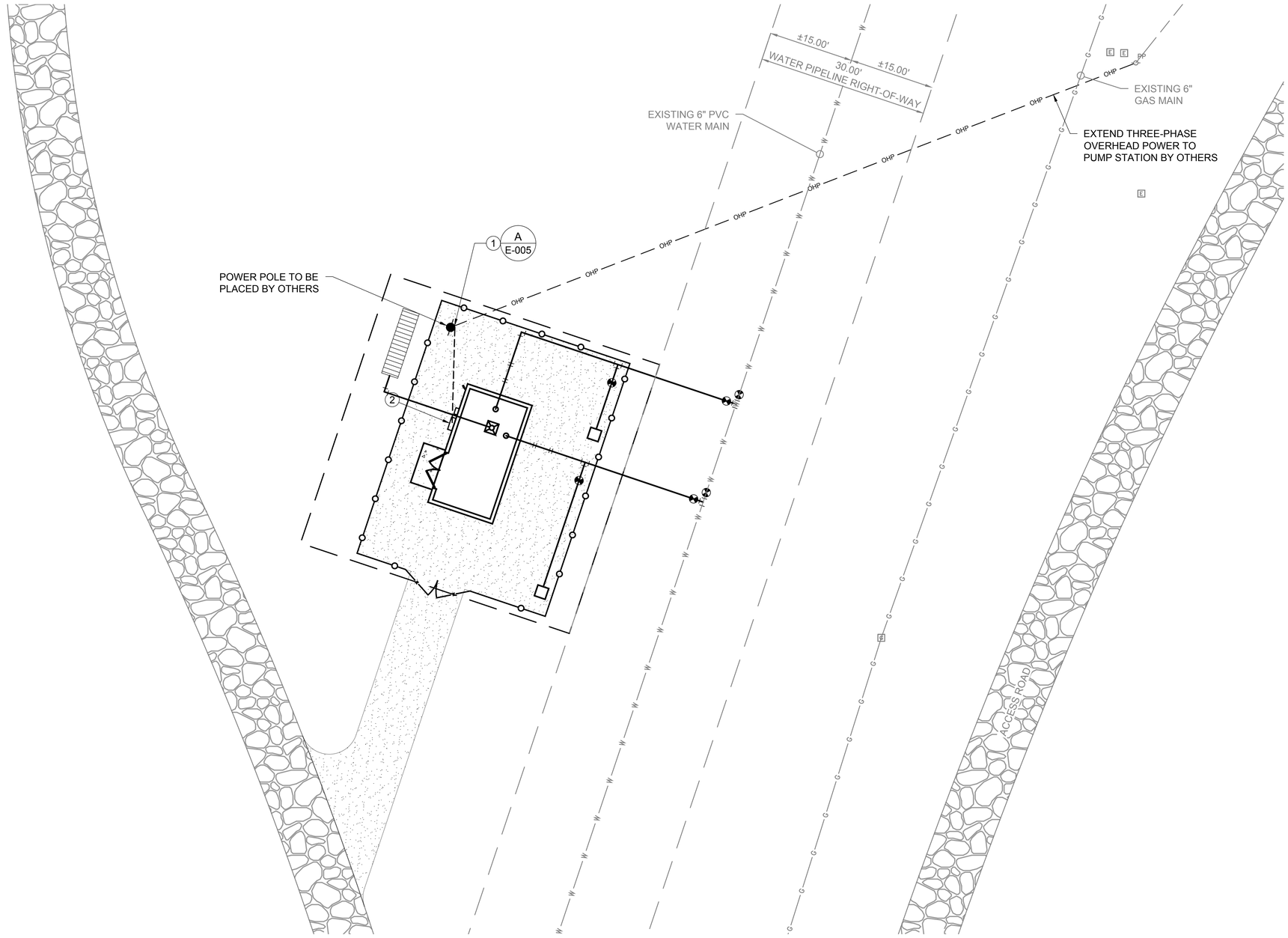
STANDARD DETAILS 3

DRAWING NUMBER

E-005

SHEET NUMBER 45 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-005.DWG PLOT DATE: 7/29/2024 11:03 AM CAD USER: QUENTIN SMITH



PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. PROVIDE ELECTRICAL, INSTRUMENTATION, AND TELEMETRY SYSTEM.
2. POWER UTILITY: ARIZONA PUBLIC SERVICE (APS). JEFF RITTER, (928) 773-6414.

KEY NOTES

1. UNDERGROUND CIRCUITS PER DRAWING E-102, POWER UTILITY REQUIREMENTS TO PREVAIL.
2. PROVIDE SERVICE ENTRANCE SECTION METER, MAIN DISCONNECT, FUSES, AND LIGHTNING ARRESTOR ON OUTSIDE OF BUILDING.

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Arizona Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/31/2024 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-100.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

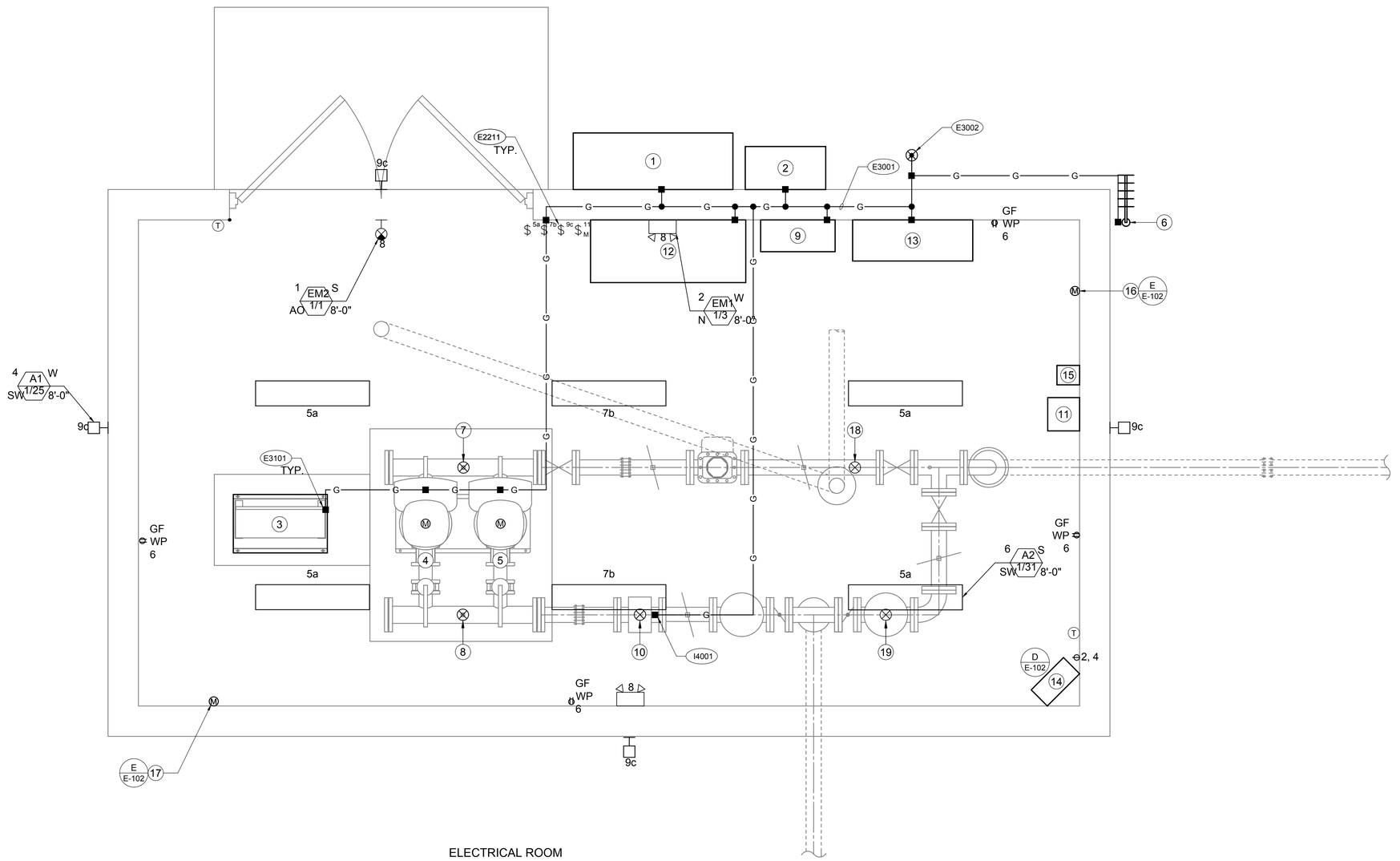
CAMERON PUMP STATION NO. 1 SITE PLAN

DRAWING NUMBER

E-100

SHEET NUMBER
46 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-100.DWG PLOT DATE: 8/21/2024 3:10 PM CAD USER: QUENTIN SMITH



ELECTRICAL ROOM
PLAN
SCALE: 3/4" = 1'-0"

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

PLAN NORTH

CAMERON PUMP STATION NO. 1

LOAD SUMMARY AT 480 VAC

LOAD DESCRIPTION	KVA	HP	480 VAC FLA
BOOSTER PUMP 1 VFD		15	21
BOOSTER PUMP 2 VFD (STANDBY)		15	
TRANSFORMER FOR PANEL-A	15		31.3
SUBTOTAL:	15	30	52.3
PLUS 25%:			5
AMPERE TOTAL:			57.5

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A1 1/25	LITHONIA WST LED - SURFACE MOUNT, RUGGED DIE-CAST ALUMINUM HOUSING, ACRYLIC LENS, HIGH-EFFECIENCY LED'S, ZERO UPLIGHT, NIGHTTIME FRIENDLY, IP65 RATED, CONSISTENT WITH LEED AND GREEN GLOBE CRITERIA FOR ELIMINATING WASTEFUL UPLIGHT, 120VAC	LITHONIA WST LED P2 3000 50K VF MVOLT DDBTXD
A2 1/31	LITHONIA FEM LED - SURFACE MOUNT, FIBERGLASS HOUSING, REPLACEABLE DIFFUSER LENS, HIGH-EFFICIENCY LED'S, 4000K TEMPERATURE STANDARD, CSA CERTIFIED TO UL AND C-UL STANDARDS, 120VAC	LITHONIA FEM L48 4000LM LPAFL MD MVOLT GZ10 40K 80CRI
EM1 1/3	LITHONIA ELM2 LED - SURFACE MOUNT, THERMOPLASTIC HOUSING, POLYCARBONATE LENS, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA ELM2 LED HO
EM2 1/1	LITHONIA LQM - SURFACE MOUNT, THERMOPLASTIC HOUSING, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA LQM S W 3 R 120/277 EL N

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 16000.
2. TESTING: SPECIFICATION 16030.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
4. CIRCUITS: DRAWING E-102.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.
6. SUBMIT ELECTRICAL EQUIPMENT LAYOUT PRIOR TO CONDUIT ROUGH-IN.

KEY NOTES

1. SERVICE ENTRANCE SECTION.
2. MAIN DISCONNECT SWITCH.
3. PUMP MANAGEMENT UNIT.
4. PUMP 1.
5. PUMP 2.
6. TELEMETRY ANTENNA ON 2" x 20'-0" PIPE. ANCHORED TO BUILDING ALIGN TO EXISTING CAMERON TANK SITE. PROVIDE ANTENNA CABLE IN CONDUIT. PROVIDE CGB FITTING AND EXPOSE LOOP OF CABLE FOR FINAL CONNECTION TO ANTENNA. MAKE PENETRATION TO BUILDING WATER TIGHT.
7. SUCTION PRESSURE TRANSDUCER.
8. DISCHARGE PRESSURE TRANSDUCER.
9. LOAD CENTER DISCONNECT SWITCH.
10. FLOW METER.
11. FLOW INDICATOR.
12. TELEMETRY PLC.
13. TRANSFORMER AND LOAD CENTER.
14. HEATER.
15. FLOW AMI UNIT.
16. FAN, DRAWING H-101.
17. MOTORIZED DAMPER.
18. FLOOD LEVEL SWITCH, MOUNT AT FLOOR LEVEL.
19. BYPASS SOLENOID VALVE.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 09/20/2024 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-101.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

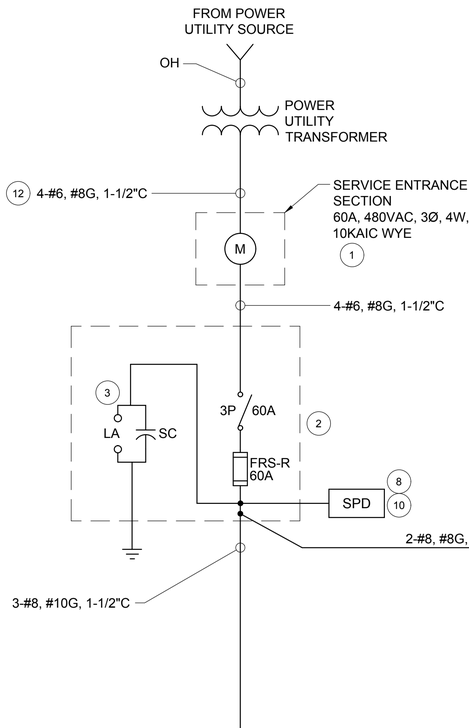
ELECTRICAL

CAMERON PUMP STATION NO. 1 PLAN

DRAWING NUMBER

E-101

SHEET NUMBER
47 OF 61



SINGLE PHASE PANEL: LOAD CENTER (LC)

VOLTAGE, PHASE, & WIRE:	120 / 240 VAC, 1 PHASE, 3 WIRE	LOCATION:	CAMERON PUMP STATION NO. 1
BUS SIZE:	100 AMPERE	ENCLOSURE:	NEMA-3R
MAIN SIZE:	70 AMPERE	MOUNTING:	WALL
MAIN TYPE:	CIRCUIT BREAKER	BUS BRACING:	22 K AIC
BREAKER TYPE:	PLUG-ON	FED FROM:	SES OUTDOORS

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD (VA) PHASE A	LOAD (VA) PHASE B	LOAD (VA) PHASE B	LOAD (VA) PHASE A	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
TELEMETRY PLC CONTROL PANEL	2-12, 12G	1/2	1	15	1	180			1800	2	30	2	2-10, 10G	3/4	PUMP ROOM HEATER
FLOW METER INDICATOR	2-12, 12G	1/2	3	15	1		180	1800				4			
PUMP STATION LIGHTING	2-12, 12G	1/2	5	15	1	116.3			720	1	15	6	2-12, 12G	1/2	PUMP STATION RECEPTACLES
PUMP STATION LIGHTING	2-12, 12G	1/2	7	15	1		116.3	7.5		1	15	8	2-12, 12G	1/2	PUMP STATION EMERGENCY LIGHTING
PUMP STATION EXTERIOR LIGHTING	2-12, 12G	1/2	9	15	1	125			1.3	1	15	10	2-12, 12G	1/2	PUMP STATION EXIT LIGHTING
EXHAUST FAN	2-12, 12G	1/2	11	15	1		900			1	15	12			SPARE
SPACE			13						10	1	15	14	2-12, 12G	1/2	FLOW AMI UNIT
SPACE			15									16			SPACE
SPACE			17							2	-	18	MFR.		SURGE PROTECTOR
SPACE			19									20			
	COLUMN	TOTALS:				421	1196	1808	2531						

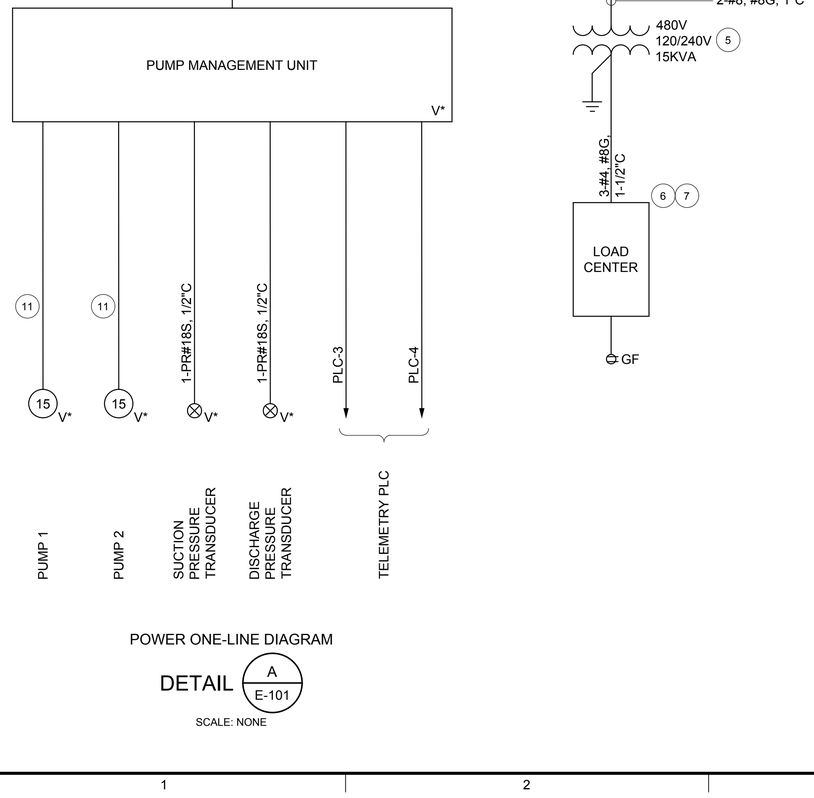
PHASE-A LOAD (VA): 2953
PHASE-B LOAD (VA): 3004

TOTAL LOAD (VA)= 5956 I (amp) 24.8

PANEL SCHEDULE

DETAIL C / -

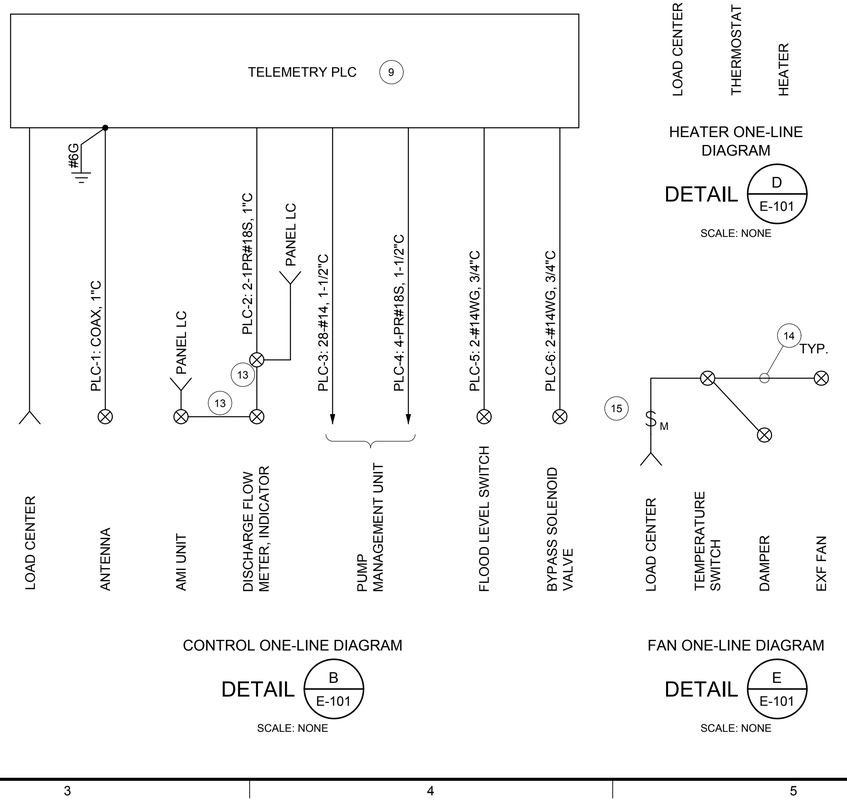
SCALE: NONE



POWER ONE-LINE DIAGRAM

DETAIL A / E-101

SCALE: NONE



CONTROL ONE-LINE DIAGRAM

DETAIL B / E-101

SCALE: NONE

HEATER ONE-LINE DIAGRAM

DETAIL D / E-101

SCALE: NONE

FAN ONE-LINE DIAGRAM

DETAIL E / E-101

SCALE: NONE

GENERAL NOTES

1. POWER UTILITY: ARIZONA PUBLIC SERVICE (APS).
2. GENERAL REQUIREMENTS: SPECIFICATION 16000.
3. TESTING: SPECIFICATION 16030.
4. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.
6. LOAD SUMMARY: DRAWING E-101.

KEY NOTES

1. SERVICE ENTRANCE METER SOCKET, NEMA 3R, EUSERC, TEST BLOCKS, SQUARE D, OR MILBANK. MAY BE COMBINED WITH DISCONNECT.
2. MAIN DISCONNECT SWITCH, HEAVY DUTY, NEMA 3R, CLASS R FUSE REJECTION KIT, SQUARE D.
3. LIGHTNING ARRESTOR, DELTA LA603.
4. LOAD CENTER DISCONNECT SWITCH, HEAVY DUTY, NEMA 3R SQUARE D MODEL QO.
5. TRANSFORMER, TOTALLY ENCLOSED/ENCAPSULATED, 115 DEGREES C RISE, ACME T-2-53517-3S.
6. LOAD CENTER, WITH GROUND BAR, NEMA 3R, SQUARE D QOI16M100RB.
7. SURGE PROTECTIVE DEVICE, BUS CONNECTED, UL 1449 TYPE 2, 22.5KA SURGE, 1 PHASE 3-WIRE, SQUARE D QO2175SB.
8. SURGE PROTECTIVE DEVICE, UL 1449 TYPE 1, 40KA SURGE, 3 PHASE 4-WIRE, SQUARE D SDSA3650.
9. PROVIDE PER NTUA - TECHNICAL PROVISIONS 4.0 FOR MOTOR CONTROL CENTER AND TANK CONTROL PANEL - PLC CONTROL PANEL, INPUT/OUTPUT WIRING FOR GRUNDFOS BOOSTER PAQ.
10. SPD. WIRE SIZE PER MANUFACTURER, 1-1/4"C.
11. CABLE PER MANUFACTURER, 1"C.
12. POWER UTILITY REQUIREMENTS FOR CONDUIT AND BURIAL PREVAIL IF DIFFERENT THAN SPECIFIED.
13. 1PR #18S, 1/2"C.
14. FAN CIRCUITS, 3-#12, #12G, 1/2"C.
15. MANUAL STARTER: SPECIFICATION 16000.
16. CABLE PER MANUFACTURER, 3/4"C.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Professional Engineer CERTIFICATE NO. Electrical
36697
KENNETH W. CHANDLER
Date Signed 09/30/2024
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	
FILENAME	E-102.DWG
BC PROJECT NUMBER	150360
CLIENT PROJECT NUMBER	C010232

ELECTRICAL

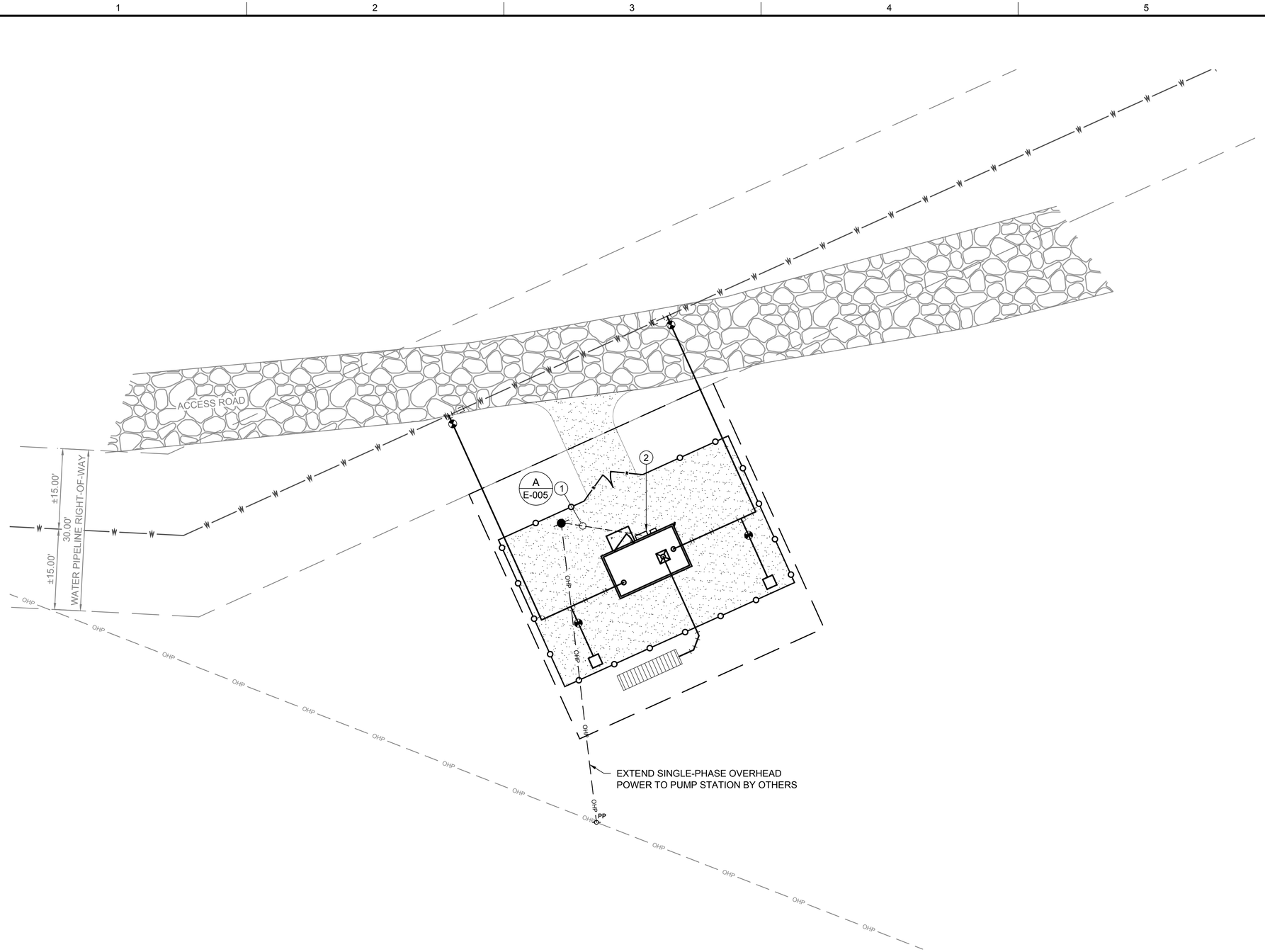
CAMERON PUMP STATION NO. 1 ONE-LINE DIAGRAM

DRAWING NUMBER

E-102

SHEET NUMBER

48 OF 61



GENERAL NOTES

1. PROVIDE ELECTRICAL, INSTRUMENTATION, AND TELEMETRY SYSTEM.
2. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY (NTUA), (928) 729-5721.

KEY NOTES

(1) UNDERGROUND CIRCUITS PER DRAWING E-112, POWER UTILITY REQUIREMENTS TO PREVAIL.

(2) PROVIDE SERVICE ENTRANCE SECTION METER, MAIN DISCONNECT, FUSES, AND LIGHTNING ARRESTOR ON OUTSIDE OF BUILDING.

Call at least two full working days before you begin excavation.

