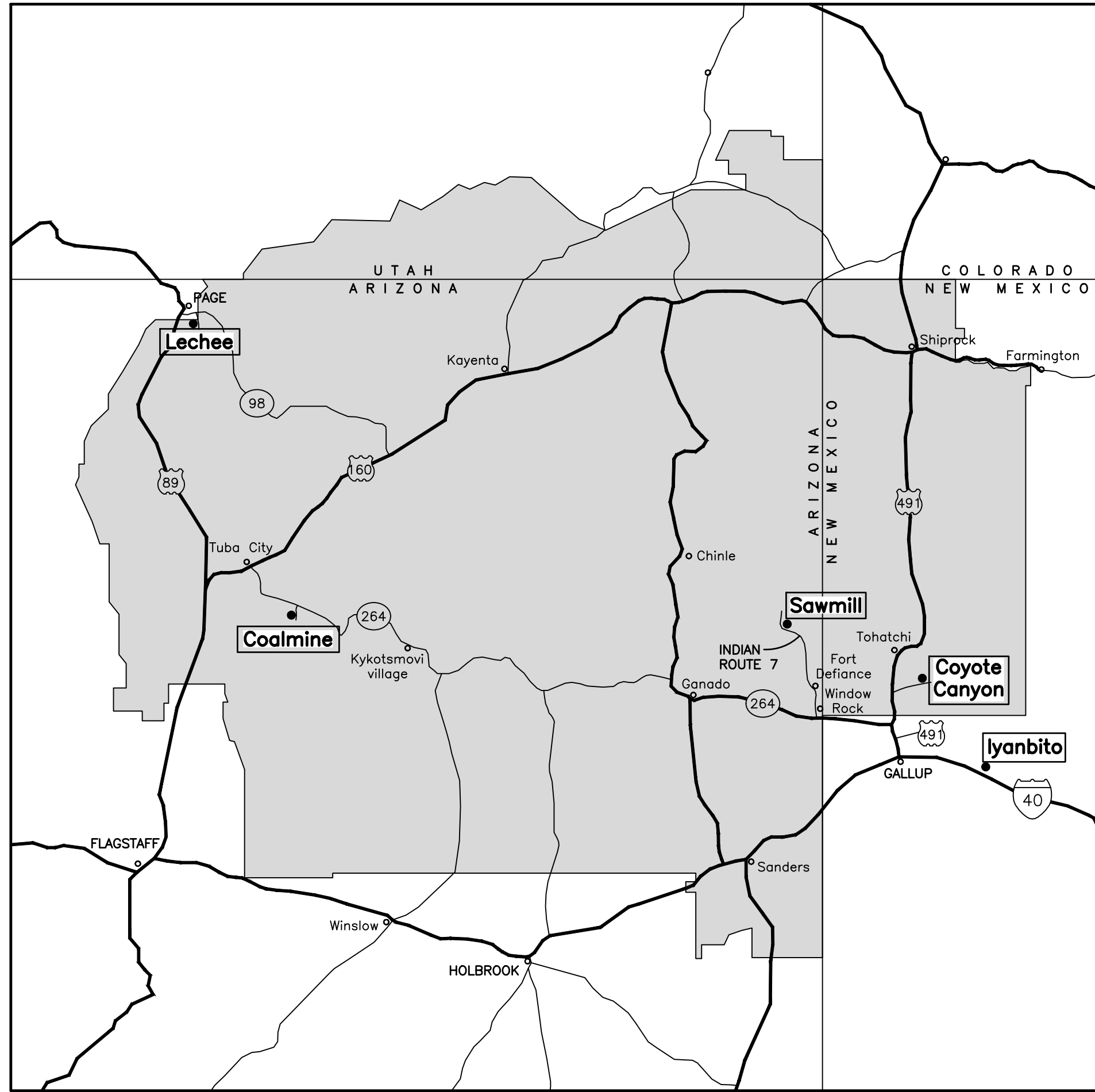


Dec 09, 2020 -- 2:12pm
Z:\2144 - NTUA - Design & Construction of Lift Station Facilities (5)\CAD\FINAL SUBMITTAL\G-01.dwg



LOCATION MAP

Not to Scale



DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES NAVAJO TRIBAL UTILITY AUTHORITY 100% SUBMITTAL DECEMBER 9, 2020

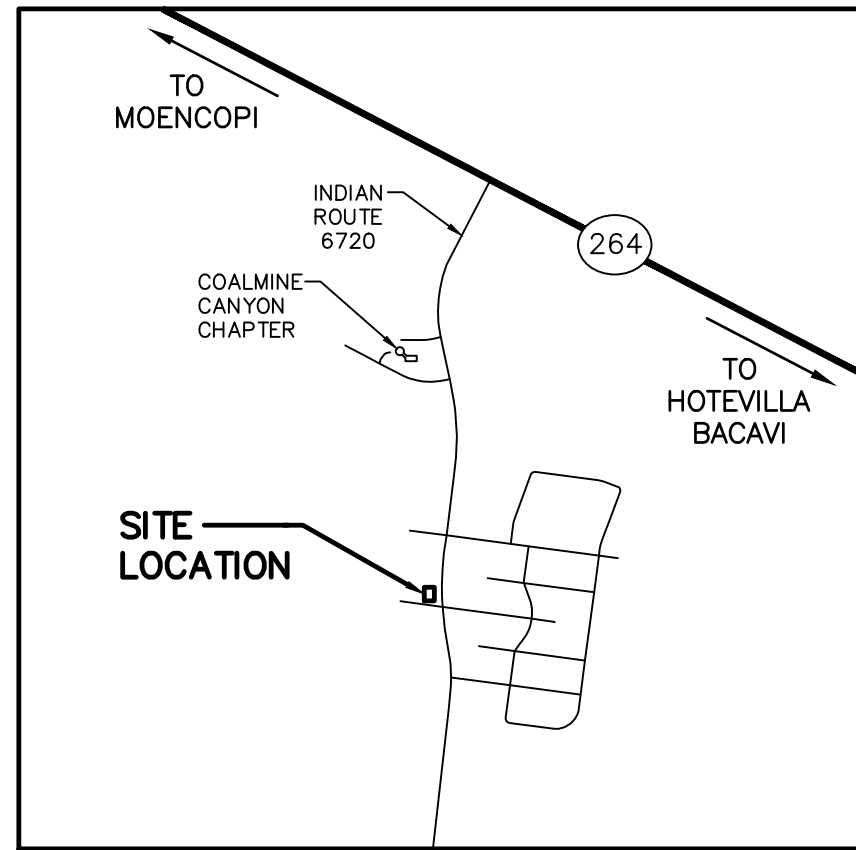
APPROVAL

ENGINEERING AND TECHNICAL SERVICES DIVISION

DATE

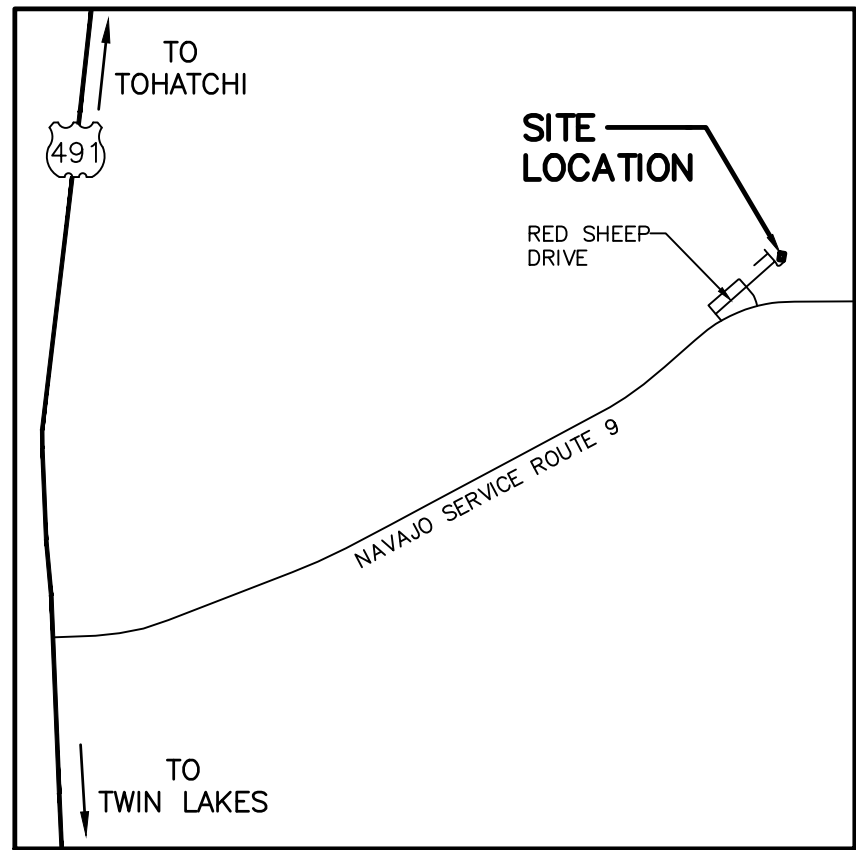
CIVIL ENGINEER

DATE



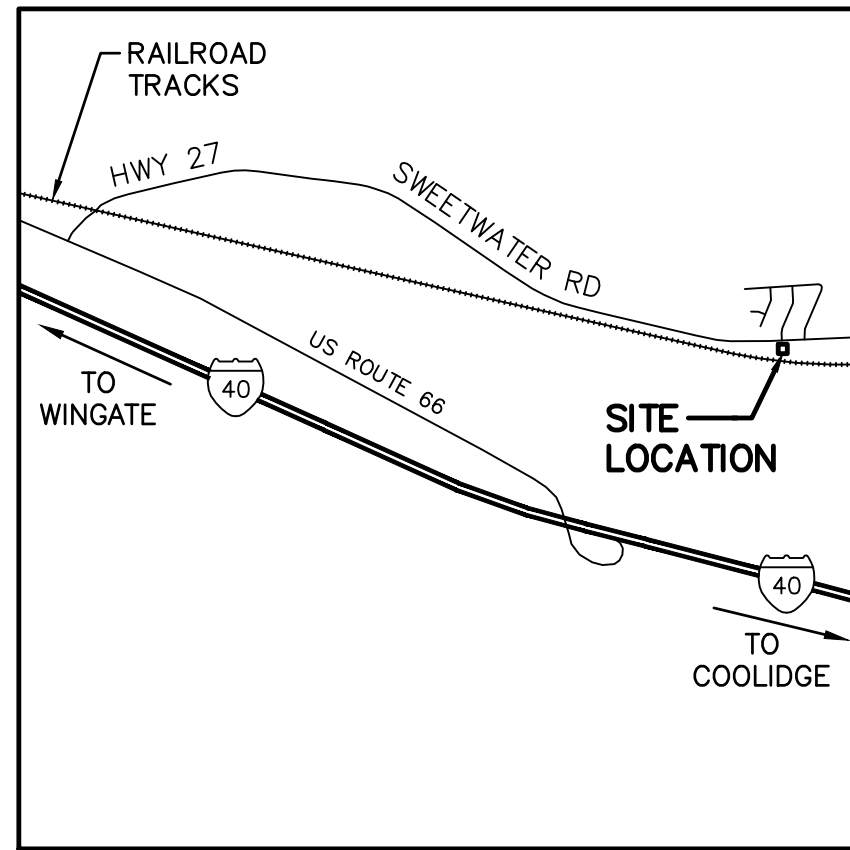
COALMINE

SITE LATITUDE: 35°59'17"N
LONGITUDE: 111°1'55"W



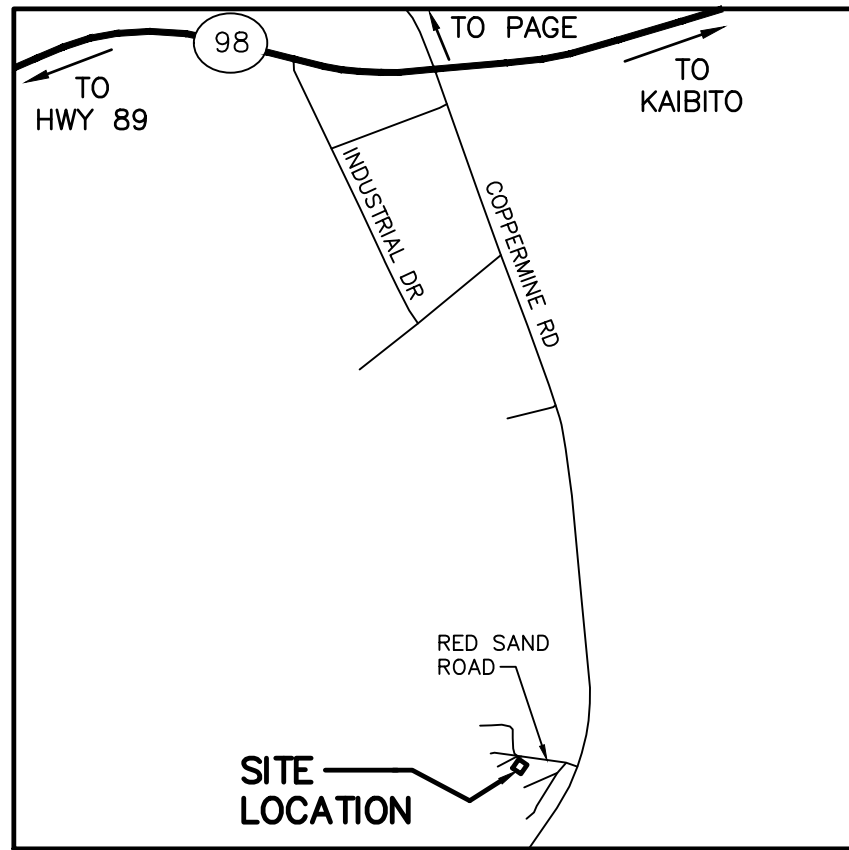
COYOTE CANYON

SITE LATITUDE: 35°45'57"N
LONGITUDE: 108°42'21"W



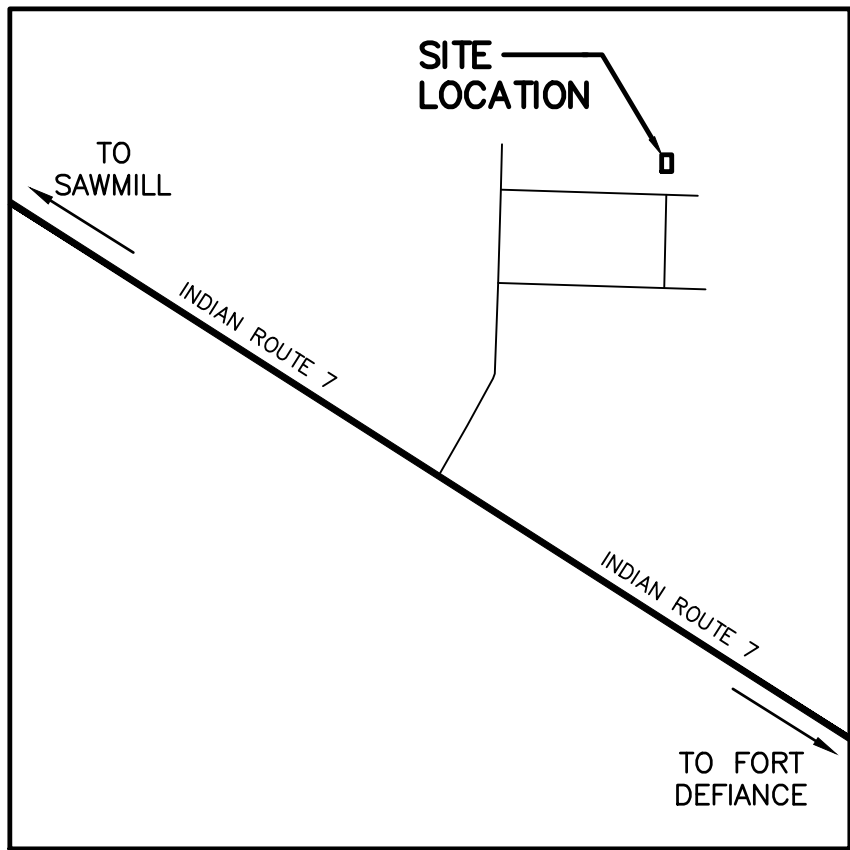
IYANBITO

SITE LATITUDE: 35°29'54"N
LONGITUDE: 108°28'88"W



LECHEE

SITE LATITUDE: 36°52'23"N
LONGITUDE: 111°26'28"W



SAWMILL

SITE LATITUDE: 35°53'51"N
LONGITUDE: 109°8'56"W

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No.	Revision	Note	Date	Drawn	Check

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

COVER SHEET AND VICINITY MAPS

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EXPIRATION DATE: 09/30/21

Drawn by: KWB

Design by: LAH

Approved by: RN

Date
12/09/20
Project No.
2144

Sheet No.
G-01

Dec 09, 2020 -- 2:12pm
Z:\2144 - NTUA -- Design & Construction of Lift Station Facilities (5)\CAD\FINAL SUBMITTAL\G-02.dwg

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS AS WELL AS NAVAJO NATION STANDARD DETAILS. SPECIFICATIONS, AND REGULATIONS. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE STANDARDS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS EXPENSE.
2. CONTRACTOR SHALL OBTAIN AND PAY FOR ANY PERMITS REQUIRED UNLESS OTHERWISE INDICATED. THE CONTRACTOR IS ADVISED THAT AN EXCAVATIONS AND DIRT MOVING PERMIT MAY BE REQUIRED BY THE NAVAJO NATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THIS PERMIT, IF NECESSARY, AND COMPLY WITH ITS REQUIREMENTS. CONTRACTOR TO PROVIDE APPROPRIATE DUST CONTROL MEASURES DURING CONSTRUCTION. NTUA AND ENGINEER WILL OBTAIN NAVAJO NATION ENVIRONMENTAL PROTECTION AGENCY CONSTRUCTION PERMIT.
3. NOT USED
4. EXISTING PIPING, ELECTRICAL, AND UTILITIES ARE BASED ON EXISTING RECORDS AND FIELD OBSERVATIONS BY NTUA AND ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL EXISTING PIPING, ELECTRICAL, AND UTILITIES AND AVOIDING DAMAGE TO THE SAME. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL CONTACT NTUA AT (928)729-5721 AND THE NTUA PROJECT MANAGER. CONTRACTOR SHALL CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION AND SHALL BE RESPONSIBLE FOR:

a. DAMAGE WORK TO SUCH UTILITIES CAUSED AS A RESULT OF THE WORK.

b. DAMAGES TO EXISTING WALKS, WALLS, CURBS, DRIVES, TREES, LANDSCAPING, AND PAVING.
5. CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AHEAD OF CONSTRUCTION, TO ALLOW FOR ANY NECESSARY ADJUSTMENT IN GRADE LINE AND TO VERIFY PIPE TYPES FOR ORDERING PROPER TRANSITION, AND/OR TIE-IN FITTINGS WHICH MAY BE REQUIRED.
6. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL PLANS FOR DEMOLITION ITEMS.
7. ALL UTILITIES SHALL BE PROTECTED FROM DAMAGE AS A RESULT OF THE WORK. THE CONTRACTOR SHALL RELOCATE, REPAIR OR REPLACE AT HIS EXPENSE, ANY AFFECTED UTILITIES TO THE SATISFACTION OF NTUA.
8. PROVIDE TEMPORARY THRUST RESTRAINT FOR EXISTING PIPING WHENEVER THE WORK REQUIRES. CONTRACTOR SHALL REPLACE OR RESTORE THE EXISTING RESTRAINT SYSTEM TO LIKE-NEW CONDITION.
9. CONTRACTOR SHALL PROTECT THE ADJACENT PROPERTY AND IMPROVEMENTS THERETO FROM ANY DAMAGE DURING CONSTRUCTION. ANY DAMAGE TO ADJACENT PROPERTY OR IMPROVEMENTS MUST BE REPAIRED OR REPLACED TO THE PROPERTY OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
10. DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATION TO BE VERIFIED BASED UPON EQUIPMENT MANUFACTURER SELECTED.
11. ALL, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED.
12. EXISTING EQUIPMENT TO BE REMOVED AND SALVAGED SHALL BE MARKED BY ENGINEER OR OWNER PRIOR TO WORK, UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
13. ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY INDICATED, FURNISH AND INSTALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO, OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
14. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, VALVE BOXES, CLEANOUTS, BLIND FLANGED PIPING, AND FIRE HYDRANTS WITHIN WORK LIMITS REQUIRED TO MATCH ACTUAL FINAL GRADE.
15. GOVERNING BUILDING CODES:
2009 INTERNATIONAL BUILDING CODE
2011 NATIONAL ELECTRICAL CODE
16. CONTRACTOR TO MAINTAIN ACCESS FOR EMERGENCY RESPONSE VEHICLES DURING CONSTRUCTION.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULES WITH NTUA, CREWS TO PREVENT ANY CONFLICTING WORK CONDITIONS. LOCATIONS OF TEMPORARY FACILITIES, PARKING AND WORK WITHIN ANY RIGHT-OF-WAY, ETC. SHALL BE COORDINATED WITH THE NTUA.
18. CONTRACTOR SHALL PROVIDE TEMPORARY SAFETY AND SECURITY FENCING AND SITE IMPROVEMENTS AS NEEDED AT NO EXTRA COST.
19. CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT LEAST WEEKLY BY THE CONTRACTOR. KEEP SITE AREA CLEAN.
20. EXCAVATED SOIL IS TO BE USED TO FILL IN LOW SPOTS PRIOR TO BEING HAULED OFF SITE. CONTRACTOR SHALL ESTABLISH A SUITABLE STAGING AREA FOR STORAGE OF EXCAVATED SOIL.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY AT THE SITE WHILE CONSTRUCTION IS IN PROGRESS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC FROM ANY HAZARDS ARISING FROM CONSTRUCTION OPERATIONS AND PROTECTING EXISTING AND NEW IMPROVEMENTS FROM DAMAGE DUE TO ACCIDENT OR VANDALISM.
22. THESE LIFT STATION SITES ARE ACTIVE. CONTRACTOR TO MAINTAIN ACCESS TO LIFT STATION FACILITIES FOR MAINTAINING OPERATIONS DURING CONSTRUCTION. IF THE WORK REQUIRES INTERRUPTION OF EXISTING ACCESS TO OPERATING FACILITIES, THE CONTRACTOR SHALL PROVIDE TEMPORARY ACCESS (APPROVED BY NTUA) TO THESE FACILITIES. LIFT STATIONS ARE CRITICAL TO NTUA OPERATIONS AND A SHUT DOWN WILL NOT BE PERMITTED WITHOUT AN APPROVED MOPO PLAN.
23. WHERE GROUND SURFACE IS DISTURBED, FINISH GRADE WITH UNIFORM SLOPE.
24. PROPERTY LINES AND DIMENSIONS WHERE SHOWN ARE BASED ON NTUA AND NAVAJO NATION RECORDS.
25. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
26. NOT USED.
27. NOT USED.
28. UNLESS SHOWN ON THE DRAWINGS, ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE OR GRAVEL SURFACE SHALL BE GRADED SMOOTH AND COMPACTED AS SPECIFIED.
29. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES, SILT FENCING, RUNOFF CONTAINMENT BERMS, AND STRAW BALES ARE THE MINIMUM REQUIRED.
30. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
31. WHERE WATERLINES, RECLAIMED WATERLINES OR SANITARY SEWER LINES (NEW OR EXISTING) CROSS OVER OR UNDER EACH OTHER WITHIN THE RIGHT OF WAY, PIPE LINE ENCASEMENTS SHALL BE PROVIDED AS NECESSARY IN ACCORDANCE WITH NAVAJO NATION REQUIREMENTS.
32. WHERE ALUMINUM IS TO BE EMBEDDED IN CONCRETE, THE ALUMINUM SHALL FIRST BE COATED WITH COAL TAR EPOXY.
33. BACKFILLING OF PIPING AND STRUCTURES SHALL NOT BE STARTED UNTIL INSTALLATION IS APPROVED BY THE OWNER.
34. UNLESS OTHERWISE NOTED, ALL PVC INSTALLED ABOVE GROUND SHALL BE PAINTED WITH UV PROTECTIVE COATING.