ARIZONA 811
Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
36697
KENNETH W. CHANDLER
Date Signed 09/30/2024
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-110.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

CAMERON PUMP STATION NO. 2 SITE PLAN

DRAWING NUMBER

E-110

SHEET NUMBER
49 OF 61

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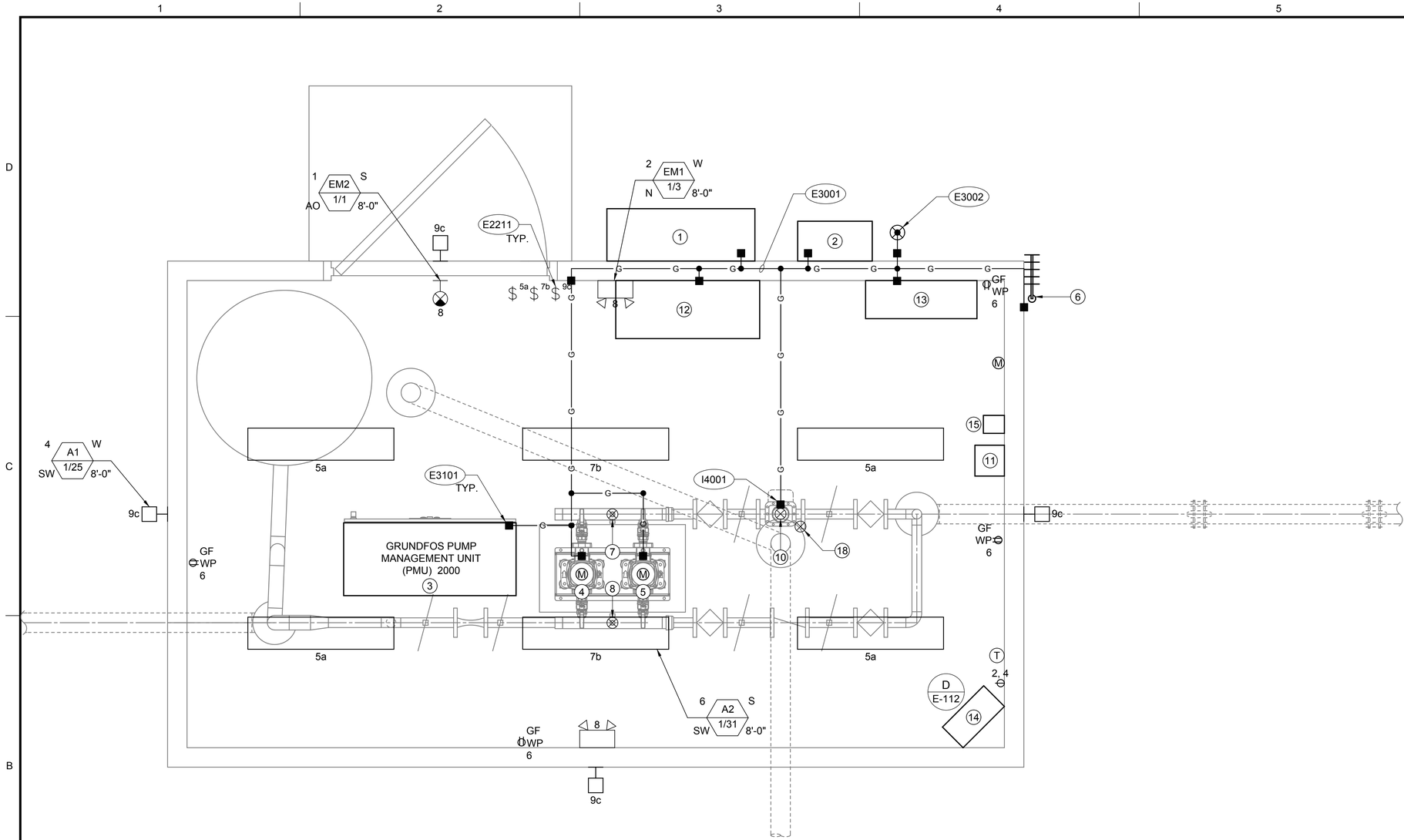

ELECTRICAL ROOM
PLAN
SCALE: 1" = 1'-0"

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

PLAN NORTH

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A1 1/25	LITHONIA WST LED - SURFACE MOUNT, RUGGED DIE-CAST ALUMINUM HOUSING, ACRYLIC LENS, HIGH-EFFECIENCY LED'S, ZERO UPLIGHT, NIGHTTIME FRIENDLY, IP65 RATED, CONSISTENT WITH LEED AND GREEN GLOBE CRITERIA FOR ELIMINATING WASTEFUL UPLIGHT, 120VAC	LITHONIA WST LED P2 3000 50K VF MVOLT DDBTXD
A2 1/31	LITHONIA FEM LED - SURFACE MOUNT, FIBERGLASS HOUSING, REPLACEABLE DIFFUSER LENS, HIGH-EFFICIENCY LED'S, 4000K TEMPERATURE STANDARD, CSA CERTIFIED TO UL AND C-UL STANDARDS, 120VAC	LITHONIA FEM L48 4000LM LPAFL MD MVOLT GZ10 40K 80CRI
EM1 1/3	LITHONIA ELM2 LED - SURFACE MOUNT, THERMOPLASTIC HOUSING, POLYCARBONATE LENS, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA ELM2 LED HO
EM2 1/1	LITHONIA LQM - SURFACE MOUNT, THERMOPLASTIC HOUSING, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA LQM S W 3 R 120/277 EL N

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 16000.
2. TESTING: SPECIFICATION 16030.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
4. CIRCUITS: DRAWING E-112.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.
6. SUBMIT ELECTRICAL EQUIPMENT LAYOUT PRIOR TO CONDUIT ROUGH-IN.

KEY NOTES

1. SERVICE ENTRANCE SECTION.
2. MAIN DISCONNECT SWITCH.
3. PUMP MANAGEMENT UNIT.
4. PUMP 1.
5. PUMP 2.
6. TELEMETRY ANTENNA ON 2" x 20'-0" PIPE. ANCHORED TO BUILDING ALIGN TO BODAWAY-GAP ELECTRICAL SUBSTATION SITE. PROVIDE ANTENNA CABLE IN CONDUIT. PROVIDE CGB FITTING AND EXPOSE LOOP OF CABLE FOR FINAL CONNECTION TO ANTENNA. MAKE PENETRATION TO BUILDING WATER TIGHT.
7. SUCTION PRESSURE TRANSDUCER.
8. DISCHARGE PRESSURE TRANSDUCER.
9. NOT USED.
10. FLOW METER.
11. FLOW INDICATOR.
12. TELEMETRY PLC.
13. LOAD CENTER.
14. HEATER.
15. FLOW AMI UNIT.
16. FAN, DRAWING H-101.
17. MOTORIZED DAMPER.
18. FLOOD LEVEL SWITCH, MOUNT AT FLOOR LEVEL.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/21/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME E-111.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

CAMERON PUMP STATION NO. 2 PLAN

DRAWING NUMBER
E-111

SHEET NUMBER
50 OF 61

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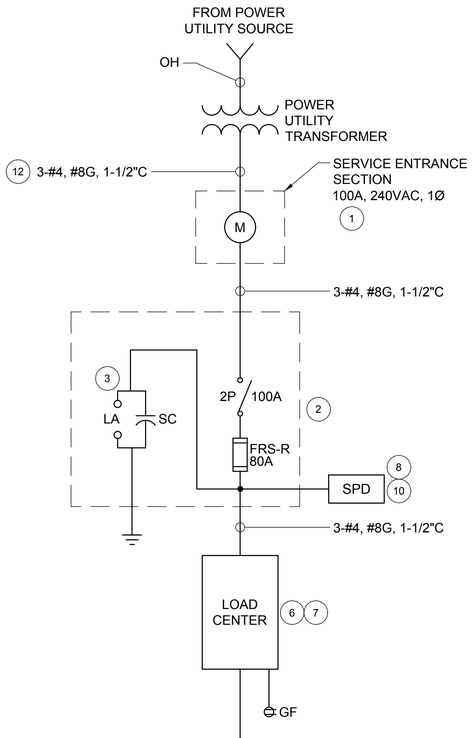


POWER ONE-LINE DIAGRAM

DETAIL A / E-111

SCALE: NONE

SINGLE PHASE PANEL: LOAD CENTER (LC) / LOAD SUMMARY

VOLTAGE, PHASE, & WIRE:	120 / 240 VAC, 1 PHASE, 3 WIRE	LOCATION:	CAMERON PUMP STATION NO. 2
BUS SIZE:	100 AMPERE	ENCLOSURE:	NEMA-3R
MAIN SIZE:	70 AMPERE	MOUNTING:	WALL
MAIN TYPE:	CIRCUIT BREAKER	BUS BRACING:	22 K AIC
BREAKER TYPE:	PLUG-ON	FED FROM:	SES OUTDOORS

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD (VA) PHASE A	LOAD (VA) PHASE B	LOAD (VA) PHASE B	LOAD (VA) PHASE A	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
TELEMETRY PLC CONTROL PANEL	2-12, 12G	1/2	1	15	1	180			1800	2	30	2	2-10, 10G	3/4	PUMP ROOM HEATER
FLOW METER INDICATOR	2-12, 12G	1/2	3	15	1		180	1800				4			
PUMP STATION LIGHTING	2-12, 12G	1/2	5	15	1	116.3			720	1	15	6	2-12, 12G	1/2	PUMP STATION RECEPTACLES
PUMP STATION LIGHTING	2-12, 12G	1/2	7	15	1		116.3	7.5		1	15	8	2-12, 12G	1/2	PUMP STATION EMERGENCY LIGHTING
PUMP STATION EXTERIOR LIGHTING	2-12, 12G	1/2	9	15	1	125			1.3	1	15	10	2-12, 12G	1/2	PUMP STATION EXIT LIGHTING
SPARE			11	15	1					1	15	12			SPARE
PUMP MANAGEMENT UNIT	2-12, 12G	1/2	13	15	2	1200			10	1	15	14	2-12, 12G	1/2	FLOW AMI UNIT
			15				1200			-	-	16			SPACE
SPACE			17							2	-	18	MFR.		SURGE PROTECTOR
SPACE			19									20			
	COLUMN	TOTALS:				1621	1496	1808	2531						

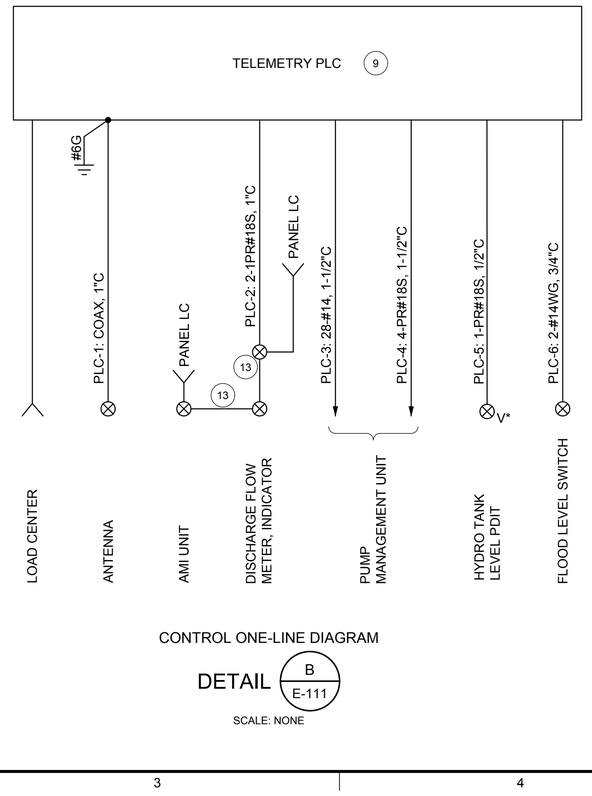
PHASE-A LOAD (VA): 4153
PHASE-B LOAD (VA): 3304

TOTAL LOAD (VA)= 7456 I (amp) 31.1

PANEL SCHEDULE

DETAIL C / -

SCALE: NONE



CONTROL ONE-LINE DIAGRAM

DETAIL B / E-111

SCALE: NONE

HEATER ONE-LINE DIAGRAM

DETAIL D / E-111

SCALE: NONE

GENERAL NOTES

1. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY.
2. GENERAL REQUIREMENTS: SPECIFICATION 16000.
3. TESTING: SPECIFICATION 16030.
4. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.

KEY NOTES

(1) SERVICE ENTRANCE METER SOCKET, NEMA 3R, EUSERC, TEST BLOCKS, SQUARE D OR MILBANK. MAY BE COMBINED WITH DISCONNECT.

(2) MAIN DISCONNECT SWITCH, HEAVY DUTY, NEMA 3R, CLASS R FUSE REJECTION KIT, SQUARE D.

(3) LIGHTNING ARRESTOR, DELTA LA603.

(4) NOT USED.

(5) NOT USED.

(6) LOAD CENTER, WITH GROUND BAR, NEMA 3R, SQUARE D QOI16M100RB.

(7) SURGE PROTECTIVE DEVICE, BUS CONNECTED, UL 1449 TYPE 2, 22.5KA SURGE, 1 PHASE 3-WIRE, SQUARE D QO2175SB.

(8) SURGE PROTECTIVE DEVICE, UL 1449 TYPE 1, 40KA SURGE, 3 PHASE 4-WIRE, SQUARE D SDSA3650.

(9) PROVIDE PER NTUA - TECHNICAL PROVISIONS 4.0 FOR MOTOR CONTROL CENTER AND TANK CONTROL PANEL - PLC CONTROL PANEL, INPUT/OUTPUT WIRING FOR GRUNDFOS BOOSTER PAQ.

(10) SPD. WIRE SIZE PER MANUFACTURER, 1-1/4"C.

(11) CABLE PER MANUFACTURER, 1"C.

(12) POWER UTILITY REQUIREMENTS FOR CONDUIT AND BURIAL PREVAIL IF DIFFERENT THAN SPECIFIED.

(13) 1PR #18S, 1/2"C.

(14) CABLE PER MANUFACTURER, 3/4"C.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Certified) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/21/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME E-112.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

ELECTRICAL

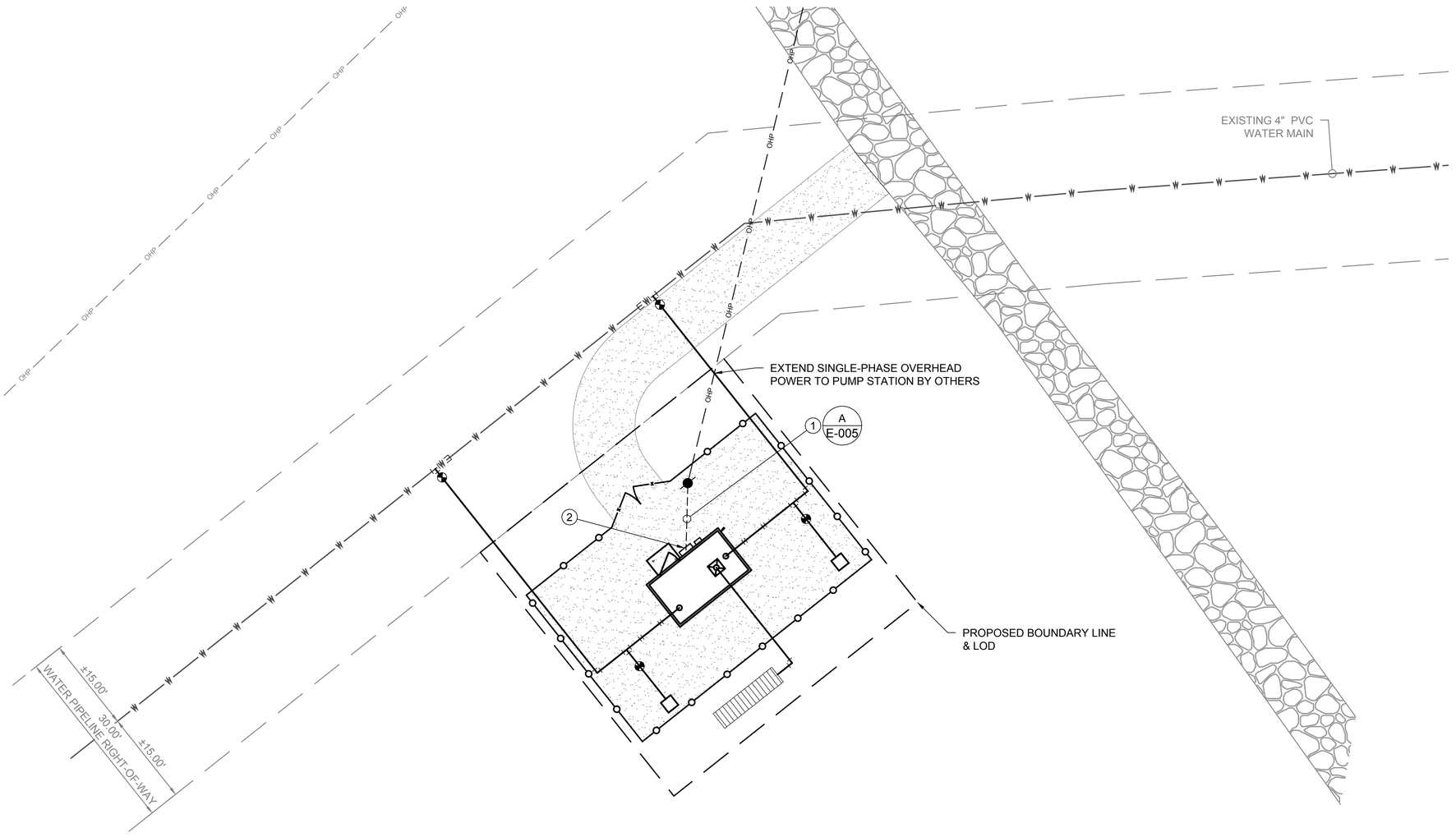
CAMERON PUMP STATION NO. 2 ONE-LINE DIAGRAM

DRAWING NUMBER

E-112

SHEET NUMBER 51 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-112.DWG PLOT DATE: 8/21/2024 2:54 PM CAD USER: QUENTIN SMITH



PLAN

0 10 20

SCALE IN FEET

PLAN NORTH

GENERAL NOTES

1. PROVIDE ELECTRICAL, INSTRUMENTATION, AND TELEMETRY SYSTEM.
2. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY (NTUA), (928) 729-5721.

KEY NOTES

1. UNDERGROUND CIRCUITS PER DRAWING E-122, POWER UTILITY REQUIREMENTS TO PREVAIL.
2. PROVIDE SERVICE ENTRANCE SECTION METER, MAIN DISCONNECT, FUSES, AND LIGHTNING ARRESTOR ON OUTSIDE OF BUILDING.

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/31/2024 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	QAS
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-120.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

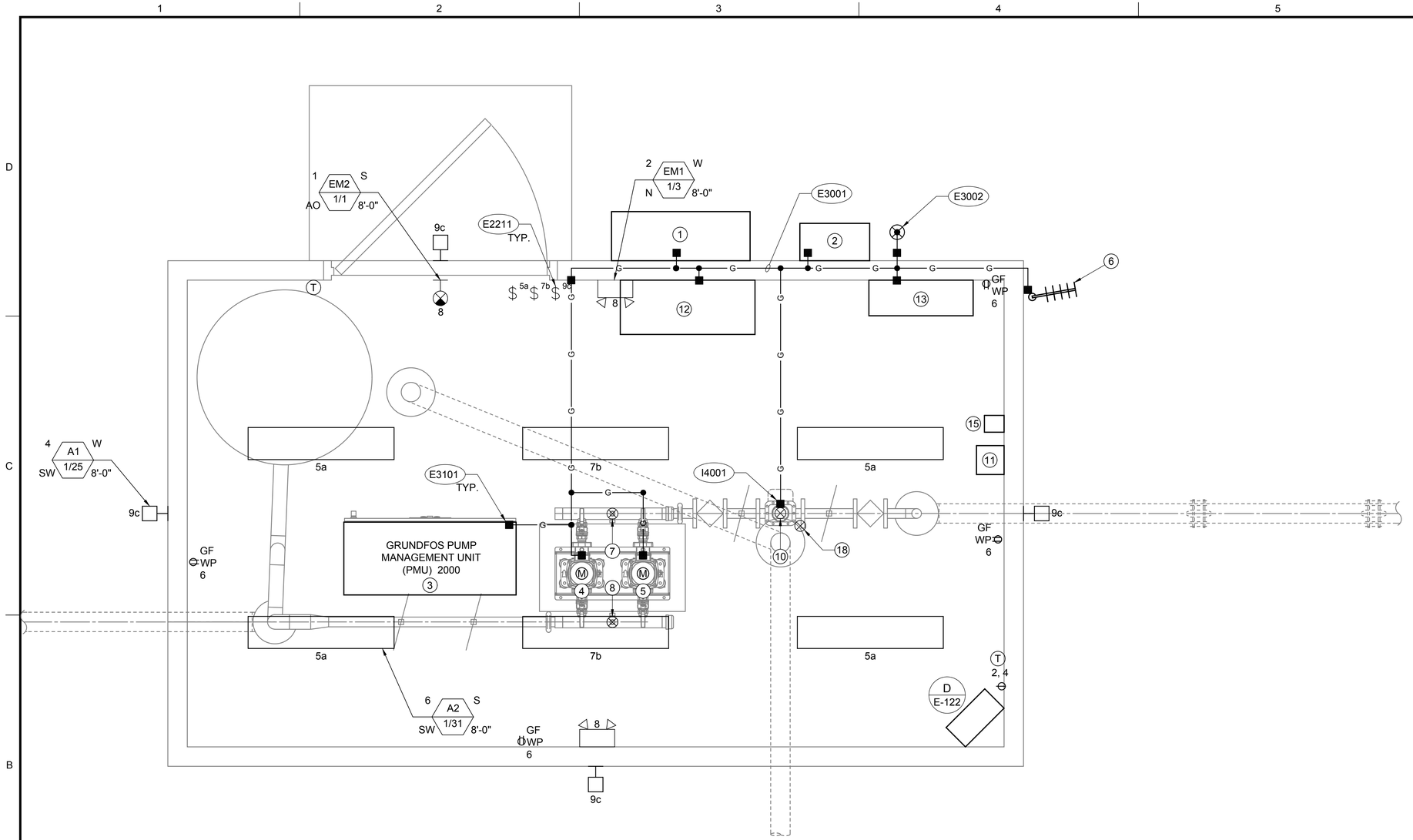
CAMERON PUMP STATION NO. 3 SITE PLAN

DRAWING NUMBER

E-120

SHEET NUMBER
52 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-120.DWG PLOT DATE: 7/29/2024 11:03 AM CAD USER: QUENTIN SMITH



ELECTRICAL ROOM
PLAN
SCALE: 1" = 1'-0"

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

PLAN NORTH

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A1 1/25	LITHONIA WST LED - SURFACE MOUNT, RUGGED DIE-CAST ALUMINUM HOUSING, ACRYLIC LENS, HIGH-EFFECIENCY LED'S, ZERO UPLIGHT, NIGHTTIME FRIENDLY, IP65 RATED, CONSISTENT WITH LEED AND GREEN GLOBE CRITERIA FOR ELIMINATING WASTEFUL UPLIGHT, 120VAC	LITHONIA WST LED P2 3000 50K VF MVOLT DDBTXD
A2 1/31	LITHONIA FEM LED - SURFACE MOUNT, FIBERGLASS HOUSING, REPLACEABLE DIFFUSER LENS, HIGH-EFFICIENCY LED'S, 4000K TEMPERATURE STANDARD, CSA CERTIFIED TO UL AND C-UL STANDARDS, 120VAC	LITHONIA FEM L48 4000LM LPAFL MD MVOLT GZ10 40K 80CRI
EM1 1/3	LITHONIA ELM2 LED - SURFACE MOUNT, THERMOPLASTIC HOUSING, POLYCARBONATE LENS, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA ELM2 LED HO
EM2 1/1	LITHONIA LQM - SURFACE MOUNT, THERMOPLASTIC HOUSING, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA LQM S W 3 R 120/277 EL N

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 16000.
2. TESTING: SPECIFICATION 16030.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
4. CIRCUITS: DRAWING E-122.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.
6. SUBMIT ELECTRICAL EQUIPMENT LAYOUT PRIOR TO CONDUIT ROUGH-IN.

KEY NOTES

1. SERVICE ENTRANCE SECTION.
2. MAIN DISCONNECT SWITCH.
3. PUMP MANAGEMENT UNIT.
4. PUMP 1.
5. PUMP 2.
6. TELEMETRY ANTENNA ON 2" x 20'-0" PIPE. ANCHORED TO BUILDING ALIGN TO BODAWAY-GAP ELECTRICAL SUBSTATION SITE. PROVIDE ANTENNA CABLE IN CONDUIT. PROVIDE CGB FITTING AND EXPOSE LOOP OF CABLE FOR FINAL CONNECTION TO ANTENNA. MAKE PENETRATION TO BUILDING WATER TIGHT.
7. SUCTION PRESSURE TRANSDUCER.
8. DISCHARGE PRESSURE TRANSDUCER.
9. NOT USED.
10. FLOW METER.
11. FLOW INDICATOR.
12. TELEMETRY PLC.
13. LOAD CENTER.
14. HEATER.
15. FLOW AMI UNIT.
16. FAN, DRAWING H-101.
17. MOTORIZED DAMPER.
18. FLOOD LEVEL SWITCH, MOUNT AT FLOOR LEVEL.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/21/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: KWC
DRAWN: QAS
CHECKED: HWP
CHECKED:
APPROVED:

FILENAME E-121.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

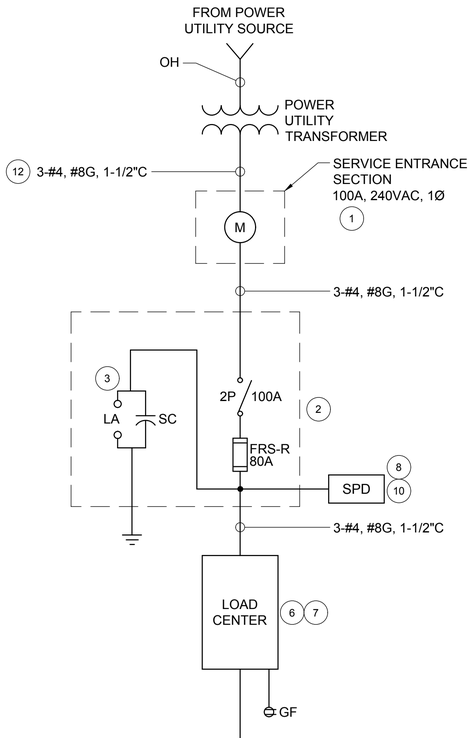
ELECTRICAL

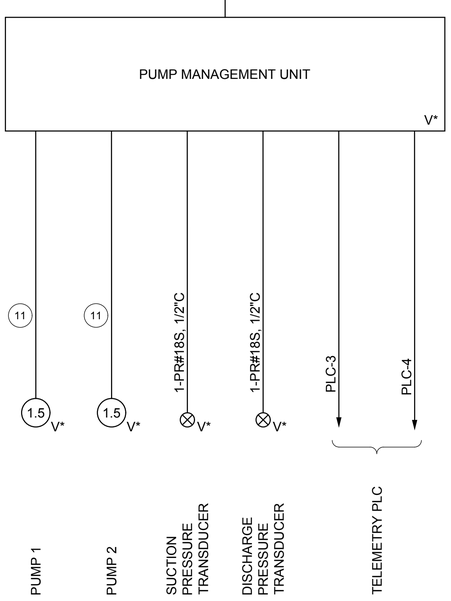
CAMERON PUMP STATION NO. 3 PLAN

DRAWING NUMBER
E-121

SHEET NUMBER
53 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-121.DWG PLOT DATE: 8/21/2024 2:54 PM CAD USER: QUENTIN SMITH





POWER ONE-LINE DIAGRAM

DETAIL A / E-121

SCALE: NONE

SINGLE PHASE PANEL: LOAD CENTER (LC) / LOAD SUMMARY

VOLTAGE, PHASE, & WIRE:	120 / 240 VAC, 1 PHASE, 3 WIRE	LOCATION:	CAMERON PUMP STATION NO. 3
BUS SIZE:	100 AMPERE	ENCLOSURE:	NEMA-3R
MAIN SIZE:	70 AMPERE	MOUNTING:	WALL
MAIN TYPE:	CIRCUIT BREAKER	BUS BRACING:	22 K AIC
BREAKER TYPE:	PLUG-ON	FED FROM:	SES OUTDOORS

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD (VA) PHASE A	LOAD (VA) PHASE B	LOAD (VA) PHASE B	LOAD (VA) PHASE A	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
TELEMETRY PLC CONTROL PANEL	2-12, 12G	1/2	1	15	1	180			1800	2	30	2	2-10, 10G	3/4	PUMP ROOM HEATER
FLOW METER INDICATOR	2-12, 12G	1/2	3	15	1		180	1800				4			
PUMP STATION LIGHTING	2-12, 12G	1/2	5	15	1	116.3			720	1	15	6	2-12, 12G	1/2	PUMP STATION RECEPTACLES
PUMP STATION LIGHTING	2-12, 12G	1/2	7	15	1		116.3	7.5		1	15	8	2-12, 12G	1/2	PUMP STATION EMERGENCY LIGHTING
PUMP STATION EXTERIOR LIGHTING	2-12, 12G	1/2	9	15	1	125			1.3	1	15	10	2-12, 12G	1/2	PUMP STATION EXIT LIGHTING
SPARE			11	15	1					1	15	12			SPARE
PUMP MANAGEMENT UNIT	2-12, 12G	1/2	13	15	2	1200			10	1	15	14	2-12, 12G	1/2	FLOW AMI UNIT
			15				1200					16			SPACE
SPACE			17							2	-	18	MFR.		SURGE PROTECTOR
SPACE			19									20			
	COLUMN	TOTALS:				1621	1496	1808	2531						

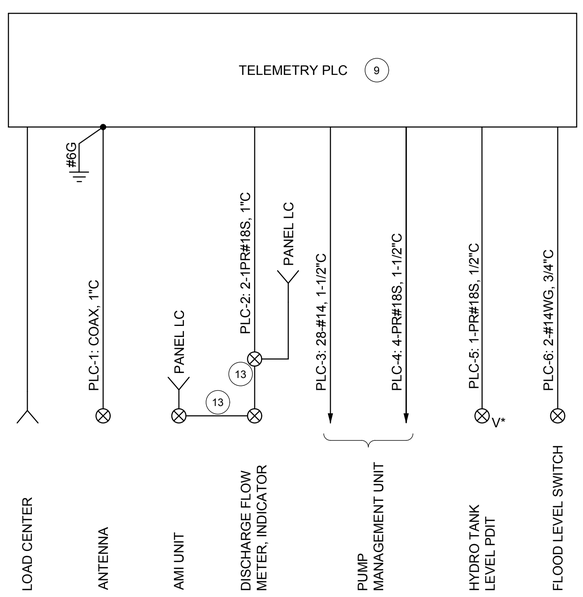
PHASE-A LOAD (VA): 4153
PHASE-B LOAD (VA): 3304

TOTAL LOAD (VA)= 7456 I (amp) 31.1

PANEL SCHEDULE

DETAIL C / -

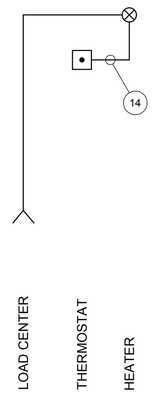
SCALE: NONE



CONTROL ONE-LINE DIAGRAM

DETAIL B / E-121

SCALE: NONE



HEATER ONE-LINE DIAGRAM

DETAIL D / E-121

SCALE: NONE

GENERAL NOTES

1. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY.
2. GENERAL REQUIREMENTS: SPECIFICATION 16000.
3. TESTING: SPECIFICATION 16030.
4. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 16431.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.