ABBREVIATION

DESCRIPTION

/	PER
o	DEGREES
ø	DIAMETER
°	INCHES OR SECONDS
'	FEET OR MINUTES
=	EQUALS
%	PERCENT
#	NUMBER OR POUND
@	AT
&	AND
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	AGGREGATE BASE
ABAN	ABANDON
ABC	AGGREGATE BASE COURSE
AC	ASPHALT CONCRETE, ASBESTOS CEMENT
ACB	ASPHALT CONCRETE BASE
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ACPA	AMERICAN CONCRETE PIPE ASSOCIATION
ADDL	ADDITIONAL
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AGC	ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
AGG	AGGREGATE
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMPS	AMPERES
ANB	ANCHOR BOLT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE OR APPROXIMATELY
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASP	ASPHALTIC PAVEMENT
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AVC	AVERAGE
AWSC	AMERICAN WELDING SOCIETY CODE
BC	BRASS CAP
BCR	BEGINNING OF CURB RETURN
BE	BASE ELEVATION
BEG	BEGINNING
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLD	BLIND
BLDG	BUILDING
BM	BENCHMARK OR BEAM
BOC	BEGINNING OF CURVE
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BOW	BOTTOM OF WALL
BRG	BEARING
BST	BITUMINOUS SURFACE TREATMENT
BTB	BITUMINOUS TREATED BASE
BTWN	BETWEEN
BUSH	BUSHING
BVC	BEGINNING OF VERTICAL CURVE
BV	BALL VALVE
C	CONDUIT
CB	CATCH BASIN
CBF&C	CATCH BASIN FRAME & COVER
CC OR C/C	CENTER TO CENTER
CEM	CEMENT
CF	CURB FACE
CFM	CUBIC FEET PER MINUTE
CF5	CUBIC FEET PER SECOND
CI	CAST IRON
CIPP	CAST-IN-PLACE CONCRETE PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR OR CLEARANCE
CM	CENTIMETER
CMP	CORRUGATED METAL PIPE
CMU	CEMENT MASONRY UNIT
CO	CLEAN OUT
CODP	CLEAN OUT DECK PLATE
COEF	COEFFICIENT
COL	COLUMN
COMP	COMPRESSION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION
CORP	CORPORATION
CP	CONTROL PANEL
CPLG	COUPLING
CTB	CEMENT TREATED BASE
CTR'D	CENTERED
CTW	COMBINED TREATED WATER
CU	CUBIC
CV	CHECK VALVE
DBL	DOUBLE
DCS	DISTRIBUTED CONTROL SYSTEM
DEG	DEGREE
DG	DECOMPOSED GRANITE
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DJ	DISMANTLING JOINT
DIV	DIVISION
DL	DRAIN LINE
DR	DRIVE
DRWG	DRAWING
DTL	DETAIL
DTS	DETAILS
DV	DRAIN VALVE
DWL	DOWEL
DWY	DRIVEWAY
ELEC	ELECTRIC
E	EAST
EA	EACH
EASE	EASEMENT
EC	END OF CURVE
ECC	ECCENTRIC
ECR	END OF CURB RETURN
EDB	ELECTRIC DUCT BANK
EF	EACH FACE
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL	ELEVATION
EMBED	EMBEDMENT
EMER	EMERGENCY
EMH	ELECTRICAL MANHOLE
EOP	EDGE OF PAVEMENT

ABBREVIATION

DESCRIPTION

EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ET/ETERA	END OF TIE
EVC	END OF VERTICAL CURVE
EWS	EYEWASH STATION
EXIST	EXISTING
F & C	FRAME & COVER
F	FAHRENHEIT
FB	FIELD BOOK
FC	FLEXIBLE CONNECTOR
FCA	FLANGED COUPLING ADAPTER
FDL	FLOOR DRAIN LINE
FDN	FOUNDATION
FE	FLOW ELEMENT
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIN	FINISHED
FL	FLOW LINE
FL EL	FLOOR ELEVATION
FLG	FLANGE
FLGD	FLANGED
FLTR	FILTER
FM	FLOW METER, FORCE MAIN
FND	FOUND
FOC	FACE OF CONCRETE
FFM	FEET PER MINUTE
FFS	FEET PER SECOND
FRB	FLOOR REINFORCED BOTTOM
FRP	FIBERGLASS REINFORCED POLYVINYL
FRT	FLOOR REINFORCED TOP
FS	FLOW SWITCH
FSS	FEDERAL SPECIFICATIONS AND STANDARDS
FT	FOOT OR FEET
FTG	FOOTING
FNTP	FEMALE NATIONAL PIPE THREAD
G	GUTTER
GA	GAGE
GALL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GL	GROUND LINE
GPM	GALLONS PER MINUTE
GR	GRADE
GRV	GROOVED
GSN	GENERAL STRUCTURAL NOTES
H	HIGH OR HEIGHT
H2O	WATER
HCS	HOUSE CONNECTION
HCP	HORIZONTAL CONTROL POINT
HD	HEAD
HDWL	HEADWALL
HEX	HEXAGONAL
HG	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
HTR	HEATER
HWY	HIGHWAY
HZ	HERTZ
I	MOMENT OF INERTIA
IBC	INTERNATIONAL BUILDING CODE
IBD	INSIDE DIAMETER
IE	INVERT ELEVATION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IHS	INDIAN HEALTH SERVICE
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCH
INA	INSTRUMENT AIR
INSUL	INSULATION
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IR	INNER RADIUS
IRRIG	IRRIGATION
IV	ISOLATION VALVE
JB	JUNCTION BOX
JCT	JUNCTION
JS	JUNCTION STRUCTURE
JT	JOINT
KSI	KIPS PER SQUARE INCH
L	LENGTH
LB	POUND
LF	LINEAR FEET/FOOT
LI	LEVEL INDICATOR
LIH	LINEAR
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW POINT
LS	LEVEL SENSOR
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LSL	LEVEL SWITCH LOW
LT	LEVEL TRANSMITTER
LW	LONG WAY
M	MAP OR MAPS
MAX	MAXIMUM
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MCC	MOTOR CONTROL CENTER
MCI	MASONRY CONTROL JOINT
MEAS	MEASURED
MECH	MECHANICAL
MG	MILLION GALLON
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINUTES OR MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MONUMENT LINE
MM	MILLIMETER
MOPO	MAINTENANCE OF PLANT OPERATION
MON	MONOLITHIC OR MONUMENT
MPH	MILES PER HOUR
MTD	MOUNTED
MVC	MID POINT VERTICAL CURVE
MxPE	MECHANICAL JOINT x PLAIN END
N	NORTH
NBS	NATIONAL BUREAU OF STANDARDS
NC	NORMALLY CLOSED
NE	NORTHEAST
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NSC	NATIONAL SAFETY COUNCIL

ABBREVIATION

DESCRIPTION

NTS	NOT TO SCALE
NTUA	NAVAJO TRIBAL UTILITY AUTHORITY
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD
OPNG	OVERHEAD ELECTRIC POWER LINES OPENING
OR	OUTER RADIUS
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCES
P	PRESSURE GAUGE
P&TP	POWER AND TELEPHONE POLE
PB	PULL BOX
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PDL	PROCESS DRAIN LINE
PIL	POINT OF INTERSECTION
PL	PROPERTY LINE OR PLATE
PLC	PROGRAMMABLE LOGIC CONTROL
POS	POINT OF SPIRAL
PP	POWER POLE
PPM	PARTS PER MILLION
PRC	POINT OF REVERSE CURVE
PRES	PRESSURE
PREFAB	PREFABRICATED
PRODUCED	PRODUCED
PROP	PROPERTY
PRD	PRESSURE RELIEF DRAIN
PSF	POUNDS PER SQUARE FOOT
PSH	PRESSURE SWITCH HIGH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT OF TANGENT
PV	PLUG VALVE
PVC	POLY VINYL CHLORIDE
PVMT	PAVEMENT
Q	RATE OF FLOW
R	RADIUS
R/W	RIGHT-OF-WAY
RC	REINFORCED CONCRETE
RD	ROAD
RDWY	ROADWAY
RED	REDUCER OR REDUCING
REINF	REINFORCED, REINFORCING, REINFORCEMENT
REQ'D	REQUIRED
RF	ROOF
RFB	RIGHT FACE OF BEAM
RGCRP	RUBBER GASKETED REINFORCED CONCRETE PIPE
RMJ	RESTRAINED MECHANICAL JOINT
RO	ROOF OPENING OR ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RT	RIGHT
RTB	REMOTE TERMINAL BOARD
S	SOUTH OR SLOPE OR SECTION MODULES
SAN	SANITARY
SAS	SANITARY SEWER
SC	SPIRAL TO CURVE
SCADA	SUPERVISORY CONTROL & DATA ACQUISITION
SCH	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SE	SOUTHEAST
SEC	SECONDS
SECT	SECTION
SHP	SOLIDS HANDLING PUMP
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS
SP'G	SPACING
SPL	SAMPLE LINE
SPR	SPARE LINE
SQR	SQUARE
SQ FT YD	SQUARE FOOT YARD
SSD	SANITARY SEWER DRAIN
STD	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STR GR	STRUCTURAL GRADE
STRUCT	STRUCTURE OR STRUCTURAL
SV-#	SOLENOID VALVE AND NUMBER (#=NUMBER)
SW	SOUTHWEST
T/	TOP
T	TANGENT DISTANCE
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TBOC	TOP BACK OF CURB
TEL	TELEPHONE
TEMP	TEMPERATURE OR TEMPORARY
TH	TEST HOLE
THICK	THICK
THRU	THROUGH
TMH	TELEPHONE MANHOLE
TNK	TANK
TOC	TOP OF CURB
TOK	TOP OF FOOTING
TOG	TOP OF GRATING
TOP	TOP OF PAVEMENT
TOT	TOTAL
TOS	TOP OF SLAB
TOW	TOP OF WALL
TP	TELEPHONE POLE
TRANS	TRANSITION
TYP	TYPICAL
UL	UNDERWRITERS' LABORATORIES INC.
UON & UNO	UNLESS OTHERWISE NOTED
V	VOLTS
VAC	VACUUM
VB	VALVE BOX
VC	VERTICAL CURVE
VEL	VELOCITY
VERT	VERTICAL
VES	VESSEL
VFD	VARIABLE FREQUENCY DRIVE
VG	VALLEY GUTTER

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NAVAJO TRIBAL UTILITY AUTHORITY
TOWN OF GANADO - WASTEWATER TREATMENT IMPROVEMENTS

GENERAL NOTES, ABBREVIATIONS,
AND DRAWING INDEX



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Drawn by: KWB

Design by: LAH

Approved by: RN

Date

12/09/20

Project No.

2144

Sheet No.

G-02

Dec 09, 2020 -- 2:12pm
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GENERAL SITE NOTES:

- SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS IS A BASE MAP PREPARED BY ENGINEER USING A CLOTH TAPE, AUGUST 2020. VERTICAL ELEVATIONS NOT OBTAINED. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
- EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
- HORIZONTAL DATUM: NOT USED
VERTICAL DATUM: NOT USED

GENERAL YARD PIPING AND UTILITIES NOTES:

- EXISTING UNDERGROUND UTILITIES OBTAINED FROM AS-BUILTS AND DRAWINGS PROVIDED BY NTUA, FIELD OBSERVATIONS BY NTUA AND ENGINEER, AND FROM FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION PRIOR TO EXCAVATION. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
- EXISTING PIPING AND EQUIPMENT ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW PIPING AND EQUIPMENT ARE SHOWN HEAVY-LINED.
- UNLESS OTHERWISE SHOWN, ALL PIPING SHALL HAVE A MINIMUM OF 4' COVER.
- ALL PIPES SHALL HAVE A CONSTANT SLOPE BETWEEN INVERT ELEVATIONS UNLESS A FITTING IS SHOWN.
- RESTORE DIRT AND/OR GRAVEL ROADS TO CONDITIONS THAT EXISTED BEFORE START OF CONSTRUCTION.

CIVIL LEGEND

	CONTOUR LINE		SANITARY VALVE, FORCEMAIN OR GRAVITY SEWER
	EMBANKMENT AND SLOPE		VEGETATION
	DRAINAGEWAY OR DITCH		UTILITY, WATER VALVE
	CATCH BASIN		IRRIGATION VALVE
	DROP INLET		STORM DRAIN MANHOLE
	MANHOLE OR VAULT		PROPERTY CORNER PIN
	TREE		LIGHT
	BRUSH/TREE LINE		ELECTRIC BOX
	STRUCTURE, BUILDING OR FACILITY		WATER LINE
	DEMOLISH OR REMOVE		SANITARY SEWER LINE
	GRAVEL OR ABC SURFACING		UNDERGROUND GAS LINE
	CONCRETE		UNDERGROUND CABLE TV LINE
	RIP RAP		RIGHT OF WAY
	CURB		WELL PUMPOUT DRAIN LINE
	CURB AND GUTTER		UNDERGROUND ELECTRICAL LINE
	SINGLE SWING GATE		OVERHEAD ELECTRIC LINE
	DOUBLE SWING GATE		UNDERGROUND TELEPHONE LINE
	CANTILEVERED GATE		SANITARY FORCEMAIN
	GUARD RAIL		PROPANE GAS LINE
	CULVERT		BRASS CAP
	PROPERTY LINE		FIRE HYDRANT
	BUILDING, ROAD, ETC.		SANITARY SEWER MANHOLE
	CENTER LINE		SAFETY POST (NEW BOLLARD)
	EASEMENT		TELEPHONE RISER
	STAGING OR WORK AREA LIMITS		GUY WIRE
	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES		VALVE PIT
			WATERLINE MARKER
			UTILITY, WATER MANHOLE
			WATER FAUCET
			WATER METER
			UTILITY, WATER WELL
			SPRINKLER CONTROL BOX
			GASLINE MARKER
			GAS VALVE
			GAS METER
			INDICATES FLOW DIRECTION

YARD PIPING LEGEND

	PIPING. SEE PIPE TAG DESCRIPTION ON THIS SHT
	HIDDEN PIPING THROUGH WALLS AND UNDER SLABS
	PIPING ≥ 24"Ø WHEN DRAWING SCALE IS 1" = 20' 12"Ø WHEN DRAWING SCALE IS 1" = 10'
	FLEXIBLE COUPLING
	90° ELBOW DOWN
	CONCENTRIC REDUCER
	CAP OR PLUG
	CLEANOUT

SYMBOLS	
ELBOWS / FLANGED	ELBOWS / WELDED
REDUCERS / FLANGED	REDUCERS / WELDED
TEES / FLANGED	TEES / WELDED
VALVES / FLANGED	RESTRAINED EXPANSION JOINT (BELLOWS TYPE)
	DISMANTLING JOINT WITH RESTRAINING RODS
	FLANGED COUPLING ADAPTER WITH RESTRAINTS
	DIAPHRAGM VALVE, PROFILE
MECHANICAL JOINT	PRESSURE SUSTAINING VALVE, PROFILE
90 DEGREE BENDS / PVC	MAGNETIC FLOW METER
	AIR RELIEF VALVE
	SAFETY POST (BOLLARD)
TEES / PVC	SAMPLE TAP
	FLOW SWITCH
GENERAL SYMBOLS	
	OBJECT LINE, EXISTING
	OBJECT LINES, NEW OR RELOCATED
	FUTURE
	CENTER LINE
	HIDDEN LINE
	SURFACE BREAK LINE
	MATCH LINE
	BASE LINE OR DATUM LINE
	DIAMETER OR ROUND
	EXISTING OBJECT TO BE REMOVED
	WATER SURFACE
	EARTH
	CONCRETE

MARKERS	
	DETAIL INDICATOR
	DETAIL SCALE
	TYPICAL DETAIL
(SECTIONS ARE LETTERED, DETAILS ARE NUMBERED)	

EQUIPMENT TAG	
	EQUIPMENT TAG OR PIPE SYSTEM
	EQUIPMENT OR VALVE NUMBER
PIPE TAG	
	PIPE SIZE
	PIPING SYSTEM
	PIPE MATERIAL

PIPE MATERIAL	
1	DUCTILE IRON
2	STEEL
3	C-900 PVC
4	SCHEDULE 80 PVC
5	SDR 35 PVC SEWER PIPE
6	COPPER
7	STAINLESS STEEL
8	SCH 80 BLACK STEEL
9	CAST IRON
10	PVC-SEWER PIPE

SHEET CATEGORY	
G	GENERAL
C	CIVIL
M	MECHANICAL PROCESS
E	ELECTRICAL
I	INSTRUMENTATION

NAVAJO TRIBAL UTILITY AUTHORITY
TOWN OF GANADO - WASTEWATER TREATMENT IMPROVEMENTS

GENERAL SITE NOTES, SYMBOLS
AND CIVIL LEGEND

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GENERAL STRUCTURAL NOTES

(IN CASE OF CONFLICT WITH DRAWINGS STRICTER REQUIREMENTS SHALL GOVERN.)

GENERAL REQUIREMENTS

CODE: SEE GENERAL NOTES

LOADS:

LIVE LOADS:

CONCRETE WALKWAYS 300 PSF
STAIRS 300 PSF
STAIR TREADS 300 LB POINT LOAD
PLATFORMS (GRATING, CHECKERED PLATE) 300 PSF

WIND: 90 MPH BASIC WIND. EXPOSURE "C". IMPORTANCE FACTOR 1.15

SEISMIC: SITE CLASS: AS THE LIMITED GEOTECHNICAL INVESTIGATION DID NOT INCLUDE IDENTIFICATION OF SEISMIC FACTORS, USE SITE CLASS E FOR IYANBITO. FOR OTHER SITES USE D. IMPORTANCE FACTOR = 1.25

SNOW: IMPORTANCE FACTOR 1.10

EARTHWORK AND FOUNDATION

- FOUNDATION DESIGN IS BASED ON THE FOLLOWING SOIL BEARING CAPACITIES:
BEARING – ALL DEPTHS 1,000 PSF
- DESIGN LATERAL AT–REST PRESSURES:
NOT APPLICABLE
- PLACE FOUNDATION CONCRETE ONLY ON SUBGRADE PREPARED PER RECOMMENDATIONS OF THE DRAWINGS AND SPECIFICATIONS. VERIFY THE SUITABILITY OF THE BEARING MATERIAL WITH THE ENGINEER. BEFORE PLACING FOUNDATIONS. ENGINEERED FILL SHALL MEET THE REQUIREMENT STATED IN THE DRAWINGS AND SPECIFICATIONS.
- PLACE DOWELS AND ANCHOR BOLTS BFORE POURING CONCRETE. USE TEMPLATES TO ENSURE PROPER PLACEMENT.

REINFORCED CONCRETE:

- CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI FOR STRUCTURES, FOUNDATIONS, AND SLABS ONGRADE UNLESS NOTED OTHERWISE ON DRAWINGS. ASTM C 150 TYPE II LOW ALKALI CEMENT. AIR CONTENT SHALL BE 5.5% PLUS OR MINUS 1%.
- ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH CURRENT ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (CURRENT ACI 318).
- UNLESS SHOWN OTHERWISE, MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE:
LESS THAN 10" THICKNESS – USE #5 @ 12" EW. SEE DRAWINGS FOR LOCATION OF REINFORCEMENT. MORE THAN 10" THICK – USE #5 @ 12" EW EF.
- ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS. LAPPED, OR TERMINATED IN AN ACI STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 12.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL HORIZONTAL AND VERTICAL BARS SHALL BE DOWELED. DOWELS LAP AND MATCH LARGER DIAMETER BAR.
- ALL SLABS, BEAMS, AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318.
- STIRRUP SUPPORT BARS SHALL BE PROVIDED BETWEEN ENDS OF TOP BARS AS REQUIRED.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONCRETE COVER FOR #11 AND SMALLER REINF BARS SHALL BE AS FOLLOWS:

A. SLABS AND JOISTS:
FORMED CONCRETE SURFACES FOR DRY CONDITIONS.....3/4"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, OR LOCATED OVER WATER
#5 BARS AND SMALLER.....1 1/2"
#6 BARS AND LARGER.....2"

B. BEAMS AND COLUMNS:
FORMED CONCRETE SURFACES FOR DRY CONDITIONS
STIRRUPS, SPIRALS, AND TIES.....2"
PRINCIPAL REINFORCEMENT.....2 1/2"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, OR BEAMS LOCATED OVER WATER
STIRRUPS AND TIES.....2"
PRINCIPAL REINFORCEMENT.....2 1/2"

C. WALLS:
FORMED CONCRETE SURFACES FOR DRY CONDITIONS....3/4"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER.....2"

D. FOOTINGS AND BASE SLABS AND FOUNDATIONS FOR SHADE CANOPIES, GENERATORS, AND FUEL TANKS FOR GENERATORS:
FORMED VERTICAL CONCRETE SURFACES.....2"
AT UNFORMED SURFACES AND BOTTOMS IN CONTACT WITH EARTH OR CONCRETE WORK MATS.....3"
TOP OF FOOTINGS.....SAME AS SLABS

E. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ±1/4" OF POSITION SPECIFIED.
- KEYWAYS AND WATERSTOPS SHALL END 3" BELOW THE TOP OF WALLS, UNLESS THERE IS A SLAB ON TOP OF THE WALL, IN WHICH CASE IT SHALL END AT THE BOTTOM OF THE SLAB. IN JOINTS WHERE WATERSTOP TERMINATES AT ADJOINING SLAB OR WALL, WATERSTOP SHALL BE EMBEDDED IN ADJOINING SLAB OR WALL A MINIMUM OF 6".
- WATERSTOP SHALL BE PLACED IN ALL CONSTRUCTION, CONTRACTION, AND EXPANSION JOINTS IN ALL WATER BEARING SLABS AND WALLS UNLESS OTHERWISE INDICATED ON THE DRAWINGS, AND IN ALL WALLS AND SLABS SUBJECTED TO EARTH BACKFILL. WATERSTOP IN THE WALLS SHALL BE CARRIED INTO SLABS AND SHALL BE SPLICED WITH THE WATERSTOP IN THE SLABS.
- NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED THE SPECIFIED STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED THE SPECIFIED STRENGTH.

12. LAP SPLICES:

- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE LENGTH OF THE LAP SPlice SHALL BE CLASS "A" WHEN NO MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED LENGTH AND CLASS "B" WHEN MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED LENGTH.
- VALUES TABULATED BELOW FOR SPLICES ARE APPLICABLE ONLY WHEN THE COVER IS EQUAL TO ONE BAR DIAMETER OR MORE.
- WHEN MULTIPLE BARS ARE SPLICED AT THE SAME SECTION, THE CLEAR BAR SPACING IS THE MINIMUM CLEAR DISTANCE BETWEEN THE BARS OUTSIDE THE SPlice LENGTH MINUS ONE BAR DIAMETER.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE BARS AT A LAP SPlice SHALL BE IN CONTACT WITH EACH OTHER.
- FOLLOWING TABULATED VALUES ARE CALCULATED FOR:
Fy = 60,000 PSI
Fc = 4,000 PSI
- TOP BARS ARE ALL HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
- HORIZONTAL BARS IN CIRCULAR WALLS OF HYDRAULIC STRUCTURES SHALL BE SPLICED WITH CLASS "B" TOP BAR LAP SPLICES WITH THE SPLICES IN EACH LAYER OF REINFORCEMENT STAGGERED ONE SPlice LENGTH.
- WHERE HORIZONTAL BARS IN WALL CORNERS OR JUNCTIONS ARE LAPPED, LARGER BAR DIAMETER GOVERNS THE LENGTH ON DOWEL SEGMENTS.

REINFORCING BAR LAP SPICE					
BAR #	MINIMUM CLEAR BAR SPACING (BAR DIA)	LAP SPICE LENGTH (INCHES)			
		TOP BARS		OTHER BARS	
		CLASS "A"	CLASS "B"	CLASS "A"	CLASS "B"
REQUIREMENT FOR WALLS AND SLABS *					
#4	MORE THAN 2	18	24	14	18
#5	MORE THAN 2	23	30	18	23
#6	MORE THAN 2	31	40	23	31
	5	28	36	21	28
#7	MORE THAN 2	42	54	32	42
	5	33	43	26	33
#8	MORE THAN 2	54	71	42	54
	5	43	56	33	43
#9	MORE THAN 2	69	89	53	69
	5	55	71	42	55
#10	MORE THAN 2	88	114	67	88
	5	70	91	54	70
#11	MORE THAN 2	108	140	83	108
	5	86	112	66	86

* FOR INNER LAYER OF REINFORCEMENT IN WALLS AND SLABS, THE LAP SPlice LENGTH OF #9, #10, AND #11 BARS MAY BE REDUCED BY 25 PERCENT IF CLEAR SPACING IS THREE BAR DIAMETERS OR MORE.

13. REFER TO MECHANICAL PROCESS SHEETS FOR CONCRETE WALL AND SLAB PENETRATIONS. ADDITIONAL REINFORCING SHALL BE PROVIDED AT CONCRETE WALL AND SLAB PENETRATIONS PER

TYP310

INCLUDE IN REINFORCING SHOP DRAWINGS REINFORCING DETAILS FOR CONCRETE WALL AND SLAB PENETRATIONS THAT ARE 6 INCH AND LARGER IN DIAMETER.

14. IN CASE ANY CONSTRUCTION JOINT IS REQUIRED FOR WALLS OF STRUCTURE, CONTRACTOR MAY PROPOSE LOCATION FOR REVIEW AND APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

15. CONCRETE MIX DESIGNS SHALL BE SUBMITTED FOR ALL CONCRETE USED. CONCRETE MIX DESIGNS SHALL BE FURNISHED BY EITHER THE CONCRETE SUPPLIER OR AN INDEPENDENT TESTING LABORATORY, BASED ON THE CONCRETE SUPPLIER'S CURRENT PRODUCTION FACILITIES RECORD OF STRENGTH TESTS. THESE TESTS SHALL BE EVALUATED AND MIX DESIGNS PROPORTIONED TO MEET THE REQUIREMENTS BASED ON THE STANDARD DEVIATIONS AS OUTLINED IN ACI 318–89, SECTION 5.2. RESULTS OF CONCRETE CYLINDER COMPRESSION BREAK TESTS FOR PROPOSED DESIGN MIX SHALL BE INCLUDED IN THE SUBMITTAL. POZZOLAN "F" (FLY-ASH) SHALL BE USED PROVIDED THE CEMENT CONTENT OF THE ORIGINAL MIX WITHOUT FLY-ASH IS NOT REDUCED BY MORE THAN 20% BY WEIGHT AND THE FLY-ASH ADDED DOES NOT EXCEED 1.3 POUNDS FOR EACH POUND OF CEMENT REMOVED. OTHER ADMIXTURES MAY BE USED; HOWEVER, THEY SHALL NOT BE CONSIDERED AS REPLACING ANY PART OF THE CEMENT CONTENT FOR THE SPECIFIED CONCRETE STRENGTH. NO ALUMINUM CONDUITS OR PIPES SHALL BE EMBEDDED IN OR ATTACHED TO THE CONCRETE. COLD WEATHER AND HOT WEATHER CONCRETING SHALL BE PLACED ACCORDING TO RECOMMENDED PRACTICES IN ACI 306 AND ACI 305, RESPECTIVELY.

REINFORCING STEEL:
ALL REINFORCING STEEL FOR THE PROJECT SHALL BE DEFORMED BARS AND SHALL CONFORM TO THE FOLLOWING ASTM STANDARD DESIGNATIONS:

#4 BAR AND LARGER IN CONCRETE.....A–615 GRADE 60
MASONRY REINFORCING.....A–615 GRADE 60

CHAIRS AND SUPPORT BARS SHALL BE PROVIDED IN ACCORDANCE WITH ACI STANDARDS. REINFORCEMENT SHALL BE DETAILED TO MEET ACI 315 STANDARDS. SHOP DRAWINGS SHALL BE SUBMITTED SHOWING ALL REINFORCEMENT TO BE PLACED. SHOP DRAWINGS SHALL INCLUDE PLAN AND ELEVATIONS PERTAINING TO BAR LOCATION AND PLACEMENT WITHIN FOUNDATIONS, SLABS, BEAMS, COLUMNS AND WALLS.

METALS

- ~~STRUCTURAL STEEL:~~ STRUCTURAL STEEL SHALL BE ASTM A 36 GRADE. BOLTS A 307. TUBE STEEL AND PIPE STEEL SHALL BE ASTM A 500 GRADE B, Fy = 46 KSI FOR TUBE STEEL AND 42 KSI FOR PIPE STEEL AND WELDABLE PER AWS D1.4. LATEST AISC AND AWS CODES APPLY. FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW BEFORE FABRICATION. MINIMUM EMBEDMENT OF ALL HORIZONTAL BOLTS IN GROUT OR CONCRETE SHALL BE 6" WITH 3" HOOK. VERTICAL BOLTS SHALL HAVE 10" EMBEDMENT WITH HEAVY HEX NUT AT EMBEDDED END, UNO.
- ~~WELDING:~~ ALL CONSTRUCTION AND TESTING SHALL BE PER AWS CODES AND RECOMMENDATIONS. WELDING SHALL BE DONE IN SHOP UNLESS SHOWN OTHERWISE ON PLANS. FIELD WELDS SHALL BE APPROVED BY THE ENGINEER. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY AND HAVING EXPERIENCE IN THE TYPE OF WELD CALLED FOR.
- ~~ALUMINUM:~~ ALUMINUM FOR THIS PROJECT SHALL BE OF TYPE 6063. ALUMINUM TO BE CAST INTO CONCRETE SHALL RECEIVE COATING OF COAL TAR EPOXY OR SIMILAR.
- ~~STAINLESS STEEL:~~ STAINLESS STEEL SHALL BE 316 GRADE UNLESS NOTED OTHERWISE.

PRECAST WETWELL FLAT TOP SLAB:

- DESIGN LOADINGS: 1,500 POUND POINT LOAD AT CENTER OF SLAB OR 150 PSF, WHICHEVER RESULTS IN THE HIGHER LOADING CONDITION.