KEY NOTES

(1) SERVICE ENTRANCE METER SOCKET, NEMA 3R, EUSERC, TEST BLOCKS, SQUARE D OR MILBANK. MAY BE COMBINED WITH DISCONNECT.

(2) MAIN DISCONNECT SWITCH, HEAVY DUTY, NEMA 3R, CLASS R FUSE REJECTION KIT, SQUARE D.

(3) LIGHTNING ARRESTOR, DELTA LA603.

(4) NOT USED.

(5) NOT USED.

(6) LOAD CENTER, WITH GROUND BAR, NEMA 3R, SQUARE D QOI16M100RB.

(7) SURGE PROTECTIVE DEVICE, BUS CONNECTED, UL 1449 TYPE 2, 22.5KA SURGE, 1 PHASE 3-WIRE, SQUARE D QO2175SB.

(8) SURGE PROTECTIVE DEVICE, UL 1449 TYPE 1, 40KA SURGE, 3 PHASE 4-WIRE, SQUARE D SDSA3650.

(9) PROVIDE PER NTUA - TECHNICAL PROVISIONS 4.0 FOR MOTOR CONTROL CENTER AND TANK CONTROL PANEL - PLC CONTROL PANEL, INPUT/OUTPUT WIRING FOR GRUNDFOS BOOSTER PAQ.

(10) SPD. WIRE SIZE PER MANUFACTURER, 1-1/4"C.

(11) CABLE PER MANUFACTURER, 1"C.

(12) POWER UTILITY REQUIREMENTS FOR CONDUIT AND BURIAL PREVAIL IF DIFFERENT THAN SPECIFIED.

(13) 1PR #18S, 1/2"C.

(14) CABLE PER MANUFACTURER, 3/4"C.

Brown AND Caldwell

SALT LAKE CITY, UTAH

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME E-122.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

ELECTRICAL

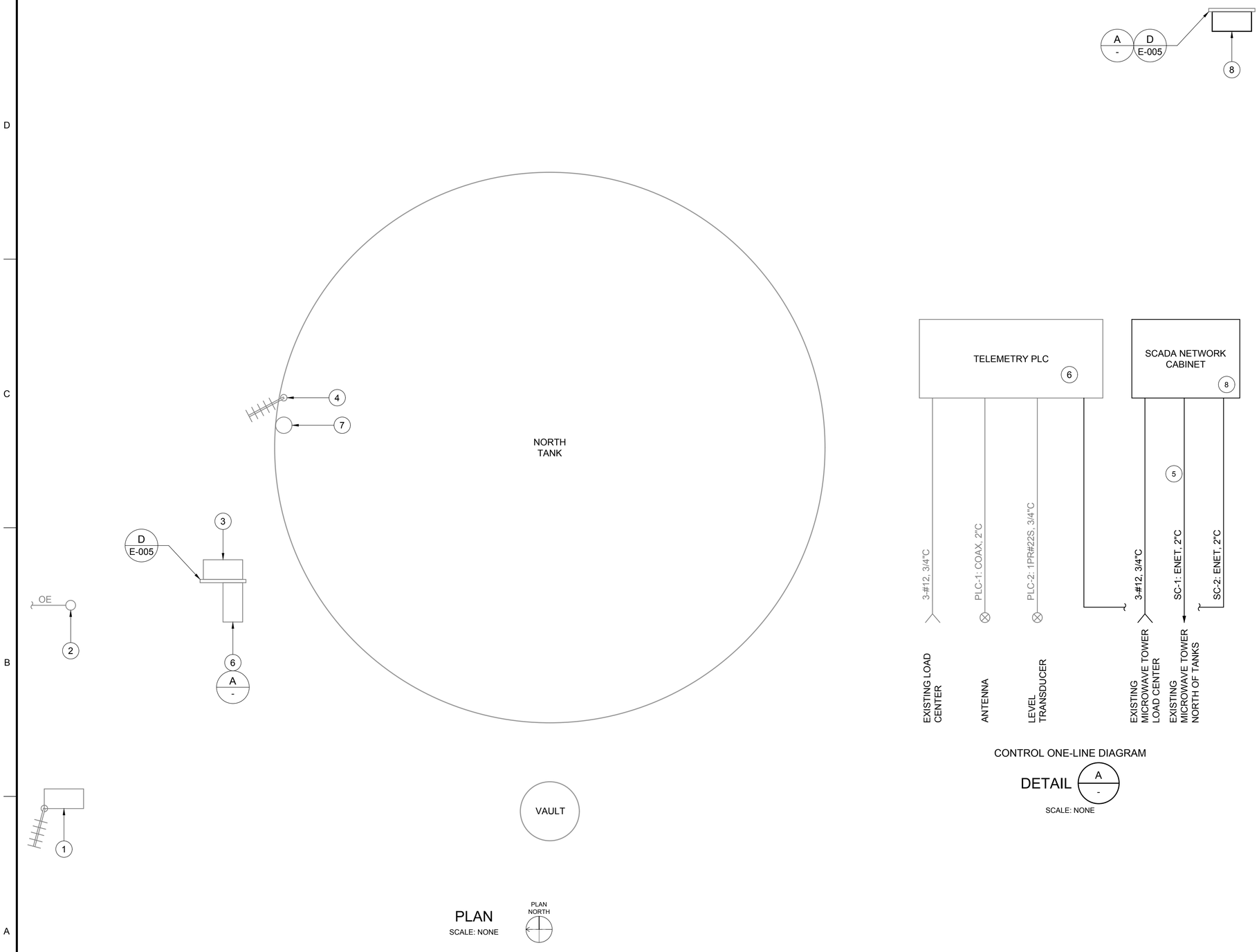
CAMERON PUMP STATION NO. 3 ONE-LINE DIAGRAM

DRAWING NUMBER

E-122

SHEET NUMBER 54 OF 61

Path: C:\BCPW\D1020438 FILENAME: E-122.DWG PLOT DATE: 8/21/2024 2:54 PM CAD USER: QUENTIN SMITH



PLAN
SCALE: NONE

PLAN NORTH

CONTROL ONE-LINE DIAGRAM

DETAIL A -

SCALE: NONE

GENERAL NOTES

1. PROVIDE SCADA NETWORK EQUIPMENT, AND ASSOCIATED ELECTRICAL.
2. GENERAL REQUIREMENTS: SPECIFICATION 16000.
3. TESTING: SPECIFICATION 16030.
4. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.
5. SOUTH CAMERON TANK IS NOT SHOWN.

KEY NOTES

1. ABANDON IN-PLACE ENCLOSURE WITH OBSOLETE REGIONAL SCADA RTU.
2. EXISTING POWER UTILITY METER ON POLE AND 120VAC LOAD CENTER.
3. EXISTING TELEMETRY PLC FOR EXISTING WELLS 1 AND 2.
4. EXISTING REGIONAL TELEMETRY ANTENNA FOR WELLS 1 AND 2.
5. FINAL CONNECTION BY OTHERS.
6. EXISTING TELEMETRY PLC FOR PRV #6 (SEE DRAWING C-180) AND PUMP STATION NO. 1 COMMUNICATIONS.
7. EXISTING OMNI ANTENNA FOR PRV #6 AND PUMP STATION NO. 1.
8. PROVIDE SCADA NETWORK CABINET ADJACENT TO EXISTING MICROWAVE TOWER EQUIPMENT, PER SPECIFICATION 17110. CONCRETE PAD PER STRUCTURAL DRAWINGS. CONNECT CABINET TO EXISTING GROUND SYSTEM.

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer (Electrical) CERTIFICATE NO. 36697 KENNETH W. CHANDLER Date Signed 08/21/2024 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
E-130.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

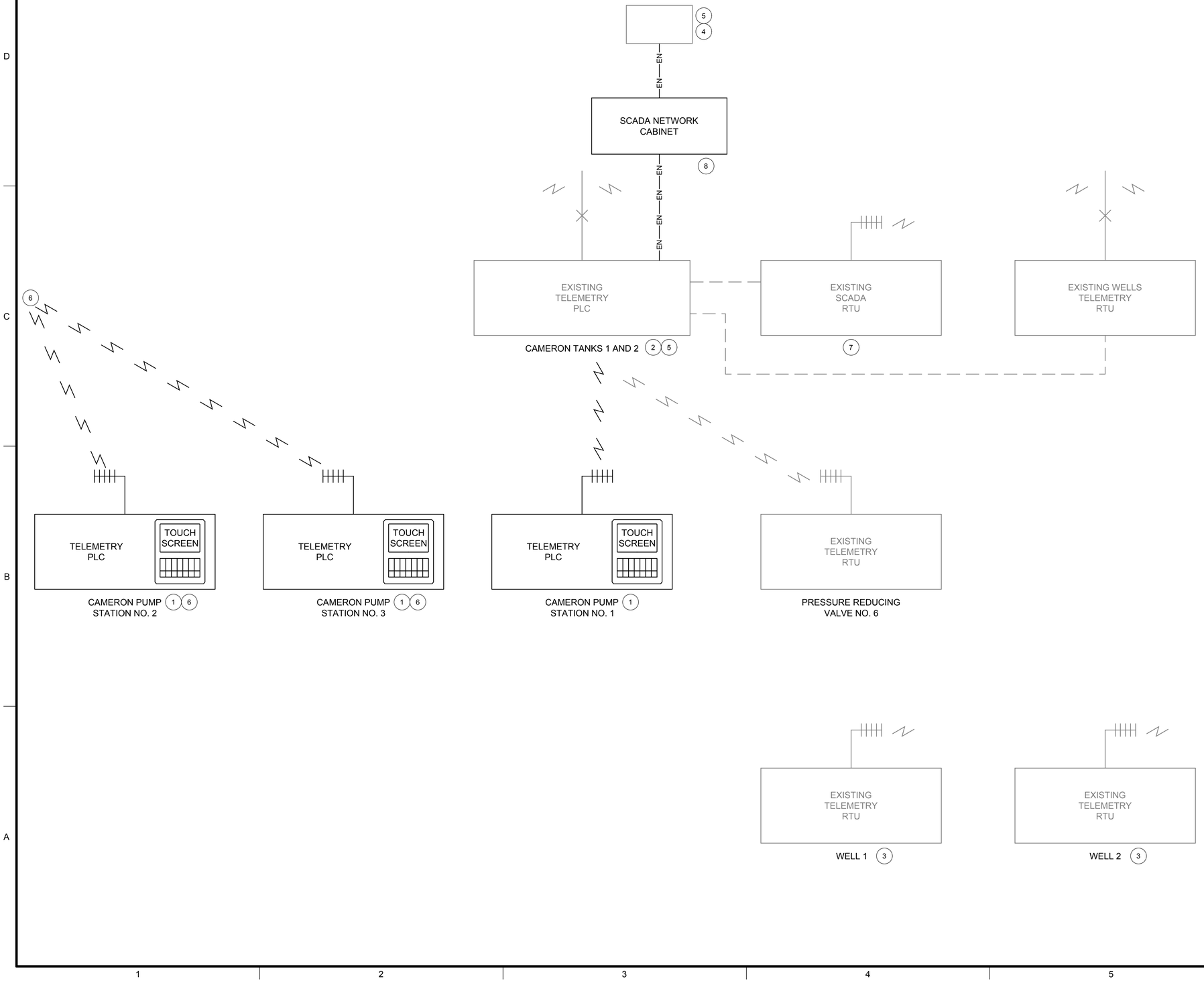
ELECTRICAL

EXISTING CAMERON TANKS SITE PLAN AND ONE-LINE DIAGRAM

DRAWING NUMBER

E-130

SHEET NUMBER
55 OF 61



GENERAL NOTES

1. THE EXISTING BODAWAY-GAP TANK (NOT SHOWN) PROVIDES WATER FOR THE CAMERON WATER SYSTEM. THE EXISTING CAMERON WELLS 1 AND 2 WATER QUALITY EXCEEDS TOC LIMITS, TELEMETRY IS OBSOLETE, AND ARE ONLY USED FOR EMERGENCIES.
2. PROVIDE CAMERON PUMP STATION NO. 1. FILLS EXISTING CAMERON TANKS 1 AND 2 TO MAINTAIN LEVEL BETWEEN 18.4 AND 22.5 FEET.
3. PROVIDE CAMERON PUMP STATION NO. 2. OPERATES TO MAINTAIN DISCHARGE PRESSURE BETWEEN 120 AND 124.5 PSIG FOR THE NEIGHBORHOOD.
4. PROVIDE CAMERON PUMP STATION NO. 3. OPERATES TO MAINTAIN DISCHARGE PRESSURE BETWEEN 62 AND 70 PSIG FOR THE NEIGHBORHOOD.
5. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01014 AND 17900.

KEY NOTES

1. PUMP STATION AND TELEMETRY.
2. NTUA TO PROVIDE CAMERON TANK TELEMETRY PROGRAM TO RELAY SIGNALS SO CAMERON PUMP STATION NO. 1 OPERATES TO MAINTAIN TANK LEVEL.
3. EXISTING WELL.
4. EXISTING SCADA MICROWAVE EQUIPMENT.
5. SCADA CONNECTION TO MICROWAVE EQUIPMENT BY NTUA.
6. CAMERON PUMP STATION NO. 2 AND PUMP STATION NO. 3 COMMUNICATE WITH BODAWAY-GAP ELECTRICAL SUBSTATION PLC FOR SCADA FORWARDING TO THE BODAWAY-GAP TANK. SEE BODAWAY-GAP PROJECT DRAWING I-001.
7. EXISTING SCADA RTU WILL BE REMOVED BY NTUA.
8. SCADA NETWORK CABINET, SPECIFICATION 17110-2.10.

Brown AND Caldwell

SALT LAKE CITY, UTAH

Registered Professional Engineer CERTIFICATE NO. 35940 KENNETH W. CHANDLER Date Signed 08/31/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	KWC
DRAWN:	CJR
CHECKED:	HWP
CHECKED:	
APPROVED:	

FILENAME
I-001.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

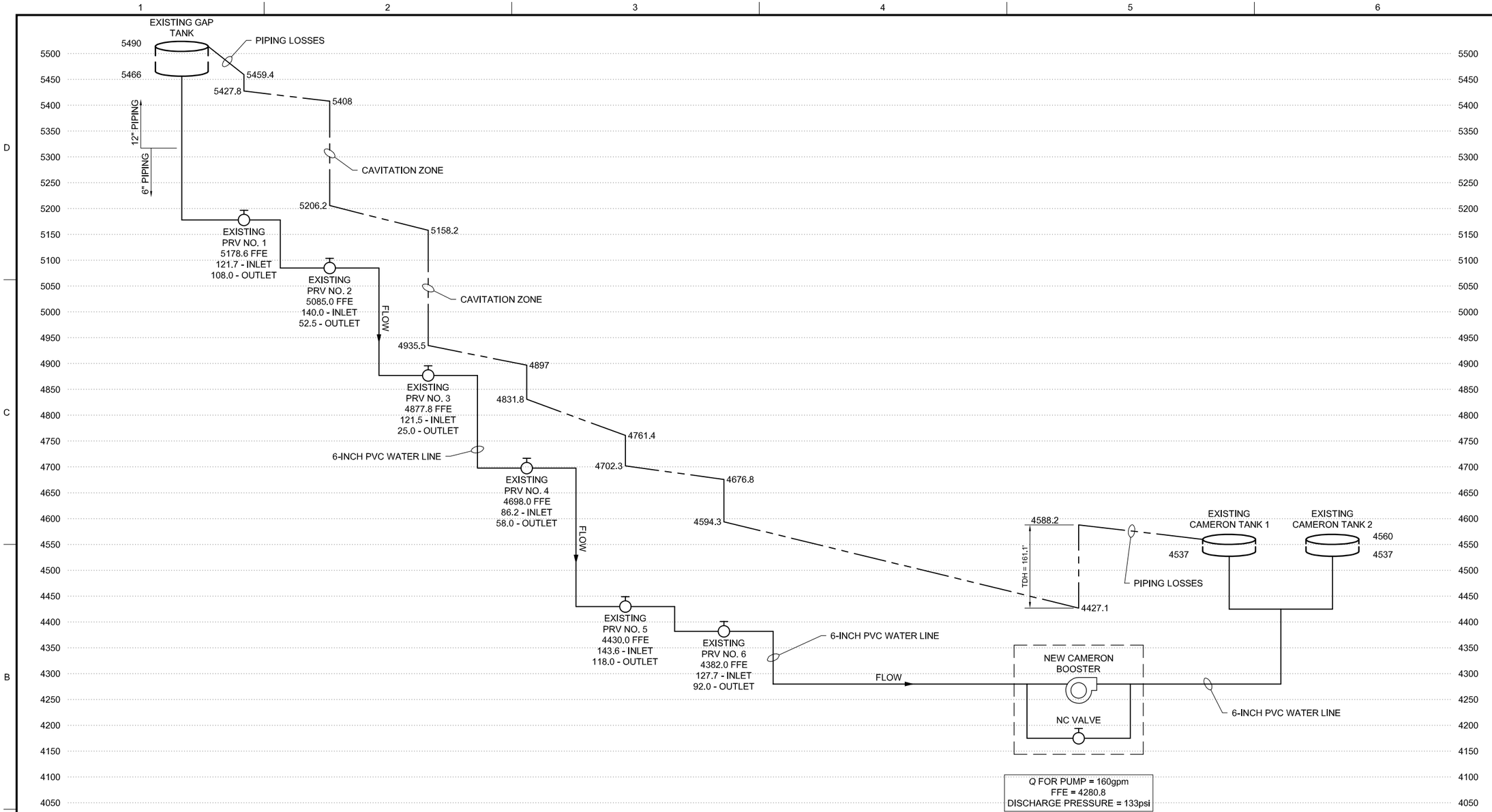
INSTRUMENTATION

CAMERON COMMUNICATIONS BLOCK DIAGRAM

DRAWING NUMBER

I-001

SHEET NUMBER
56 OF 61



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GreatSealoftheNavajoNation.jpg

Brown AND Caldwell

SALT LAKE CITY, UTAH

DOWL
www.dowl.com
222 N. 32nd Street, #700
Billings, Montana 59101
406-656-6395

60% SUBMITTAL

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	
DRAWN:	
CHECKED:	
CHECKED:	
APPROVED:	
FILENAME	P-100.DWG
BC PROJECT NUMBER	150360
CLIENT PROJECT NUMBER	C010232

PROCESS

HYDRAULIC GRADE LINE DIAGRAM

DRAWING NUMBER

P-100

SHEET NUMBER

--- OF 65

MECHANICAL LEGEND

SYMBOL	ABR.	DESCRIPTION
		GENERAL TERMINOLOGY
A2		DETAIL NUMBER DESIGNATION CORRESPONDING WITH GRID LOCATION
MA		MECHANICAL EQUIPMENT DESIGNATION
1		EQUIPMENT ITEM DESIGNATION
D-1 CFM		REGISTER, GRILL OR DIFFUSER DESIGNATION WITH BALANCING CFM LISTED BELOW
R-1		GRILLE, OR LOUVER DESIGNATION WHERE BALANCING NOT REQUIRE
1		REVISION DESIGNATOR AND NUMBER
1		KEY NOTE DESIGNATOR AND NUMBER
	POC	POINT OF CONNECTION
	POR	POINT OF REMOVAL
GC		GENERAL CONTRACTOR
MC		MECHANICAL CONTRACTOR
ATC		CONTROL CONTRACTOR
EC		ELECTRICAL CONTRACTOR
FPC		FIRE PROTECTION CONTROL
NIC		NOT IN CONTRACT
NTS		NOT TO SCALE
C		COMMON
NC		NORMALLY CLOSED
NO		NORMALLY OPEN

SYMBOL	ABR.	DESCRIPTION
		AIR SIDE
		EXISTING AIR DUCT TO BE REMOVED
		EXISTING AIR DUCT TO REMAIN
		NEW AIR DUCT
		NEW SPIRAL DUCT
		NEW MEDIUM PRESSURE DUCT
		BURIED OR UNDER FLOOR DUCT
		FLEXIBLE AIR DUCT
		LINED DUCT
		VANED ELBOW
		RADIUS ELBOW
		FLEXIBLE AIR DUCT CONNECTION
VD		VOLUME DAMPER
		SUPPLY AIR DIFFUSER
		RETURN AIR, FRESH AIR, AND TRANSFER AIR
		CEILING MOUNTED EXHAUST FAN OR EXHAUST GRILLE
		RETURN OR OUTSIDE AIR DUCT UP
		SUPPLY DUCT UP
		EXHAUST AIR INTAKE UP
		RETURN OR OUTSIDE AIR DUCT DOWN
		SUPPLY DUCT DOWN
		EXHAUST DUCT DOWN
		ROUND DUCT UP
		ROUND DUCT DOWN
	AP	ACCESS PANEL
		EXISTING EQUIPMENT TO BE REMOVED
		EXISTING EQUIPMENT TO REMAIN
		NEW EQUIPMENT

SYMBOL	ABR.	DESCRIPTION
		WET SIDE
		PUMP
R		REGULATOR
		UNION
		BUTTERFLY VALVE
		GATE VALVE
	CBV	CIRCUIT BALANCING VALVE
	BV	BALL VALVE
		PRESSURE GAUGE AND GAUGE COCK - WATER
		THERMOMETER AND THERMOWELL
		DIRECTION OF FLOW
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		EXISTING PIPING TO BE REMOVED
		EXISTING PIPING TO REMAIN
		NEW PIPING
		PIPE CAP OR PLUG
		FLEXIBLE CONNECTION
HWS		HEATING WATER SUPPLY
HWR		HEATING WATER RETURN
CHWS		CHILLED WATER SUPPLY
CHWR		CHILLED WATER RETURN

GENERAL NOTES:

G-1 MECHANICAL INFORMATION IS NOT LIMITED TO THE MECHANICAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMATION OF THE EXISTING BUILDING AND SITE CONDITIONS, EXISTING PIPING, EXISTING ELECTRICAL, AND EXISTING SUPPORTS.

A - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.

B - THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEMS ACCORDING TO THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.

C - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.

D - THE CONTRACTOR SHALL CONSULT MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SIZES, METHODS, ACCESSORIES, AND CLEARANCES IN SPACE AVAILABLE PRIOR TO BIDDING PROJECT.

E - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ENGINEER IN WRITING.

G-2 ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CHANGES FOR APPROVAL. CONTRACTOR SHALL NOT START ANY CHANGES UNTIL NOTIFIED IN WRITING. IF CHANGES ARE MADE PRIOR TO APPROVAL CONTRACTOR SHALL TAKE ALL RESPONSIBILITY FOR THE CHANGES MADE AND ALL COSTS RELATING TO FAILURE OR REPLACEMENT OF ALTERATIONS.

G-3 CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.

G-4 THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS. THE CONTRACTOR SHALL PROVIDE OR COORDINATE WITH THE GENERAL CONTRACTOR PROVISIONS FOR BLOCKOUTS OR CORE DRILLS THROUGH STRUCTURE.

G-5 THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.

G-6 CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEERS REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS. ALL REQUESTED EXCEPTIONS TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.

G-7 ALL MECHANICAL SHALL BE INSTALLED AND CONFORM TO THE 2018 EDITION OF THE IMC AND IPC WITH LOCAL ANNOTATIONS AND LOCAL AUTHORITY REQUIREMENTS.

G-8 THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DRAINING DOWN AND RE-FILLING OF ALL SYSTEMS NECESSARY TO COMPLETE THE WORK OUTLINED BY THIS PROJECT. THIS INCLUDES PROVIDING THE REQUIRED CHEMICAL TREATMENT WHEN RE-FILLING THE SYSTEM.

G-9 ALL PIPING, MATERIALS, ETC. SHALL BE NEW AND DOMESTIC MADE UNLESS SPECIFICALLY AUTHORIZED IN WRITING PRIOR TO BID.

G-10 THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY IN HANDLING AND DISPOSING OF REFRIGERANTS, OILS, ETC. ALL SUCH MATERIALS SHALL BE HANDLED, DISPOSED, AND USED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.

G-11 THE MECHANICAL CONTRACTOR SHALL VERIFY MOTOR VOLTAGES WITH THE EXISTING ELECTRICAL CONDITIONS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.

G-12 SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BIDDING.

GENERAL NOTES

KEY NOTES

PRELIMINARY

NOT FOR CONSTRUCTION

Brown AND Caldwell

BUSINESS NAME (ONLY IF REQUIRED)
REGISTRATION NUMBER (ONLY IF REQUIRED)
SALT LAKE CITY,UTAH

WHW ENGINEERING INC.