SUPPLEMENTARY NOTES:

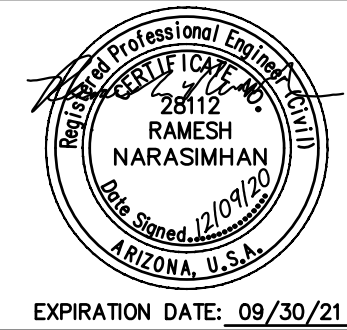
- PROVIDE TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
- ANY MEMBERS REQUIRED TO SUPPORT EQUIPMENT FROM THE FRAMING SHOWN SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR.
- FOR CONNECTIONS SEE DETAILS. IF NOT SHOWN OR NOTED, MINIMUM CONNECTIONS TO BE INCLUDED IN BID SHALL BE TWO 5/8" DIA. BOLTS OR 3/16" FILLET WELD 4" LONG USING 1/4" CONNECTION MATERIAL AND DETAILED TO MINIMIZE BENDING IN CONNECTION. PROCEED AFTER CLARIFICATION THROUGH SHOP DRAWING SUBMITTAL.
- ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BE BY A STRUCTURAL ENGINEER REGISTERED IN ARIZONA WITH CONTINUOUS FIVE YEARS EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED.
- UNLESS NOTED OTHERWISE, DETAILS ON STRUCTURAL DRAWINGS ARE TYPICAL AS INDICATED BY CUTS, REFERENCES OR TITLES.
- IN CASE OF CONFLICTS, MORE COSTLY REQUIREMENTS GOVERN FOR BIDDING. SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK.
- VERIFY ALL DIMENSIONS WITH OTHER DISCIPLINE DRAWINGS.
- CONTRACTOR SHALL ESTABLISH AND VERIFY IN THE FIELD ALL EXISTING CONDITIONS AFFECTING NEW CONSTRUCTION.
- DO NOT SCALE DRAWINGS. IN CASE OF ANY CONFLICT VERIFY WITH ENGINEER PRIOR TO CONSTRUCTION.
- "TYP" INDICATES DETAIL OCCURS MORE THAN ONCE. CONTRACTOR SHALL DETAIL ALL SUCH OCCURRENCES ON SHOP DRAWINGS SUBMITTALS.
- SHOP DRAWINGS INVOLVING STRUCTURAL CALCULATIONS SHALL BE STAMPED AND SIGNED BY CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF ARIZONA.
- A. SPECIAL INSPECTION IS REQUIRED PER CODE FOR ALL STRUCTURAL REINFORCED CONCRETE WORK.
B. SPECIAL INSPECTION IS ALSO REQUIRED FOR FIELD WELDING, AND INSTALLATION OF EPOXY BOLTS.
C. PER BUILDING CODES CH. 17 NOTE: SPECIAL INSPECTIONS DO NOT PRECLUDE ANY NTUA INSPECTIONS.

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Check	Drawn	Date	Revision	Note
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NAVAJO TRIBAL UTILITY AUTHORITY
TOWN OF GANADO - WASTEWATER TREATMENT IMPROVEMENTS

GENERAL STRUCTURAL NOTES



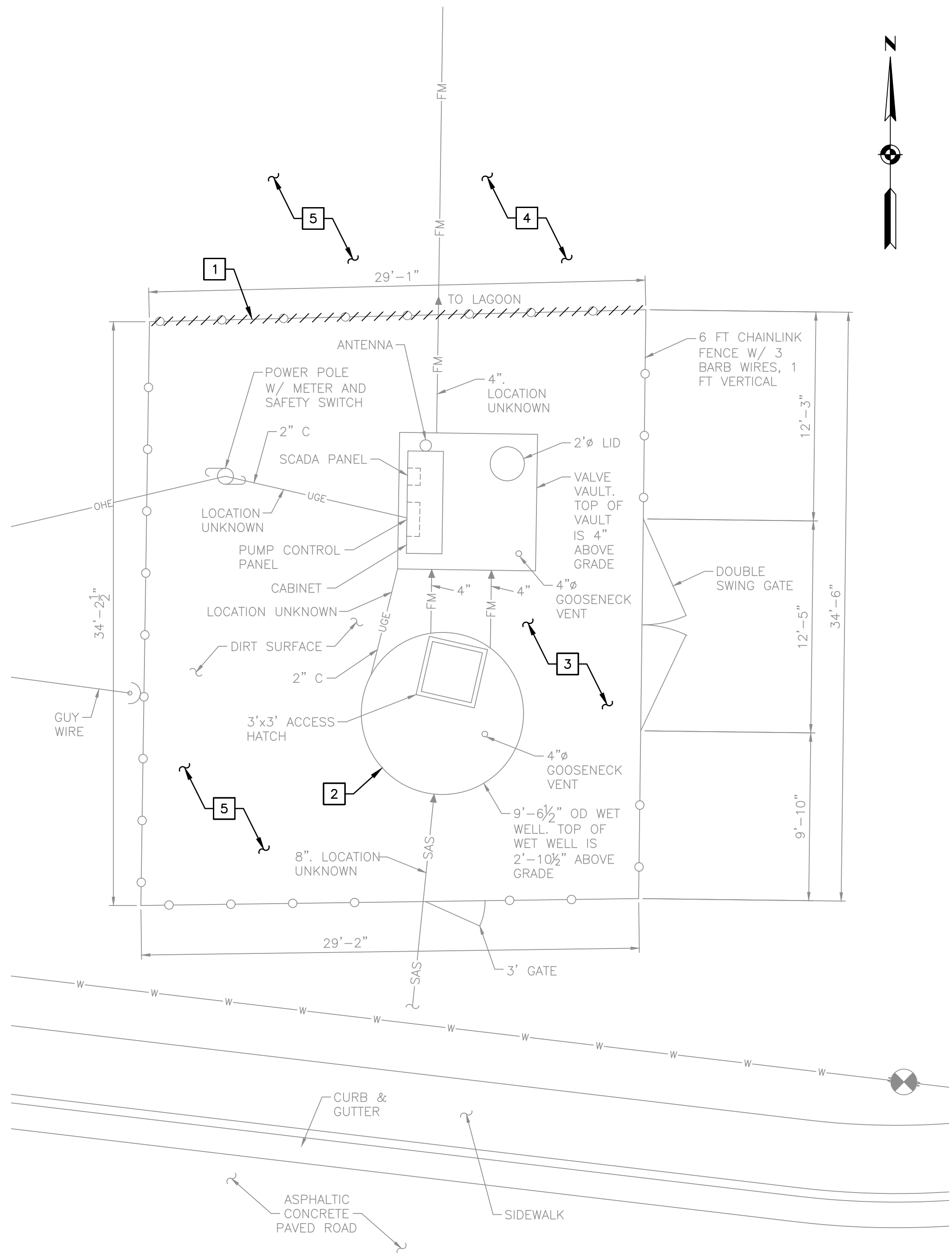
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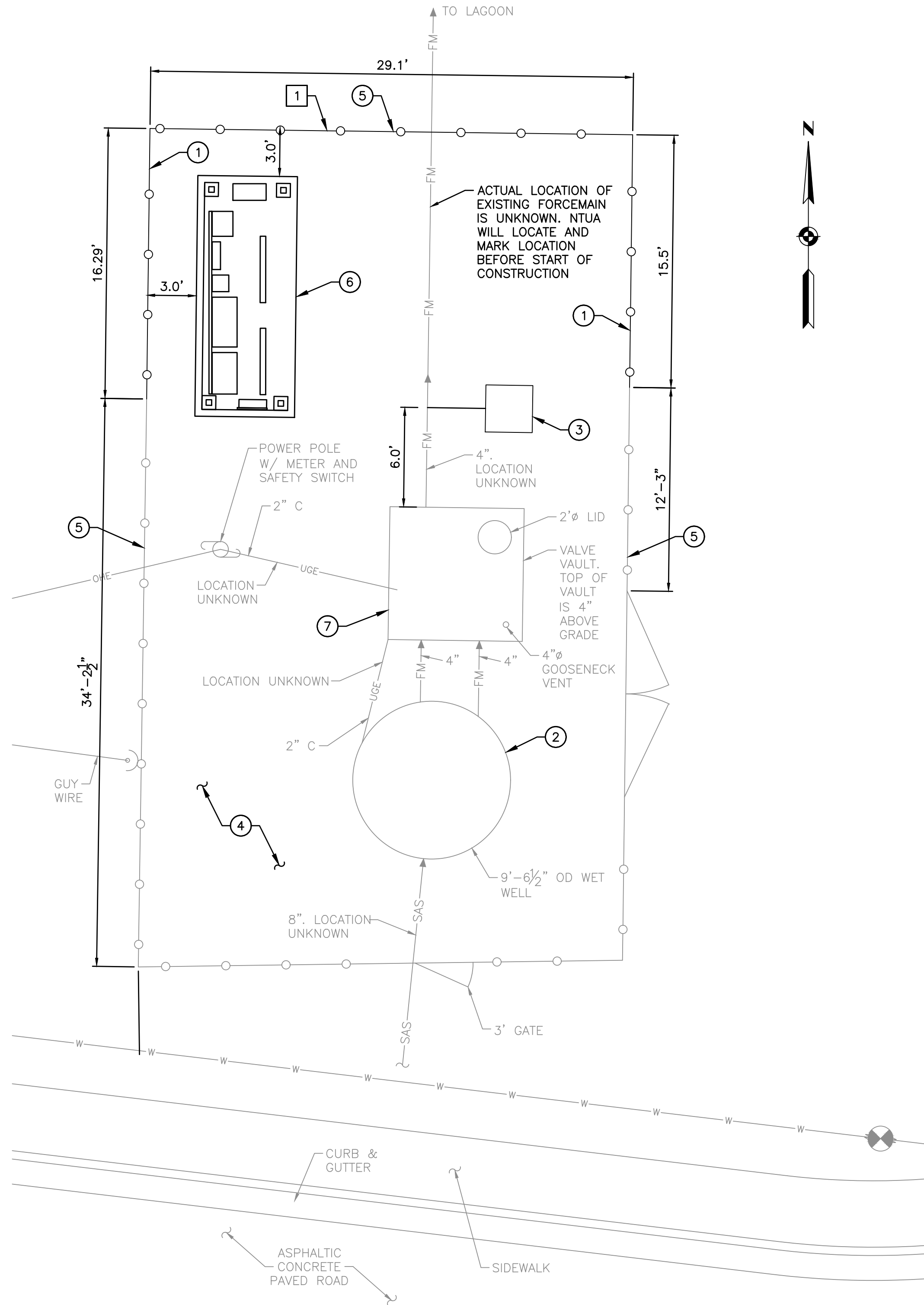
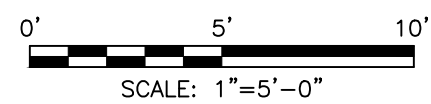
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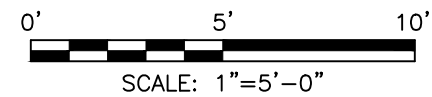
SITE DEMOLITION PLAN

SCALE: 1"=5'-0"



SITE IMPROVEMENTS PLAN

SCALE: 1"=5'-0"



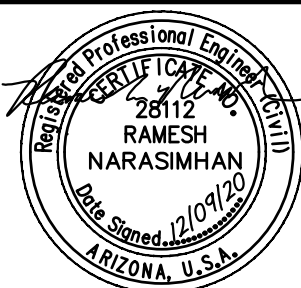
REMOVALS NOTES	
1	REMOVE CHAINLINK FENCE INCLUDING POSTS, FABRIC, BARBED WIRE, AND RELOCATE TO EXPANDED SITE NORTH FENCE LINE.
2	FOR REMOVALS, SEE SHT M-02.
3	ADD ALTERNATE A1: REMOVE 4 INCHES OF SOIL WITHIN EXISTING FENCED AREA AND DISPOSE OF.
4	ADD ALTERNATE A1: REMOVE 4 INCHES OF SOIL IN EXPANDED FENCED AREA AND DISPOSE OF. SEE SITE IMPROVEMENTS PLAN FOR NEW FENCE LIMITS.
5	REMOVE WEEDS AND DISPOSE OF, AND PROVIDE NON-HAZARDOUS PRE-EMERGENT HERBICIDE FOR EXISTING AND EXPANDED SITE AREA.
CONSTRUCTION NOTES	
1	6 FT CHAINLINK FENCE WITH 3 BARBED WIRES TO MATCH EXISTING FENCE AND PER SHT C-11. WHERE DEVIATIONS, EXISTING FENCE CONFIGURATION AND MATERIALS SHALL TAKE PRECEDENCE OVER FENCING REQUIREMENTS ON SHT C-11.
2	FOR MODIFICATIONS, SEE SHT M-02.
3	PUMP AROUND PORT. SEE DETAIL ON SHEET C-10.
4	ADD ALTERNATE A1: 4 INCH DEPTH OF 3/4" AGGREGATE BASE COURSE PER MAG 702 WITHIN FENCED AREA. COMPACT TO 95% PER ASTM D1557.
5	SIGN. SEE DETAIL ON SHT C-10. ATTACH TO FENCE W/ NON-CORRODING HARDWARE.
6	SHADE CANOPY, SEE SHT C-08.
7	FOR MODIFICATIONS, SEE SHT M-07.
GENERAL NOTES	
1. POTHOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.	
2. POTHOLE AND DETERMINE DEPTH, LOCATION, AND PIPE MATERIAL FOR EXISTING BURIED PIPING BEFORE ORDERING PIPE MATERIALS AND BEGINNING TRENCHING.	
3. SEE ELECTRICAL SHEETS FOR ELECTRICAL ITEM REMOVALS.	
4. FOR NEW ELECTRICAL, SEE ELECTRICAL SHEETS.	
5. PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN. NTUA TO ACQUIRE ADDITIONAL PROPERTIES AS REQUIRED.	

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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

COALMINE SITE DEMOLITION PLAN
AND SITE IMPROVEMENTS PLAN

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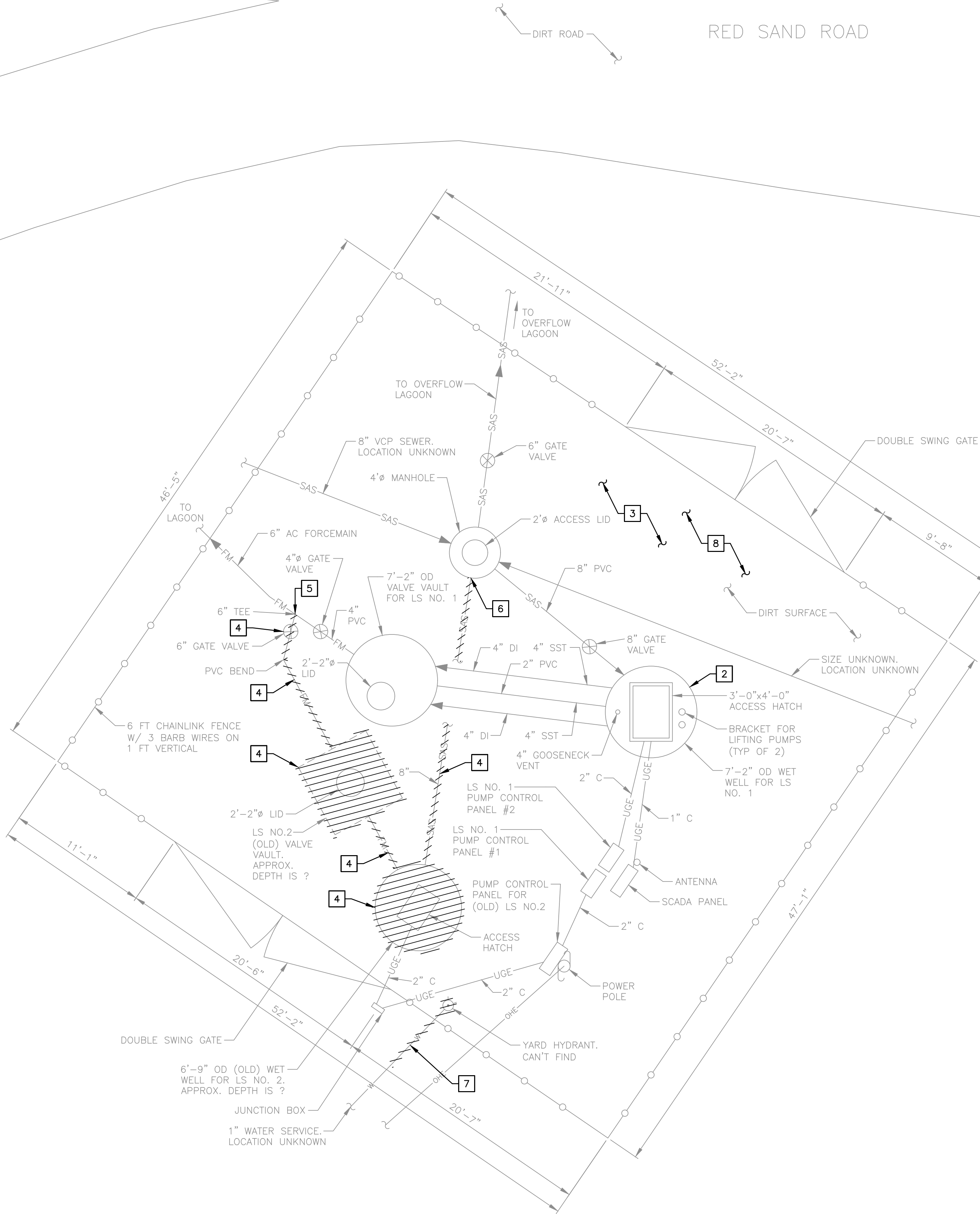
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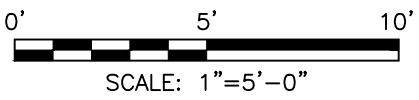
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REMOVALS NOTES	
1	NOT USED.
2	FOR REMOVALS, SEE SHT M-03.
3	ADD ALTERNATE A1: REMOVE 4 INCHES OF SOIL WITHIN FENCED AREA AND DISPOSE OF.
4	REMOVE BURIED PIPING, WET WELL AND ASSOCIATED EQUIPMENT AND PIPING, VALVE VAULT AND ASSOCIATED EQUIPMENT AND PIPING, BURIED VALVES, AND DISPOSE OF. PROVIDE CLEAN FILL (NO TOPSOIL OR SILT) ACCEPTABLE TO ENGINEER, AND COMPACT TO 90% PER ASTM D1557.
5	REMOVE TEE AND REPLACE W/ 4" PVC PIPE, 6"x4" REDUCER AND REPAIR COUPLINGS. SEE GENERAL NOTE 2 BELOW. PVC PIPE SDR SHALL MATCH EXISTING PVC PIPE.
6	CAP PIPE AT MANHOLE. SEE GENERAL NOTE 2 BELOW. PIPE MATERIAL UNKNOWN. SUBMIT PROPOSED METHOD OF CAPPING PIPE TO ENGINEER.
7	REMOVE YARD HYDRANT AND 1 INCH SERVICE TO 5 FEET OUTSIDE FENCE AND CAP.
8	REMOVE WEEDS AND DISPOSE OF WITHIN FENCED AREA. PROVIDE PRE-EMERGENT HERBICIDE WITHIN FENCED AREA.

- GENERAL NOTES
- POTHOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.
 - POTHOLE AND DETERMINE DEPTH, LOCATION, AND PIPE MATERIAL FOR EXISTING BURIED PIPING BEFORE ORDERING PIPE MATERIALS AND BEGINNING TRENCHING.
 - SEE ELECTRICAL SHEETS FOR ELECTRICAL ITEM REMOVALS.
 - SOME INFORMATION ON THIS DRAWING OBTAINED FROM "AS-BUILT" WATER AND SEWER DISTRIBUTION SYSTEM DRAWINGS, U.S. DEPARTMENT OF HEALTH SERVICE, INDIAN HEALTH SERVICE, OCTOBER 2006.
 - PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN.



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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
LECHEE SITE DEMOLITION PLAN



EXPIRATION DATE: 09/30/21

Drawn by: KWB

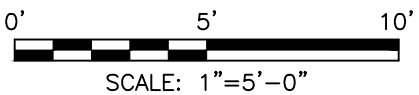
Design by: LAH

Approved by: RN

Date: 12/09/20

Project No. 2144

Sheet No. C-02



GENERAL NOTES	
1.	POTHOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.
2.	POTHOLE AND DETERMINE DEPTH, LOCATION, AND PIPE MATERIAL FOR EXISTING BURIED PIPING BEFORE ORDERING PIPE MATERIALS AND BEGINNING TRENCHING.
3.	FOR NEW ELECTRICAL, SEE ELECTRICAL SHEETS.
4.	SOME INFORMATION ON THIS DRAWING OBTAINED FROM "AS-BUILT" WATER AND SEWER DISTRIBUTION SYSTEM DRAWINGS, U.S. DEPARTMENT OF HEALTH SERVICE, INDIAN HEALTH SERVICE, OCTOBER 2006.
5.	PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN.

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

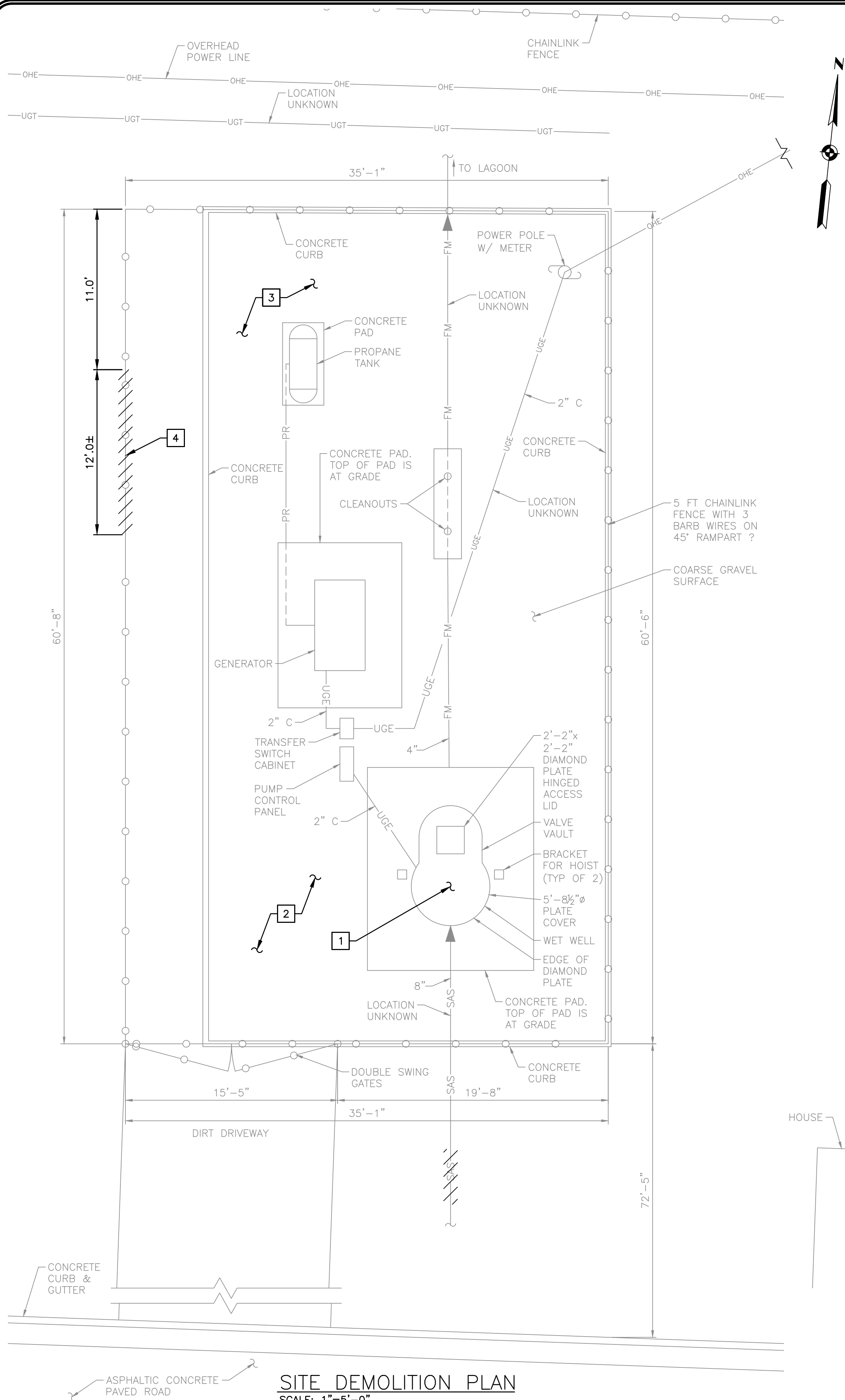
LECHEE SITE IMPROVEMENTS PLAN



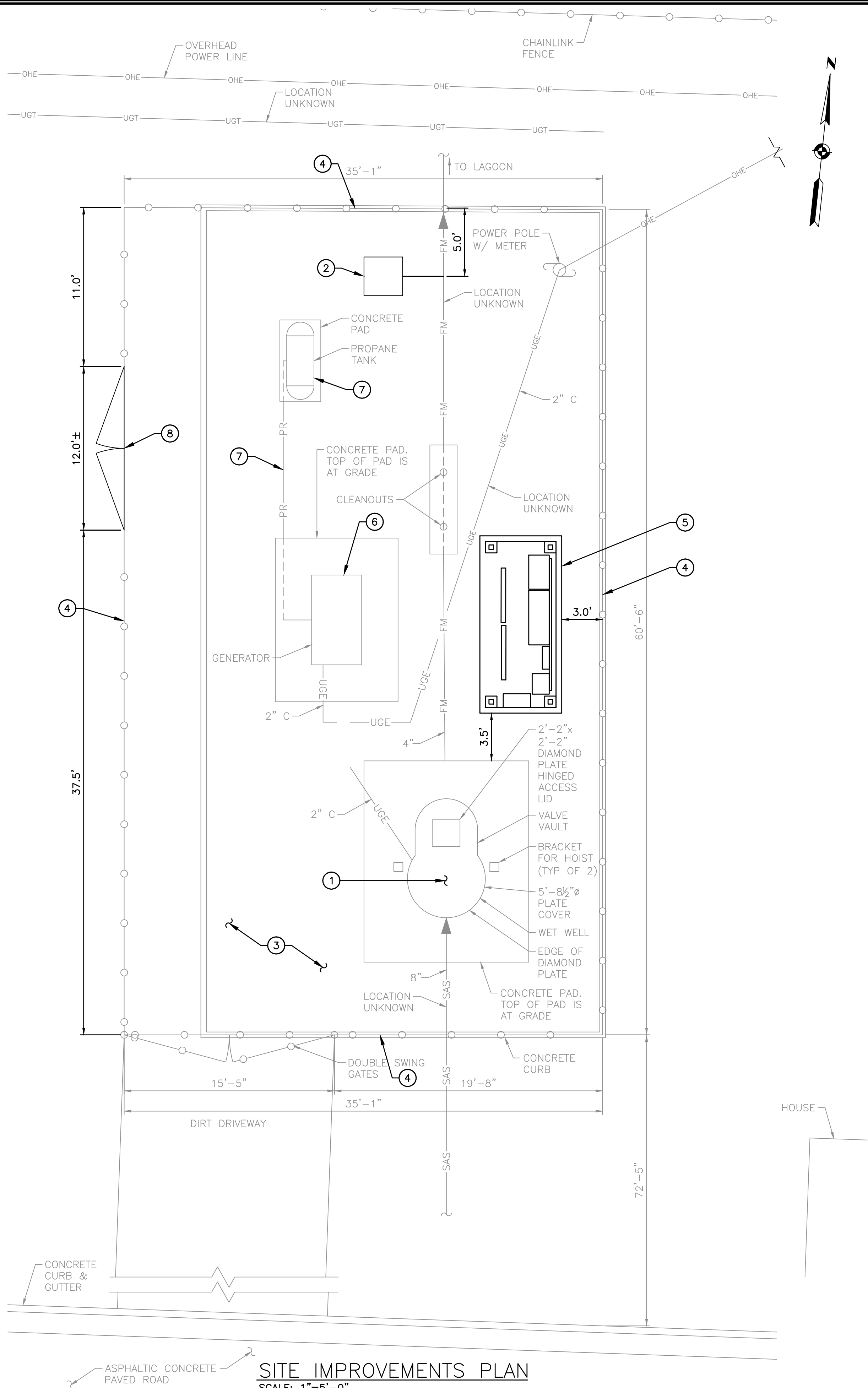
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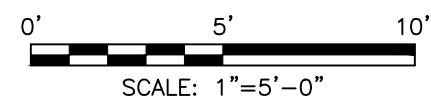
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SITE DEMOLITION PLAN
SCALE: 1"=5'-0"



SITE IMPROVEMENTS PLAN
SCALE: 1"=5'-0"



REMOVALS NOTES	
1	FOR REMOVALS, SEE SHEET M-04.
2	ADD ALTERNATE A1: REMOVE 4 INCHES OF SOIL WITHIN FENCED AREA AND DISPOSE OF.
3	REMOVE WEEDS AND DISPOSE OF WITHIN FENCED AREA. PROVIDE PRE-EMERGENT HERBICIDE WITHIN FENCED AREA.
4	REMOVE CHAINLINK FENCE INCLUDING POSTS, FABRIC, BARBED WIRE AND DISPOSE OF.
CONSTRUCTION NOTES	
1	FOR MODIFICATIONS, SEE SHT M-04.
2	PUMP AROUND PORT. SEE DETAIL ON SHEET C-10.
3	ADD ALTERNATIVE A1: 4 INCH COMPACTED DEPTH OF 3/4" AGGREGATE BASE COURSE PER MAG 702 WITHIN FENCED AREA. COMPACT TO 95% PER ASTM D1557.
4	SIGN. SEE DETAIL ON SHT C-10. ATTACH TO FENCE W/ NON-CORRODING HARDWARE.
5	SHADE CANOPY, SEE SHT C-08.
6	EXISTING GENERATOR. SEE SPECIFICATIONS ON SHT M-01.
7	EXISTING PROPANE TANK AND PROPANE PIPING. SEE SPECIFICATIONS ON SHT M-01.
8	DOUBLE SWING GATE. 5 FT CHAINLINK FENCE WITH 3 BARBED WIRES SIMILAR TO FENCE DETAIL ON SHT C-11. FIELD VERIFY HEIGHT OF FENCE.
9	GRINDER STATION, SEE SHT M-07.
10	SHORING AS NEEDED TO PROTECT EXISTING WATERMAIN. SHORING AS NEEDED TO KEEP EXISTING WET WELL FROM TIPPING OR MOVING. ACCESS MUST BE PROVIDED TO TOP OF WET WELL FOR NTUA.
GENERAL NOTES	
1. POTHOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.	
2. POTHOLE AND DETERMINE DEPTH, LOCATION, AND PIPE MATERIAL FOR EXISTING BURIED PIPING BEFORE ORDERING PIPE MATERIALS AND BEGINNING TRENCHING.	
3. SEE ELECTRICAL SHEETS FOR ELECTRICAL ITEM REMOVALS.	
4. FOR NEW ELECTRICAL, SEE ELECTRICAL SHEETS.	
5. PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN.	

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

SAWMILL SITE DEMOLITION PLAN
AND SITE IMPROVEMENTS PLAN

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EXPIRATION DATE: 09/30/21

Drawn by: KWB

Design by: LAH

Approved by: RN

Date

12/09/20

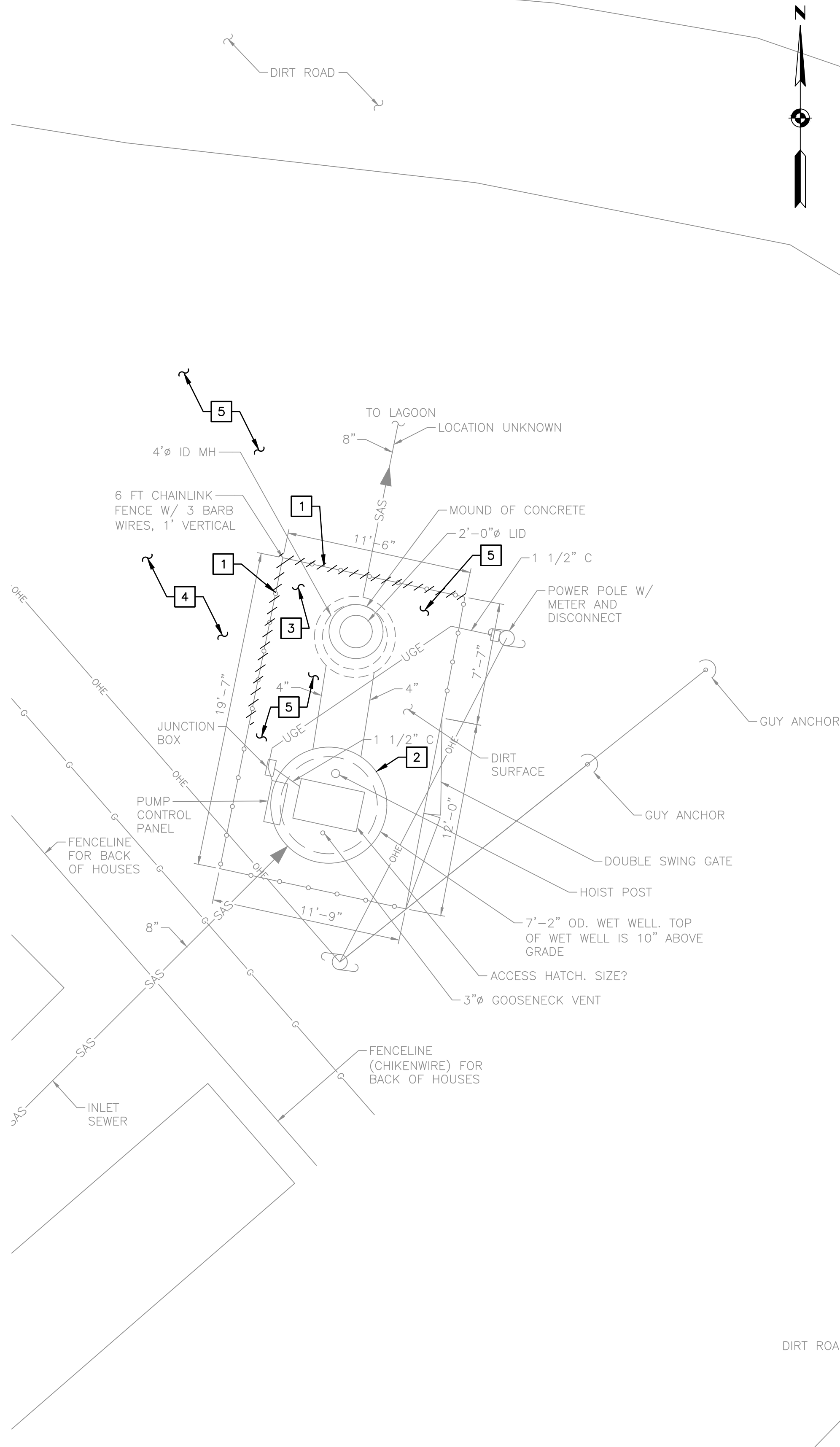
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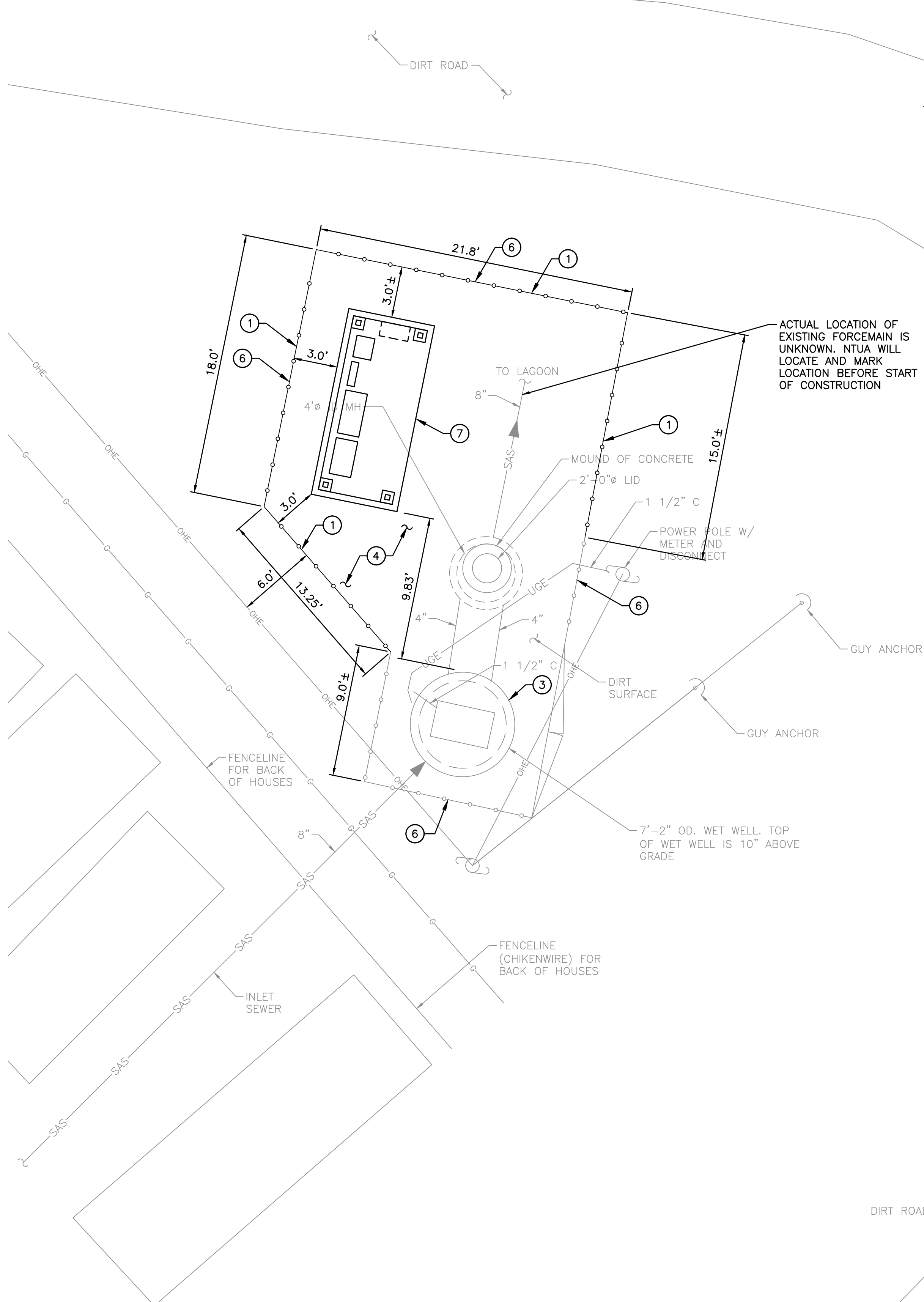
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C-04

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SITE DEMOLITION PLAN
SCALE: 1"=5'-0"

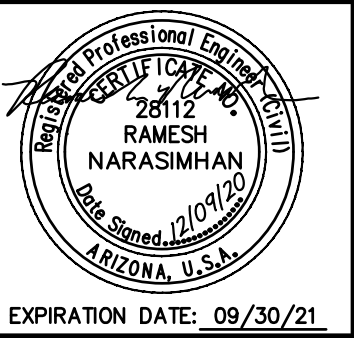


SITE IMPROVEMENTS PLAN
SCALE: 1"=5'-0"

REMOVALS NOTES	
1	REMOVE CHAINLINK FENCE INCLUDING POSTS, FABRIC, BARBED WIRE, AND DISPOSE OF.
2	FOR REMOVALS, SEE SHT M-05
3	ADD ALTERNATE A1: REMOVE 4 INCHES OF SOIL WITHIN EXISTING FENCED AREA AND DISPOSE OF.
4	ALTERNATE A1: REMOVE 4 INCHES OF SOIL IN EXPANDED FENCE AREA AND DISPOSE OF. SEE SITE IMPROVEMENTS PLAN FOR NEW FENCE LIMITS.
5	REMOVE WEEDS AND DISPOSE OF AND PROVIDE PRE-EMERGENT HERBICIDE FOR EXISTING SITE AND EXPANDED SITE AREA.
CONSTRUCTION NOTES	
1	6 FT CHAINLINK FENCE WITH 3 BARBED WIRES TO MATCH EXISTING FENCE PER SHT C-11. WHERE DEVIATIONS, EXISTING FENCE CONFIGURATION AND MATERIALS SHALL TAKE PRECEDENCE OVER FENCING REQUIREMENTS ON SHT C-11.
2	NOT USED
3	FOR MODIFICATIONS, SEE SHT M-05.
4	ADD ALTERNATE A1: 4 INCH DEPTH OF 3/4" AGGREGATE BASE COURSE PER MAG 702 WITHIN FENCED AREA. COMPACT TO 95% PER ASTM D1557.
5	NOT USED
6	SIGN. SEE DETAIL ON SHT C-10.
6	ATTACH TO FENCE W/ NON-CORRODING HARDWARE.
7	SHADE CANOPY, SEE SHT C-08.
GENERAL NOTES	
1. POTHOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.	
2. NOT USED.	
3. SEE ELECTRICAL SHEETS FOR ELECTRICAL ITEM REMOVALS.	
4. FOR NEW ELECTRICAL, SEE ELECTRICAL SHEETS.	
5. PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN. NTUA TO ACQUIRE ADDITIONAL PROPERTIES AS REQUIRED.	

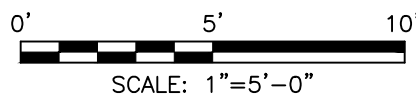
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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
COYOTE CANYON SITE DEMOLITION
PLAN AND SITE IMPROVEMENTS PLAN



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Design by:	LAH
Approved by:	RN
Date	12/09/20
Project No.	2144
Sheet No.	C-05





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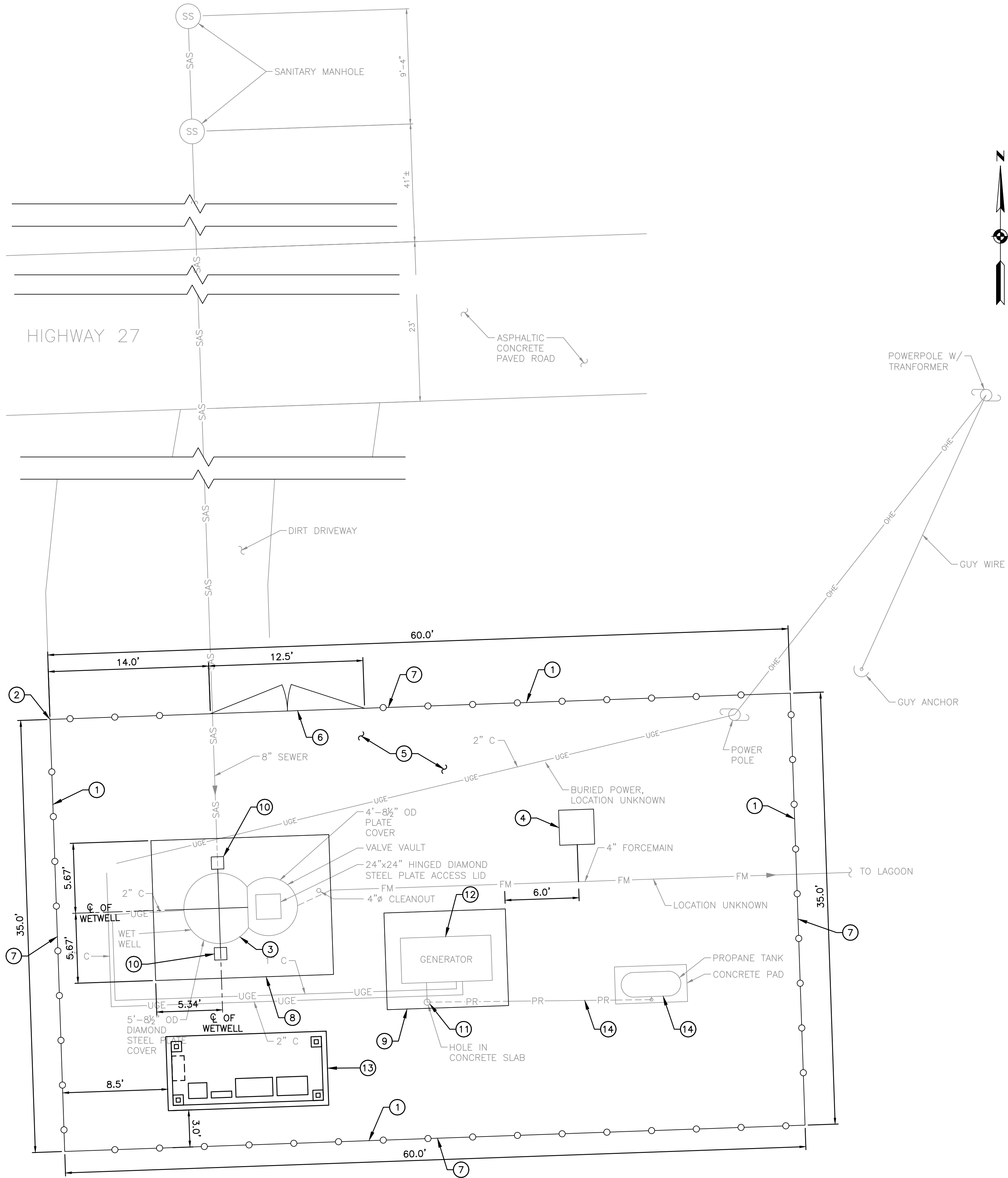
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

IYANBITO SITE DEMOLITION PLAN

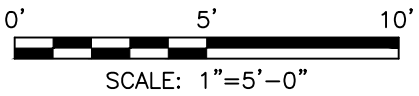


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Design by:	LAH
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Sheet No.	C-06

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CONSTRUCTION NOTES	
①	6 FT CHAINLINK FENCE WITH 3 BARBED WIRES. SEE FENCE DETAIL AND SPECIFICATIONS ON SHT C-11.
②	HOLD THIS CORNER WHEN REPLACING FENCE.
③	FOR MODIFICATIONS, SEE SHT M-06.
④	PUMP AROUND PORT. SEE DETAIL ON SHEET C-10.
⑤	ADD ALTERNATE A1: 4 INCH COMPACTED DEPTH OF 3/4" AGGREGATE BASE COURSE PER MAG 702 WITHIN FENCED AREA. COMPACT TO 95% PER ASTM D1557.
⑥	DOUBLE SWING GATE, 6 FT CHAINLINK FENCE WITH 3 BARBED WIRES. SEE SHT C-11.
⑦	SIGN. SEE DETAIL ON SHT C-10. ATTACH TO FENCE W/ NON-CORRODING HARDWARE.
⑧	CONCRETE SLAB ON GRADE. SEE DETAIL ON SHT C-10.
⑨	CONCRETE FOUNDATION FOR GENERATOR. SEE DETAIL ON SHT C-10. RESET GENERATOR AND CONNECT ELECTRICAL AND PROPANE GAS PIPING.
⑩	BRACKET FOR PORTABLE HOIST.
⑪	HOLE IN FOUNDATION FOR PROPANE GAS PIPING.
⑫	EXISTING GENERATOR. SEE SPECIFICATIONS ON SHEET M-01.
⑬	SHADE CANOPY. SEE SHT C-08. OVER EXCAVATE TO A DEPTH OF 3 FT BELOW FOUNDATION AND PLACE ENGINEERED FILL PER GEOTECHNICAL REPORT. OVER-EXCAVATION SHALL EXTEND TO 3 FT OUTSIDE THE FOUNDATION.
⑭	EXISTING PROPANE TANK AND PROPANE PIPING. SEE SPECIFICATIONS ON SHT M-01.
GENERAL NOTES	
1. POT HOLE EXISTING BURIED PIPING AND ELECTRICAL BEFORE BEGINNING ANY EXCAVATION OR TRENCHING FOR PIPE INSTALLATION.	
2. POT HOLE AND DETERMINE DEPTH, LOCATION, AND PIPE MATERIAL FOR EXISTING BURIED PIPING BEFORE ORDERING PIPE MATERIALS AND BEGINNING TRENCHING.	
3. FOR NEW ELECTRICAL, SEE ELECTRICAL SHEETS.	
4. PROPERTY BOUNDARIES NOT AVAILABLE AND NOT SHOWN.	



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NAVAJO TRIBAL UTILITY AUTHORITY

DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

YANBITO SITE IMPROVEMENTS PLAN

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28112
RAMESH
NARASIMHAN
State of Arizona
12/09/2020

Expiration Date: 09/30/21

Drawn by: KWB

Design by: LAH

Approved by: RN

Date: 12/09/20

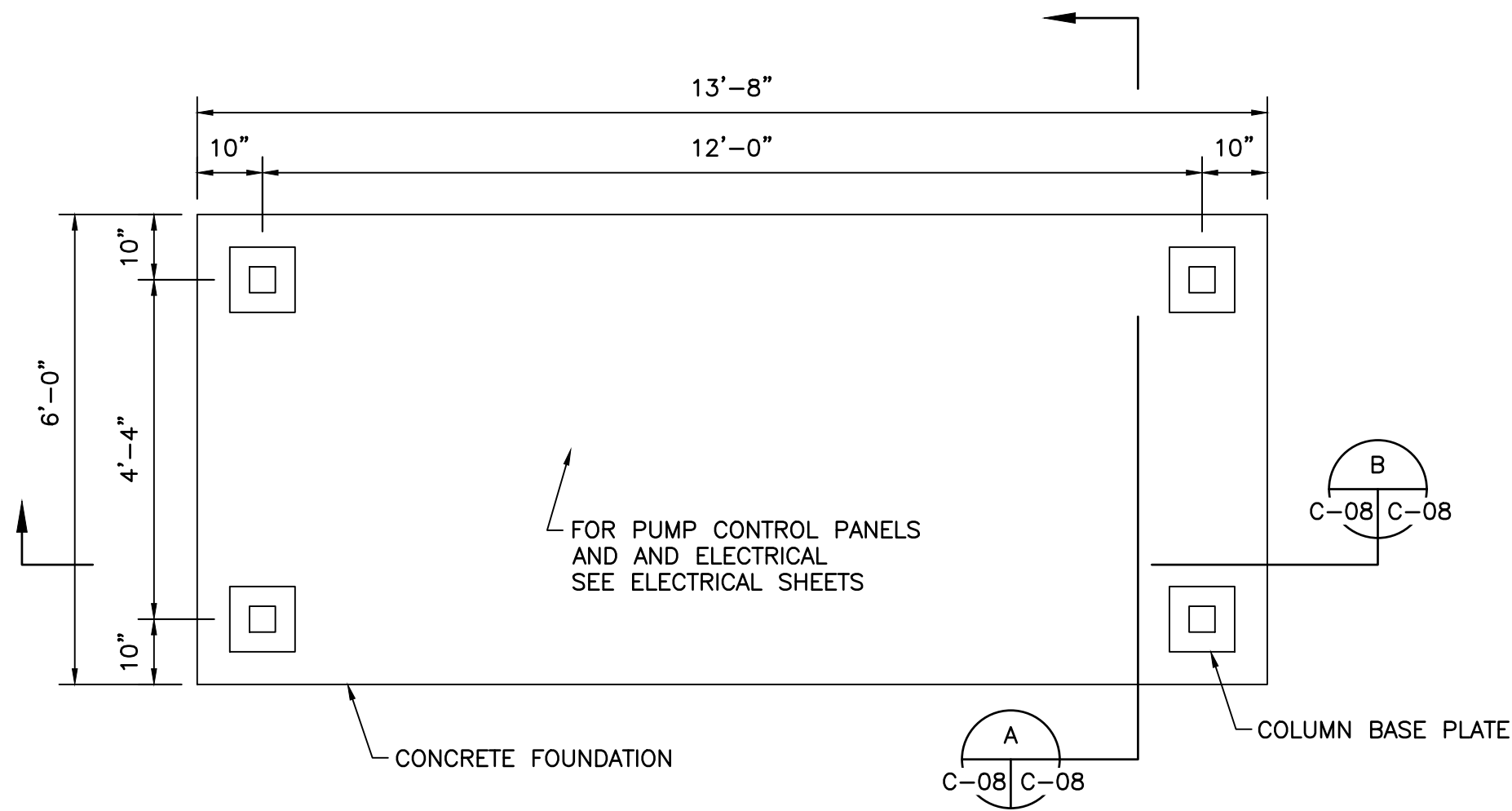
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Sheet No.: C-07

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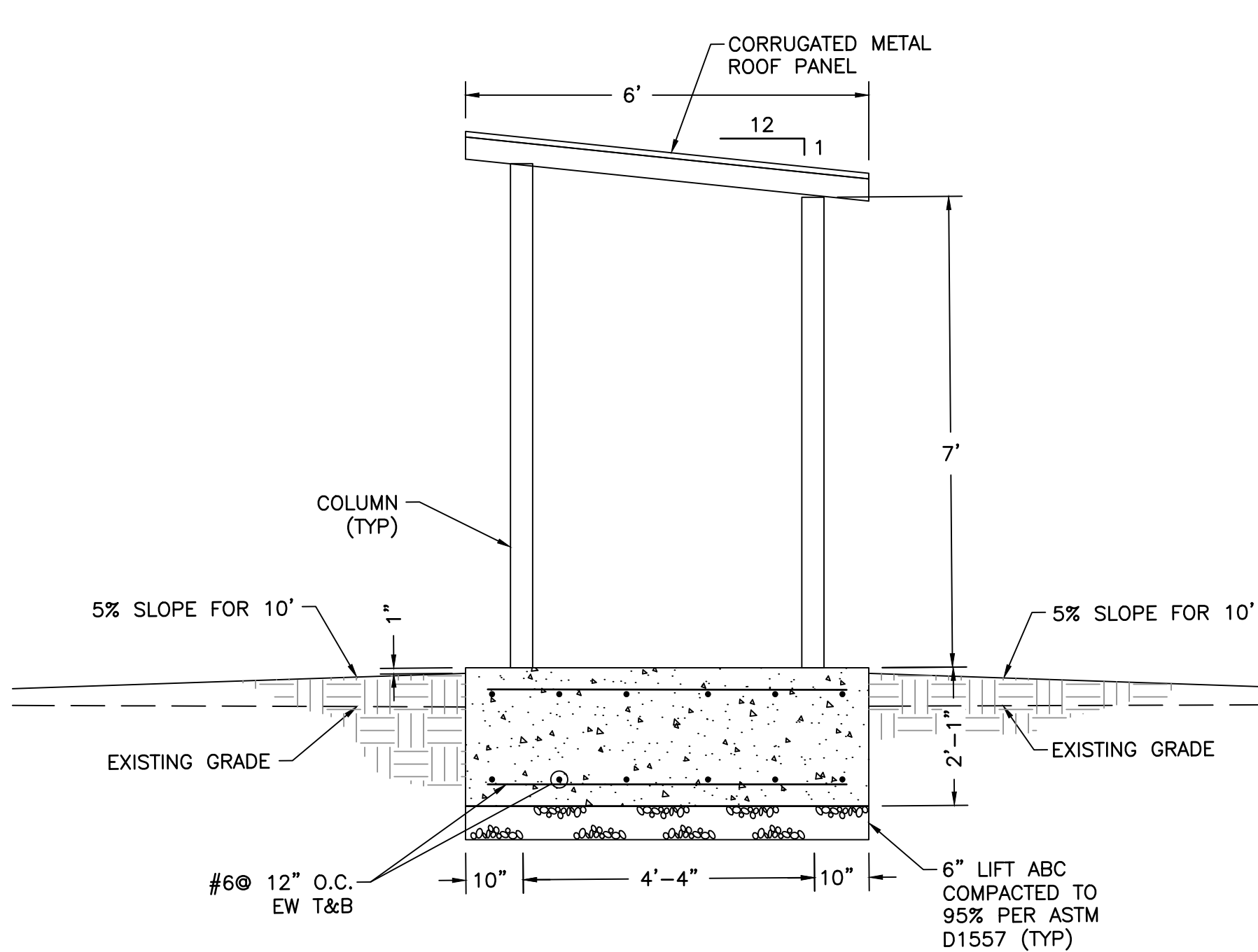
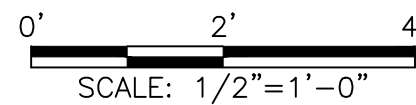
NOTES:

1. SHADE CANOPIES STRUCTURAL DESIGN AND ANCHORAGE SYSTEM TO FOUNDATION SHALL BE BY ALUMA-LINE (PHOENIX, AZ) INC OR APPROVED EQUAL. SHADE CANOPY MANUFACTURER SHALL DESIGN AND PROVIDE SHOP DRAWING FOR CANOPIES. DESIGN CALCULATION AND SHOP DRAWINGS SHALL BE SEALED BY AN ARIZONA LICENSED PROFESSIONAL ENGINEER.
2. CORRUGATED STEEL ROOF PANELS SHALL BE BY MBCI OR APPROVED EQUAL. COATING SHALL BE SIGNATURE 200 FACTORY APPLIED AND BAKED-ON OVER GALVALUME. COLOR WILL BE SELECTED BY NTUA.
3. FASTENERS SHALL BE NON-CORRODING MATERIAL.
4. EPOXY ANCHOR BOLTS DESIGN BY ALUMA-LINE'S STRUCTURAL DESIGNER.
5. SEE SHT G-04 FOR GENERAL STRUCTURAL NOTES. THE SCADA ANTENNA POLE SHALL BE MOUNTED ON THE SHADE CANOPY. SEE DETAIL ON SHT E-22.