PROFESSIONAL ENGINEER ARIZONA U.S.A. No. 69496 WINWARD M. PACKER

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J.BRITNELL
DRAWN:	J.BRITNELL
CHECKED:	W.PACKER
CHECKED:	C.LEE
APPROVED:	W.PACKER

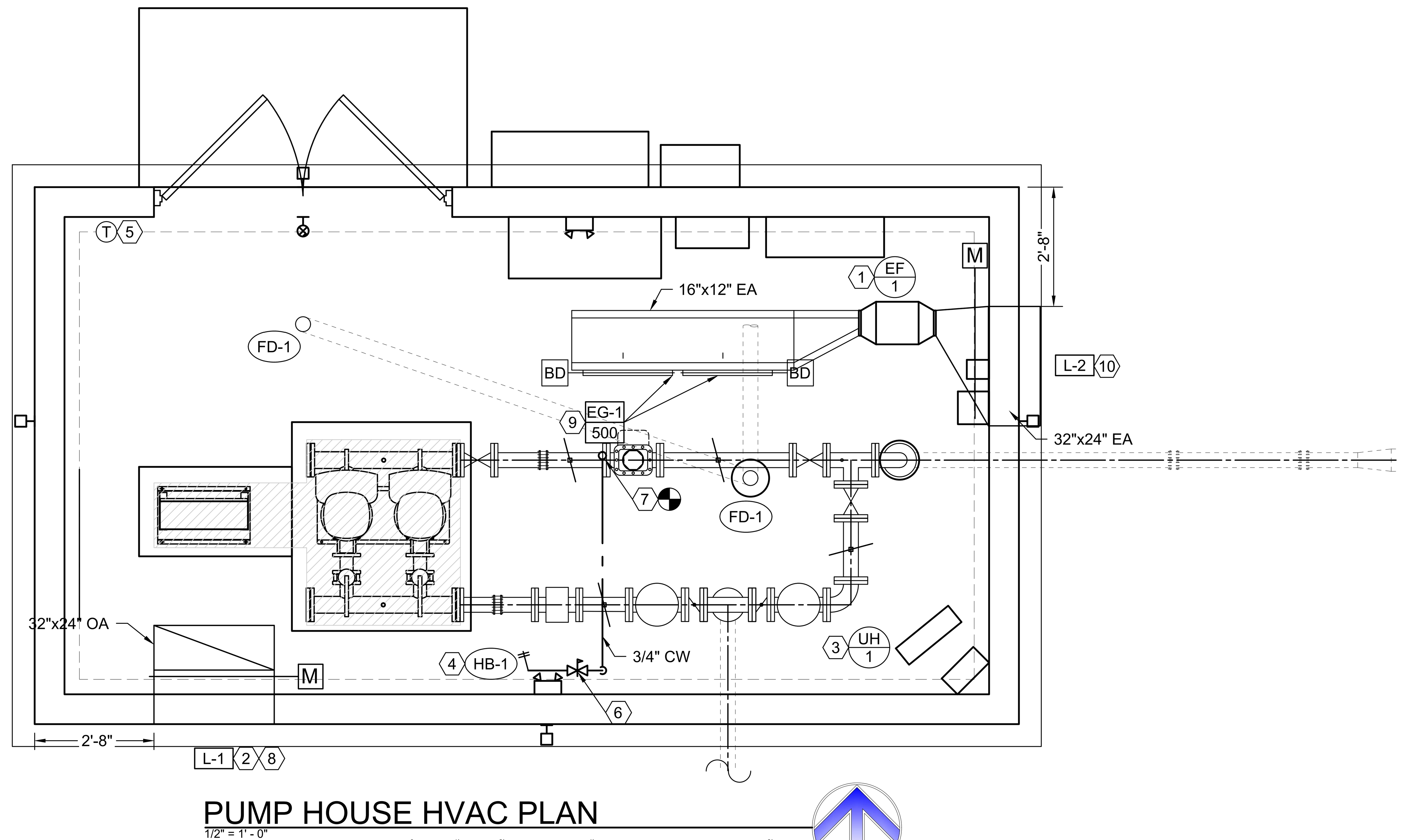
FILENAME
M 21076.DWG
BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

MECHANICAL

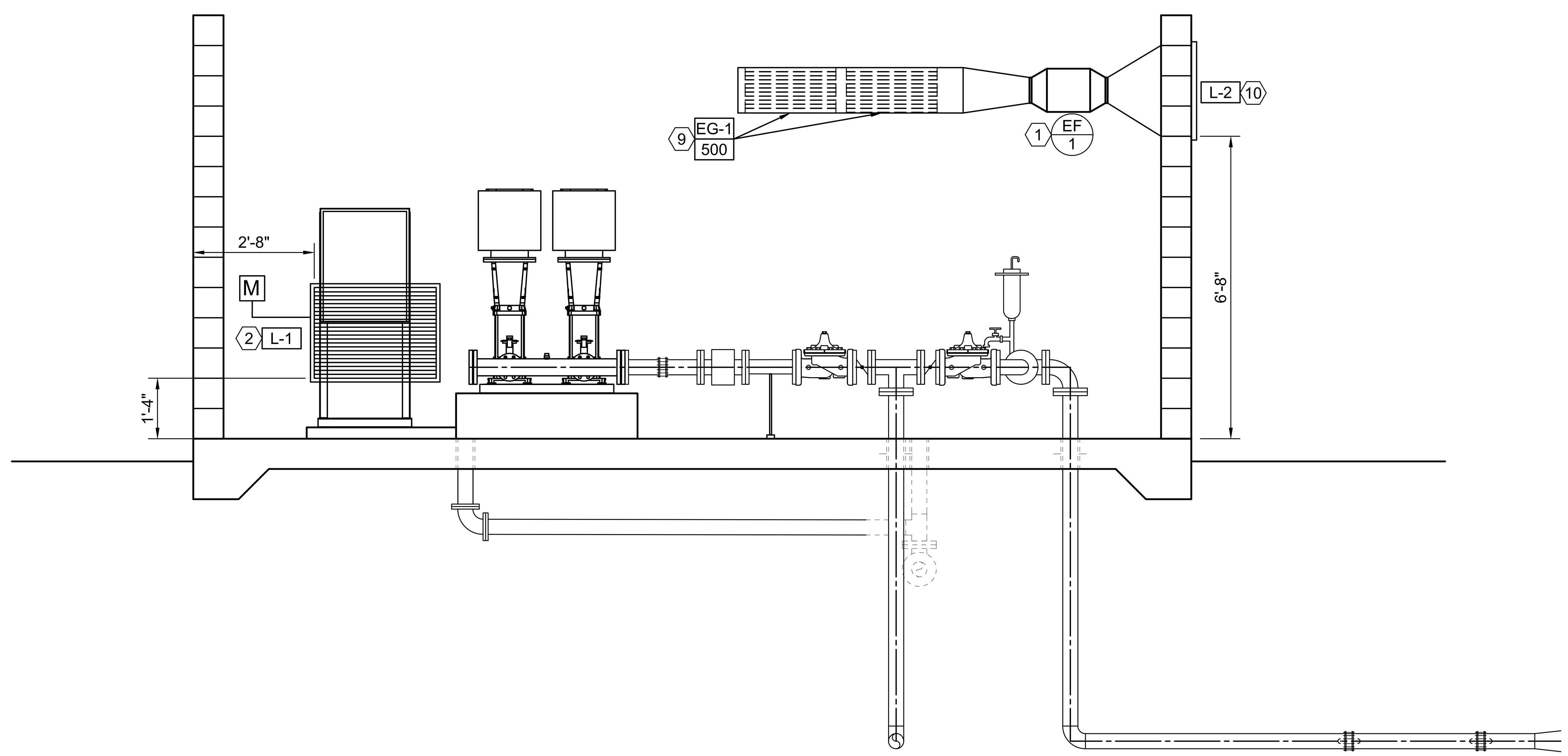
MECHANICAL GENERAL NOTES AND LEGEND

DRAWING NUMBER
H-001

SHEET NUMBER
OF 45



PUMP HOUSE HVAC PLAN
1/2" = 1' - 0"



A1 PUMP HOUSE HVAC SECTION
SCALE = NONE

PRELIMINARY
NOT FOR CONSTRUCTION

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL PROVIDE FULL TEST AND BALANCE REPORT BY LICENSED AND APPROVED TEST AND BALANCE CONTRACTOR.

KEY NOTES

1. PROVIDE INLINE EXHAUST FAN, MOTORIZED DAMPER, AND LOUVER. INTERLOCK WITH FRESH AIR INLET DAMPER.
2. PROVIDE INTAKE LOUVER, LINED DUCT, AND MOTORIZED DAMPER. INTERLOCK DAMPER WITH EXHAUST FAN HIGH LOW TEMPERATURE SENSOR.
3. PROVIDE ELECTRIC UNIT HEATERS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH MANUFACTURER FOR MOUNTING HEIGHT. TIE INTO HIGH-LOW TEMPERATURE SENSOR.
4. PROVIDE NEW HOSE BIB IN THIS APPROXIMATE LOCATION. TIE INTO PUMP DISCHARGE PIPING AND PROVIDE PRESSURE REDUCING VALVE. SEE SHEET H-501 FOR PRV DETAIL.
5. PROVIDE HIGH-LOW TEMPERATURE SENSOR FOR EF-1, L-1 AND UH-1 IN THIS APPROXIMATE LOCATION.
6. PROVIDE PRV WITH BYPASS IN THIS APPROXIMATE LOCATION SEE MECHANICAL DETAILS.
7. TIE CW PIPING INTO PUMP DISCHARGE IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH PROCESS MECHANICAL.
8. DIMENSIONS SHOWN ARE APPROXIMATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR PENETRATION LOCATION.
9. PROVIDE NEW DUCT MOUNTED EXHAUST GRILLE IN THIS APPROXIMATE LOCATION. PROVIDE WITH INTEGRAL BALANCING DAMPER AND BALANCE TO CFM AS SHOWN.
10. PROVIDE NEW DISCHARGE LOUVER, LINED DUCTWORK AND MOTORIZED DAMPER. INTERLOCK DAMPER WITH EXHAUST FAN HIGH LOW TEMPERATURE SENSOR.

Brown AND Caldwell
BUSINESS NAME (ONLY IF REQUIRED)
REGISTRATION NUMBER (ONLY IF REQUIRED)
SALT LAKE CITY,UTAH
WHW ENGINEERING INC.
PROFESSIONAL ENGINEER MECHANICAL No. 69496 WINWARD M. PACKER ARIZONA, U.S.A.

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J.BRITNELL
DRAWN:	J.BRITNELL
CHECKED:	W.PACKER
CHECKED:	C.LEE
APPROVED:	W.PACKER

FILENAME M 21076.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

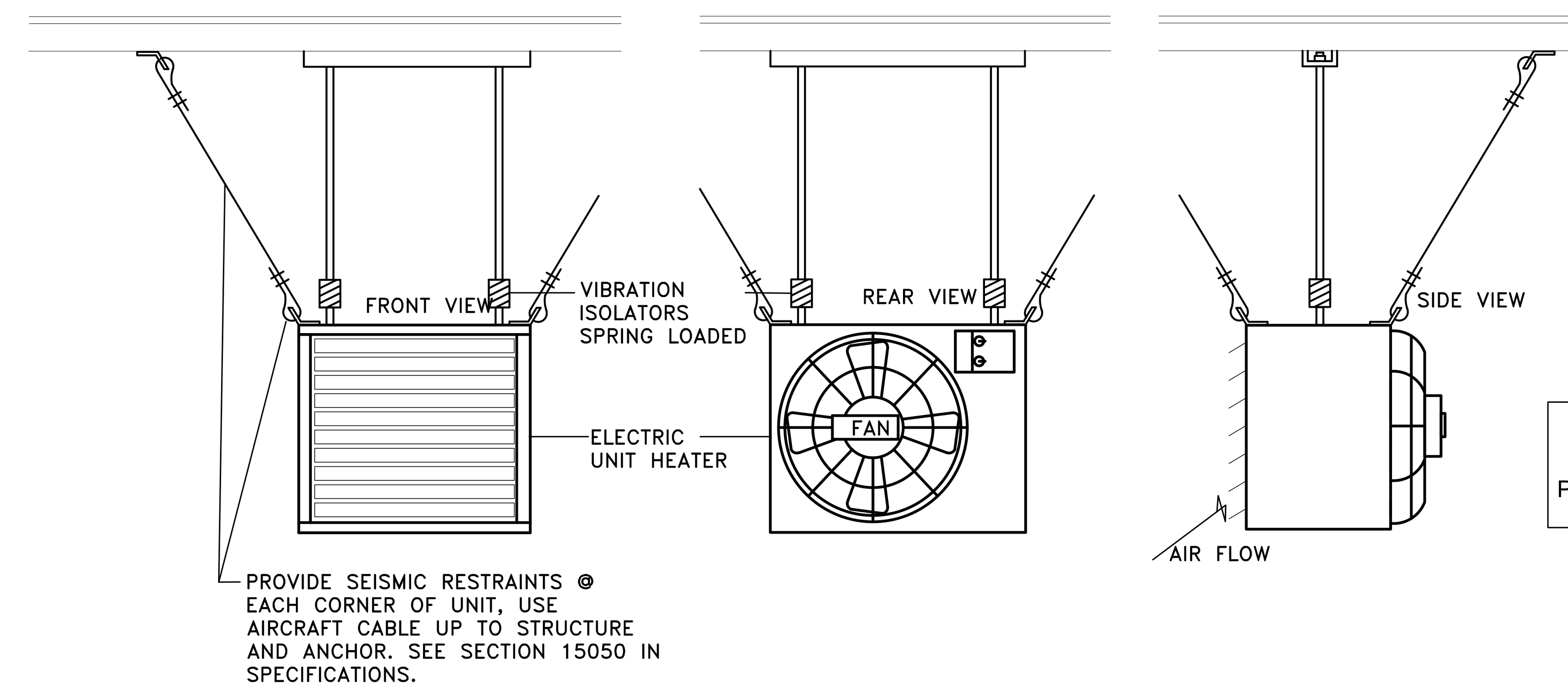
MECHANICAL

PUMP HOUSE HVAC PLAN & SECTION

DRAWING NUMBER
H-101

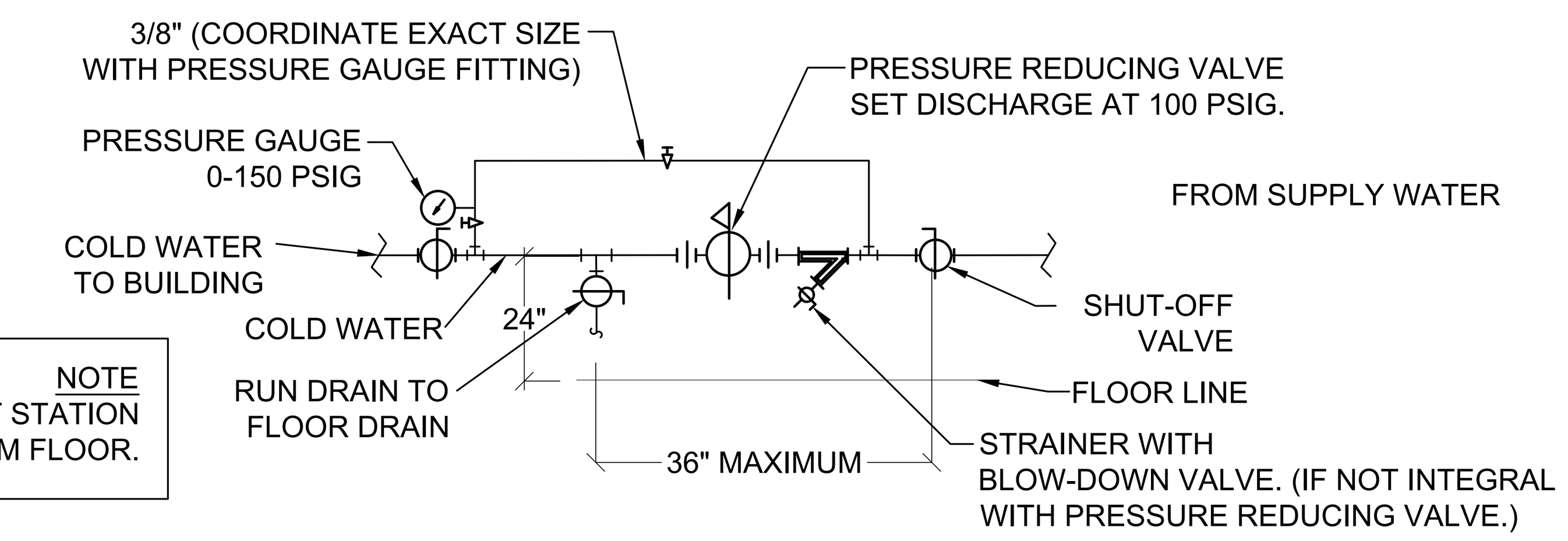
SHEET NUMBER
OF 45

Path: P:\2021\21076 NAVAJO NATION PUMP STATION\DRAWINGS FILENAME: M 21076.DWG PLOT DATE: 7/24/2024 1:17 PM CAD USER: JACOB BRITNELL
GreatSealoftheNavajoNation.jpg LOGO 11-17-04.TIF



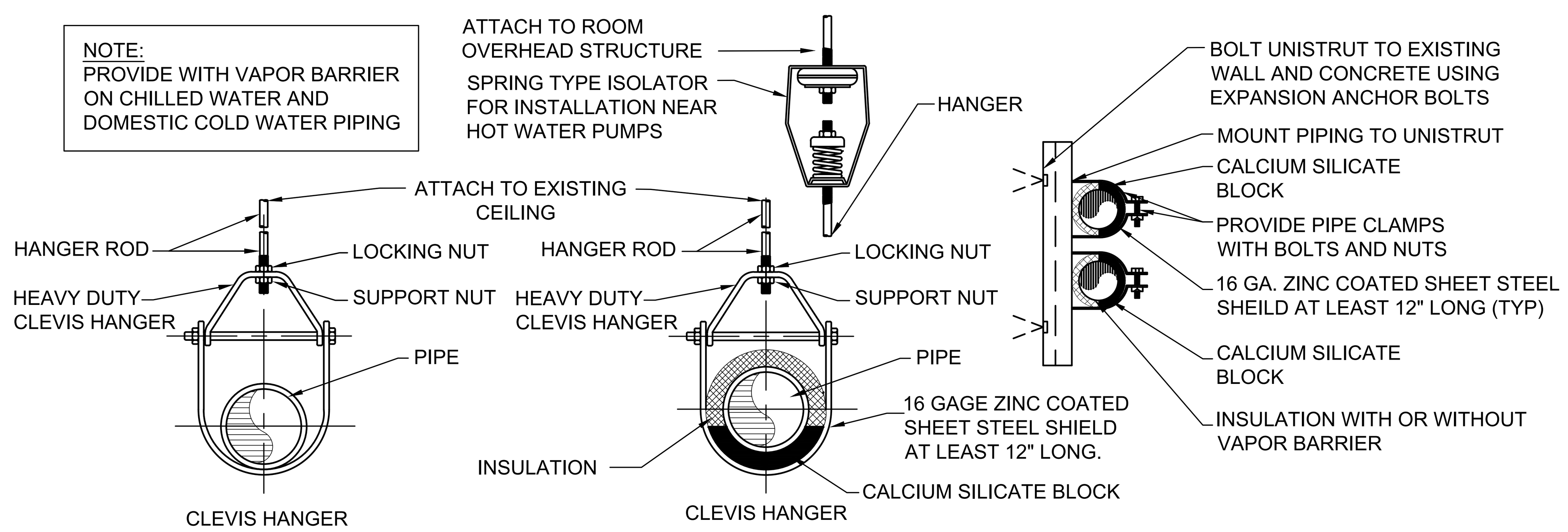
C2 ELECTRIC UNIT HEATER DETAIL
SCALE: NONE

NOTE
SUPPORT STATION PIPING FROM FLOOR.



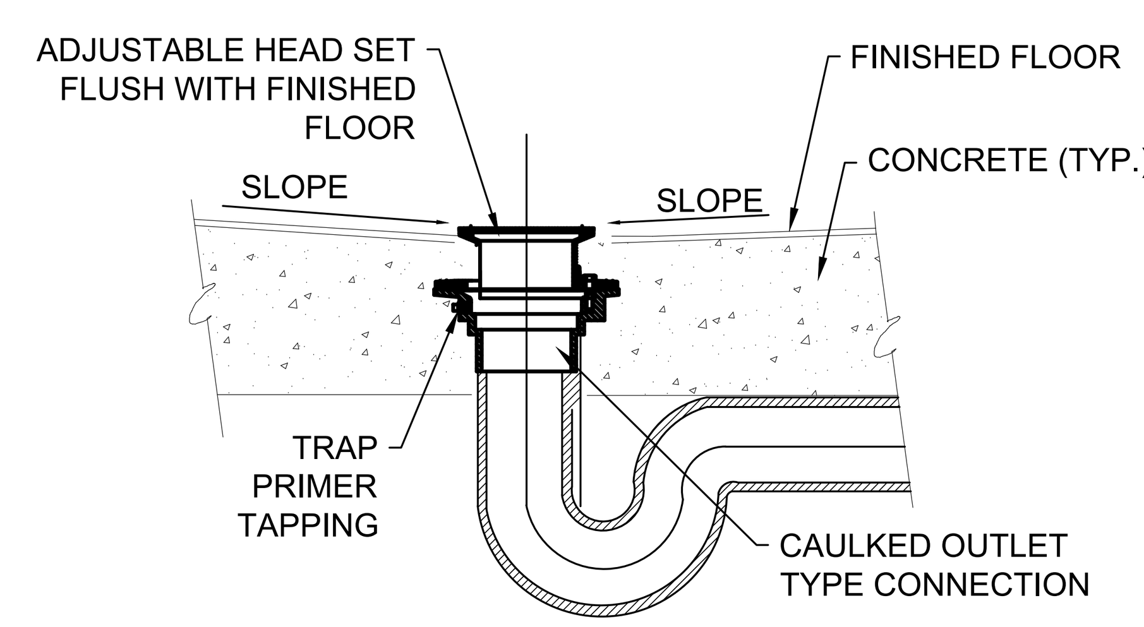
C4 HORIZONTAL WATER PRESSURE REDUCING STATION DETAIL
SCALE: NONE

NOTE:
PROVIDE WITH VAPOR BARRIER ON CHILLED WATER AND DOMESTIC COLD WATER PIPING

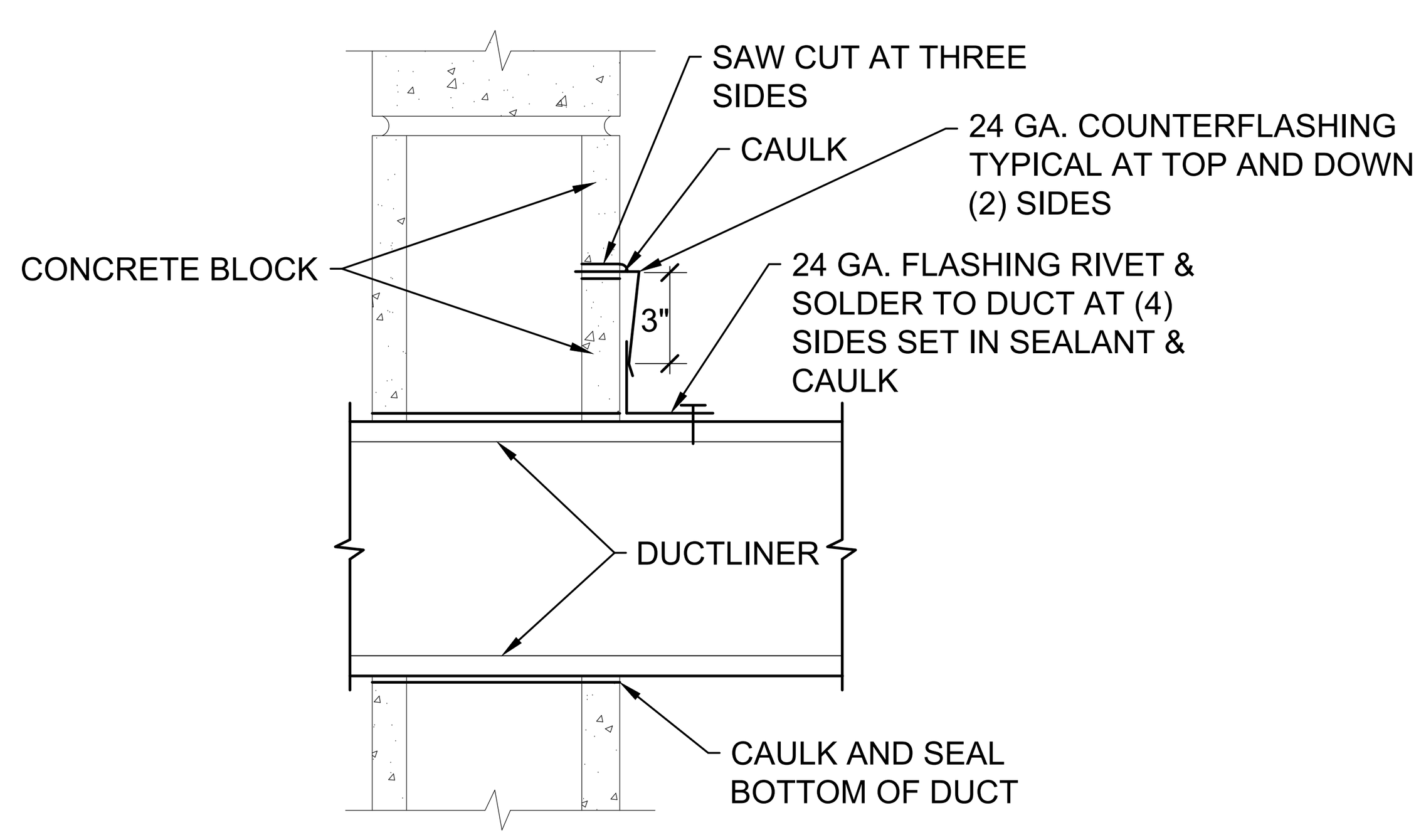


SINGLE HORIZONTAL RUN WITHOUT INSULATION

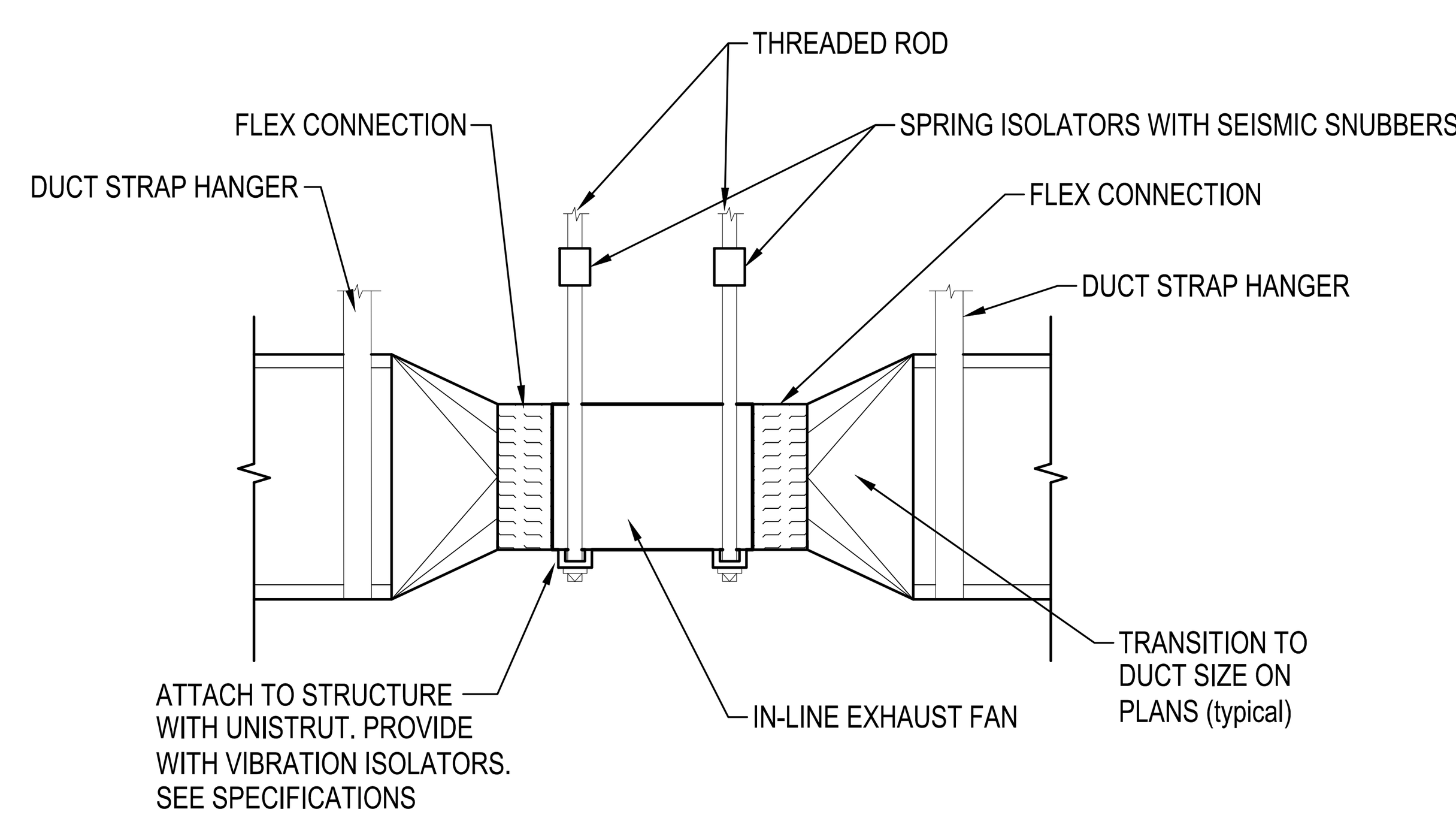
B2 PIPE HANGER DETAIL



B4 FLOOR DRAIN DETAIL
SCALE: NONE



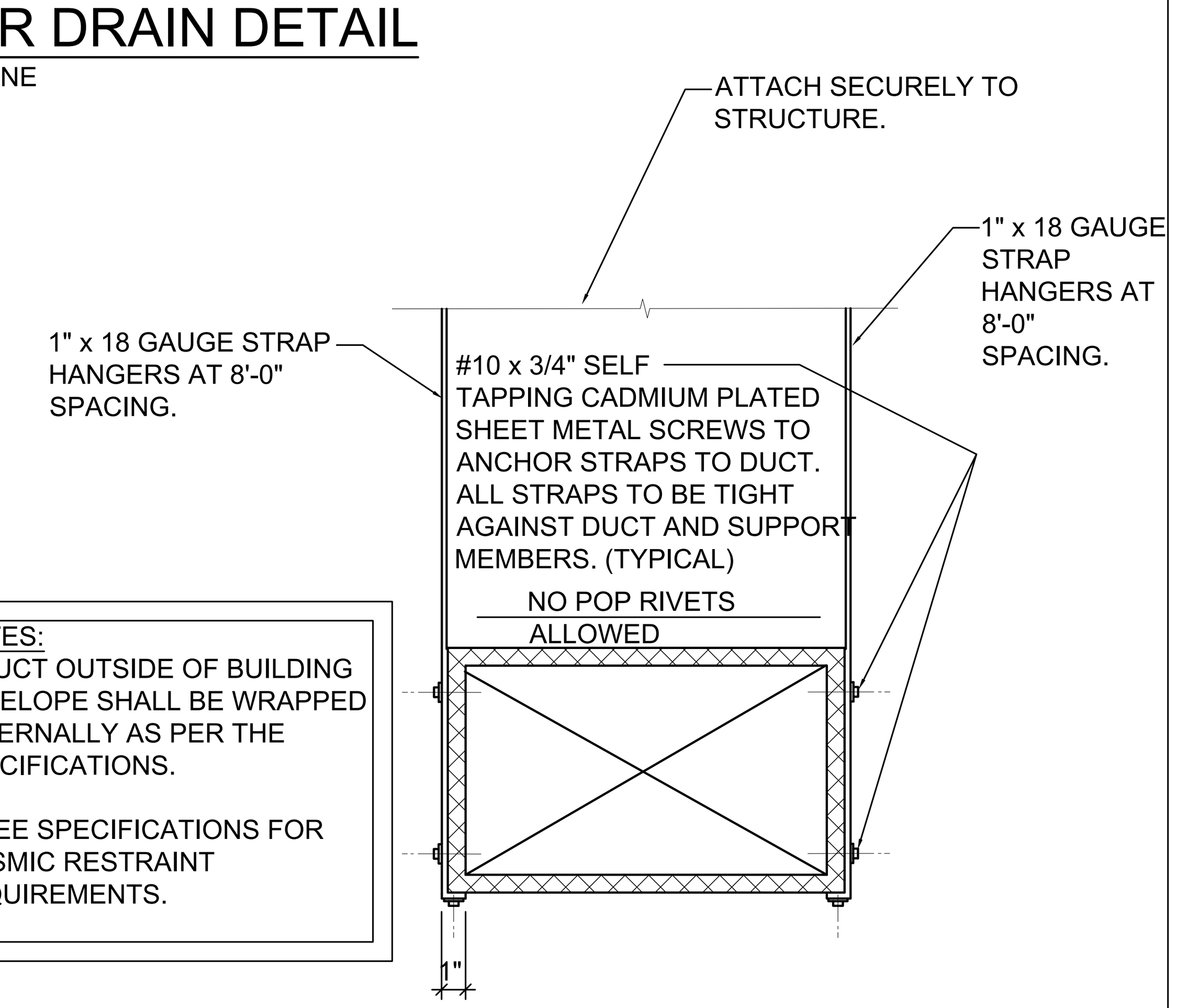
A1 DUCT THRU WALL DETAIL
SCALE: NONE



A2 IN-LINE EXHAUST FAN DETAIL
SCALE: NONE

NOTES:
1. DUCT OUTSIDE OF BUILDING ENVELOPE SHALL BE WRAPPED EXTERNALLY AS PER THE SPECIFICATIONS.

2. SEE SPECIFICATIONS FOR SEISMIC RESTRAINT REQUIREMENTS.



A4 DUCT STRAP HANGER DETAIL
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

GENERAL NOTES

KEY NOTES

Brown AND Caldwell
BUSINESS NAME (ONLY IF REQUIRED)
REGISTRATION NUMBER (ONLY IF REQUIRED)
SALT LAKE CITY,UTAH

WHW ENGINEERING INC.

PROFESSIONAL ENGINEER MECHANICAL
No. 69496
WINWARD M. PACKER
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J.BRITNELL
DRAWN: J.BRITNELL
CHECKED: W.PACKER
CHECKED: C.LEE
APPROVED: W.PACKER

FILENAME
M 21076.DWG
BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

MECHANICAL

DETAILS

DRAWING NUMBER
H-501
SHEET NUMBER
OF 45

Path: P:\2021\21076 NAVAJO NATION PUMP STATION\DRAWINGS FILENAME: M 21076.DWG PLOT DATE: 7/24/2024 1:17 PM CAD USER: JACOB BRITNELL
GreatSealoftheNavajoNation.jpg
LOGO 11-17-04.TIF

REGISTER, LOUVER, & GRILLE SCHEDULE

SYMBOL	TYPE	SERVICE	MAX CFM	NOMINAL SIZE	THROAT SIZE	CEILING TYPE	FT./MIN.	MANUF. & MODEL	SCHEDULE NOTES
L-1	WALL	INTAKE	1000	32X24	32X24	SIDEWALL	500	RUSKIN ELF811DD	1,2,3,4,5
L-2	WALL	EXHAUST	1000	32X24	32X24	SIDEWALL	800	RUSKIN ELF811DD	1,2,3,4,5
EG-1	DUCT	EXHAUST	500	24X12	24X12	DUCT MOUNTED	500	PRICE 500	2,4,5

1. SEAL ALL PENETRATIONS WEATHER TIGHT.
2. MAXIMUM FT/MIN AT CFM LISTED.
3. PROVIDE TRANSITION TO LOUVER THROAT SIZE AS REQUIRED TO DUCTWORK SHOWN ON PLAN.
4. SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURERS.
5. FINISH SHALL BE SPECIFIED BY ARCHITECT.

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER AND MODEL NO.	CFM	KW	ELECTRICAL		RPM	HP	OUTDOOR AIR	THROW	WEIGHT (LBS)	SCHEDULE NOTES
				SERVICE	AMPS						
UH 1	MODINE HER75	505	7.5	208-1-60	36/50	1750	1/40	NA	17	52	1,2

1. SEE SPECIFICATIONS FROM APPROVED MANUFACTURERS.
2. PROVIDE WITH TEMPERATURE SENSOR.

EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER & MODEL No.	SERVES	C.F.M.	STATIC PRESSURE IN. WG.	MAX NOISE SONES	MOTOR			OPER. WT. (LBS)
						V - Ø - Hz	HP	RPM	
EF 1	COOK DB-8	PUMP HOUSE	1000	0.20	8.4	115-1-60	1/8	1725	153

1. SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS.
2. INLINE FAN, SUPPORT FROM SPRING HANGERS.
3. PROVIDE WITH BACKDRAFT DAMPER.
4. TIE INTO HGIH-LOW TEMPERATURE SENSOR AND MODULATING DAMPER ON LOUVER.

GENERAL NOTES

KEY NOTES

PRELIMINARY

NOT FOR CONSTRUCTION

Brown AND Caldwell
BUSINESS NAME (ONLY IF REQUIRED)
REGISTRATION NUMBER (ONLY IF REQUIRED)
SALT LAKE CITY,UTAH
WHW ENGINEERING INC.

No. 69496
WINWARD M. PACKER
ARIZONA, U.S.A.

CAMERON PUMP STATIONS AND PRV STATIONS

REVISIONS

REV	DATE	DESCRIPTION
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#
#	#	#

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	J.BRITNELL
DRAWN:	J.BRITNELL
CHECKED:	W.PACKER
CHECKED:	C.LEE
APPROVED:	W.PACKER

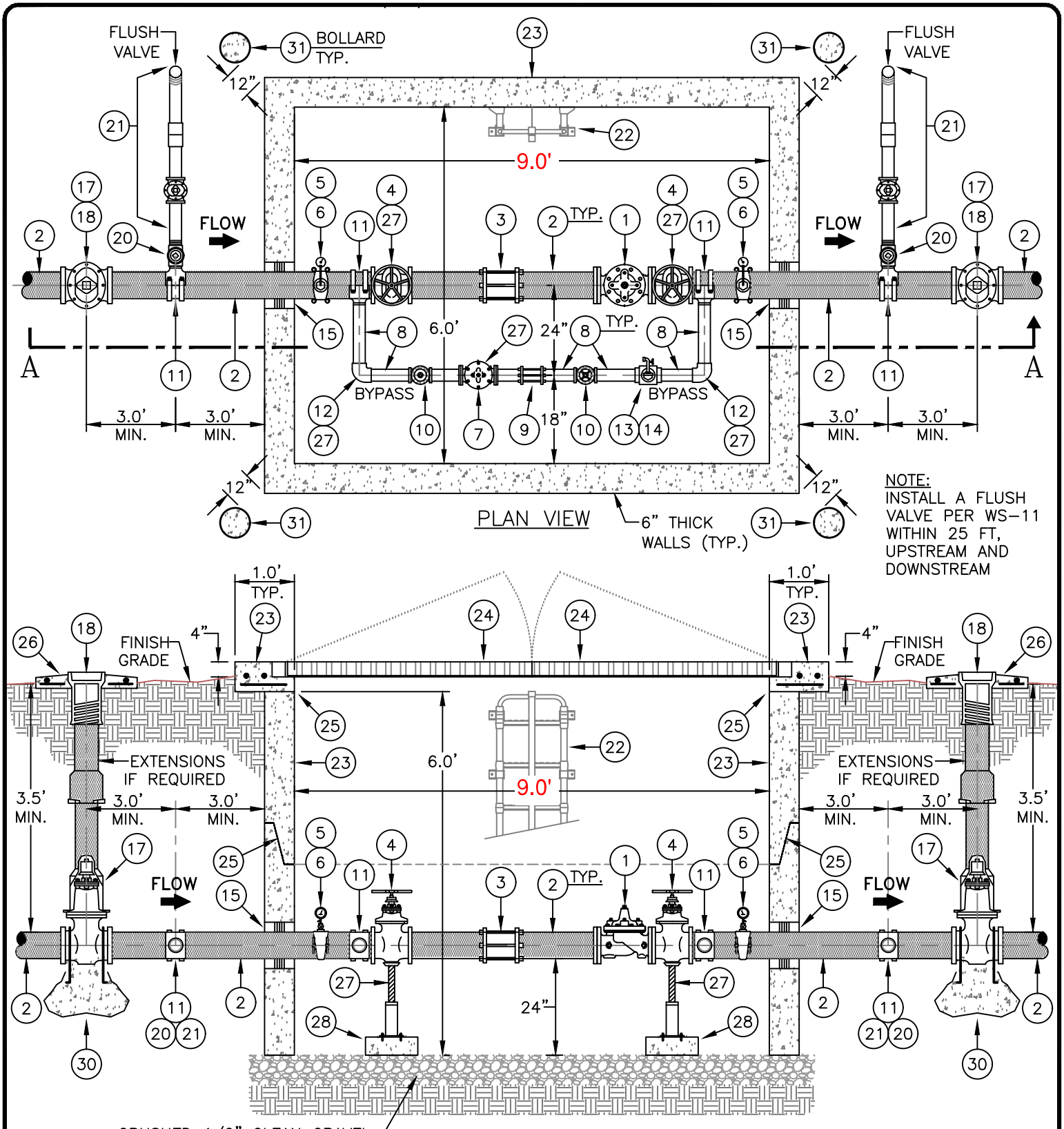
FILENAME M 21076.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

MECHANICAL

SCHEDULES

DRAWING NUMBER
H-601

SHEET NUMBER
OF 45



SHEET 1 OF 2

DESIGNED BY:	NTUA-HQ
SURVEYED BY:	–
DRAFTED BY:	NTUA-HQ
APPROVED BY:	NTUA-HQ
DATE:	01/2019
PROJECT NO.	–
SCALE:	NTS
ACAD FILENAME:	2019 NTUA Std. Dtls. for Water.dwg
DETAIL NO.	WS-4b

NAVAJO TRIBAL UTILITY AUTHORITY
ENGINEERING & CONSTRUCTION OPERATIONS DIVISION

4" x 2" P.R.V.

NTUA HEADQUARTERS **FT.DEFIANCE, AZ**

REVISIONS

No.	Date	Brief	By
01	09/15	2015 Addition	A.S.
02	01/19	2019 Update	A.S.
03			
04			
05			
06			

4" x 2" P.R.V.

(#) MATERIAL LIST

ITEM	QTY	DESCRIPTION
1	1	4" CLA-VAL, PRESSURE REDUCING VALVE, THREADED ENDS, STAINLESS STEEL (S.S.) TRIM & PILOT TUBING, 90 SERIES W/ OPTIONS A, B, C, D, V & M
2	A.R.	4" DUCTILE IRON (D.I.) PIPE, CLASS 350, PLAIN END, CUT AS NEEDED
3	1	4" DRESSER COUPLING (6" LONG FOR D.I. PIPE)
4	2	4" GATE VALVE, F.I.P.T., N.R.S., R.H.T., BRASS HAND WHEEL
5	2	2" DOUBLE STRAP W/ 2" x 3/4" BUSHING AND 3/4" x 1/4" BUSING FOR PRESSURE GAGE
6	2	PRESSURE GAUGE W/ 1/4" BRASS SHUTOFF VALVE
7	1	2" CLA-VAL, PRESSURE REDUCING VALVE, THREADED ENDS, STAINLESS STEEL (S.S.) TRIM & PILOT TUBING, 90 SERIES W/ OPTIONS A, B, C, D, V & M
8	A.R.	2" S.S. PIPE, THREADED, CUT AS NEEDED
9	1	2" DRESSER COUPLING (6" LONG FOR S.S. PIPE)
10	2	2" GATE VALVE, F.I.P.T., N.R.S., R.H.T., BRASS HAND WHEEL
11	4	4" x 2" TAP SADDLE
12	2	2" 90° S.S. ELBOW, F.I.P.T.
13	1	2" S.S. HOSE BIB
14	1	2" S.S. TEE W/ 2" x 3/4" BUSHING AND 3/4' x 1/4" BUSHING FOR HOSE BIB
15	2	VAULT BORE DONUT, 6" O.D. / 4" I.D.
16	2	4" D.I. 'E-Z' FLANGED ADAPTER
17	2	4" GATE VALVE, M.J., RESILIENT SEAT, FLANGED, N.R.S., R.H.T., W/ 2" OPERATING NUT
18	4	VALVE BOX, 2-PIECE SCREW TYPE, 5-1/4" SHAFT W/ CAST IRON DROP LID
19	-	4" C-900 PVC PIPE
20	2	2" CORPORATION STOP, MIPT x FIPT
21	2	INSTALL 2" FLUSH VALVE PER NTUA STD. DTL. WS-11 (AFTER THE CORP. STOP)
22	1	'LANE' POLYPROPYLENE VAULT LADDER W/ PULL-UP HANDRAIL (5 RUNG)
23	1	9' x 6' x 6' (INT. DIM.) PRECAST CONCRETE VAULT (4,000 PSI MIN.), 6" THICK WALLS W/ 6" THICK REINFORCED CONCRETE TOP (NON-TRAFFIC RATED) AND 6" REINFORCED CONCRETE BASE
24	1	ACCESS COVER, 6' x 6' (INT. DIM) SQ., INSULATED, DOUBLE DOOR COVER AND SAFETY GRATE, ALUMINUM CHANNEL FRAME W/ T-HANDLE SLAM LOCK AND COVERED PADLOCK CLIP
25	A.R.	VAULT JOINTS TO BE SEALED WITH BITUMASTIC GASKET
26	4	24" x 24" x 4" CONCRETE COLLAR W/ #4 REBAR, E.W., INDICATE PIPE SIZE & FLOW DIRECTION
27	5	ADJUSTABLE METAL PIPE SUPPORT (UNDER 4" VALVES AND AT 2" 90° ELBOWS & 2" P.R.V.)
28	5	12" x 12" x 4" CONC. BLOCK
29	-	NOT USED
30	A.R.	CONCRETE ANCHOR BLOCK PER NTUA STD. DTL. WS-19 & WS-19a
31	4	6" DIA. BOLLARDS AT 12" MIN. FROM VAULT CORNERS PER MAG. STD. 140, TYPE 1

GENERAL NOTES:

1. PROVIDE ADEQUATE CLEARANCE BETWEEN FLANGE BOLTS AND VAULT WALLS FOR MAINTENANCE.
2. GATE VALVES TO BE SUPPORTED ON 95% STANDARD PROCTOR.
3. ALL PIPES AND FITTINGS 4" OR LESS TO BE STAINLESS STEEL.
4. HEX HEAD BOLTS/NUTS TO BE STAINLESS STEEL, TYPE 304.
5. A.R. = AS REQUIRED.
6. INSTALL GATE VALVE AND FLUSH VALVE WITHIN 25 FT OF PRV VAULT.

DESIGNED BY:	NTUA-HQ
SURVEYED BY:	-
DRAFTED BY:	NTUA-HQ
APPROVED BY:	NTUA-HQ
DATE:	01/2019
PROJECT NO.	-
SCALE:	NTS
ACAD FILENAME:	2019 NTUA Std. Dtls. for Water.dwg
DETAIL NO.	WS-4c

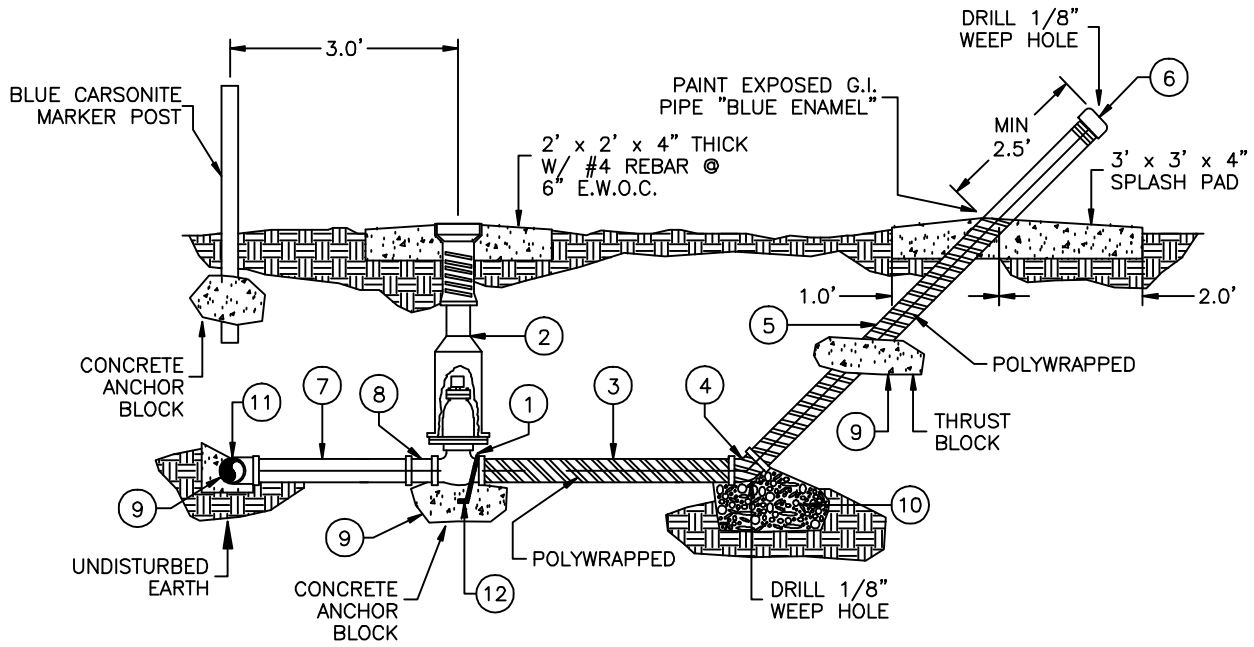
NAVAJO TRIBAL UTILITY AUTHORITY
ENGINEERING & CONSTRUCTION OPERATIONS DIVISION

MATERIAL LIST:
4" x 2" P.R.V.

NTUA HEADQUARTERS **FT.DEFIANCE, AZ**

REVISIONS

No.	Date	Brief	By
01	09/15	2015 Addition	A.S.
02	01/19	2019 Update	A.S.
03			
04			
05			
06			



MATERIAL LIST		
ITEM	QUAN	DESCRIPTION
1	1	2' GATE VALVE, C.I., FIPT, RW, NRS, RHT, W/ 2' OPERATING NUT, MUELLER A-2360-37
2	1	VALVE BOX, SCREW-TYPE, C.I., 2 PIECE, 5 1/4" SHAFT, TYLER 6850
3	1	2" x 3' PIPE (MIN.), G.I., COATED OR POLYWRAPPED
4	1	2" x 45° ELBOW, G.I., W/ 1/8" WEEP HOLE
5	1	2" PIPE, G.I. x CUT TO LENGTH AS NEEDED
6	1	2" CAP, G.I. W/ 1/8" VENT HOLE
7	1	2" PIPE, PVC CUT TO LENGTH AS NEEDED
8	1	2" ADAPTER, PVC, SLIP-GASKET x MIPT, SDR-21
9	A.R.	CONCRETE THRUST BLOCK, (DO NOT COVER JOINTS OR BOLTS), MIN. 1.5 CUBIC FEET
10	1.5 CF	CLEAN GRAVEL
11	1	MAIN LINE SADDLE OR TEE
12	A.R.	#4 REBAR

DESIGNED BY:	NTUA
SURVEYED BY:	
DRAWN BY:	NTUA
APPROVED BY:	NTUA
DATE:	04/08
PROJECT NO.	
SCALE:	NTS
ACAD FILENAME:	Water Standard
DWG. NO.	WS-11.DWG

NAVAJO TRIBAL UTILITY AUTHORITY
HQ CIVIL ENGINEERING DEPARTMENT

2" FLUSH VALVE DETAIL

HQ-ENGINEERING FT.DEFIANCE, AZ

REVISIONS			
No.	Date	Brief	By
01	04/08	Revised	L.H.
02			
03			
04			
05			
06			

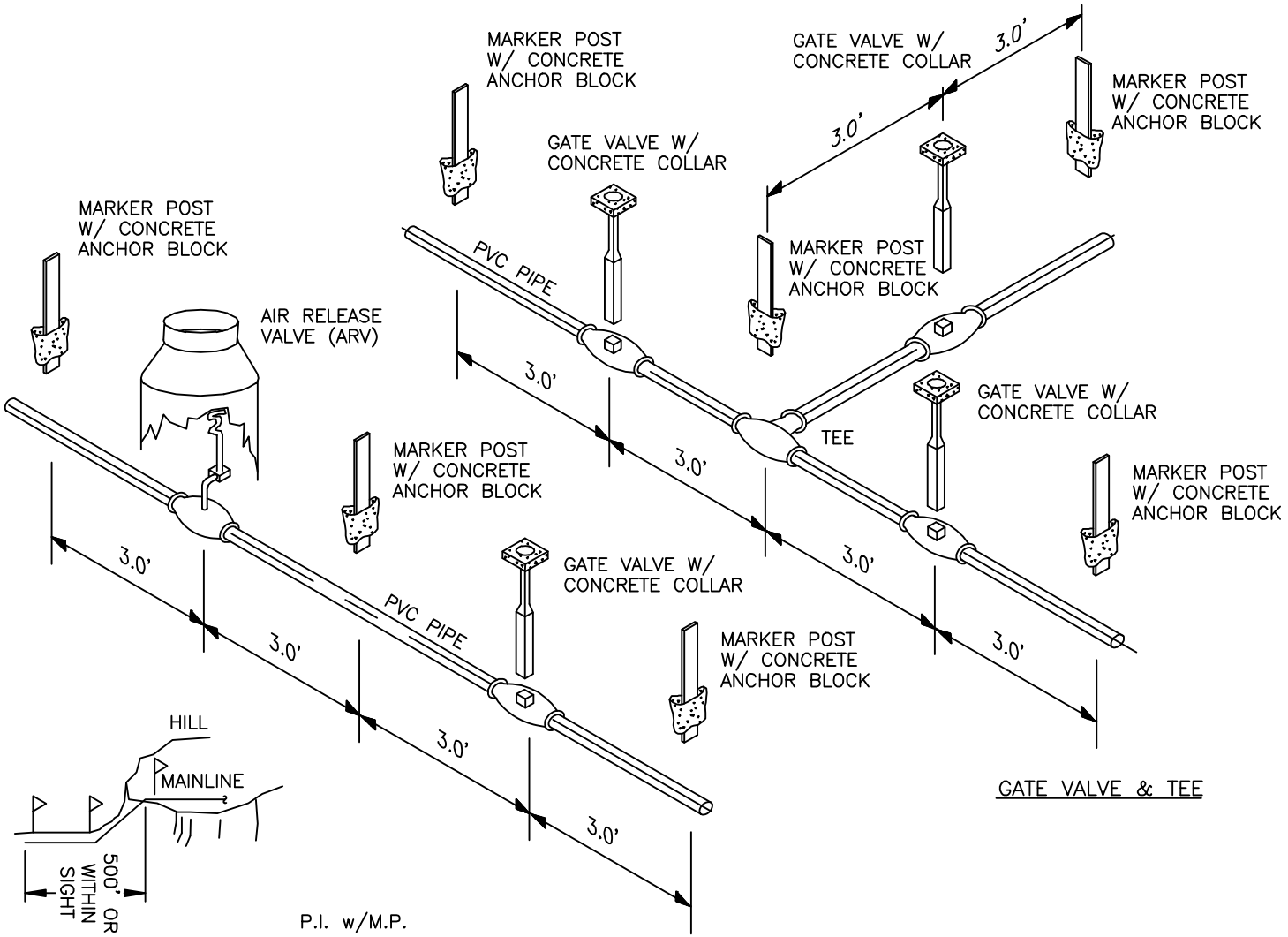
DESIGNED BY:	NTUA
SURVEYED BY:	
DRAWN BY:	NTUA
APPROVED BY:	NTUA
DATE:	04/08
PROJECT NO.	
SCALE:	NTS
ACAD FILENAME:	Water Standard
DWG. NO.	WS-13.DWG

NAVAJO TRIBAL UTILITY AUTHORITY
an enterprise of the Navajo Nation

MARKER POST DETAILS

EEQ-ENGINEERING
FT. DEFIANCE, AZ

REVISIONS				
No.	Date	Brief	By
01	04/08	Revised	LH
02			
03			
04			
05			
06			



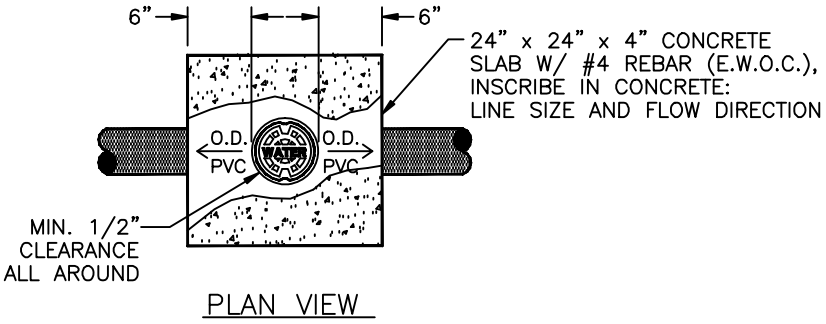
GATE VALVE & TEE

AIR RELEASE VALVE & GATE VALVE

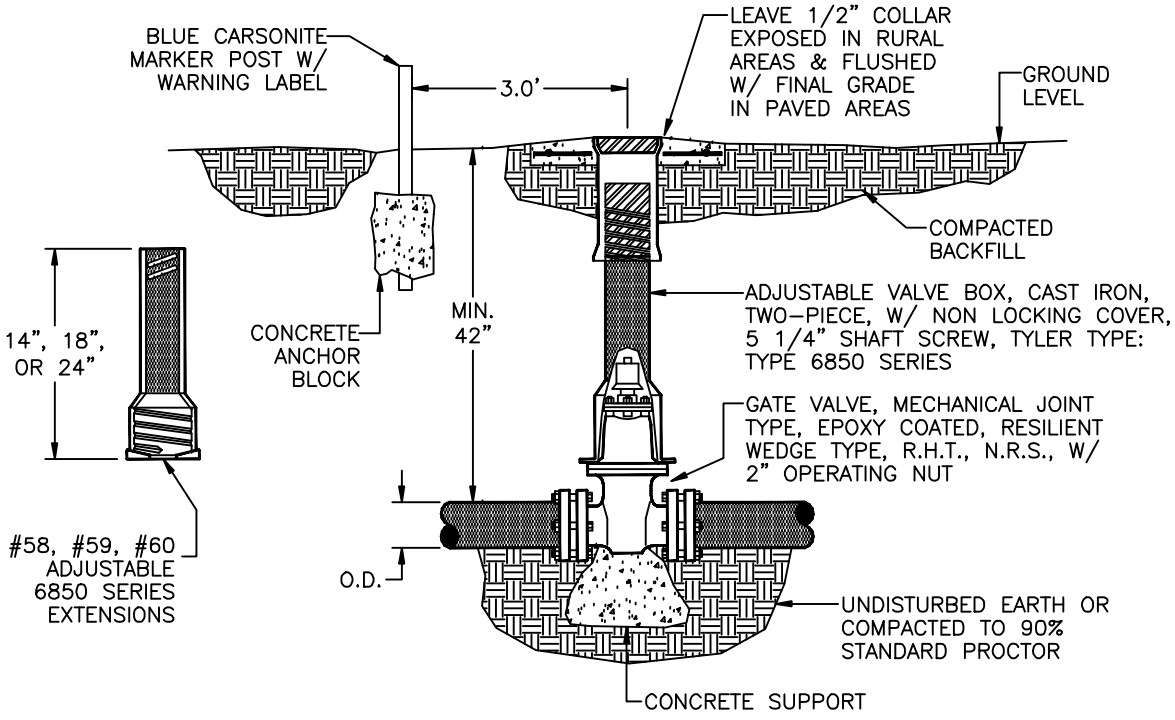
P.I. AND GRADE CHANGES

NOTES:

1. ALL MARKER POSTS TO BE "BLUE" CARSONITE (TYP.).
2. MARKER POSTS ON ALL POINT OF INTERSECTIONS (P.I.).
3. MARKER POSTS ON ALL GRADE CHANGES.
4. MARKER POSTS WILL HAVE A MAX. HEIGHT OF 30 INCHES.