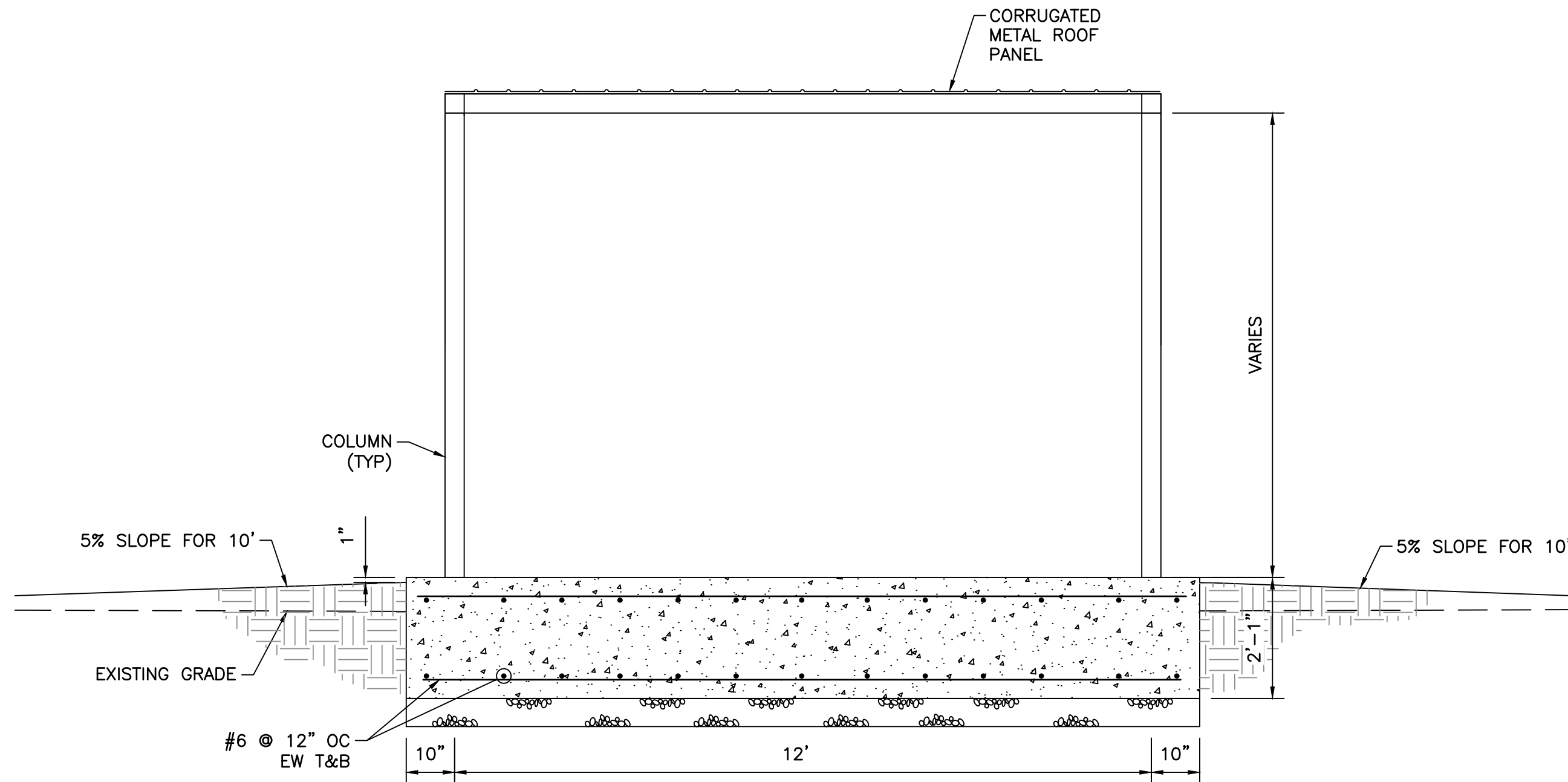
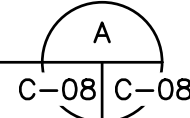
SHADE CANOPY SECTIONAL PLAN

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



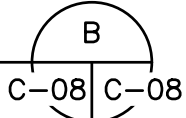
SECTION A

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



SECTION B

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



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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

SHADE CANOPY PLAN AND SECTIONS



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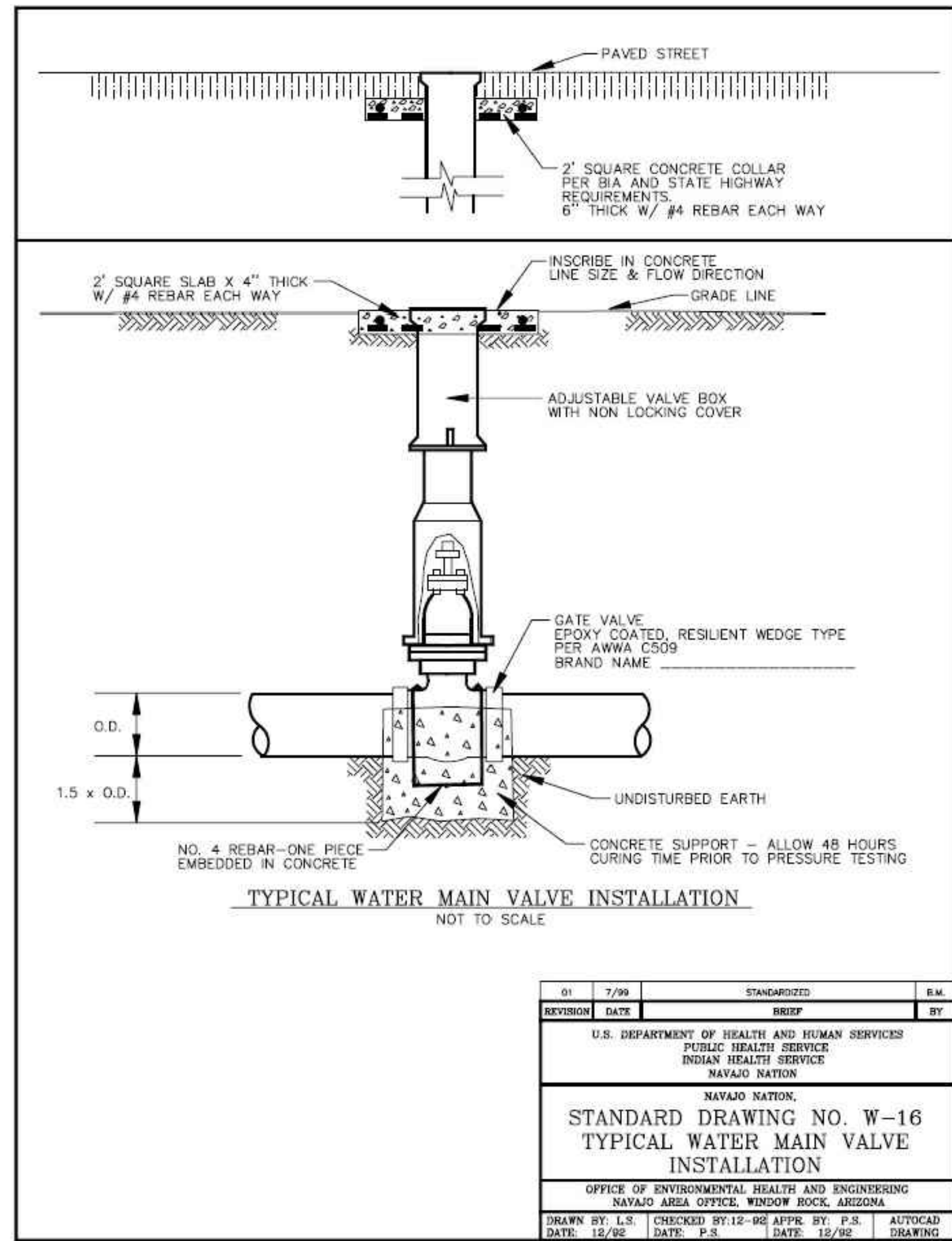
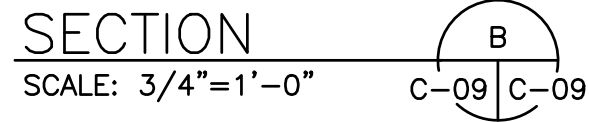
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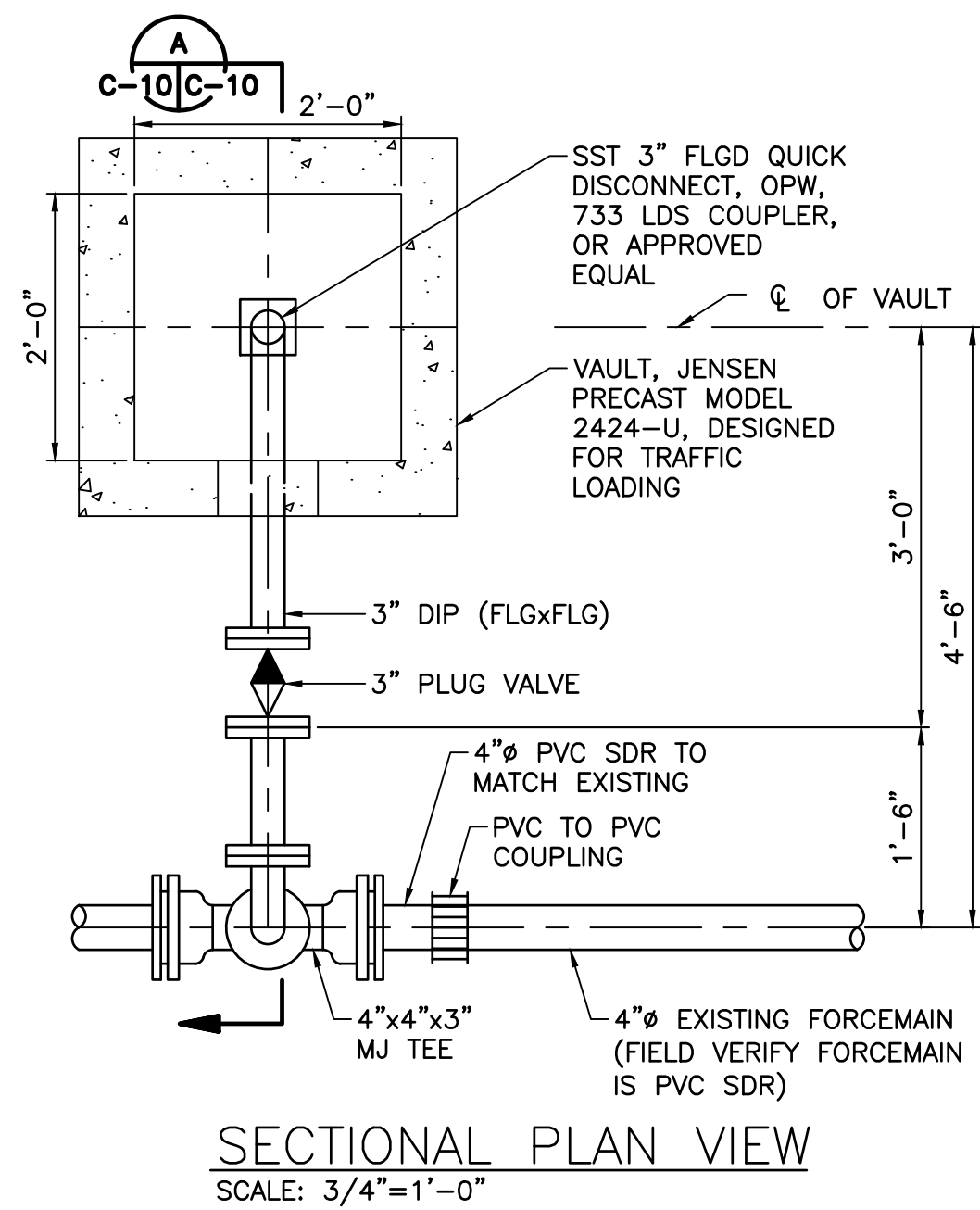
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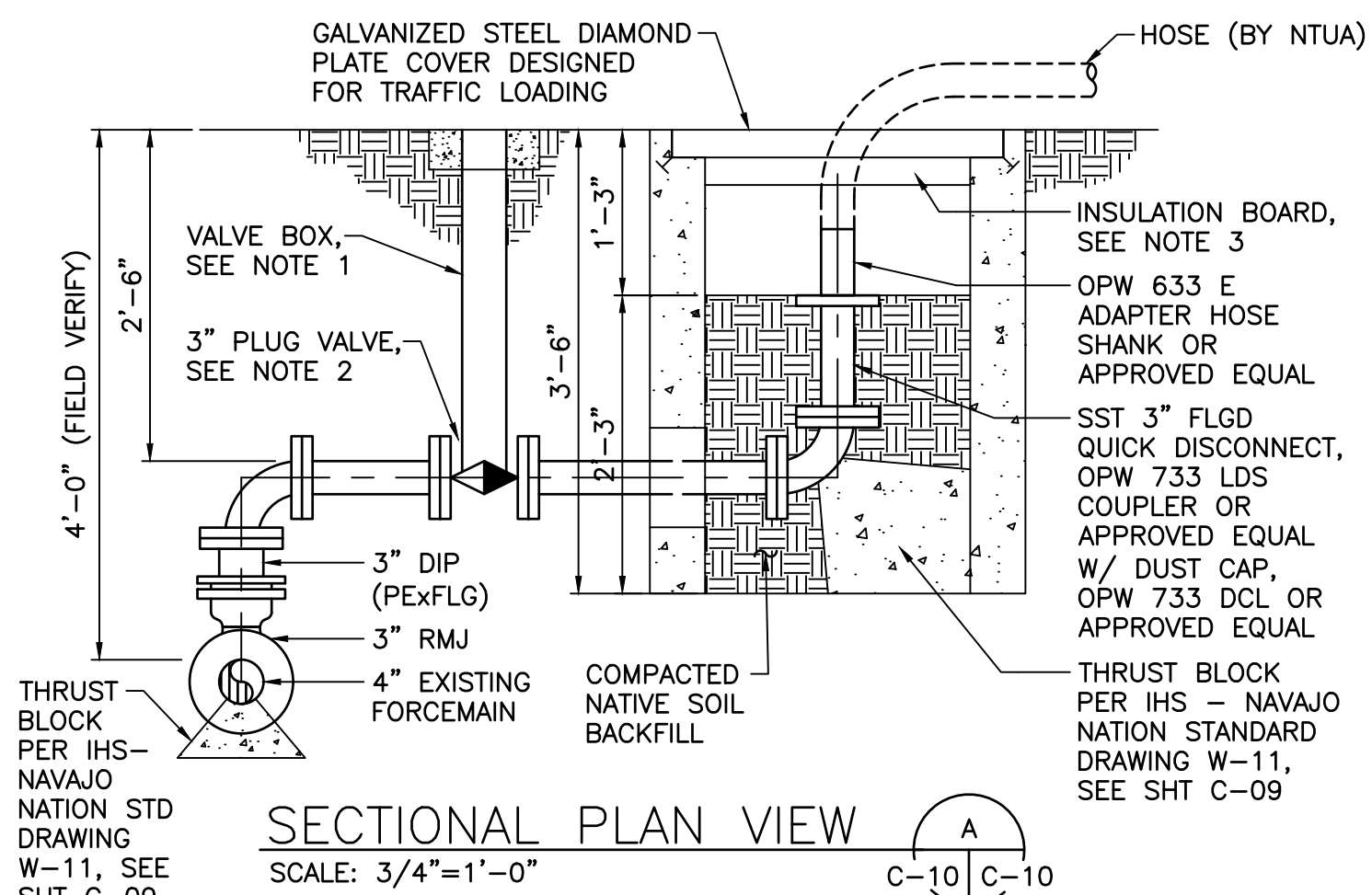
-
- 5% SLOPE FOR 10'. TYP ALL SIDES
- EXISTING GRADE
- 2'-1"
- 8'-0"
- #6 @ 12" OC EW T&B
- SECTION
- SCALE: 3/4"=1'-0"
- B
- C-09 C-09
- 6" LIFT OF ABC COMPACTED TO 95% ASTM D1557



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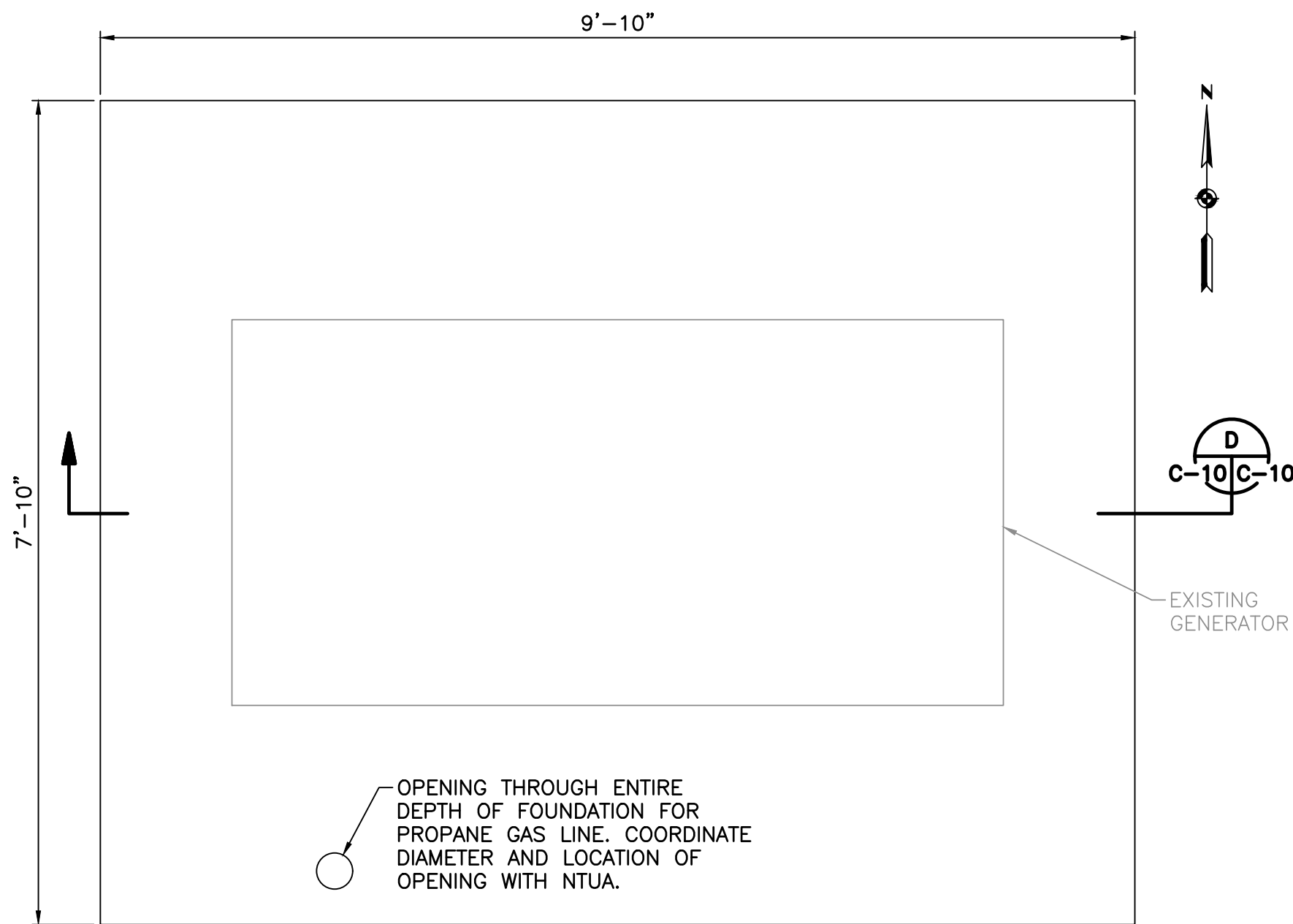
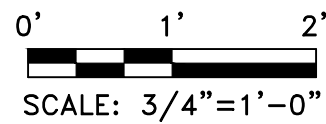


SECTIONAL PLAN VIEW
SCALE: 3/4"=1'-0"

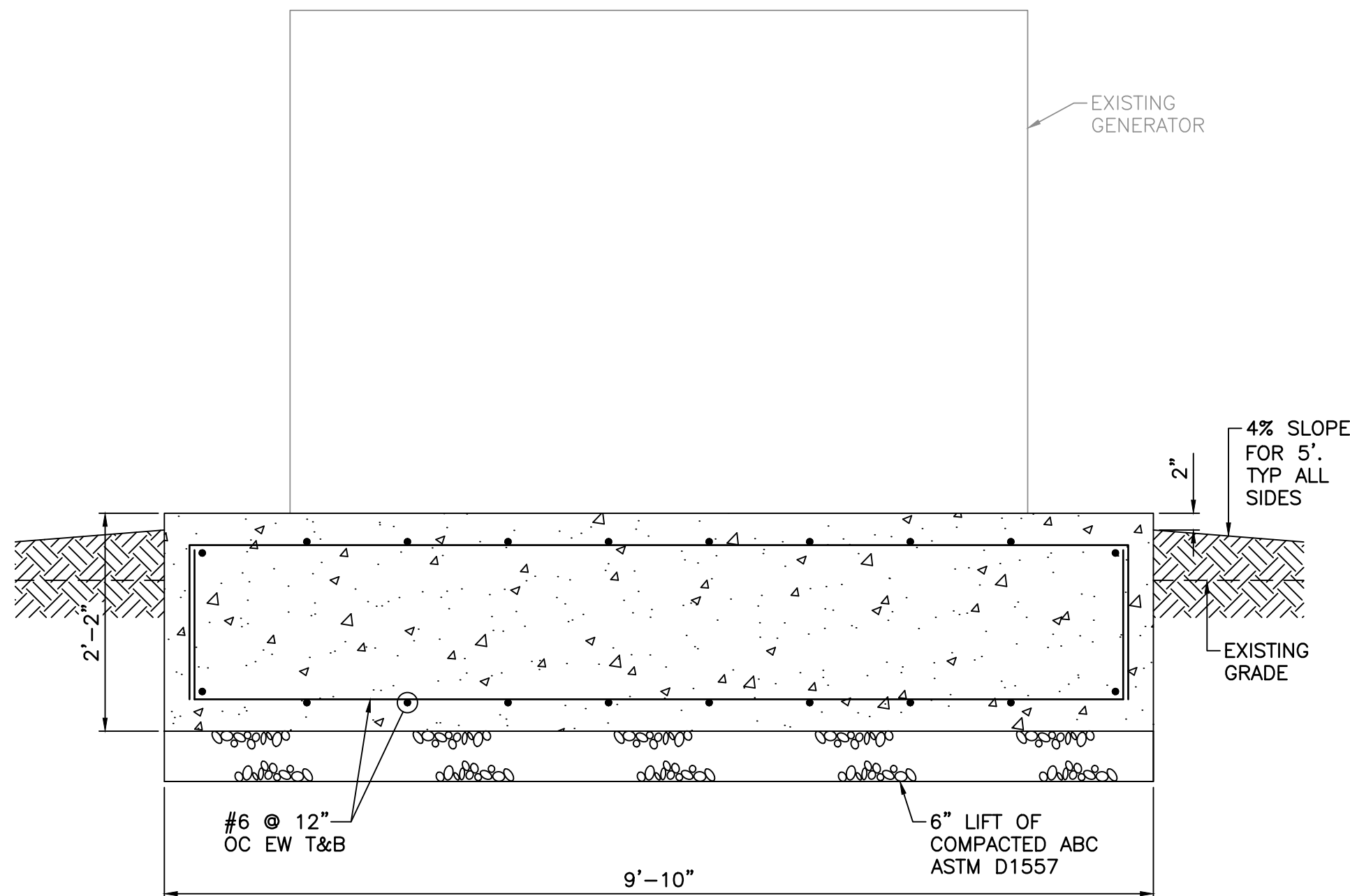


- NOTES:
1. VALVE BOX, SIMILAR TO IHS - NAVAJO NATION DETAIL STD DWG W-16, SEE SHT C-09. INDICATE "SEWER" ON VALVE BOX COVER. VALVE BOX SHALL BE 5/4" NOMINAL SHAFT DIAMETER, TYLER 6850 SERIES.
 2. 3" ECCENTRIC PLUG VALVE W/ T-WRENCH AND EXTENDED NUT, DEZURIK OR APPROVED EQUAL.
 3. 4" POLYISOCYANURATE INSULATION W/ THERMAL RESISTANCE R-6. ATTACH W/ ADHESIVE TO UNDERSIDE OF COVER BY COVER MANUFACTURER.
 4. TRENCH BACKFILL SHALL BE COMPACTED TO 90% PER ASTM D1557.

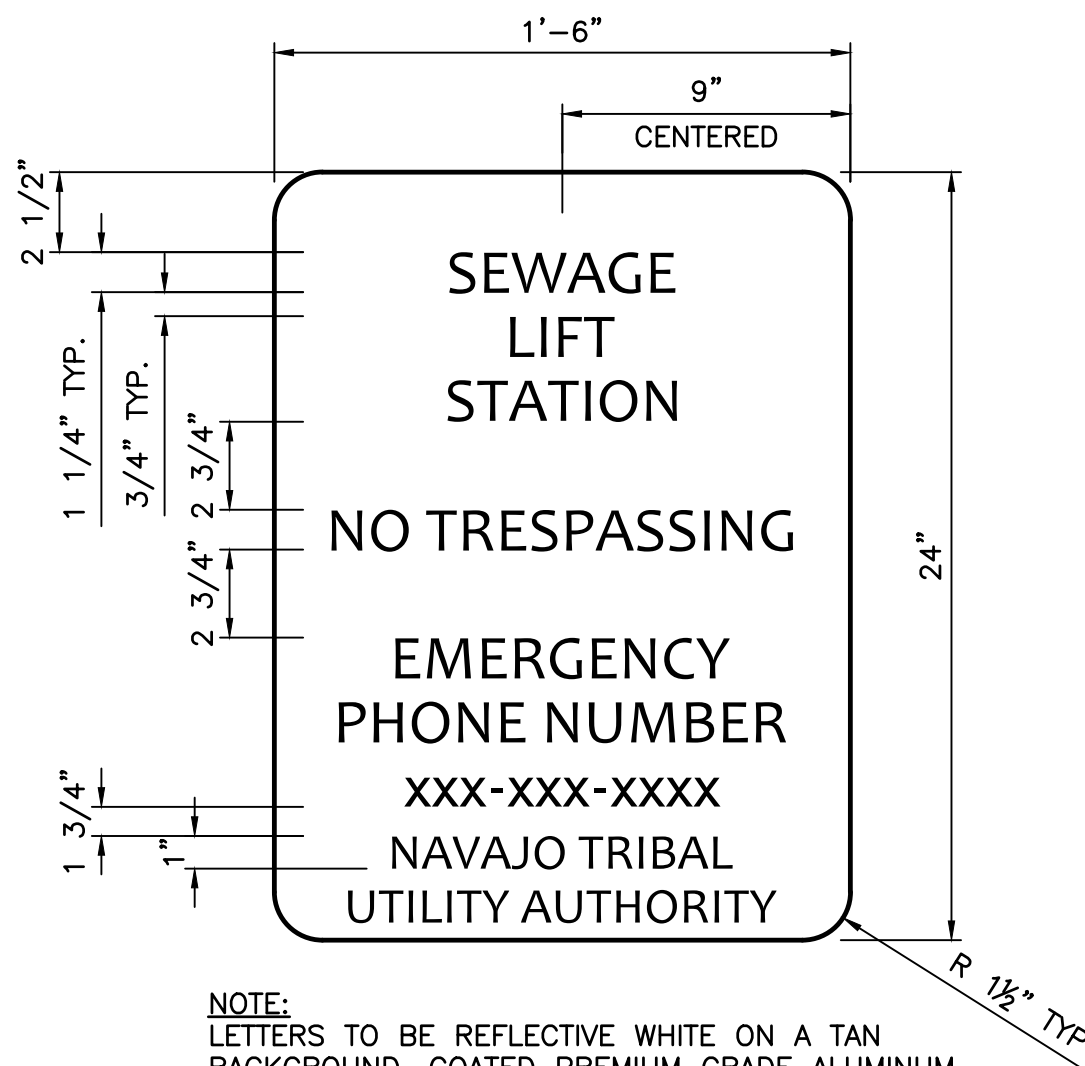
PUMP-AROUND PORT DETAIL
SCALE: 3/4"=1'-0"



IYANBITO - GENERATOR REPLACEMENT FOUNDATION PLAN
SCALE: 3/4"=1'-0"

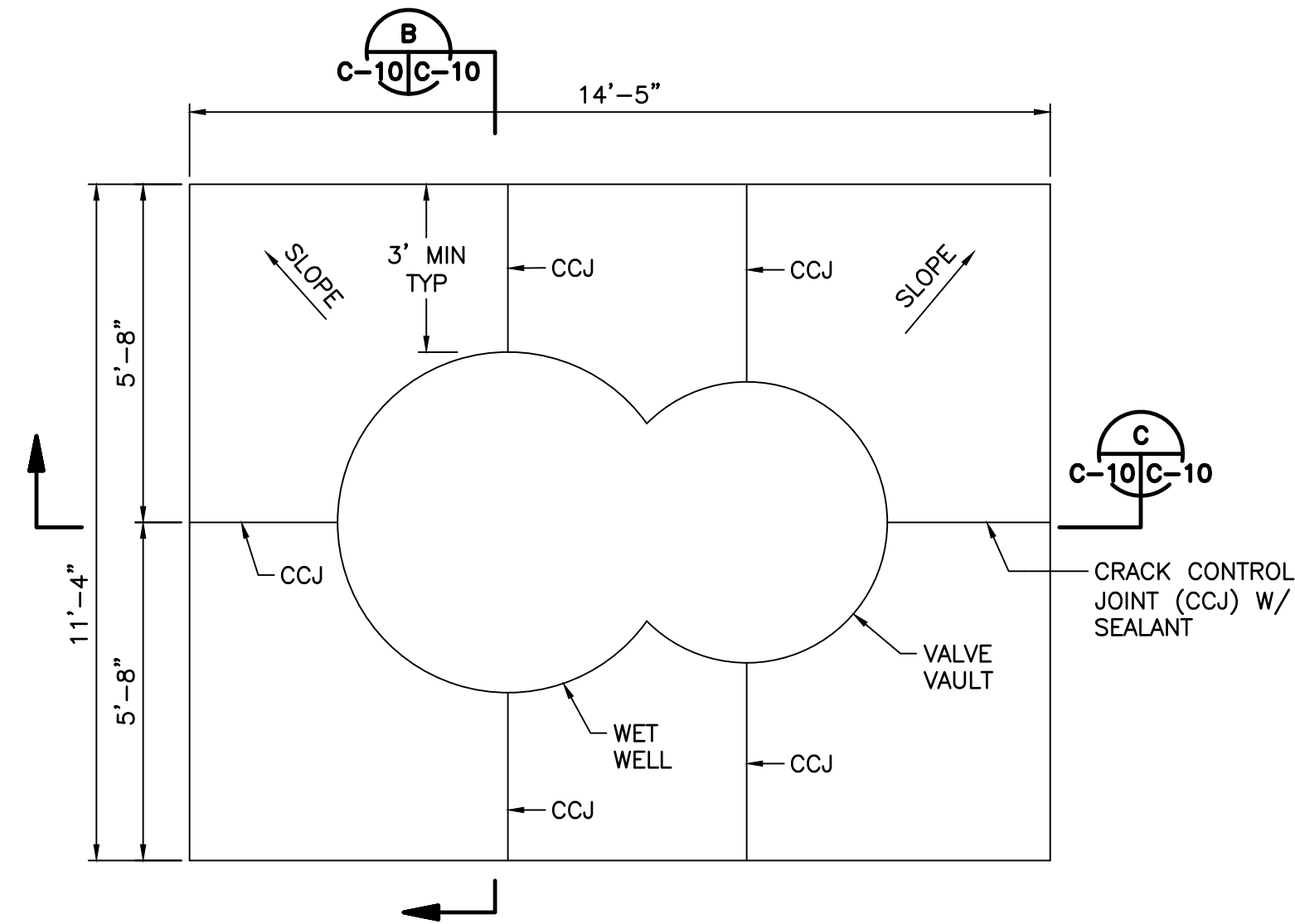
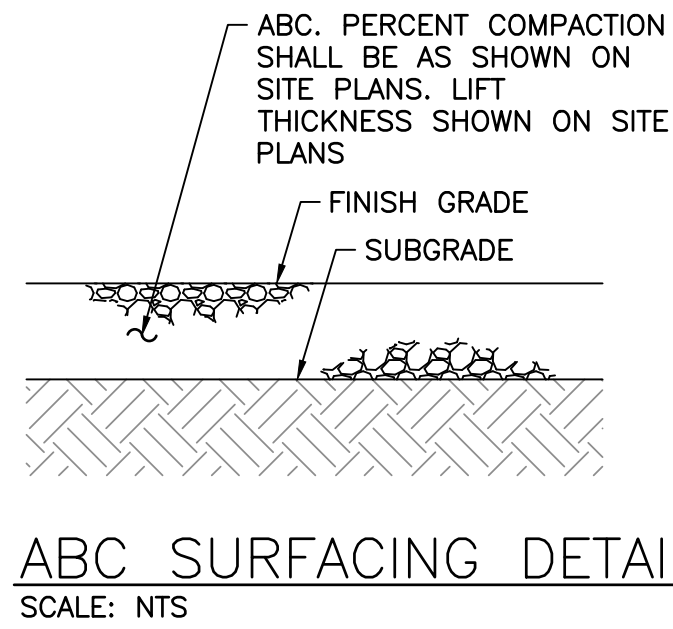


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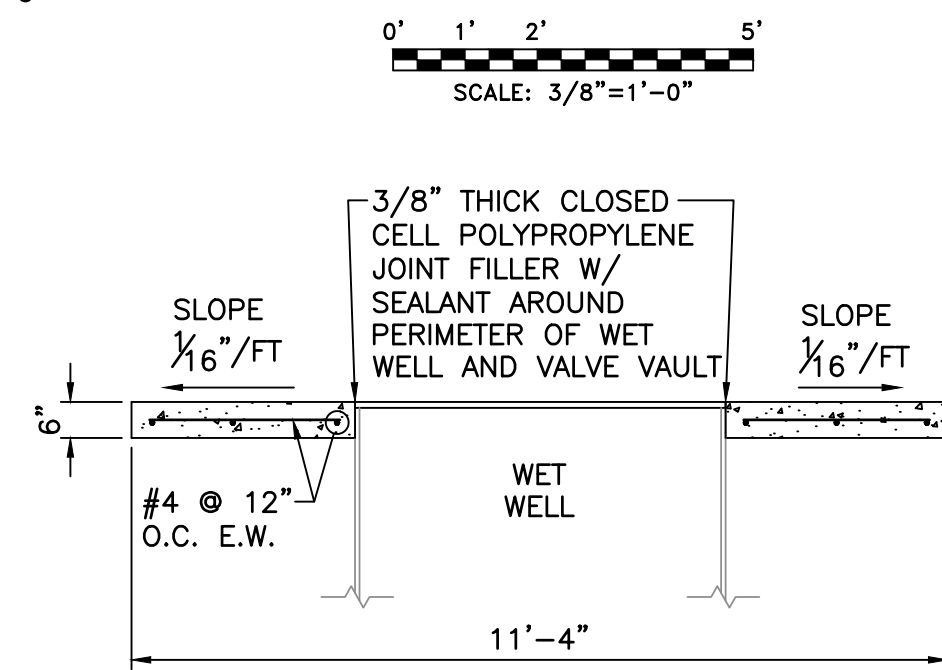


NOTE:
LETTERS TO BE REFLECTIVE WHITE ON A TAN BACKGROUND. COATED PREMIUM GRADE ALUMINUM, 0.08" THICKNESS. SIGN SHALL BE INSTALLED IN A CLEARLY VISIBLE LOCATION NEAR CENTER OF OUTSIDE FENCE EACH SIDE OF LIFTSTATION.

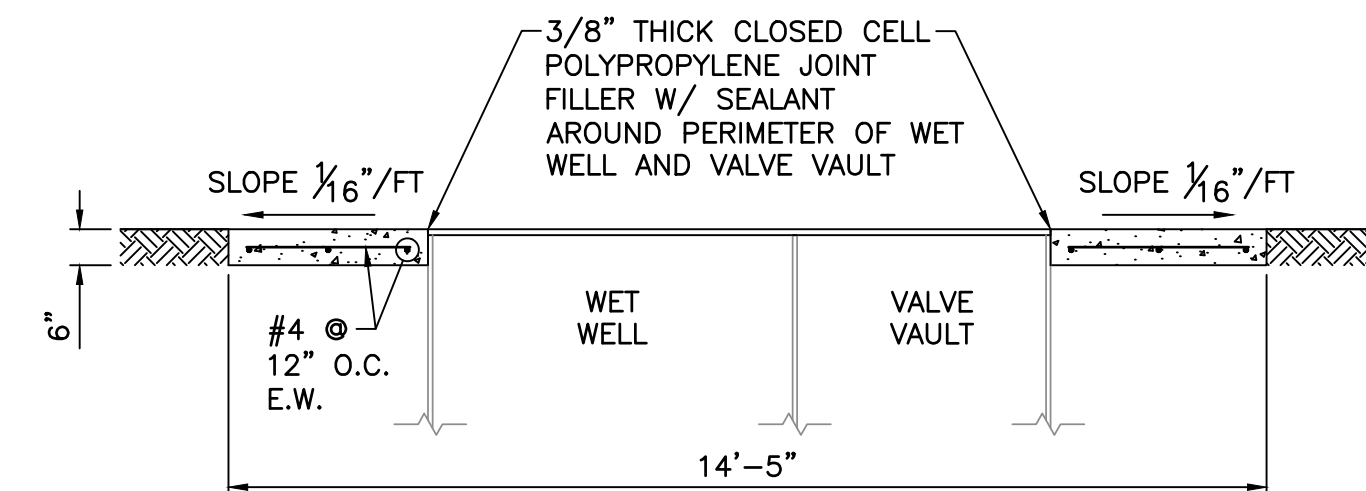
LIFT STATION PERIMETER
FENCE SIGN DETAIL
SCALE: NTS



IYANBITO LIFT STATION REPLACEMENT FOUNDATION PLAN
SCALE: 3/8"=1'-0"



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



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

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

PUMP-AROUND PORT AND CIVIL DETAILS

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Professional Engineer
28112
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NARASIMHAN
Exp. Signed 12/09/20
ARIZONA, U.S.A.

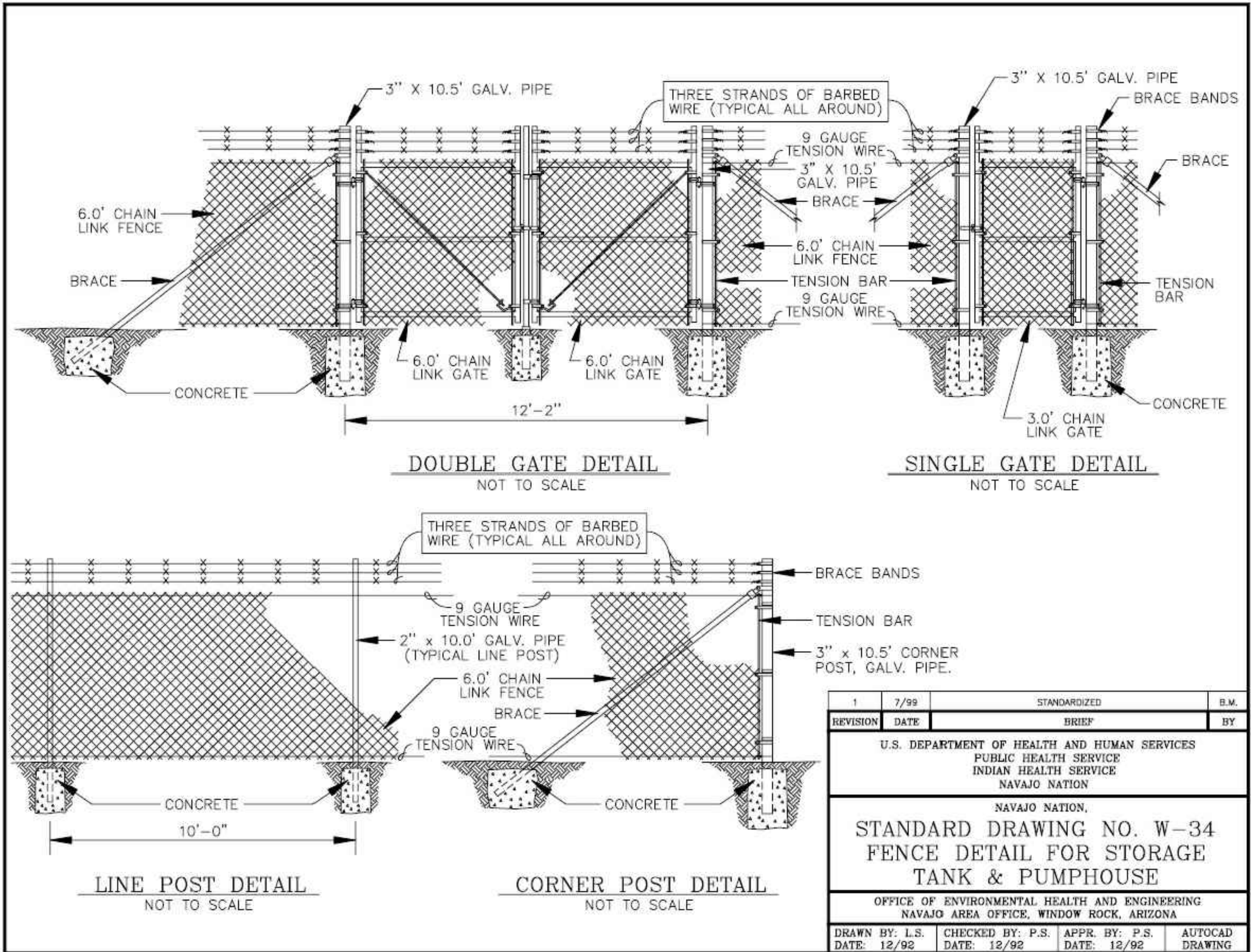
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Design by: LAH
Approved by: RN
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CIVIL SITEWORK SPECIFICATIONS:

1. MATERIALS TESTING:
- a. SOILS: PROVIDE COMPACTION TESTING FOR:
 - i. FOR TRENCHES: MINIMUM OF ONE EVERY OTHER 8 INCH LIFT, AND ONE EVERY 50 LINEAL FEET.
 - ii. UNDER STRUCTURES, FOUNDATIONS, AND SLABS: MINIMUM OF ONE EVERY 8 INCH LIFT, AND ONE EVERY 400 SQUARE FEET.
 - iii. PREPARE AND PROVIDE MOISTURE DENSITY CURVE FOR EACH TYPE OF SOIL PLACED.
 - b. AGGREGATE BASE COURSE: PROVIDE COMPACTION TESTING MINIMUM ONE EVERY 30 CUBIC YARDS. PREPARE AND PROVIDE MOISTURE DENSITY CURVE FOR AGGREGATE BASE COURSE.
 - c. CAST-IN-PLACE CONCRETE:
 - i. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C 31, ASTM C 39, AND ASTM C 172.
 - ii. NOT LESS THAN THREE CYLINDER SPECIMENS, 6 INCH DIAMETER BY 12 INCH LONG SHALL BE TESTED FOR EACH DAY'S PLACEMENT AT EACH SITE. ONE CYLINDER SHALL BE BROKEN AT 7 DAYS AND TWO AT 28 DAYS.
 - iii. TEST SLUMP OF CONCRETE USING SLUMP CONE IN ACCORDANCE WITH ASTM C143.
 - iv. TEST AIR ENTRAINMENT IN CONCRETE IN ACCORDANCE WITH ASM C173.
 - v. CONCRETE IS EXPECTED TO REACH OR EXCEED THE CONCRETE COMPRESSIVE STRENGTH SPECIFIED IN THE GENERAL STRUCTURAL NOTES. NO INDIVIDUAL STRENGTH TEST (AVERAGE OF TWO CYLINDERS) SHALL FALL BELOW THE SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 300 POUNDS PER SQUARE INCH.
 - d. PROMPTLY PROVIDE TEST REPORTS TO NTUA AND ENGINEER ELECTRONICALLY.
2. CHAIN LINK FENCE:
- a. SEE INDIAN HEALTH SERVICE, NAVAJO NATION, STANDARD DRAWING NO. W-34 ON SHT C-11. DELETE TOP TENSION WIRE AND PROVIDE TOP RAIL.
 - b. CHAIN LINK FABRIC SHALL BE 2-INCH MESH 9 GAUGE, AND HAVE 75,000 PSI TENSILE STRENGTH.. FABRIC SHALL HAVE CLASS 2 ZINC COATING, HOT DIPPED GALVANIZED AFTER FABRICATION, AND CONFORM WITH ASTM A392.
 - c. PIPE FOR POSTS, TOP RAIL, AND BRACES SHALL BE ASTM A53, SCHEDULE 40 STEEL PIPE. POSTS, RAILS, BRACES, AND FRAMES SHALL BE HOT DIP GALVANIZED PER ASTM A53, A123, OR A153, WHICHEVER IS APPLICABLE. GALVANIZING SHALL BE APPLIED AT LEAST 2.0 OUNCES OF ZINC PER SQUARE FOOT OF SURFACE.
 - d. BRACES SHALL BE 1 5/8 INCH OUTSIDE DIAMETER WEIGHING 2.27 POUNDS PER FOOT.
 - e. TOP RAILS SHALL BE 1.90 INCH OUTSIDE DIAMETER WEIGHING 2.72 POUNDS PER FOOT.
 - f. GALVANIZED RAMPART SHALL INCLUDE THREE LINES OF GALVANIZED BARBED WIRE.
 - g. TRUSS RODS SHALL BE FABRICATED ON 3/8 INCH DIAMETER STEEL RODS AND SHALL HAVE TURNBUCKLES OR SIMILAR MEANS OF ADJUSTMENT. FITTINGS AND TRUSS RODS SHALL BE HOT-DIP GALVANIZED IRON OR STEEL WITH A MINIMUM COATING OF 2.0 OUNCES OF ZINC PER SQUARE FOOT OF SURFACE IN ACCORDANCE WITH ASTM A123 OR A153, WHICHEVER IS APPLICABLE.
 - h. CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI
 - i. DOUBLE SWING GATES SHALL COMPLY WITH ASTM F900. GATE SHALL BE MANUFACTURED OF GALVANIZED MATERIALS. PROVIDE CENTER POST AND HASP FOR A PADLOCK.
 - j. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH ASTM F567.



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.	CHECKED BY: P.S.	APPR. BY: P.S.	AUTOCAD
DATE: 12/92	DATE: 12/92	DATE: 12/92	DRAWING

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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

CIVIL DETAILS AND SPECIFICATIONS



EXPIRATION DATE: 09/30/21

Drawn by: JJC

Design by: LAH

Approved by: RN

Date

12/09/20

Project No.

2144

Sheet No.

C-11

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Pump Schedule							
Site	Design Capacity (gpm)	Design Head (ft)	Shut off Head (ft)	Pump Configuration	Max Pump Speed (rpm)	Nameplate driver horsepower	Drive Type
Iyanbito	125	70	70	Submersible	1800	5 HP, 208V, three phase, explosion proof	Variable speed
Coyote	200	20	27	Submersible	1800	3 HP, 208V, three phase, explosion proof	Variable speed
Coal Mine	160	80	75	Submersible	1801	7.5 HP, 460V, three phase, explosion proof	Constant Speed

EQUIPMENT AND MATERIALS SPECIFICATIONS

DUCTILE IRON PIPE AND FITTINGS:

PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C-151/A21.51.

FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-153/ANSI A21.53, AND AWWA C-115/ANSI A21.15 FOR FLANGED PIPE AND AWWA C-111/ANSI A21.11 FOR MECHANICAL JOINT PIPE.

FOR PUMP-AROUND PORT SYSTEM: FITTINGS SHALL HAVE FUSION BONDED EPOXY INTERIOR COATING PER AWWA C116/ANSI A21.16. PIPE SHALL HAVE CERAMIC AMINE CURED NOVALAC EPOXY INTERIOR COATING, 40 MILS.

MEGA-LUG OR APPROVED EQUAL FOR RESTRAINING JOINTS.

BURIED PIPING SHALL BE PROVIDED WITH POLYETHYLENE ENCASEMENT PER ASTM A674.

PVC PRESSURE PIPE:

PIPE SHALL BE IN ACCORDANCE WITH AWWA C-900. WHERE APPLICABLE, PIPE SHALL MATCH THE SDR OF EXISTING PIPE IT IS CONNECTING TO.

PVC GRAVITY SEWER PIPE:

PIPE SHALL BE SDR 35 IN ACCORDANCE WITH ASTM D-3024.

STAINLESS STEEL PIPE AND MISCELLANEOUS SUPPORTS:

PIPE SHALL BE SCHEDULE 40 IN ACCORDANCE WITH ANSI 36.19.

MISCELLANEOUS SUPPORT BRACKETS SHALL BE IN ACCORDANCE WITH ASTM A-276.

FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A320: BOLTS GRADE L7, NUTS A194 GRADE 7 AND WASHERS F436.

STEEL PIPE:

PIPE SHALL BE SCHEDULE 40 IN ACCORDANCE WITH AWWA C-200/ASTM A53 AND AWWA C-206.

PLUG VALVES:

VALVES SHALL BE DEZURIK BULLETIN 12.00-1C OR APPROVED EQUAL; IN ACCORDANCE WITH AWWA C-517 AND C-111. CLASS 150 FLANGES SHALL BE IN ACCORDANCE WITH ANSI B16.5 VALVES SHALL BE FOR BURIED SERVICE WITH NUT OPERATOR.

ALUMINUM ACCESS HATCHES:

HATCHES SHALL BE HALLIDAY SERIES SERIES S, ALL STANDARD FEATURES WITH FALL THROUGH PROTECTION GRATING OR APPROVED EQUAL. HATCH DIMENSIONS SHALL BE AS SHOWN ON THE DRAWINGS. FOR FALL THROUGH PROTECTION PROVIDE HASP FOR NTUA TO UTILIZE PADLOCK.

PORTABLE PUMP LIFTING HOISTS:

HOISTS SHALL BE HALLIDAY SERIES DB WITH ALL STANDARD FEATURES OR APPROVED EQUAL. HOIST CAPACITY SHALL BE 1,330 LBS MINIMUM WITH THE DAVIT ARM EXTENDED PERPENDICULAR TO THE MAST, PARALLEL TO TOP OF WET WELL. PROVIDE HOISTS AS SHOWN FOR EACH LIFT STATION SITE (5 TOTAL).

POLYURETHANE COATINGS FOR WET WELLS:

COATING FOR INTERIOR OF LIFT STATIONS: REMOVE SEWERAGE FROM WETWELLS, CLEAN SURFACES, AND PREPARE SURFACES FOR COATING. SURFACE PREPARATION SHALL BE PER COATING MANUFACTURER'S RECOMMENDATIONS AND SHALL INCLUDE AT MINIMUM, ABRASIVE BLAST AND HIGH PRESSURE CLEANING. INCLUDE IN BID A MORTAR REPAIR OF TWO SQUARE FEET FOR EACH WETWELL TO RECEIVE COATING. PROVIDE ZEBRON PRIME (MIST) COAT AT 3 TO 5 WET MILS. PROVIDE TOP COAT OF ZEBRON SERIES 386 100% POLYURETHANE COATING AT MINIMUM OF 125 MILS. COATING SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS. NTUA WILL SELECT THE COLOR OF THE TOP COAT.

PIPE PRESSURE TEST:

FOR PUMP-AROUND SYSTEM: BEFORE BACKFILLING THE PIPING, THE PIPING SYSTEM SHALL BE EXPOSED TO SYSTEM PRESSURE (THE PRESSURE IN THE FORCEMAIN). CONDUCT VISUAL EXAMINATION TO CONFIRM THERE IS NO LEAKAGE. FOR DISCHARGE PIPE REPLACEMENT IN WETWELL; CONDUCT VISUAL EXAMINATION TO CONFIRM THERE IS NO LEAKAGE.