PLAN VIEW



NOTES:

1. IF APPROPRIATE, USE SERIES 2000 PV MEGALUG GLANDS FOR SDR-21, PVC TO SECURE GATE VALVE(S) TO OTHER FITTINGS/PIPE, USE OTHER MEGALUGS FOR DIFFERENT OUTSIDE DIAMETER PIPE/TYPE.
2. DO NOT COVER JOINTS AND BOLTS WITH CONCRETE.
3. SEE WS-13 FOR APPROPRIATE LOCATION OF MARKER POST.

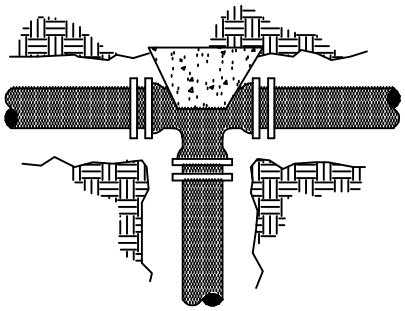
DESIGNED BY:	NTUA
SURVEYED BY:	
DRAWN BY:	NTUA
APPROVED BY:	NTUA
DATE:	04/08
PROJECT NO.	
SCALE:	NTS
ACAD FILENAME:	Water Standard
DWG. NO.	WS-14.DWG

NAVAJO TRIBAL UTILITY AUTHORITY
HQ CIVIL ENGINEERING DEPARTMENT

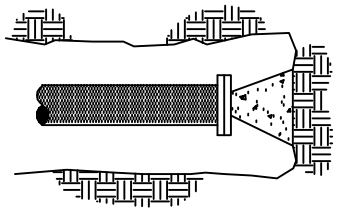
WATER MAIN VALVE INSTALLATION

HQ-ENGINEERING FT.DEFIANCE, AZ

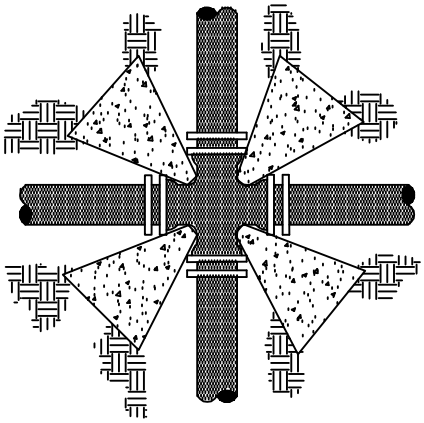
REVISIONS			
No.	Date	Brief	By
01	04/08	Revised	L.H.
02			
03			
04			
05			
06			



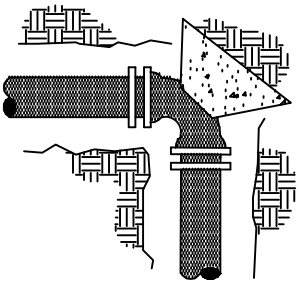
TEE
(PLAN VIEW)



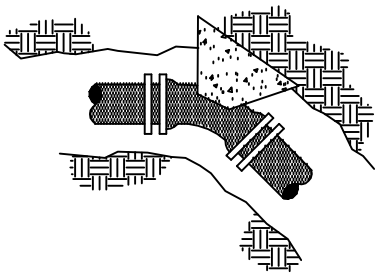
DEAD END CAPPED OR PLUG
(PLAN VIEW)



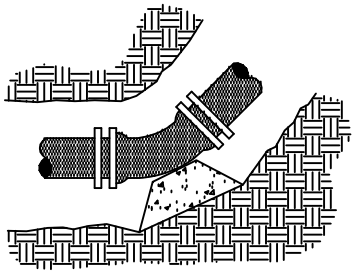
CROSS
(PLAN VIEW)



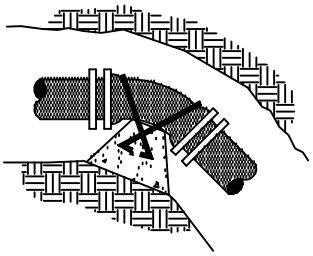
90° ELBOW
(PLAN VIEW)



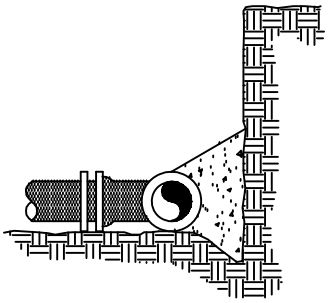
45° ELBOW
(PLAN VIEW)



VERTICAL BENDS
(SECTION VIEW)



VERTICAL GRAVITY THRUST BLOCK
(SECTION VIEW)



BEARING AREA
(SECTION VIEW)

MINIMUM BEARING AREAS IN SQUARE FEET				
PIPE SIZE	TEE & PLUG	90° ELBOW	45° OR 22 1/2° ELBOW	CROSS
2"	0.5	0.5	0.5	0.5
4"	1.5	2.0	1.5	1.0
6"	3.0	4.5	2.5	2.0
8"	5.0	7.5	4.0	4.0
10"	8.0	11.0	6.5	5.5
12"	11.0	15.5	9.0	8.0
14"	15.0	21.0	12.0	10.5
16"	19.0	27.0	15.5	13.5
18"	24.0	34.0	19.0	17.0

NOTES:

1. DO NOT COVER GASKETED JOINTS AND NUTS/BOLTS.

DESIGNED BY:	NTUA
SURVEYED BY:	
DRAWN BY:	NTUA
APPROVED BY:	NTUA
DATE:	04/08
PROJECT NO.	
SCALE:	NTS
ACAD FILENAME:	Water Standard
DWG. NO.	WS-19.DWG

NAVAJO TRIBAL UTILITY AUTHORITY
HQ CIVIL ENGINEERING DEPARTMENT

GRAVITY/THRUST BLOCK DETAILS

HQ-ENGINEERING FT.DEFIANCE, AZ

REVISIONS			
No.	Date	Brief	By
01	04/08	Revised	L.H.
02			
03			
04			
05			
06			

GRAVITY THRUST BLOCK

(ALSO TO BE USED IN UNSTABLE TRENCH CONDITIONS)

RESULTANT THRUST IN POUNDS OF FITTINGS AT 100 PSI WATER PRESSURE

TOTAL POUNDS					
PIPE SIZE	DEAD END	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW
3"	1,232	1,742	943	481	241
4"	1,810	2,559	1,385	706	355
6"	3,739	5,288	2,862	1,459	733
8"	6,433	9,097	4,923	2,510	1,261
10"	9,677	13,685	7,406	3,776	1,897
12"	13,685	19,353	10,474	5,340	2,683
14"	18,385	26,001	14,072	7,174	3,604
16"	23,799	33,628	18,199	9,278	4,661
18"	29,865	42,235	22,858	11,653	5,855
20"	36,644	51,822	28,046	14,298	7,183
24"	52,279	73,934	40,013	20,398	10,249
30"	80,425	113,738	61,554	31,380	15,766
36"	115,209	162,931	88,177	44,952	22,585
42"	155,528	219,950	119,036	60,684	30,489
48"	202,683	286,637	155,127	79,083	39,733
54"	260,214	367,999	199,160	101,531	51,011
60"	298,121	421,606	228,172	116,321	58,442
64"	338,707	479,004	259,235	132,157	66,398

NOTES:

1. THE THRUST (IN TOTAL POUNDS) IN THE CHART IS BASED ON DUCTILE IRON OUTSIDE DIAMETER PIPE DIMENSION. SURGES SHOULD BE CONSIDERED AT TWICE THE NORMAL OPERATING PRESSURE. THE VOLUME OF THE GRAVITY THRUST BLOCK IS BASED ON CONCRETE AT 150 LBS./FT3.

2. TO OBTAIN VOLUME OF CONCRETE REQUIRED, USE:
   VOLUME OF CONRETE(FT3)= THRUST(LBS.) x SYSTEM PRESSURE(PSI)/100 PSI // 150 LBS./FT3.

   E.G.: CALCULATE THE VOLUME OF THE GRAVITY THRUST BLOCK FOR AN 8" x 45° BEND AT AN OPERATING PRESSURE OF 80 PSI.

   ANSWER: 4923 LBS. x 160 PSI/100 PSI DIVIDED BY 150 LBS./CUBIC FT. = 52.5 CUBIC FEET OR 2 CUBIC YARDS.

DESIGNED BY:	NTUA
SURVEYED BY:	
DRAWN BY:	NTUA
APPROVED BY:	NTUA
DATE:	04/08
PROJECT NO.	
SCALE:	NTS
ACAD FILENAME:	Water Standard
DWG. NO.	WS-19a.DWG

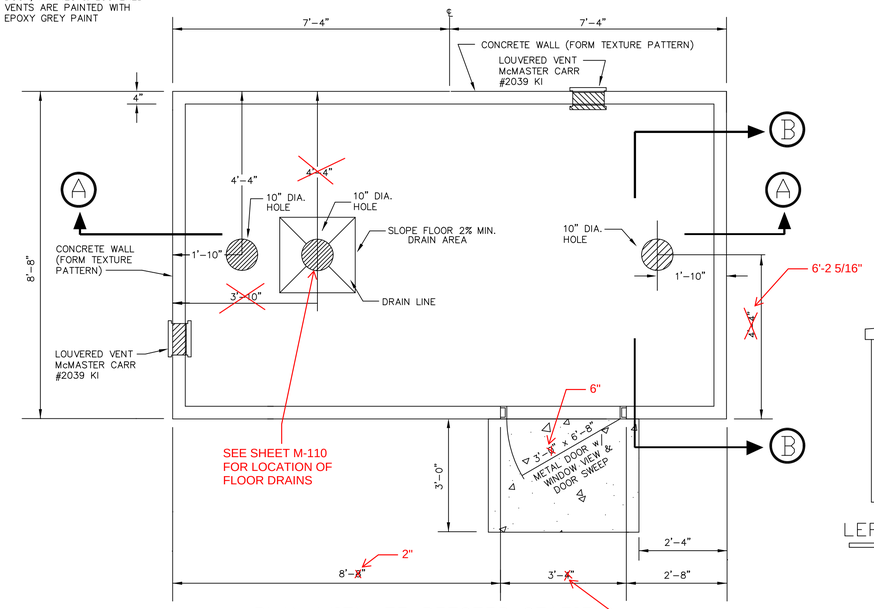
NAVAJO TRIBAL UTILITY AUTHORITY
HQ CIVIL ENGINEERING DEPARTMENT

GRAVITY/THRUST BLOCK CHART

HQ-ENGINEERING FT.DEFIANCE, AZ

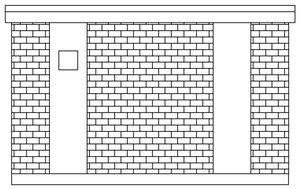
REVISIONS			
No.	Date	Brief	By
01	04/08	Revised	L.H.
02			
03			
04			
05			
06			

NOTE: DOOR, FRAMES & LOUVERED VENTS ARE PAINTED WITH EPOXY GREY PAINT



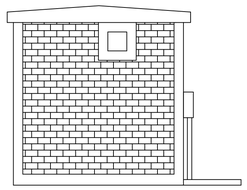
PLAN VIEW OF BOOSTER STATION

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



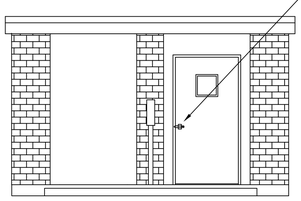
REAR ELEVATION

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



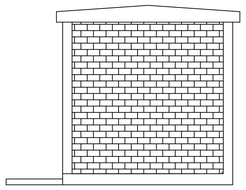
LEFT SIDE ELEVATION

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



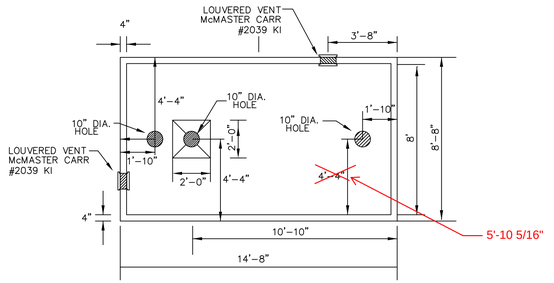
FRONT ELEVATION

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



RIGHT SIDE ELEVATION

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



BASE SLAB PLAN

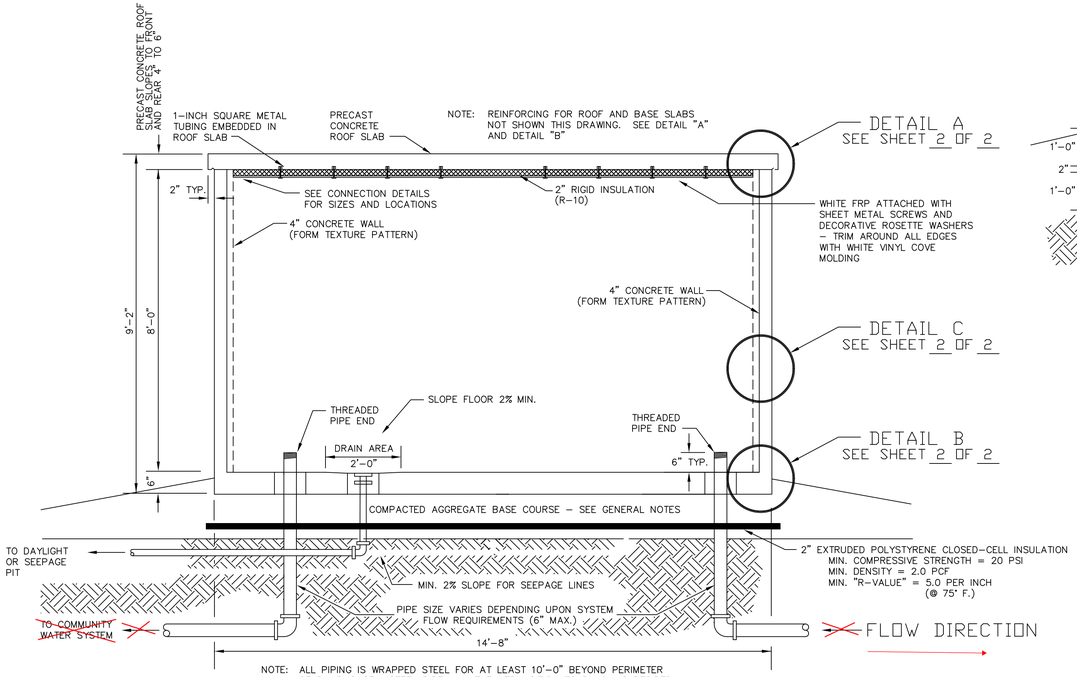
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. THE GOVERNING CODE IS THE UNIFORM BUILDING CODE, 1985 EDITION.
2. MINIMUM DESIGN LIVE LOADS SHALL BE:
   25 PSF - ROOF SNOW LOAD
   25 PSF - HORIZONTAL WIND LOAD
   35 PCF - EQUIVALENT BACKFILL FLUID PRESSURE
   SEISMIC ZONE II REQUIREMENTS
3. THE GENERAL CONTRACTOR OR OWNER SHALL BE RESPONSIBLE FOR LOCATION OF THE STRUCTURE, ORIENTATION, BENCH MARKS, REFERENCE FLOOR ELEVATIONS, LINES, AND GRADES.
4. FOUNDATION DESIGN IS BASED UPON A MAXIMUM ASSUMED SOIL BEARING CAPACITY OF 1000 PSF. SOIL BEARING MATERIALS ARE ASSUMED TO CONSIST OF GRANULAR MATERIALS (COBBLE ROCK, GRAVEL, AND SAND) WITH MINOR AMOUNTS OF SILT AND/OR CLAY. IF THERE SHOULD BE REASON TO SUSPECT THE PRESENCE OF EXPANSIVE SOILS OR POORLY CONSOLIDATED SOILS AT THE PROJECT SITE, THE OWNER SHALL BE RESPONSIBLE FOR CONFIRMING THAT THE BEARING STRATA ARE CAPABLE OF SUPPORTING THE STRUCTURE WITHOUT EXPANSIVE HEAVE, EXCESSIVE SETTLEMENT, OR OTHER UNACCEPTABLE PERFORMANCE.
5. COMPACTED AGGREGATE BASE COURSE IS RECOMMENDED BENEATH THE PRECAST BASE SLAB TO PROMOTE DRAINAGE AND TO PROVIDE A STABLE FOUNDATION STRUCTURE. FOR "NORMAL" SITE CONDITIONS, TWO (2) FEET OF BASE COURSE MATERIAL IS RECOMMENDED. FOR SITES WHERE THE NATURAL SOILS ARE PREDOMINATELY CLAY OR SILT, SPECIFIC RECOMMENDATIONS SHOULD BE PROVIDED BY A GEOTECHNICAL ENGINEER. BASE COURSE SHALL NOT BE INSTALLED INTO AN EXCAVATION IN NATIVE SOIL WITHOUT PROVIDING AN OUTLET FOR DRAINAGE, EITHER THROUGH FREELY DRAINING NATURAL SOILS AT THE SITE OR BY PROVIDING A GRAVELED TRENCH OR FRENCH DRAIN TO DAYLIGHT. BASE COURSE MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD PROCTOR DENSITY.

SCREEN SIZE	% PASSING
1"	100
3/4"	95-100
3/8"	20-55
NO.4	0-10
NO.8	0-5

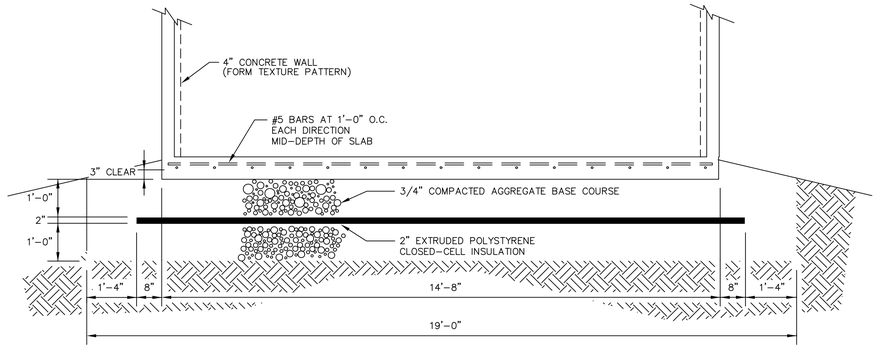
6. SITE DRAINAGE OF SURFACE MOISTURE SHALL PROVIDE A POSITIVE SLOPE OF FINISH GRADE AWAY FROM ALL SIDES OF THE BUILDING PERIMETER.
7. IT IS RECOMMENDED THAT SITE-CAST CONCRETE BE MADE WITH TYPE II (ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 5% (±1%) AIR ENTRAINMENT AND SHOULD BE PLACED AND CURED IN ACCORDANCE WITH THE ACI MANUAL OF CONCRETE PRACTICE, VOLUMES 1 THRU 5. SLUMP AT THE TIME OF PLACEMENT SHOULD NOT EXCEED FOUR (4) INCHES, AND MECHANICAL VIBRATION SHOULD BE EMPLOYED FOR CONSOLIDATION TO ELIMINATE VOIDS AND HONEYCOMBING.
8. PRECAST CONCRETE COMPONENTS SHALL BE CERTIFIED BY THE SUPPLIER TO HAVE ATTAINED A MINIMUM STRENGTH OF 3,000 PSI AT TRANSPORT TIME WITH FINAL CONCRETE STRENGTH TO BE AT LEAST 3,500 PSI WITHIN 28 DAYS. VERIFICATION OF CONCRETE STRENGTH SHALL BE PROVIDED BY THE SUPPLIER UPON REQUEST AND SHALL BE CONFIRMED THROUGH CYLINDER BREAKS FROM NORMAL PRODUCTION PROCEDURES AND IN-HOUSE QUALITY CONTROL. A SET OF FOUR (4) CYLINDERS SHALL BE TAKEN AT RANDOM IN THE PLANT NOT LESS THAN ONCE DURING EACH WEEK OF PRODUCTION. IF CONFIRMATION THROUGH CYLINDER BREAKS IS REQUIRED BY THE OWNER FOR ANY PARTICULAR PROJECT, THE COST OF ADDITIONAL TESTING SHALL BE PAID BY THE OWNER.
9. CONCRETE REINFORCING STEEL SHALL BE ASTM A-615 BILLET BARS, GRADE 40. BARS SHALL BE LAPPED AT LEAST THIRTY (30) BAR DIAMETERS AT SPLICES AND CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING.
10. STRUCTURAL STEEL, EMBEDMENT STEEL, AND CONNECTIONS SHALL CONFORM TO ASTM A-36. ALL EXPOSED STEEL PLATES AND CONNECTIONS SHALL BE PAINTED WITH ONE FIELD COAT OF COMPATIBLE PRIMER AND ONE COAT OF EPOXY PAINT.
11. FIELD WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO STANDARDS OF THE AMERICAN WELDING SOCIETY FOR WELDING IN BUILDING CONSTRUCTION.



NOTE: ALL PIPING IS WRAPPED STEEL FOR AT LEAST 10'-0" BEYOND PERIMETER OF PUMPHOUSE. STEEL PIPE MAY THEN TRANSITION TO P.V.C. AS DESIRED. ALL PIPING (INCLUDING UNIONS AND FITTINGS) AND ALL GRAVEL FILL BENEATH THE PRECAST FLOOR SLAB SHALL BE INSTALLED BY OTHERS.

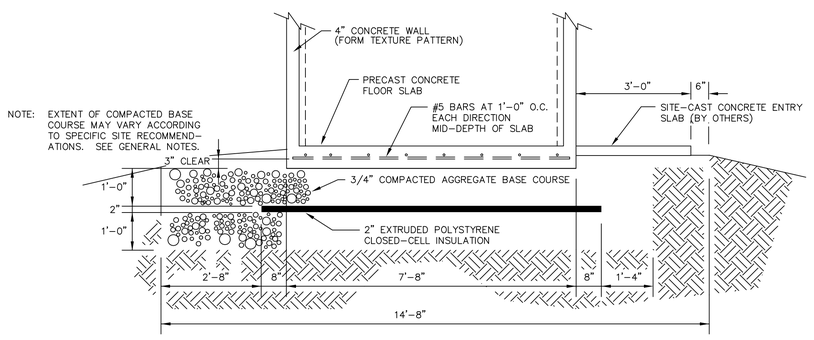
LONGITUDINAL SECTION OF BOOSTER STATION

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



SECTION A-A – LONGITUDINAL

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



SECTION B-B – TRANSVERSE

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

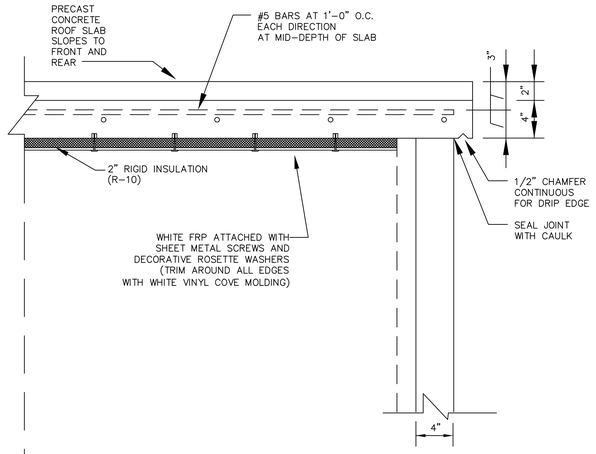
REVISION	DATE	DESCRIPTION	BY
3	02/07	Corrected Drain Pipe Location	JPM
2	05/05	Relocated Pipe Inlet & Outlet	JPM
1	10/00	Title Block Change	W.S.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

STANDARD DETAIL DRAWING #W-9
PRECAST BOOSTER STATION
DRAWING 1 OF 2

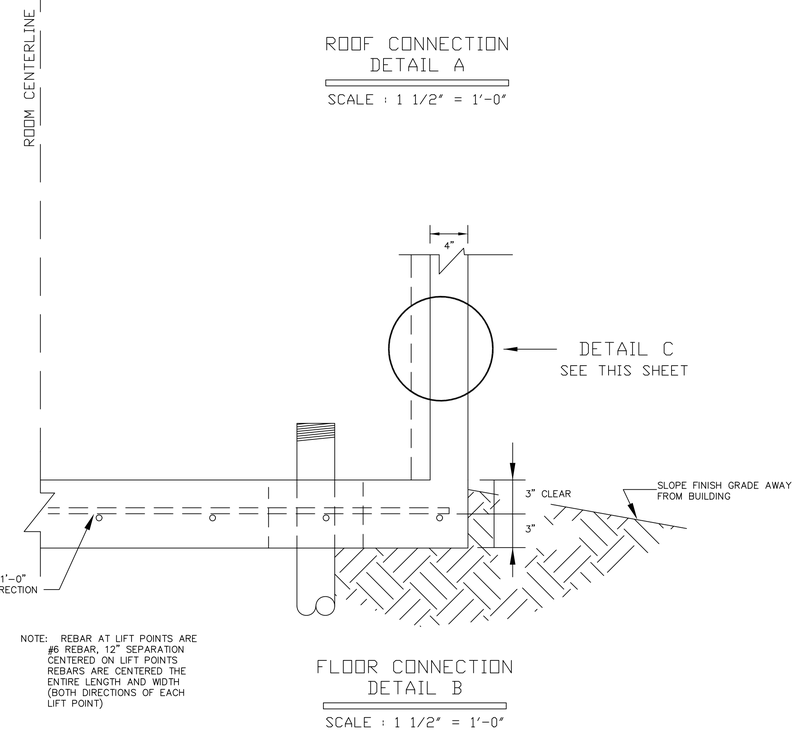
OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA INDIAN HEALTH SERVICE, FARMINGTON FIELD OFFICE