COMBINATION AIR VALVE:

COMBINATION AIR VALVE SHALL BE SINGLE BODY STYLE AND SPECIFICALLY MANUFACTURED FOR WASTEWATER APPLICATIONS. THE BODY AND COVER OF THE VALVE SHALL BE CONSTRUCTED OF HEAVY-DUTY CAST IRON. BOLTS, NIPPLES, PLUGS SHALL BE TYPE 316 STAINLESS STEEL. FLOAT SHALL BE STAINLESS STEEL. VALVE SHALL BE DESIGNED FOR NO SPILLS AND NO SPURTS. STATIC PRESSURE IN THE PIPELINE AT LOCATION OF PROPOSED VALVE IS APPROXIMATE 22 PSI, PROVIDE APPROPRIATE SEAT. PROVIDE BACKFLUSHING ATTACHMENT. EXTERIOR PAINT SHALL BE SELECTED FOR A DAMP VAULT APPLICATION.

COMBINATION AIR VALVE SHALL BE VALMATIC VMC-301A OR APPROVED EQUAL.

PAINTING:

FOR FERROUS METALS, PRIMED OR UNPRIMED, SUCH AS BUT NOT LIMITED TO WETWELL VENT PIPES, ANTENNA POLE. PAINT MANUFACTURER SHALL BE SHERWIN-WILLIAMS OR APPROVED EQUAL.

PRIMER: ALKYD METAL PRIMER, ONE COAT, 1.3-1.5 DRY MILS.

GLOSS FINISH: URETHANE ALKYD GLOSS ENAMEL, TWO COATS, 2.0-2.2 DRY MILS.

EXISTING GENERATOR AT SAWMILL AND IYANBITO SITES:

RETAIN GENERATOR MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE TO CONDUCT FIELD INSPECTION, CHECK-OUT, AND EVALUATION OF GENERATOR SYSTEM. PREPARE AND SUBMIT BRIEF WRITTEN REPORT WITH SUMMARY OF FIELD OBSERVATIONS AND EVALUATION, AND RECOMMENDATIONS FOR EQUIPMENT REPAIRS AND REPLACEMENTS FOR RETURNING GENERATORS TO OPERATING ORDER. STARTUP THE GENERATORS AND PROVIDE MINIMUM OF ONE HOUR OF ON-SITE TRAINING OF NTUA STAFF AT EACH SITE. EQUIPMENT REPAIRS AND REPLACEMENTS IF ANY, WILL BE AUTHORIZED BY CHANGE ORDER.

EQUIPMENT COATINGS:

ALL PUMPS, FITTINGS, PIPING ETC. SUPPLIED BY PUMP SYSTEM PACKAGE VENDOR SHALL HAVE MANUFACTURER'S STANDARD EPOXY INTERIOR AND EXTERIOR COATING. COATING SHALL BE DESIGNED FOR WASTEWATER APPLICATION.

RADAR LEVEL SENSOR:

SENSOR SHALL BE MICRO PILOT FMR20, 80MM WITH FLOOD PROTECTION TUBE AND PIVOT-TYPE MOUNTING ARM PART NO. 919790-002, BY EDRESS-HOUSER OR APPROVED EQUAL.

Generator Schedule				
Site	Rated Output (KW)	Type of Fuel	Type of Enclosure	Output Voltage
Lechee	35	Propane	NEMA 4	Three Phase, 430V, 4 Wire

PROPANE TANKS

FOR LECHEE:

FURNISH AND INSTALL 250 GALLON PROPANE TANK MEETING ASME CODE. FILL TANK FOR TROUBLESHOOTING AND STARTUP PURPOSES OF GENERATOR. REFILL TANK AS NEEDED FOR THE TROUBLESHOOTING AND STARTUP PHASES. PRIOR TO TURNOVER, FILL TANK TO ITS CAPACITY. PROPANE TANK INSTALLATION (INCLUDING BUT NOT LIMITED TO, FUEL LINES, REGULATORS, ETC.) SHALL MEET CURRENT CODES.

FOR EXISTING PROPANE TANKS (TO REMAIN AND BE REUSED) AT SAWMILL AND IYANBITO:

FILL TANKS FOR TROUBLESHOOTING AND STARTUP PURPOSES OF GENERATORS. REFILL TANKS AS NEEDED FOR STARTUP PHASE. INSPECT AND (IF NECESSARY) BRING PROPANE TANK, FUEL LINES, REGULATORS, ETC. UP TO CURRENT CODE. PRIOR TO TURNOVER, FILL TANK TO ITS CAPACITY.

SPECIAL NOTES:

- PUMP AROUND FOR LIFT STATION OUTAGES: CONTRACTOR SHALL PROVIDE ALL PUMPING EQUIPMENT, HOSES, FUEL AND ACCESSORIES REQUIRED TO PROVIDE CONTINUOUS AND RELIABLE PUMP AROUND OPERATIONS DURING ALL TIMES THE LIFT STATION(S) MUST BE TAKEN OUT OF SERVICE IN ORDER TO PERFORM THE WORK OF THIS CONTRACT. CONTRACTOR SHALL PROVIDE 24 HOUR SUPERVISION/MONITORING OF THE ALL PUMP AROUND OPERATIONS.
- CONTRACTOR SHALL PROVIDE O&M MANUALS FOR ALL NEW OPERATING EQUIPMENT. 3 HARD COPIES AND 1 DIGITAL COPY FOR EACH LIFT STATION SITE.
- CONTRACTOR SHALL PROVIDE A MINIMUM OF 4 HOURS PERSONNEL TRAINING ON ALL NEW OPERATING EQUIPMENT.

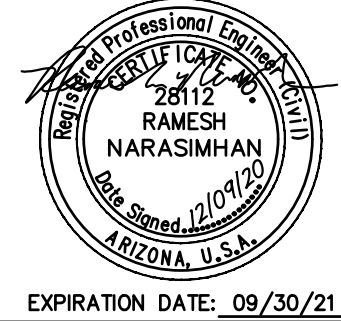
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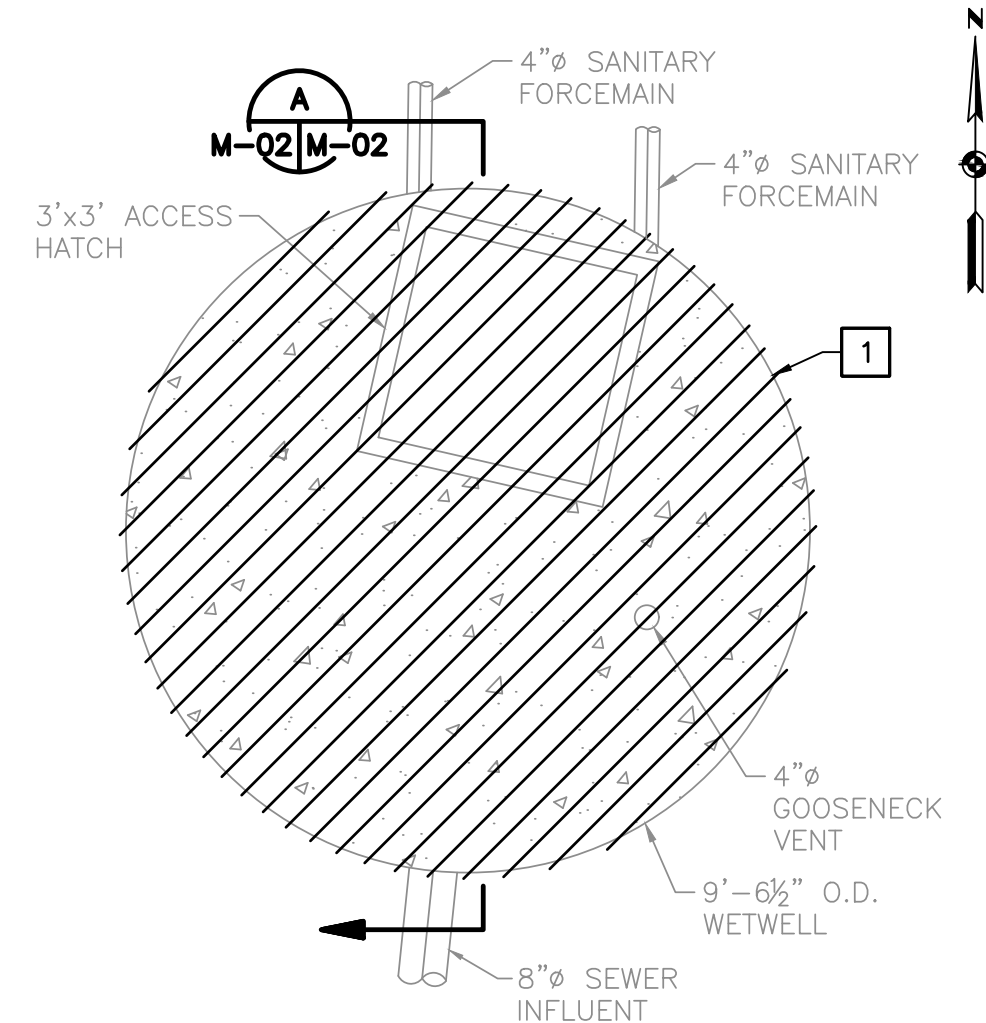
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

EQUIPMENT SCHEDULES AND SPECIFICATIONS

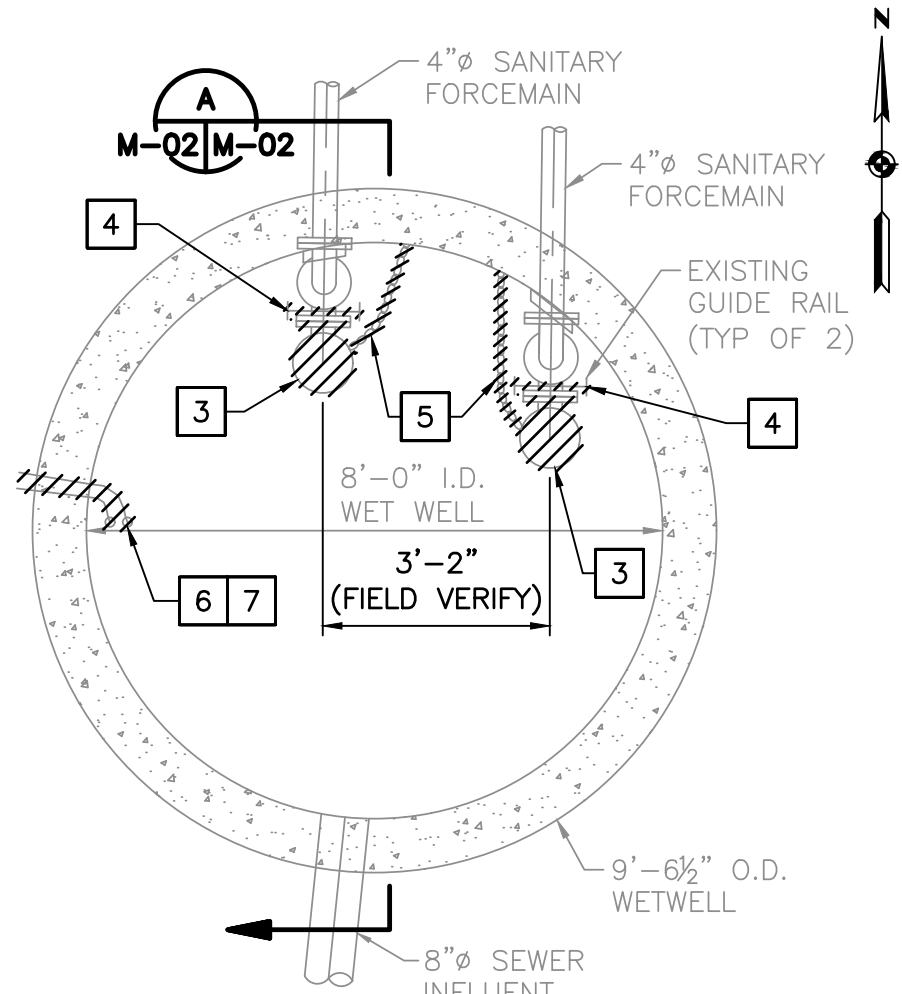


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Design by:	LAH
Approved by:	RN
Date	12/09/20
Project No.	2144
Sheet No.	M-01

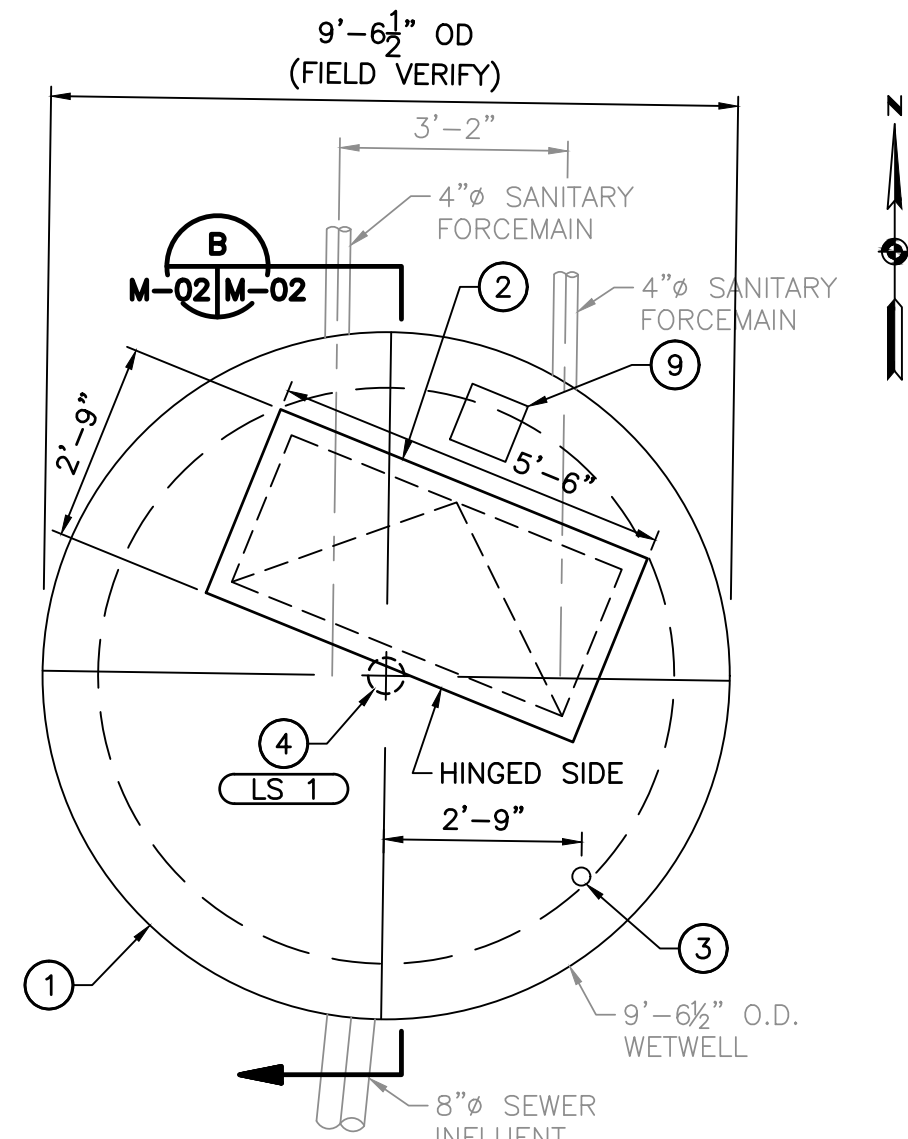
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REMOVALS TOP PLAN
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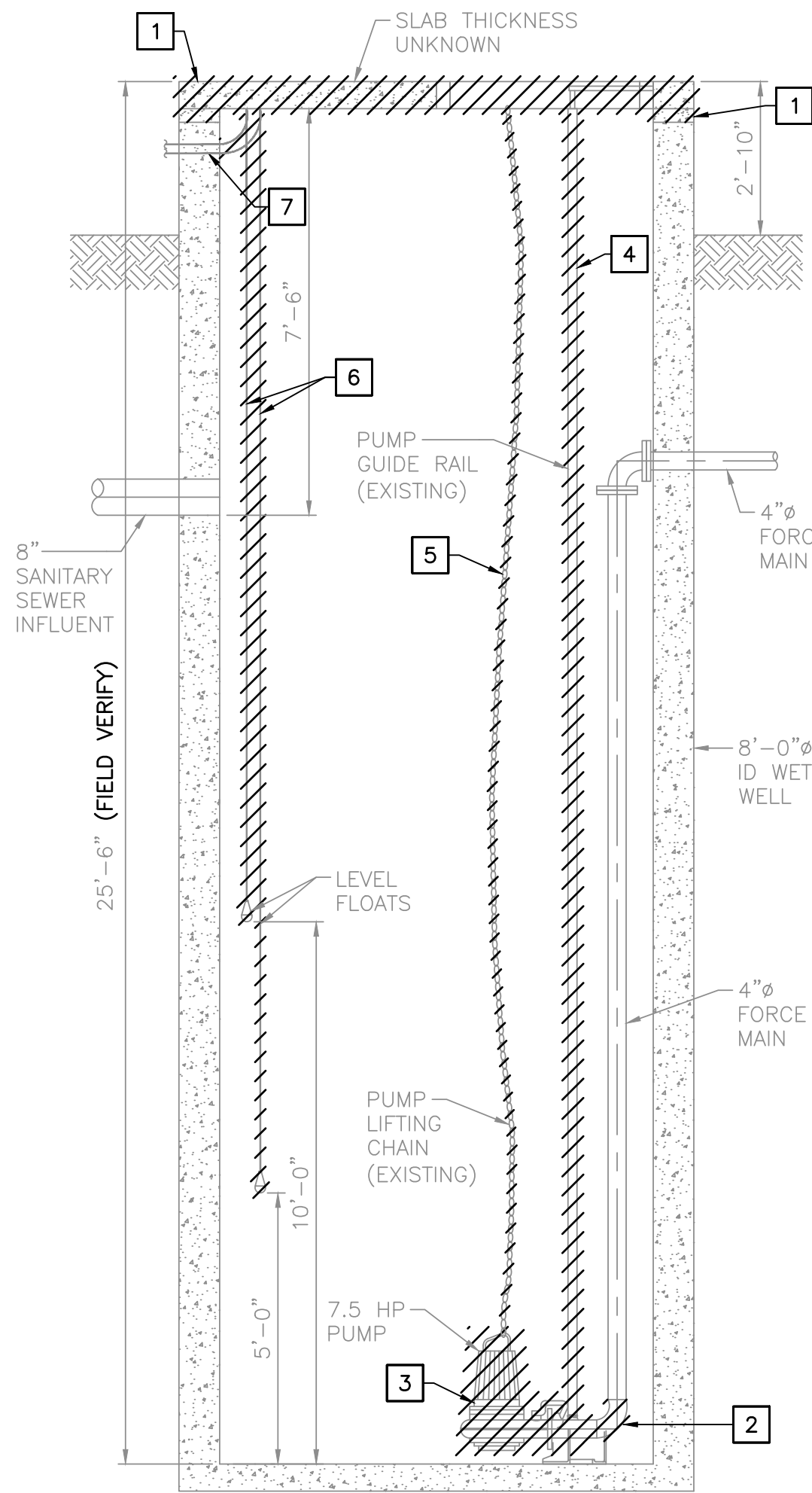


REMOVALS SECTIONAL PLAN
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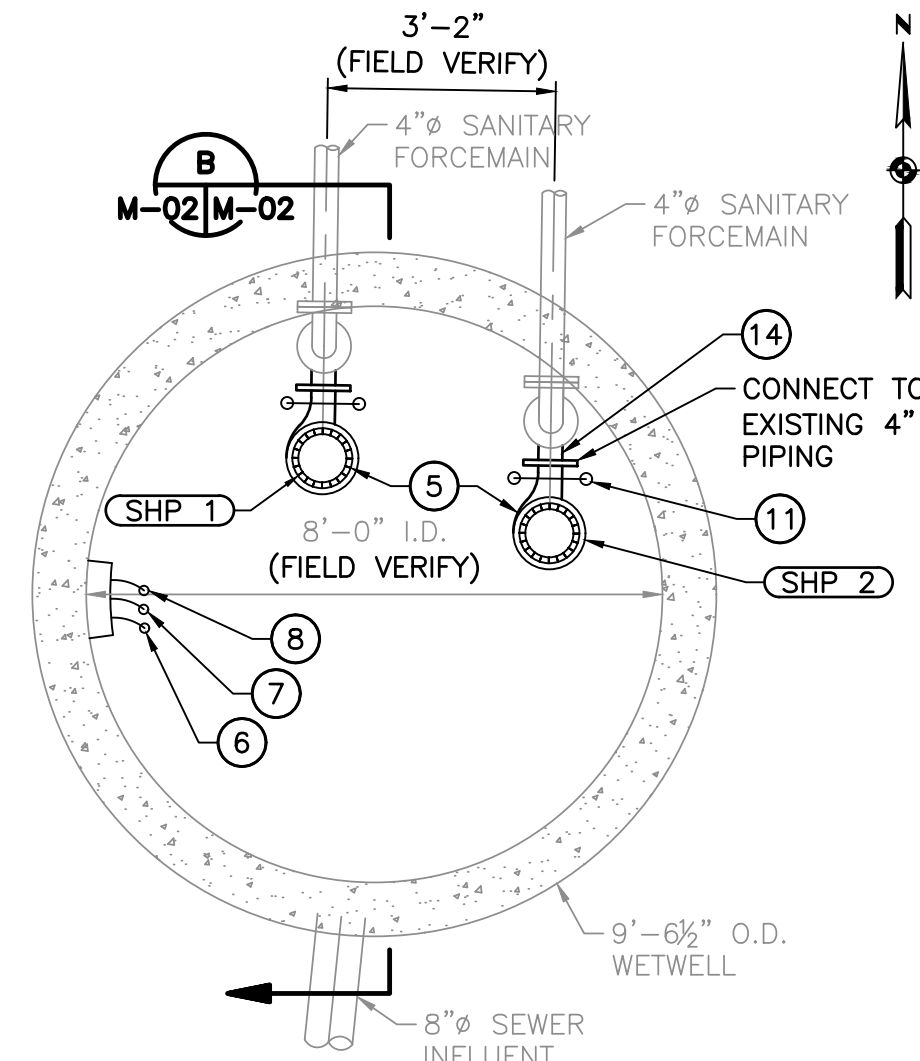


IMPROVEMENTS TOP PLAN
SCALE: 3/8"=1'-0"

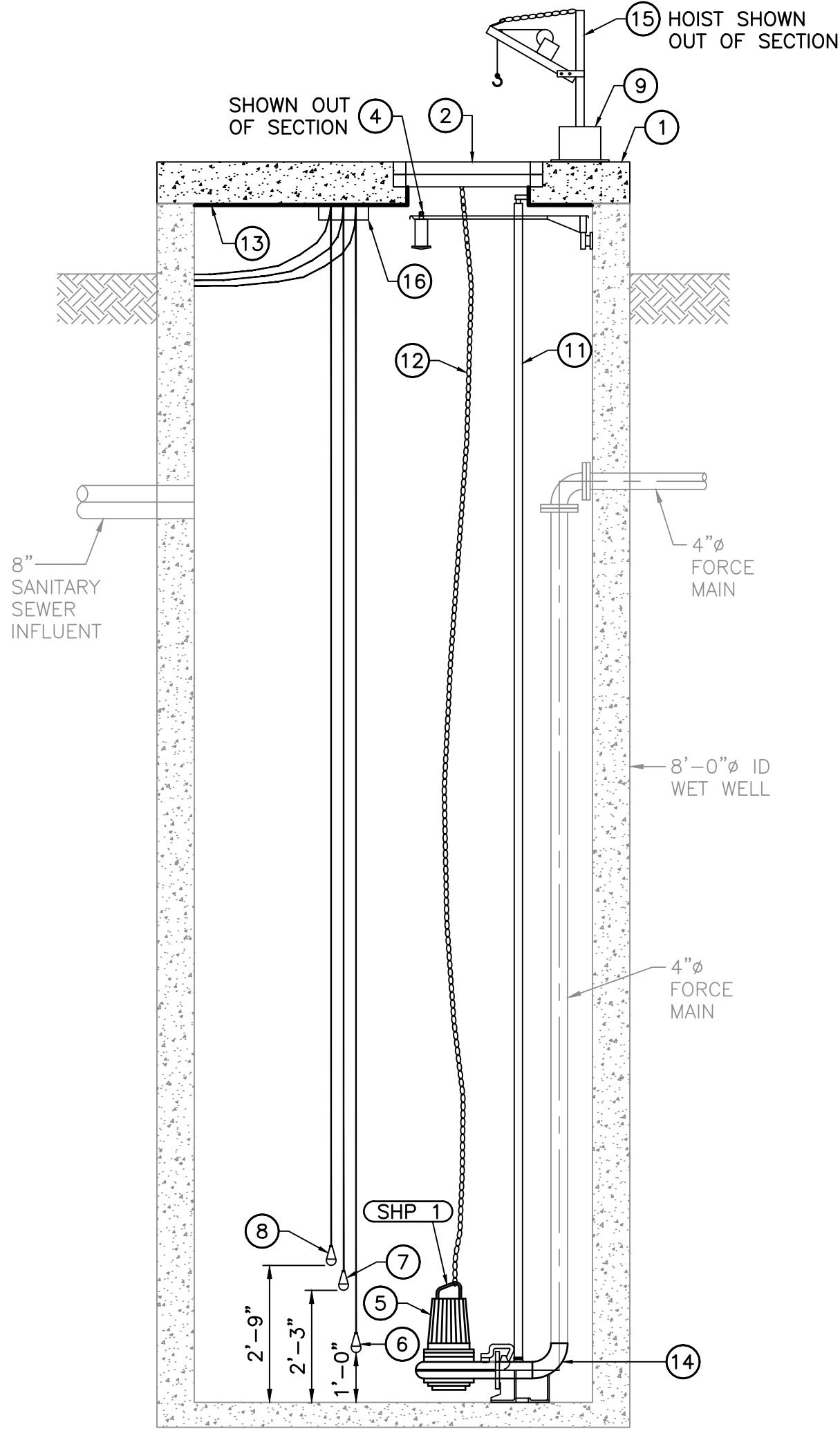
- NOTES:
1. FIELD VERIFY DIMENSIONS. CONFIRM LOCATION OF HATCHES FOR PUMP REMOVAL BEFORE MANUFACTURE OF TOP SLAB.
 2. FIELD VERIFY LOCATION OF HOIST BRACKETS.