DRAWN BY: E.J.	CHECKED BY: M.N.	AUTOCAD	Sheet of
DATE: 11-25-98	DATE: 11/98	DRAWING	



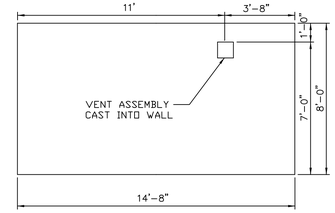
ROOF CONNECTION DETAIL A

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



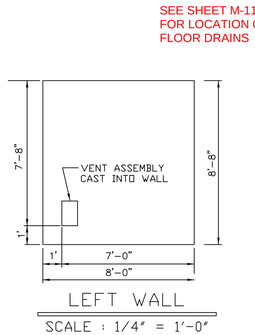
FLOOR CONNECTION DETAIL B

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



REAR WALL

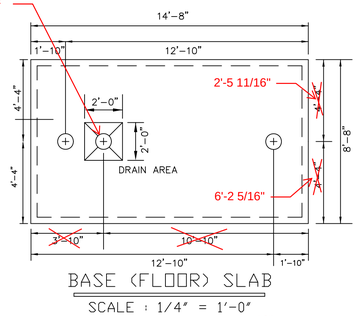
SCALE : 1/4" = 1'-0"



LEFT WALL

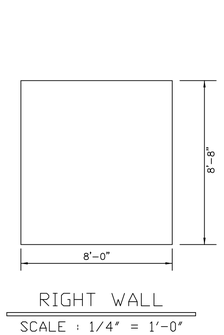
SCALE : 1/4" = 1'-0"

SEE SHEET M-110 FOR LOCATION OF FLOOR DRAINS



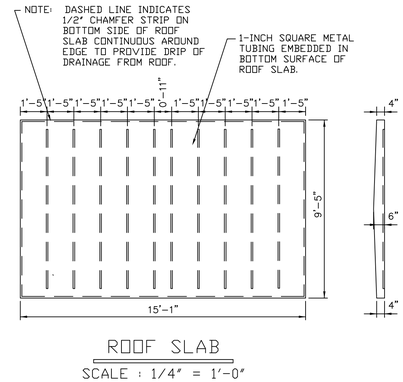
BASE (FLOOR) SLAB

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



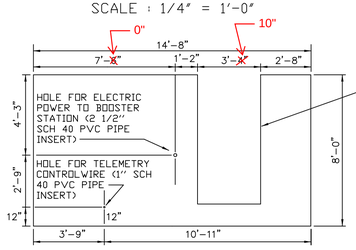
RIGHT WALL

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



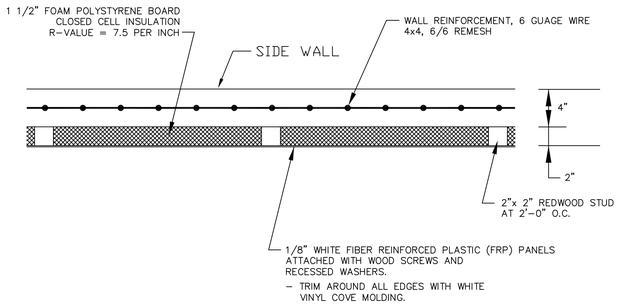
ROOF SLAB

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



FRONT WALL

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



WALL PANEL DETAIL C

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

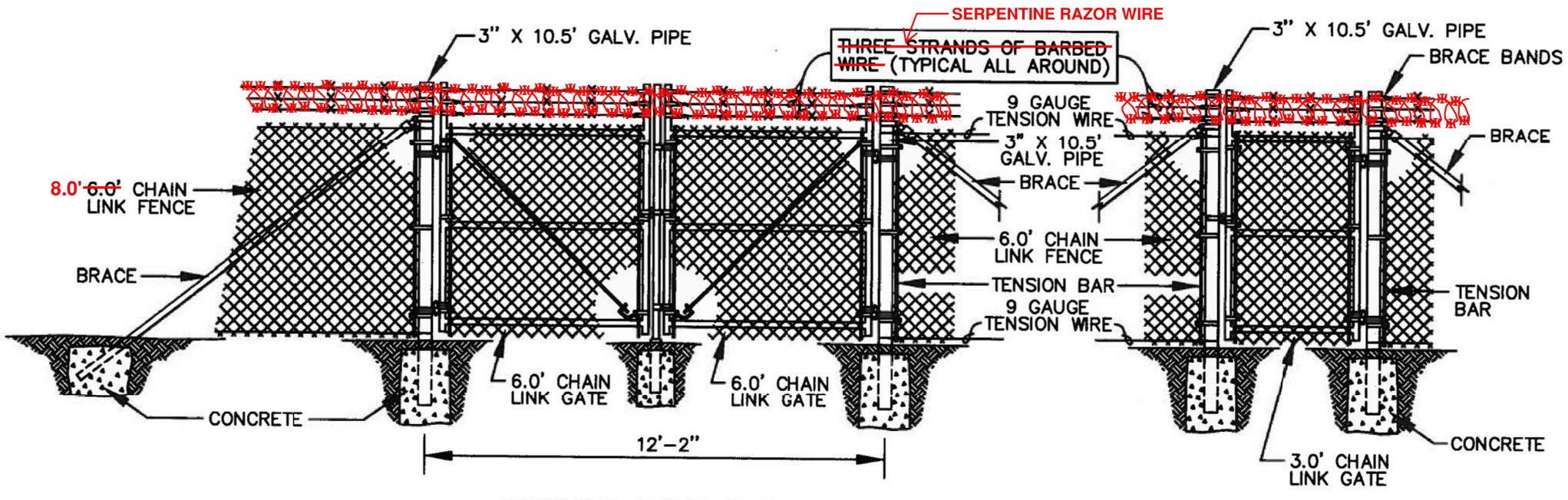
REVISION	DATE	DESCRIPTION	BY
2	05/05	Relocated Pipe Inlet & Outlet	JPM
1	10/00	Title Block Change	W.S.

U.S. DEPARTMENT OF ALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

STANDARD DETAIL DRAWING #W-9
PRECAST BOOSTER STATION
DRAWING 2 OF 2

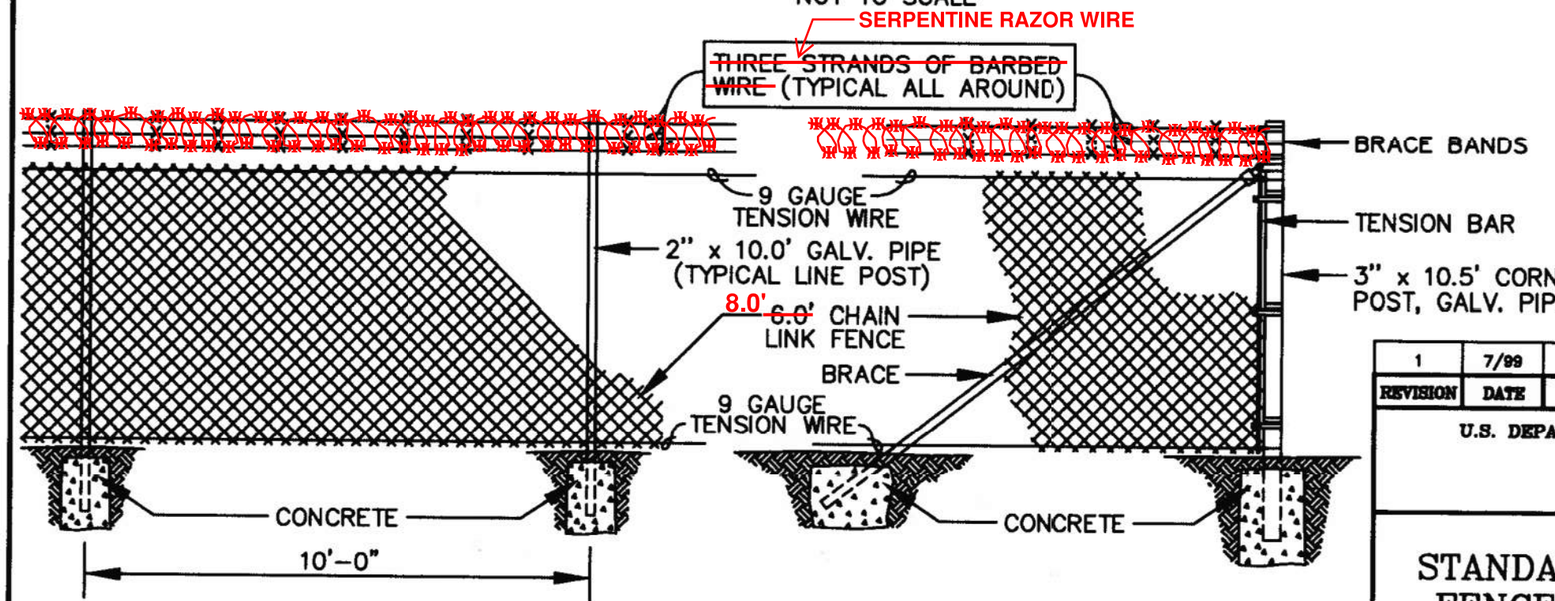
OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA INDIAN HEALTH SERVICE, FARMINGTON FIELD OFFICE

DRAWN BY: E.J. DATE: 11-25-98	CHECKED BY: M.N. DATE: 11/98	AUTOCAD DRAWING	Sheet of



DOUBLE GATE DETAIL
NOT TO SCALE

SINGLE GATE DETAIL
NOT TO SCALE



LINE POST DETAIL
NOT TO SCALE

CORNER POST DETAIL
NOT TO SCALE

1	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

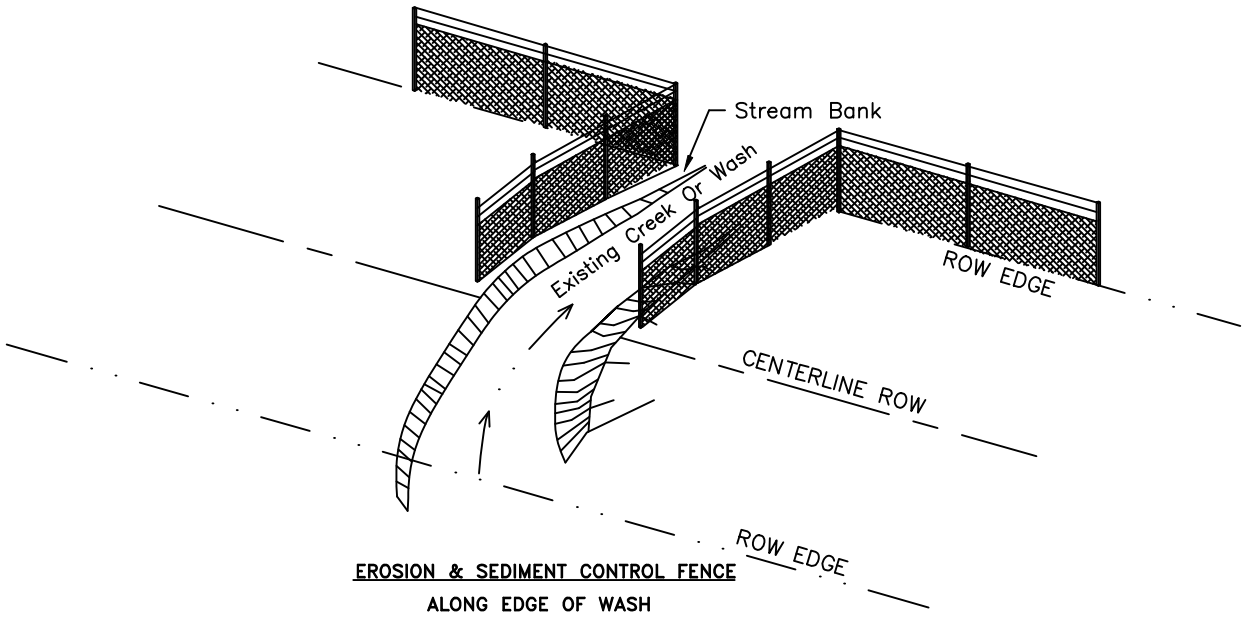
NAVAJO NATION,

STANDARD DRAWING NO. W-34
FENCE DETAIL FOR STORAGE TANK & PUMPHOUSE

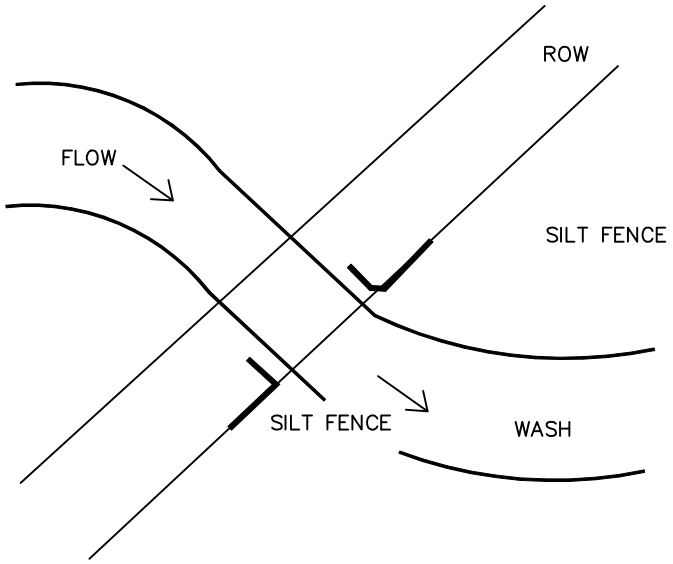
OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. DATE: 12/98	CHECKED BY: P.S. DATE: 12/98	APPR. BY: P.S. DATE: 12/98	AUTOCAD DRAWING

SILT FENCE DETAILS



EROSION & SEDIMENT CONTROL FENCE
ALONG EDGE OF WASH



SILT FENCE:
PLAN VIEW

INSTALLATION NOTES

1. THE SILT FENCING CONSISTS OF 3' SEDIMENT CONTROL FABRIC CLOTH WITH BURIED–TOE AND WOODEN OR STEEL POSTS (TEE OR U TYPE) 10' AND SHALL COMPLY WITH AASHTO M–288.

2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

REVISION	DATE	BRIEF	BY

DEPARTMENT OF HEALTH AND HUMAN SERVICES
U.S. PUBLIC HEATH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

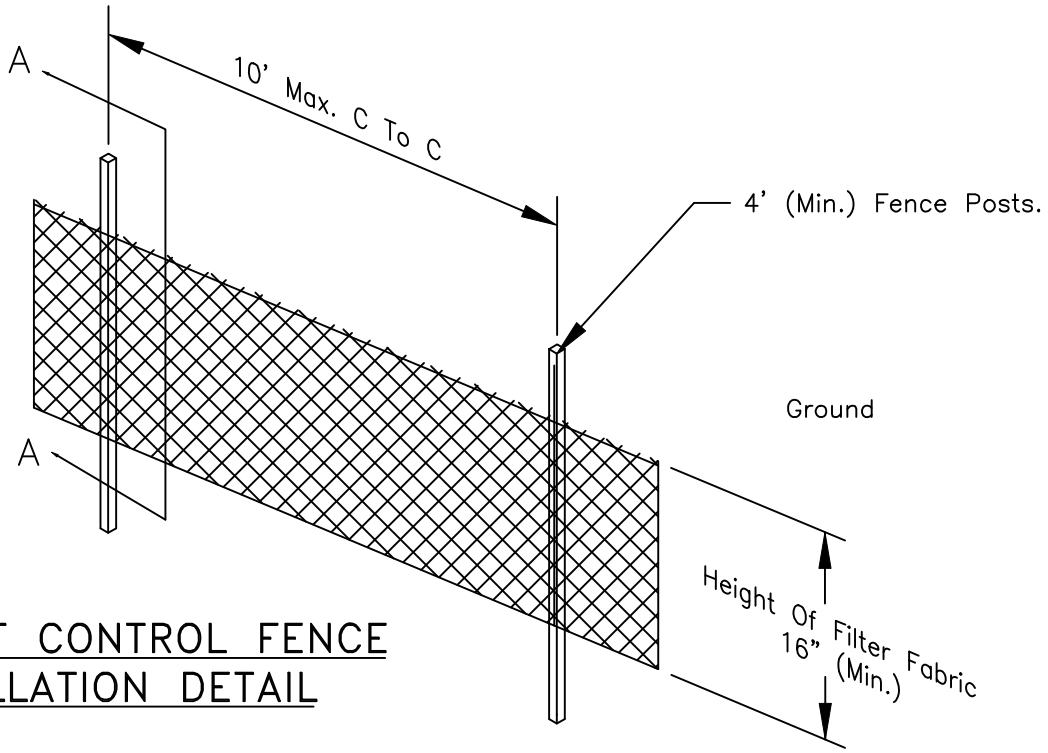
NAVAJO NATION

STANDARD DRAWING NO. W–39
SILT FENCE
DRAWING 1 OF 2

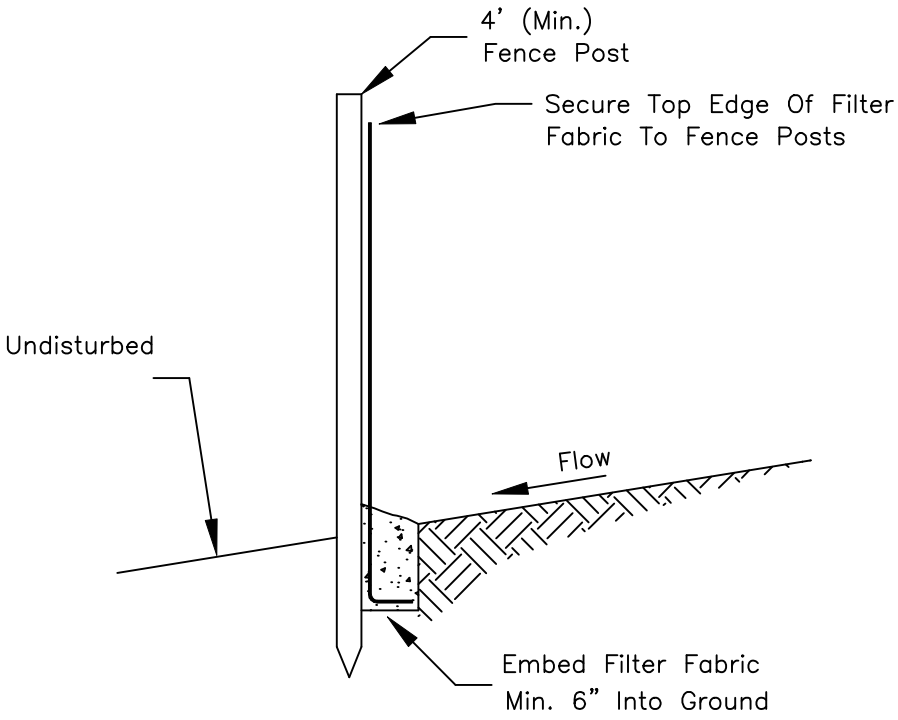
PUBLIC LAW 86–121

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: TL DATE: 9/01	CHECKED BY: RG DATE: 9/01	APPR. BY: BM DATE: 9/01	AUTOCAD DRAWING



SEDIMENT CONTROL FENCE INSTALLATION DETAIL



SECTION A–A

REVISION	DATE	BRIEF	BY

DEPARTMENT OF HEALTH AND HUMAN SERVICES
U.S. PUBLIC HEATH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION

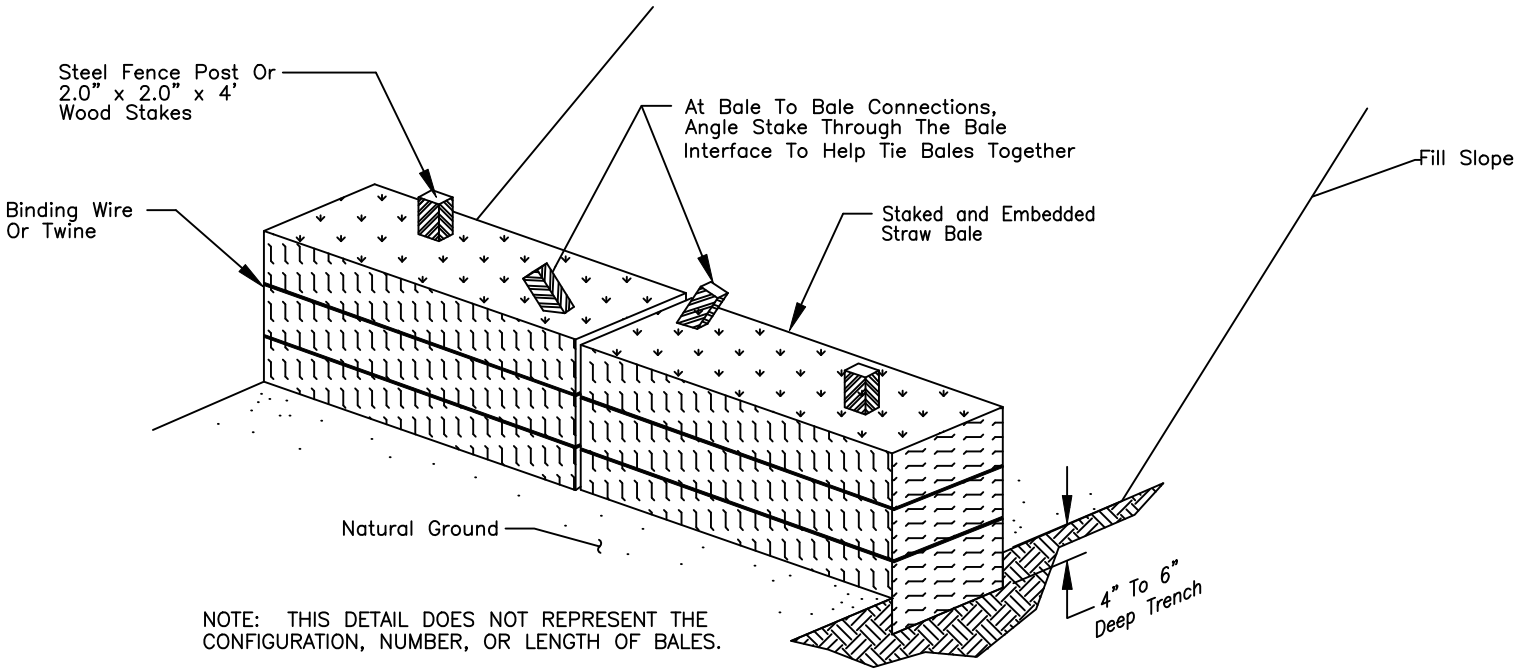
STANDARD DRAWING NO. W-39
SILT FENCE
DRAWING 2 OF 2

PUBLIC LAW 86-121

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

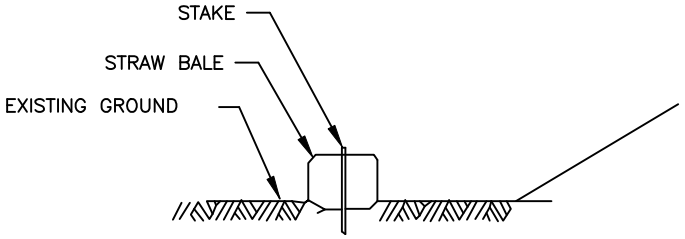
DRAWN BY: TL DATE: 9/01	CHECKED BY: RG DATE: 9/01	APPR. BY: BM DATE: 9/01	AUTOCAD DRAWING

STRAW BALE DETAILS
(For Check Dams to Retain Water and Sediment)

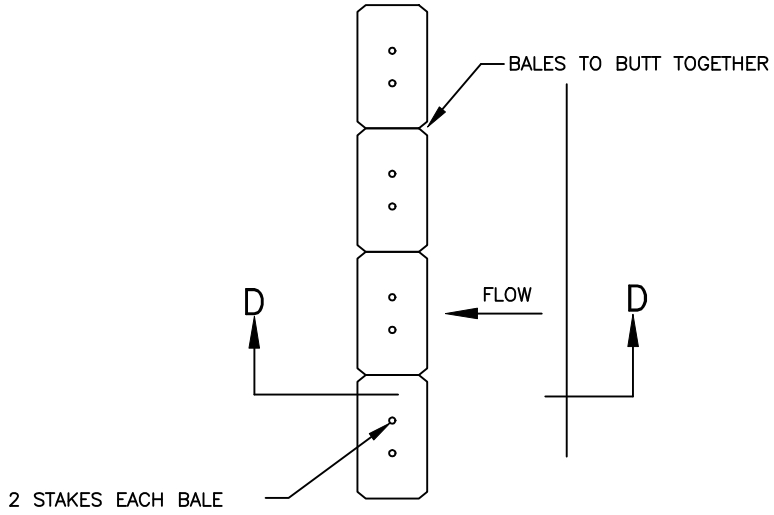


NOTE: THIS DETAIL DOES NOT REPRESENT THE CONFIGURATION, NUMBER, OR LENGTH OF BALES.

TYPICAL STRAW BALE STAKING AND TRENCHING DETAIL



SECTION D–D



PLAN
STRAW BALE SILT BARRIER

INSTALLATION NOTES

1. STRAW BALES MAY BE USED FOR DIKES PROVIDED THEY ARE PROPERLY ANCHORED WITH STEEL FENCE POSTS OR 2" X 2" X 4' WOOD STAKES (TWO PER BALE) ANCHORED 1.5' INTO THE NATURAL GROUND. STRAW BALES SHALL BE CERTIFIED 0.5% WEED FREE. DO NOT USE STRAW BALES IN AREAS OF CONCENTRATED FLOW AND CUT DITCHES.

GENERAL NOTES

1. THE CONTRACTOR SHALL HAVE ON–SITE A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WITH PROJECT SPECIFIC COVER SHEET.

2. CONSTRUCT CHECK DAMS AND/OR FILTERS IN STRATEGIC LOCATIONS ON THE PROJECT TO FILTER STORM RUNOFF BEFORE IT LEAVES THE PROJECT CONSTRUCTION LIMITS OR ENTERS A WASH. SEE PROJECT CONSTRUCTION PLANS FOR LOCATIONS OF CHECK DAMS & FILTERS.

3. CLEAN ALL SEDIMENT BASIN AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.

4. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SWPPP MEASURES MONTHLY AND AFTER EACH SIGNIFICANT STORM EVENT (I.E. 0.5 IN. OF MOISTURE IN 24 HOURS).

5. THE CONTRACTOR, IN CONSULTATION WITH THE PROJECT ENGINEER SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS. ALL ADJUSTMENTS WILL BE DOCUMENTED ON THE INSPECTION FORMS INCLUDED WITH THE SWPPP.

6. REMOVE AND DISPOSE OF EROSION CONTROL MEASURES WHEN THE PERMANENT EROSION CONTROL MEASURES ARE SATISFACTORILY ESTABLISHED.

REVISION	DATE	BRIEF	BY

DEPARTMENT OF HEALTH AND HUMAN SERVICES
U.S. PUBLIC HEATH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION

STANDARD DRAWING NO. W–40
STRAW BALES

PUBLIC LAW 86–121

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: TL DATE: 9/01	CHECKED BY: RG DATE: 9/01	APPR. BY: BM DATE: 9/01	AUTOCAD DRAWING

NAVAJO TRIBAL UTILITY AUTHORITY
PUMP CONTROL PANEL LAYOUT

SCHEDULE OF DRAWINGS			
SHEET	FILENAME	TITLE	NOTES
1	PLC_CV	COVERSHEET	SHEDULE OF DRAWINGS
2	PLC_DIO	DISCRETE I/O	WIRING
3	PLC_AI	ANALOG INPUT	WIRING
3A	PLC_AO	ANALOG OUTPUT	WIRING
4	PLC_PWR	POWER DISTRIBUTION	WIRING
5	PLC_BP	BACKPLANE LAYOUT	BP W/ BOM
5A	PLC_SOP	SWING OUT PANEL	BP W/ BOM
6	PLC_CBL	COMM CABLES PINOUT	

PLC CONTROL PANEL

NO.	DATE	DESCRIPTION	BY
01	3/22	DWG MODIFICATION "DILKON PASS BOOSTER"	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

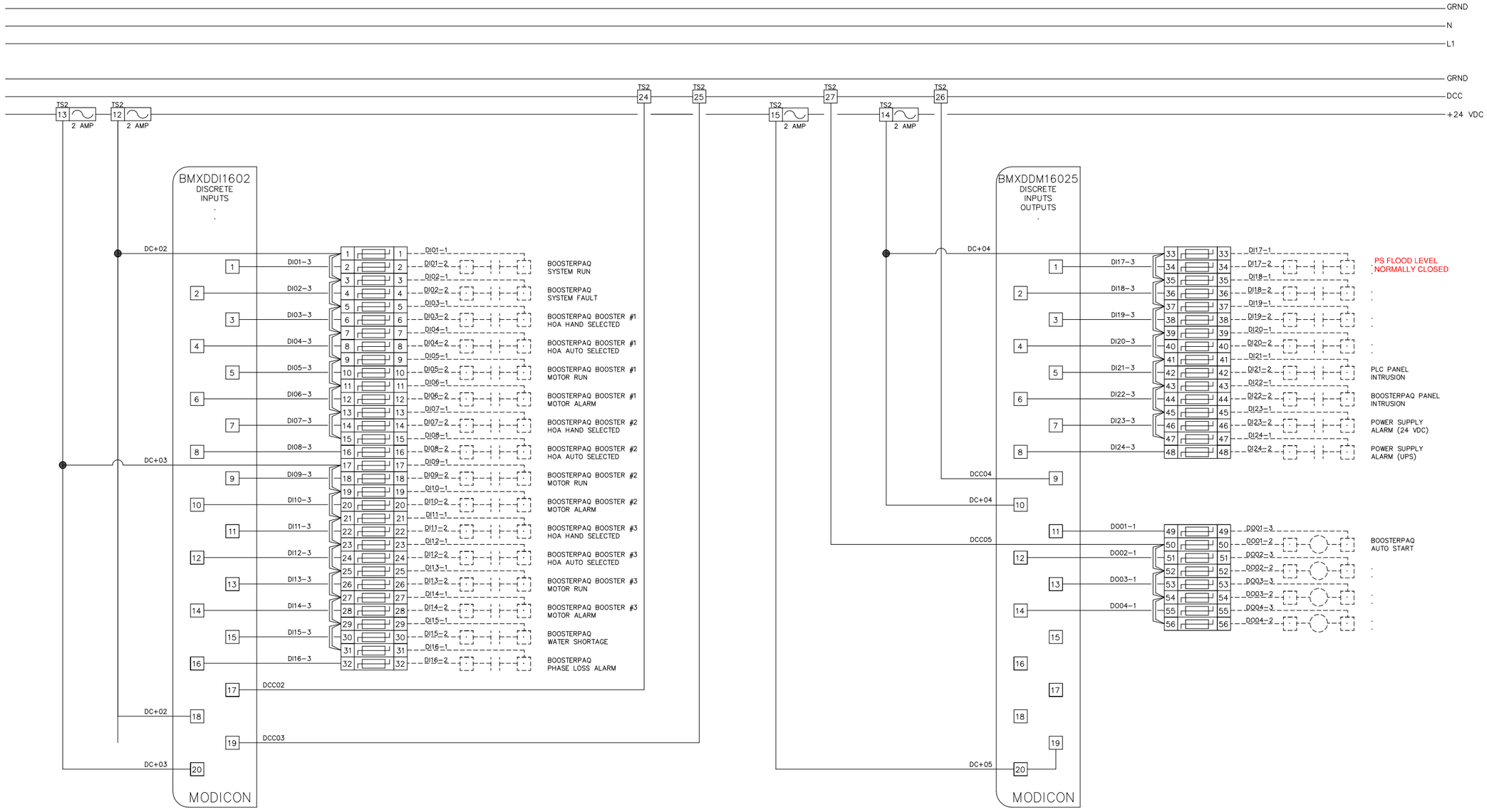
SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DRN. . CKD. .	.	.	.
APV'D. .			

TITLE: PLC CONTROL PANEL
COVER SHEET

W.O.#

SHEET 1 OF 6

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS



LEGEND

Field Terminations ----------

Panel Wiring ——————

NO.	DATE	DESCRIPTION	BY
02	12/21	DWG UPDATES "DILKON PASS BOOSTER"	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

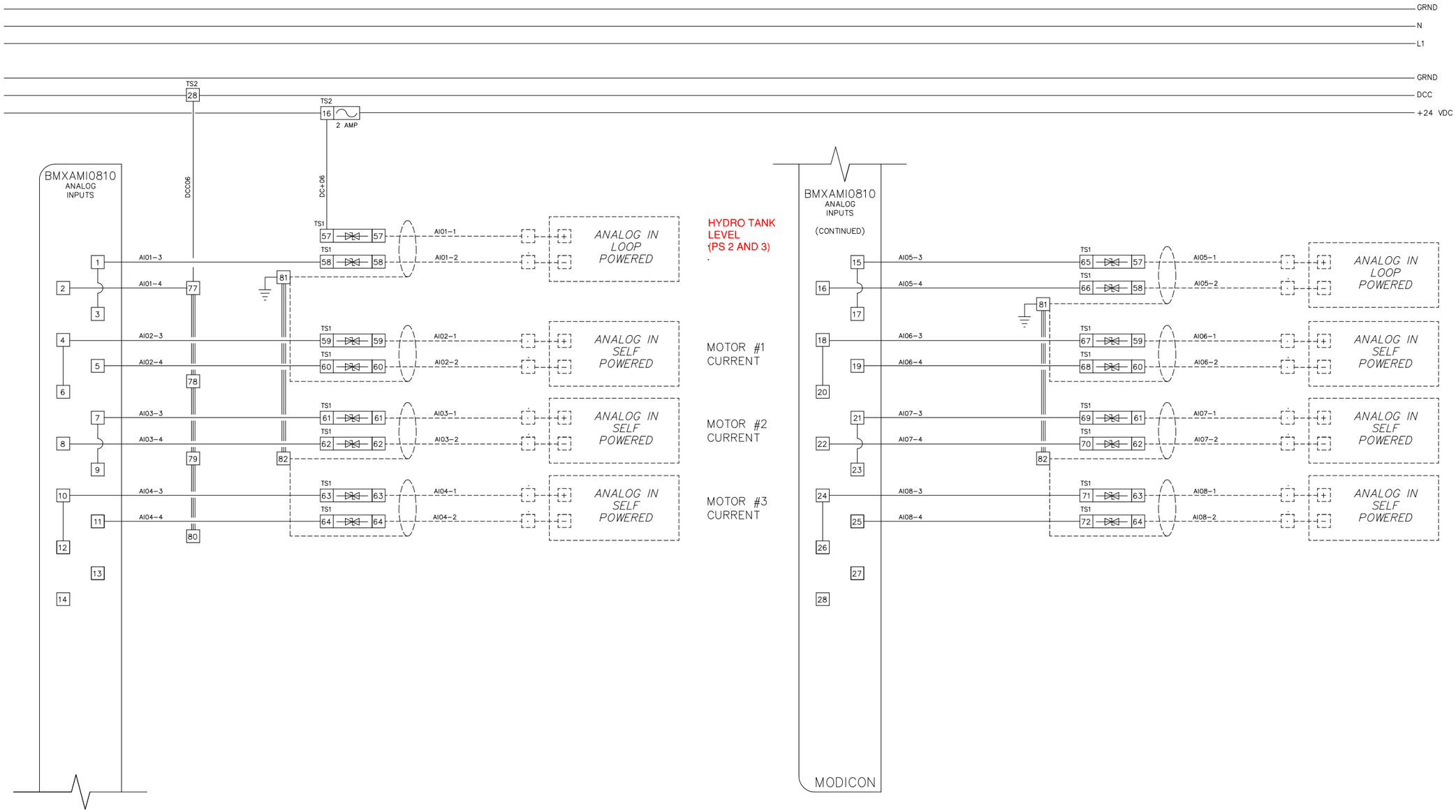
SCALE: NONE
DATE:
DRN. CKD.
APV'D.
REVISIONS | BY | DATE

TITLE: PLC CONTROL PANEL
DISCRETE I/O
(BOOSTER WITH BOOSTERPAQ)

W.O.#

SHEET 2 OF 6

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS



LEGEND

Field Terminations ----------

Panel Wiring ——————

NO.	DATE	DESCRIPTION	BY
03	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
02	12/21	DWG UPDATES	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE
DATE: .
DRN. . CKD. .
APV'D. .

REVISIONS | BY | DATE

TITLE: PLC CONTROL PANEL
ANALOG INPUT
(BOOSTER WITH BOOSTERPAQ)

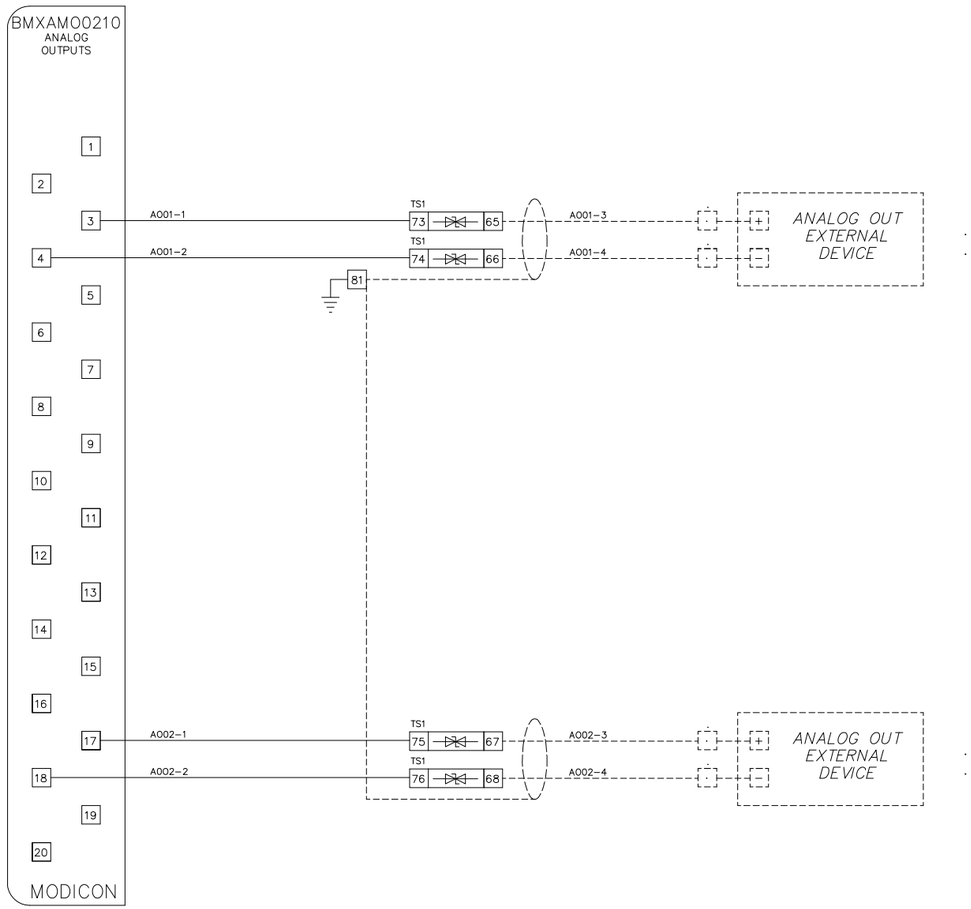
W.O.#

SHEET 3 OF 6

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS

GRND
N
L1

GRND
DCC
+24 VDC



LEGEND

Field Terminations ----------

Panel Wiring ——————

NO.	DATE	DESCRIPTION	BY
03	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
02	12/21	DWG UPDATES	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

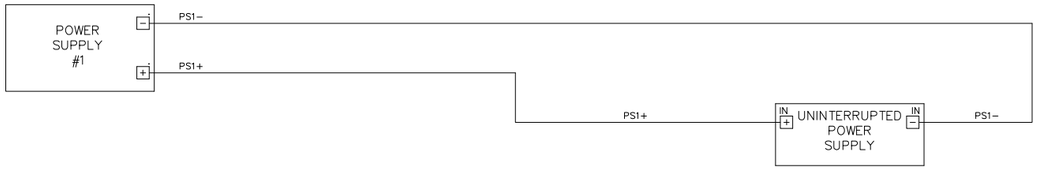
SCALE: NONE
DATE:
DRN.
CKD.
APV'D.

REVISIONS	BY	DATE

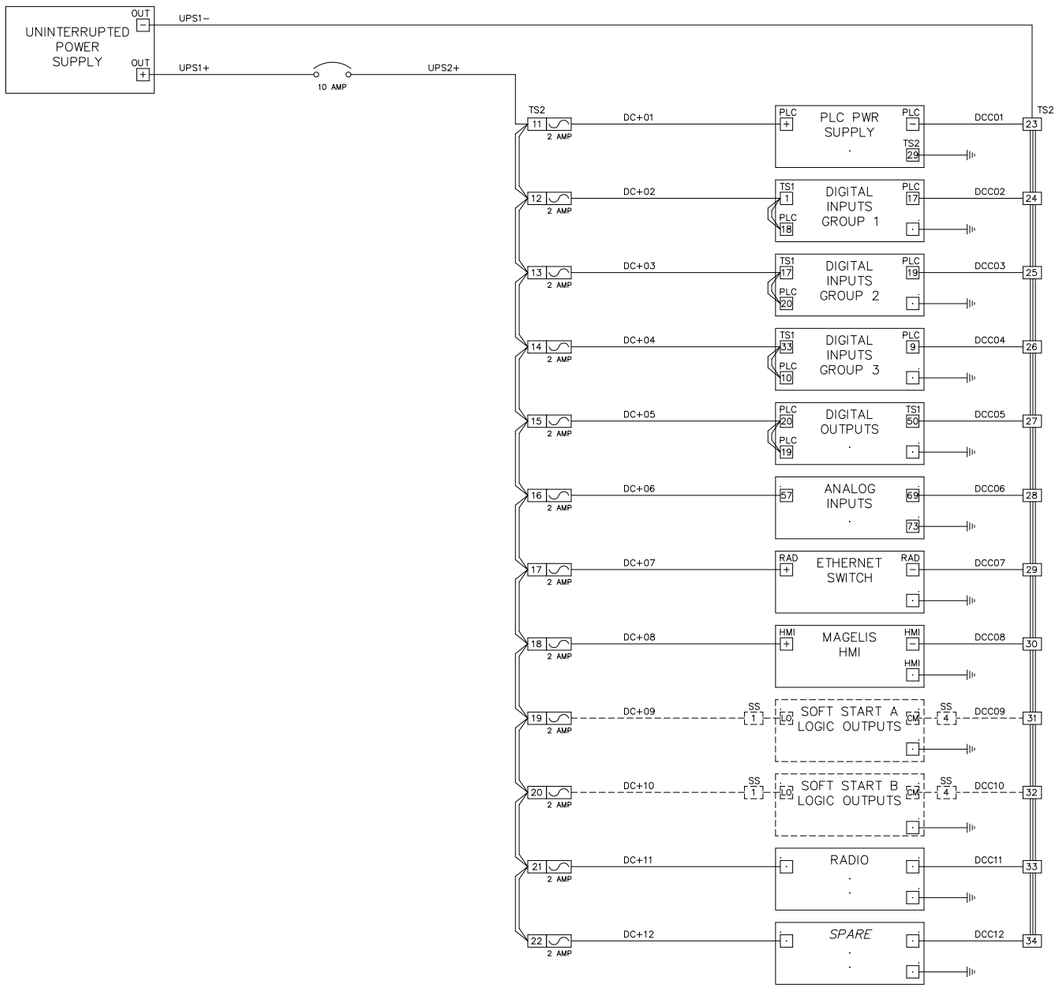
TITLE: PLC CONTROL PANEL
ANALOG OUTPUT
(BOOSTER WITH BOOSTERPAQ)

W.O.#

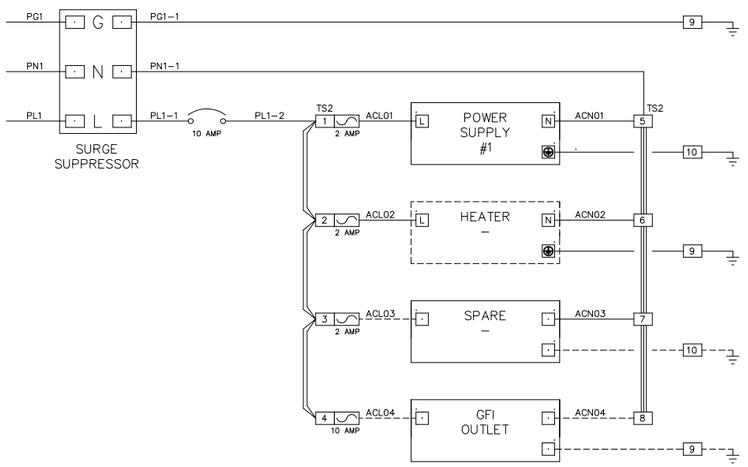
24VDC DISTRIBUTION



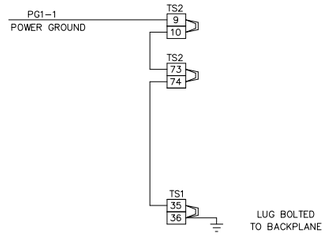
24VDC DISTRIBUTION (UPS)



120VAC DISTRIBUTION



GRND



LEGEND

Field Terminations ----------

Panel Wiring _____

NO.	DATE	DESCRIPTION	BY
01	12/16	DWG UPDATES	NTUA

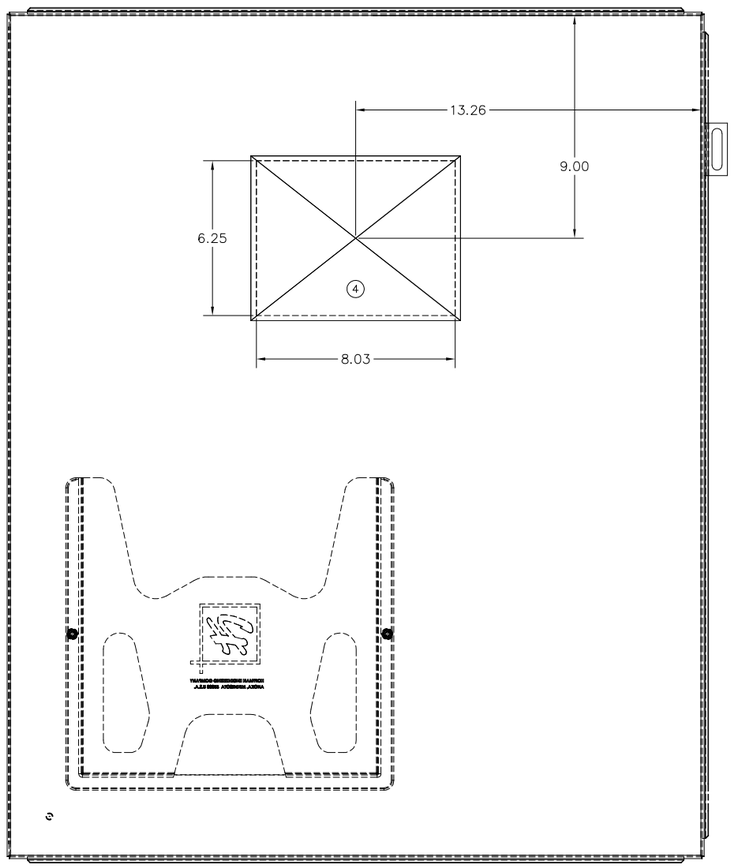
NAVAJO TRIBAL UTILITY AUTHORITY

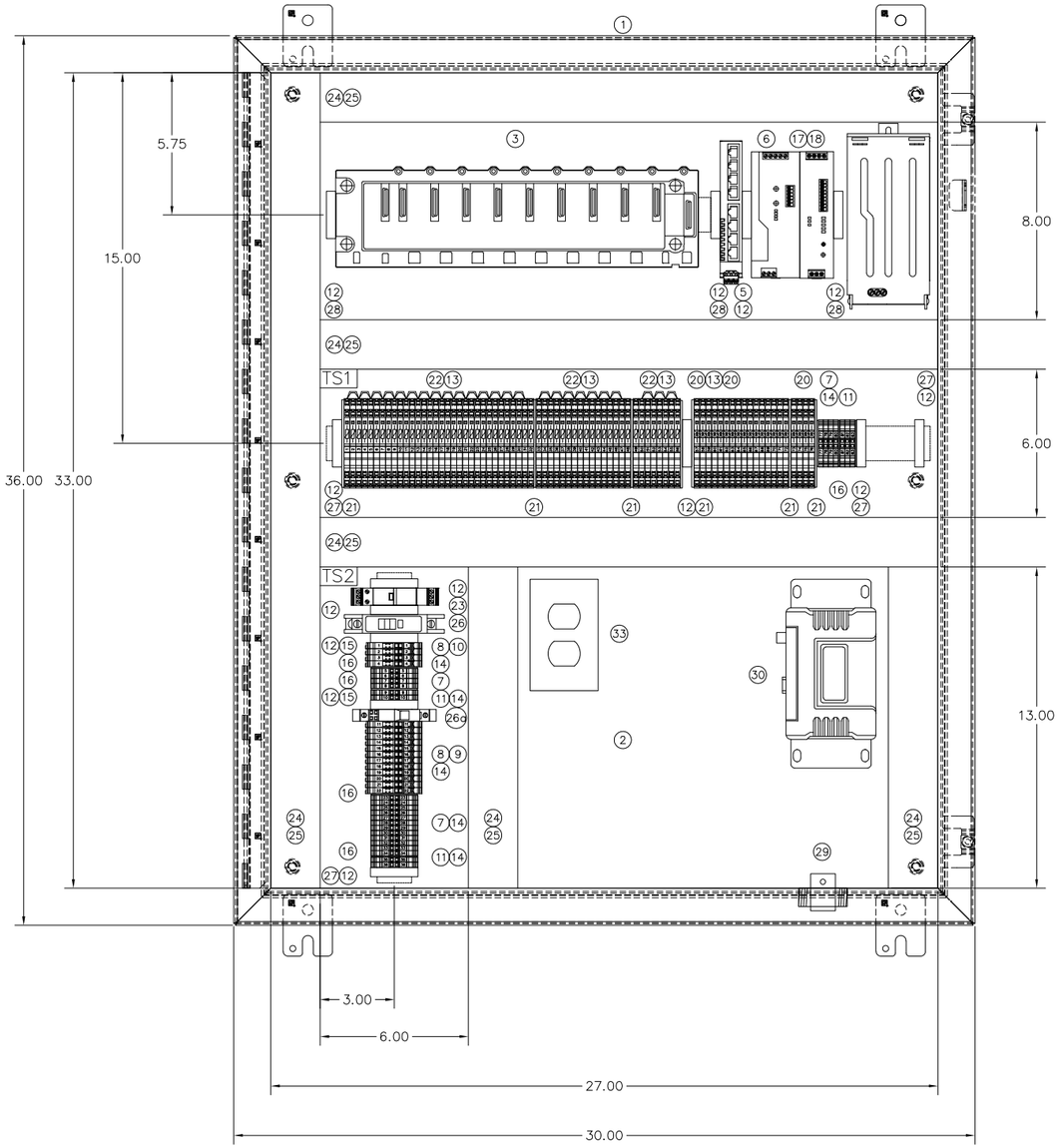
SCALE: .	REVISIONS	BY	DATE
DATE: .	.	.	.
DRN. . CKD. .	.	.	.
APVD. .			

TITLE PLC CONTROL PANEL
POWER DISTRIBUTION

W.O.#

SHEET 4 OF 6





BILL OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION	MFG
1	1	A-363012LP	SINGLE-DOOR TYPE 12 ENCLOSURE	HOFFMAN
2	1	A-36P30	BACKPLANE	HOFFMAN
3*	.	M340	MODICON M340 BOM	SCHNEIDER ELECTRIC
3a	1	BMXXBP0800	8-SLOT RACK MODULE	SCHNEIDER ELECTRIC
3b	1	BMXCPS3020	POWER SUPPLY MODULE	SCHNEIDER ELECTRIC
3c	1	BMXP342020	CPU PROCESSOR MODULE	SCHNEIDER ELECTRIC
3d	1	BMXDDI1602	DIGITAL INPUT MODULE	SCHNEIDER ELECTRIC
3e	1	BMXDDM16025	DIGITAL INPUT/OUTPUT MODULE	SCHNEIDER ELECTRIC
3f	1	BMXAMI0810	ANALOG INPUT MODULE	SCHNEIDER ELECTRIC
3g	1	BMXAMO0210	ANALOG OUTPUT MODULE	SCHNEIDER ELECTRIC
3h	3	BMXFTB2010	REMOVABLE CONNECTION BLOCK - SCREW CLAMP	SCHNEIDER ELECTRIC
3i	1	BMXFTB2800	REMOVABLE CONNECTION BLOCK - CAGE SPRING	SCHNEIDER ELECTRIC
4	1	HMIGTO4310	7.5 GRAPHIIC TERMINAL TOUCHSCREEN (MAGELIS)	SCHNEIDER ELECTRIC
5	1	FL SWITCH 1008N	INDUSTRIAL ETHERNET SWITCH	PHOENIX CONTACT
6	1	QUINT4-PS/1AC/ 24DC/10	POWER SUPPLY 22.5-28.5V ADJUSTABLE	PHOENIX CONTACT
7	26	UT2,5	UT2,5 TERMINALS	PHOENIX CONTACT
8	16	UT4TG	FUSE TERMINAL BASE	PHOENIX CONTACT
9	12	P-FU5X20LED24	FUSE PLUG	PHOENIX CONTACT
10	4	P-FU5X20LA250	FUSE PLUG	PHOENIX CONTACT
11	7	UT2,5PE	GROUNDING TERMINAL	PHOENIX CONTACT
12	15	E/NS35N	END CLAMP	PHOENIX CONTACT
13	4	FBS 20-6 BU #3032208	FIXED BRIDGE	PHOENIX CONTACT
14	4	FBS 20-5 BU #3036929	INSERTION BRIDGE	PHOENIX CONTACT
15	6	D-UT2,5/10	END COVER	PHOENIX CONTACT
16	6	ATP-UT	PARTITION PLATES	PHOENIX CONTACT
17	1	QUINT4-UPS/24DC /24DC/10	UNINTERRUPTIBLE POWER SUPPLY	PHOENIX CONTACT
18	1	UPS-BAT/PB/ 24DC/4.0AH	ENERGY STORAGE	PHOENIX CONTACT
19	.	.	.	.
20	20	TTC-6-TVSD-C-24DC-UT-I	SURGE PROTECTION #2906831	PHOENIX CONTACT
21	7	TTC-6-LCP #2908729	END COVER	PHOENIX CONTACT
22	56	TTC-6-MOV-C-24DC-UT-I	SURGE PROTECTION #2906837	PHOENIX CONTACT
23	1	PLT-SEC-T3-120 -FM-UT	TYPE 3 SURGE PROTECTION DEVICE	PHOENIX CONTACT
24	AN	F2X4LG6	TYPE F NARROW SLOT WIRING DUCT	PANDUIT
25	AN	C2LG6	WIRING DUCT COVER	PANDUIT
26	1	TMC 71C 10A #0902072	CIRCUIT BREAKER	PHOENIX CONTACT
26a	1	UT6-TMCM 10A #0916610	CIRCUIT BREAKER	PHOENIX CONTACT
27	AN	1492DR6	EXTENDED DIN RAIL	ALLEN BRADLEY
28	AN	1492-DR5	DIN RAIL	ALLEN BRADLEY
29	1	IS-50NX-C2	LIGHTNING ARRESTER	POLYPHASER
30	1	ORBIT OR TRANSNET	902 - 928 MHz RADIO SPREAD SPECTRUM	GEMDS
31	2	CAT6	ETHERNET PATCH CABLE (4' - BLACK)	BELDEN
32	1	.	CABLE - PLC TO MODEM (TO LENGTH)	.
33	1	DRUBGFI15	DIN RAIL UTILITY BOX	HUBBELL

AN - As needed
3* - BOM - To include items 3a-3h.

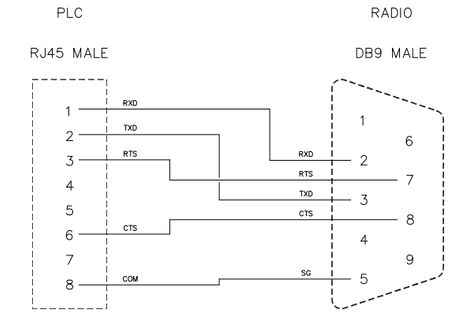
NO.	DATE	DESCRIPTION	BY
02	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DRN. . CKD. .	.	.	.
APVD. .			

TITLE: PLC CONTROL PANEL
BACKPLANE

W.O.#



A CABLE DIAGRAM: PLC TO RADIO

NO.	DATE	DESCRIPTION	BY
01	12/16	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DR'N. . CKD. .	.	.	.
AP'VD. .			

TITLE PLC CONTROL PANEL
CABLE PINOUT

W.O.#

SHEET 6 OF 6