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



IMPROVEMENTS SECTIONAL PLAN
SCALE: 3/8"=1'-0"



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

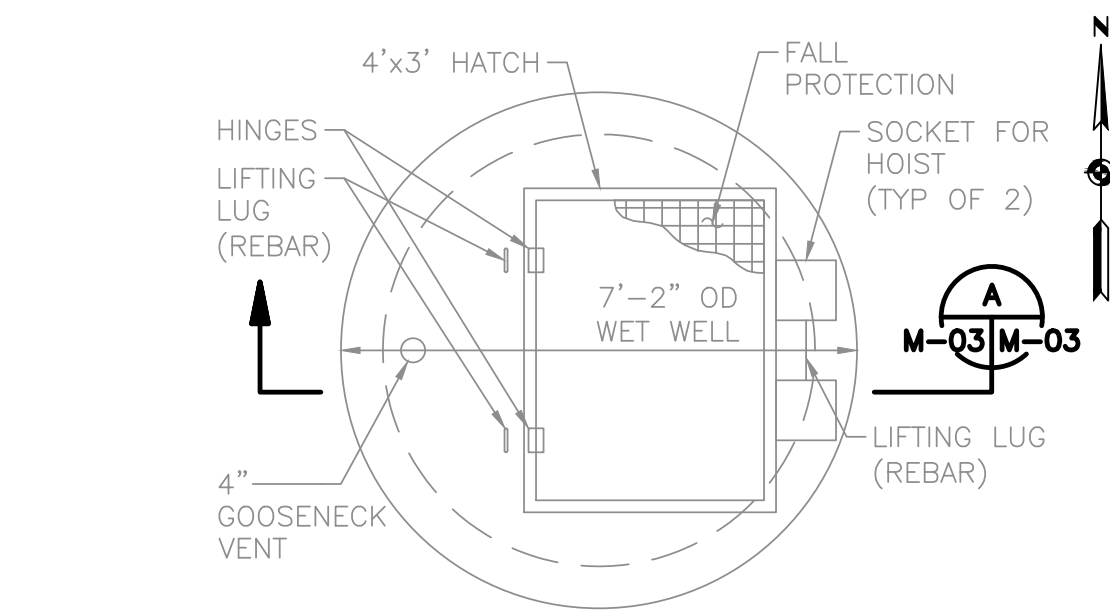
- NOTE:
- FLOAT LEVELS INDICATED ARE INITIAL SETTINGS. FLOAT LEVELS SHOULD BE ADJUSTED PER FIELD OPERATING CONDITIONS DURING START UP ACTIVITIES.

0' 1' 2' 5'
SCALE: 3/8"=1'-0"

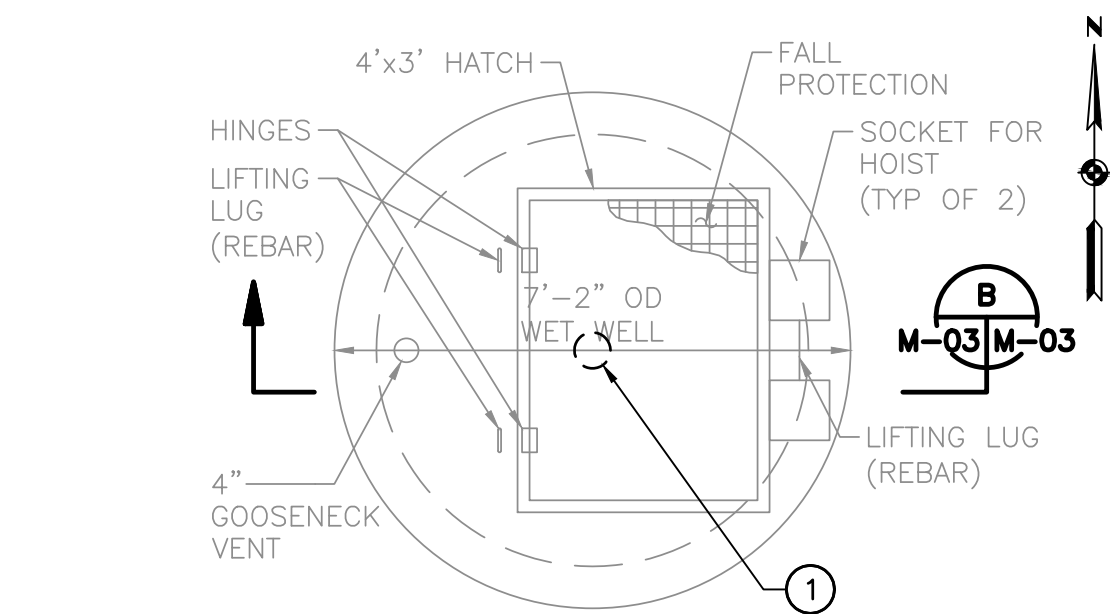
REMOVALS NOTES	
1	REMOVE CONCRETE TOP SLAB INCLUDING ACCESS HATCH, VENT. REMOVE THE APPROXIMATE 11" TOP BARREL SECTION FROM WETWELL, REPAIR TROWELLED CORROSION COATING AT THE BARREL TO BARREL JOINT.
2	REMOVE DISCHARGE ELBOW.
3	REMOVE 7.5 HP PUMPS.
4	REMOVE PUMP GUIDE RAILS.
5	REMOVE PUMP LIFTING CHAIN.
6	REMOVE LEVEL FLOATS.
7	REMOVE LEVEL FLOATS CABLES, HOLDER AND JUNCTION BOX.
CONSTRUCTION NOTES	
1	TOP SLAB, FOR DESIGN LOADING SEE SHT G-04.
2	ACCESS HATCH W/ FALL PROTECTIVE GRATING, HALLIDAY PRODUCTS, MODEL S1S3060. CENTER HATCH OVER PUMPS - SEE NOTE 1.
3	4" VENT. SEE DETAIL ON SHT M-07.
4	RADAR LEVEL SENSOR, FOR MOUNTING DETAIL, SEE SHT M-07.
5	7.5 HP SOLIDS HANDLING PUMPS.
6	LOW LEVEL FLOAT.
7	HIGH LEVEL FLOAT.
8	HIGH HIGH LEVEL FLOAT.
9	HOIST BRACKET FOR (PORTABLE) PUMP LIFTING HOIST.
10	NOT USED
11	PUMP GUIDE RAILS, 2" DIAMETER STAINLESS STEEL WITH MOUNTING BRACKETS.
12	STAINLESS STEEL LIFTING CHAIN.
13	POLYURETHANE COATING. SEE SPECIFICATIONS ON SHT M-01.
14	DISCHARGE ELBOW.
15	PORTABLE HOIST INCLUDED IN PUMP PRE-PURCHASE PACKAGE. POSITION HOIST TO PROVIDE REACH TO BOTH PUMPS.
16	CABLE HOLDER.
GENERAL NOTES	
1. FOR ELECTRICAL SEE ELECTRICAL SHEETS. 2. WHEN INSTALLING EQUIPMENT AND MATERIALS IN WETWELL, MAINTAIN SPACE FOR RADAR LEVEL SENSOR BEAM DIAMETER.	

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Professional Engineer 28112 RAMESH NARASIMHAN Arizona, U.S.A. EXPIRATION DATE: 09/30/21			
Drawn by: KWB			
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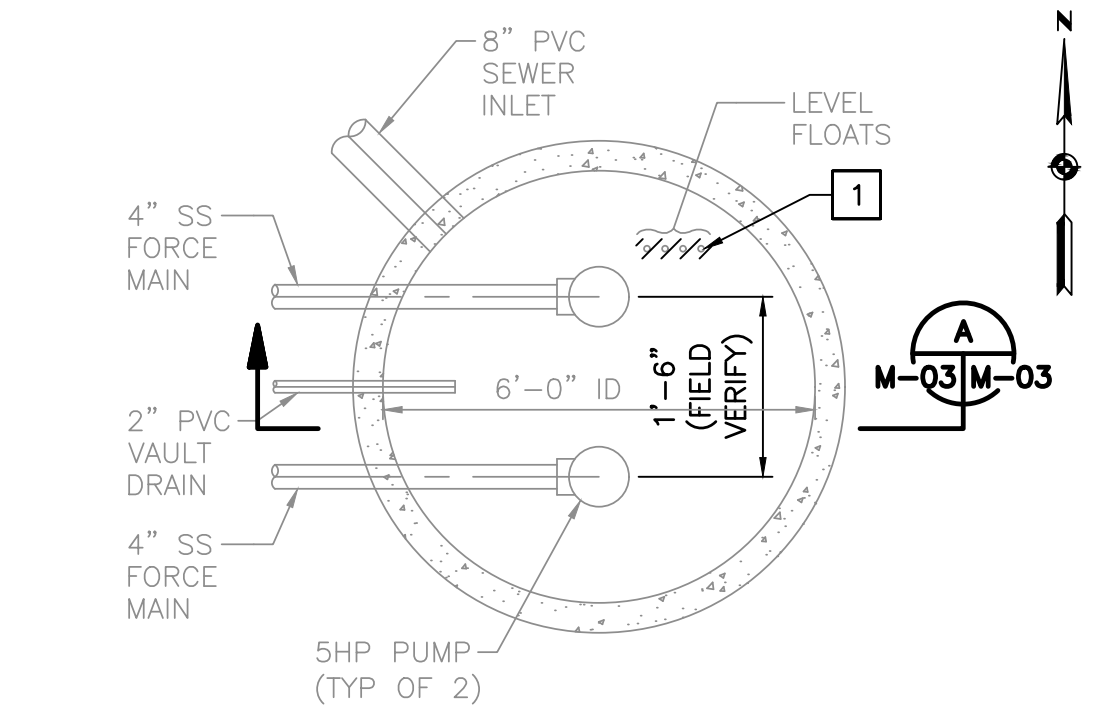
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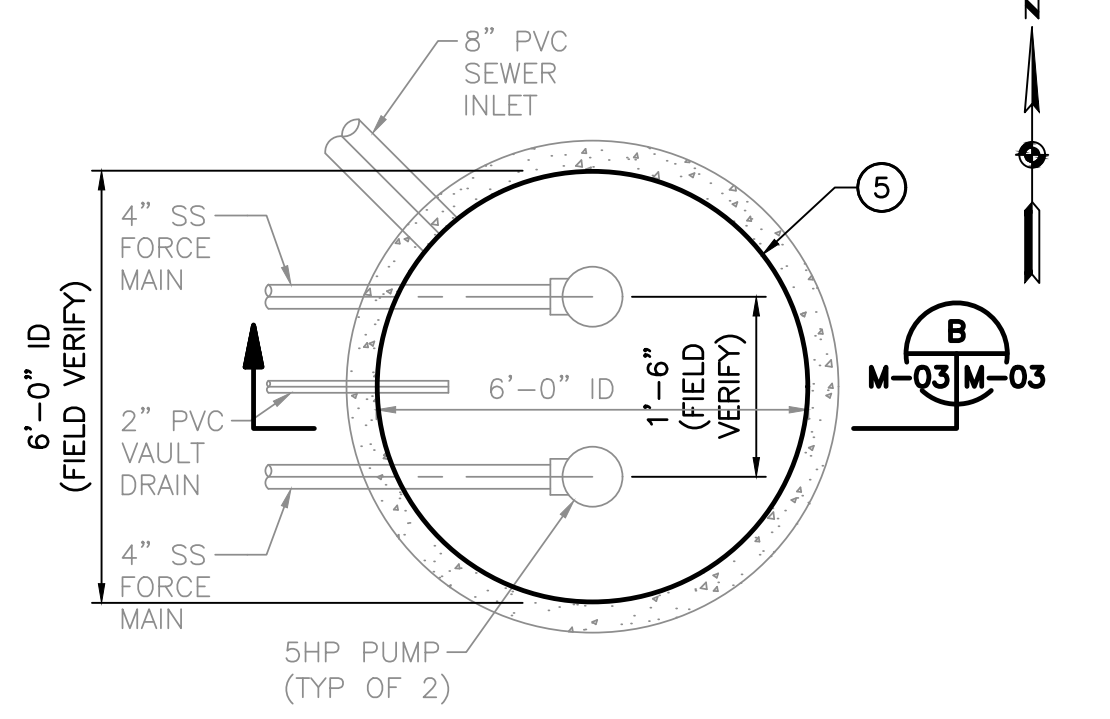
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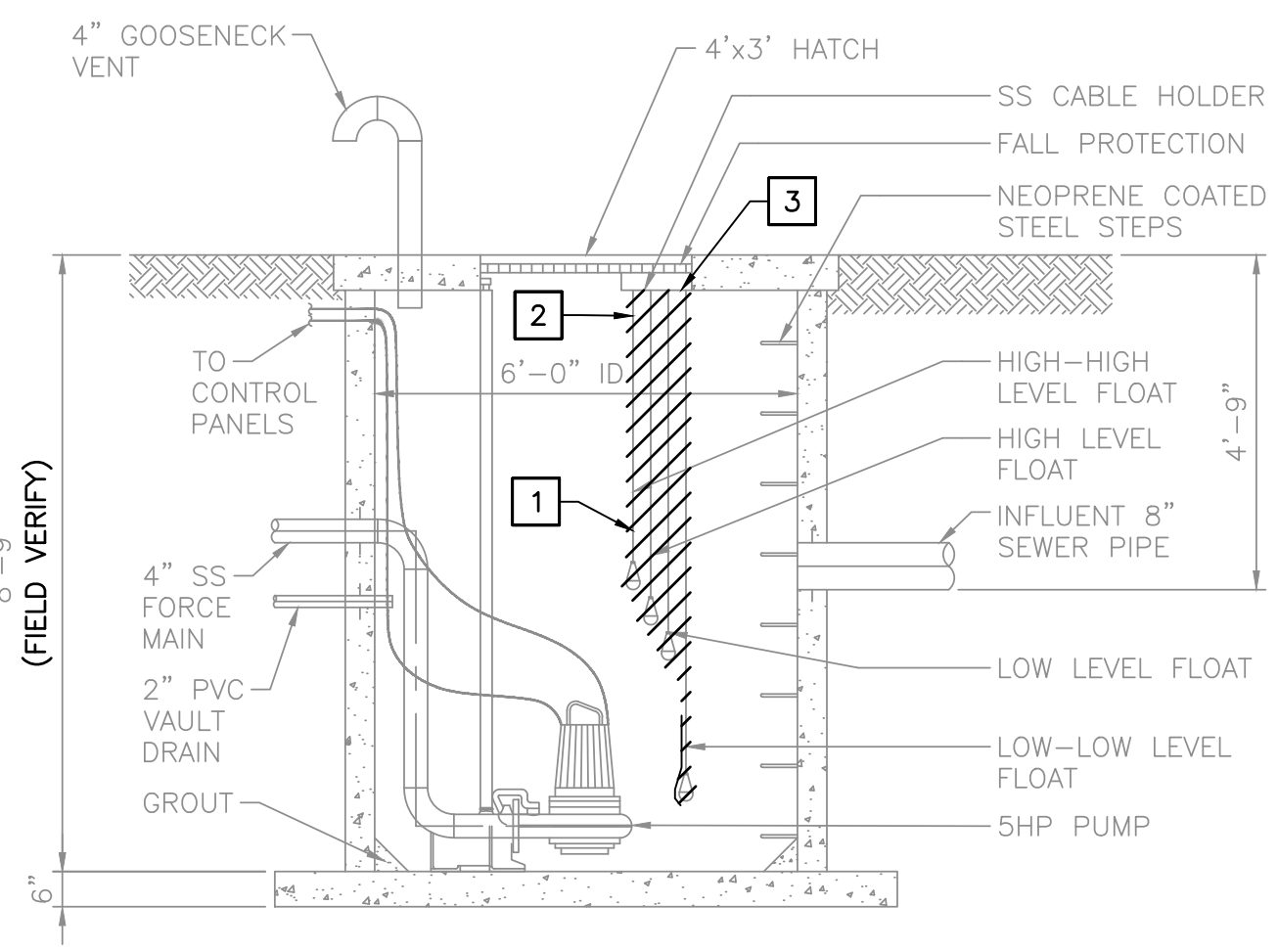
IMPROVEMENTS TOP PLAN
SCALE: 3/8"=1'-0"



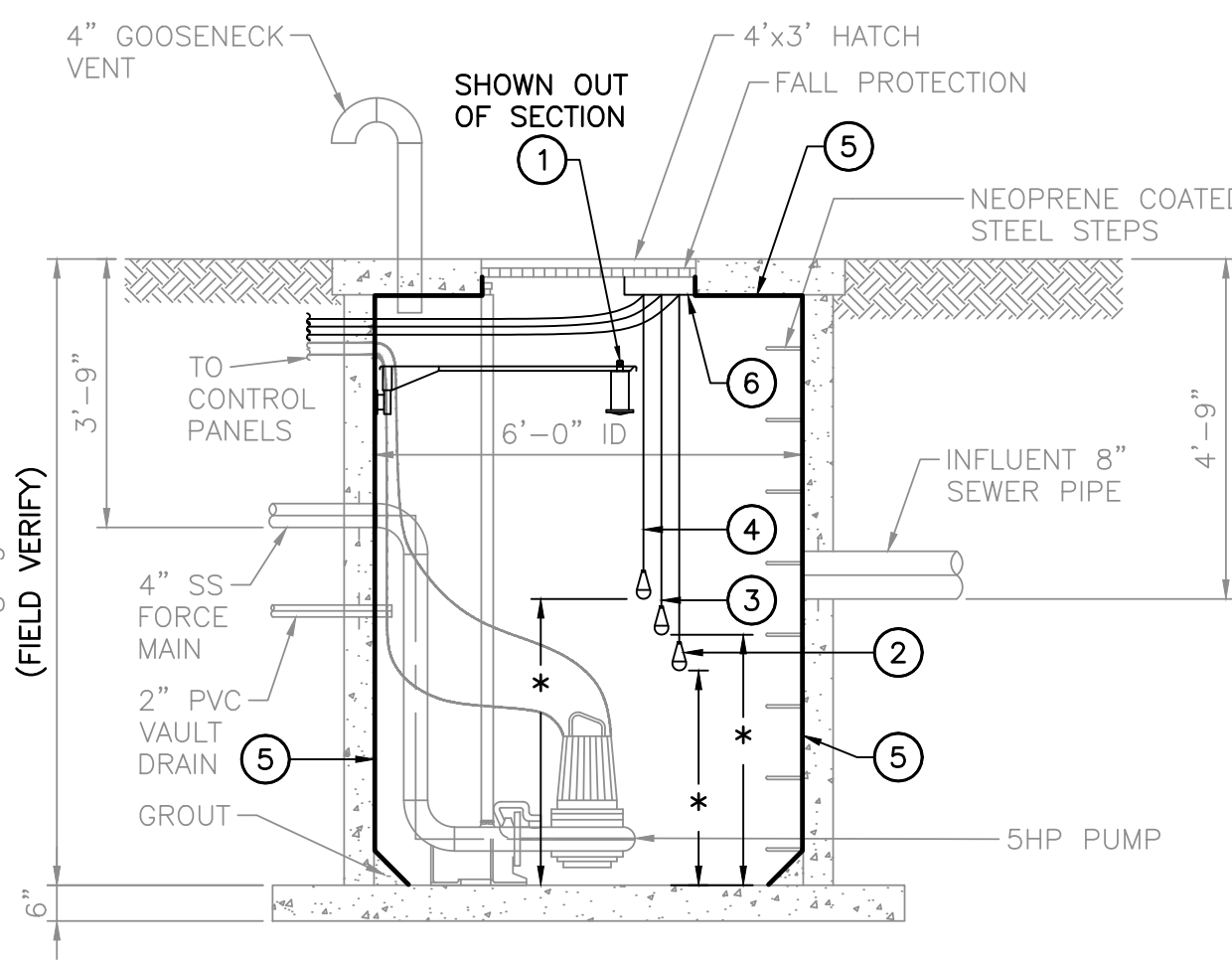
REMOVALS SECTIONAL PLAN
SCALE: 3/8"=1'-0"



IMPROVEMENTS SECTIONAL PLAN
SCALE: 3/8"=1'-0"



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



IMPROVEMENTS SECTION
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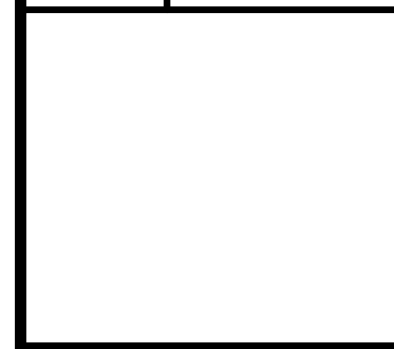
* REPLACEMENT FLOATS SHOULD BE SET AT THE SAME LEVELS AS THE EXISTING FLOATS. RECORD EXISTING FLOAT LEVELS PRIOR TO REMOVAL OF EXISTING FLOATS.

REMOVALS NOTES	
1	REMOVE LEVEL FLOATS.
2	REMOVE LEVEL FLOAT CABLES.
3	REMOVE CABLE JUNCTION BOX AND HOLDER.
CONSTRUCTION NOTES	
1	RADAR LEVEL SENSOR. FOR MOUNTING DETAIL, SEE SHT M-07.
2	LOW LEVEL FLOAT.
3	HIGH LEVEL FLOAT.
4	HIGH HIGH LEVEL FLOAT.
5	POLYURETHANE COATING. SEE SPECIFICATIONS ON SHT M-01.
6	CABLE HOLDER.
GENERAL NOTES	
1. FOR ELECTRICAL, SEE ELECTRICAL SHEETS. 2. WHEN INSTALLING EQUIPMENT AND MATERIALS IN WET WELL, MAINTAIN SPACE FOR RADAR LEVEL SENSOR BEAM DIAMETER.	

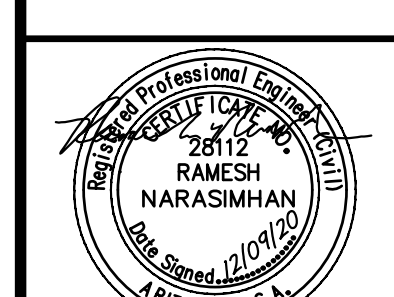
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LECHEE WETWELL REMOVAL AND
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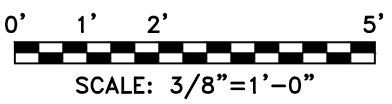


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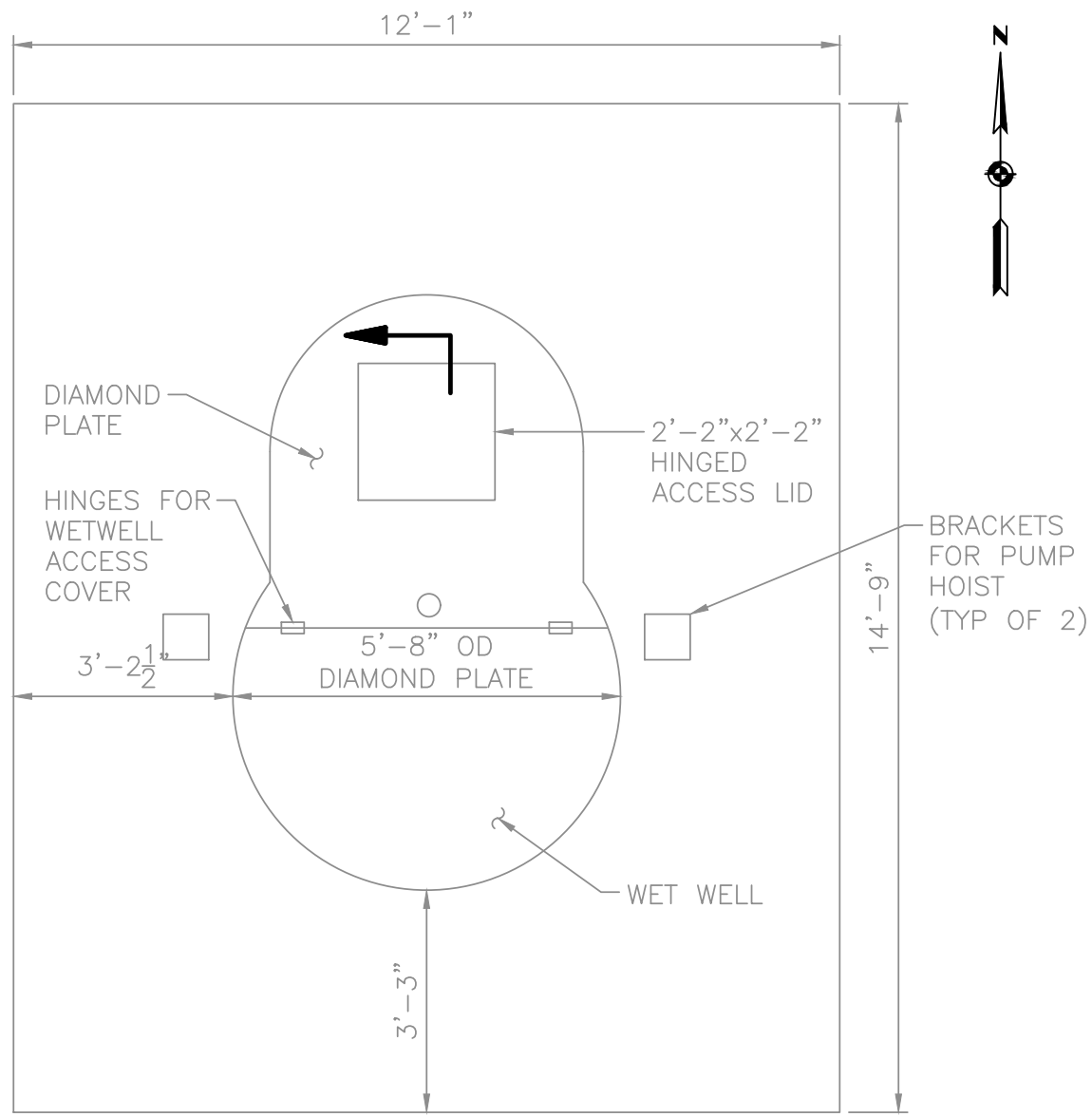


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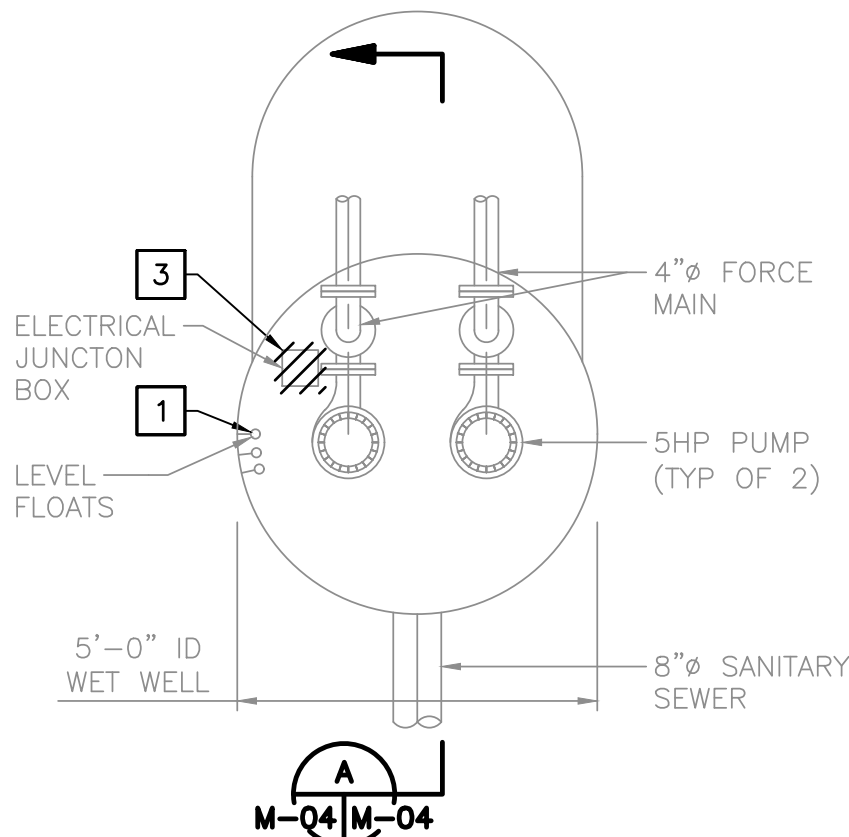
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Approved by:	RN
Date	12/09/20
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Sheet No.	M-03



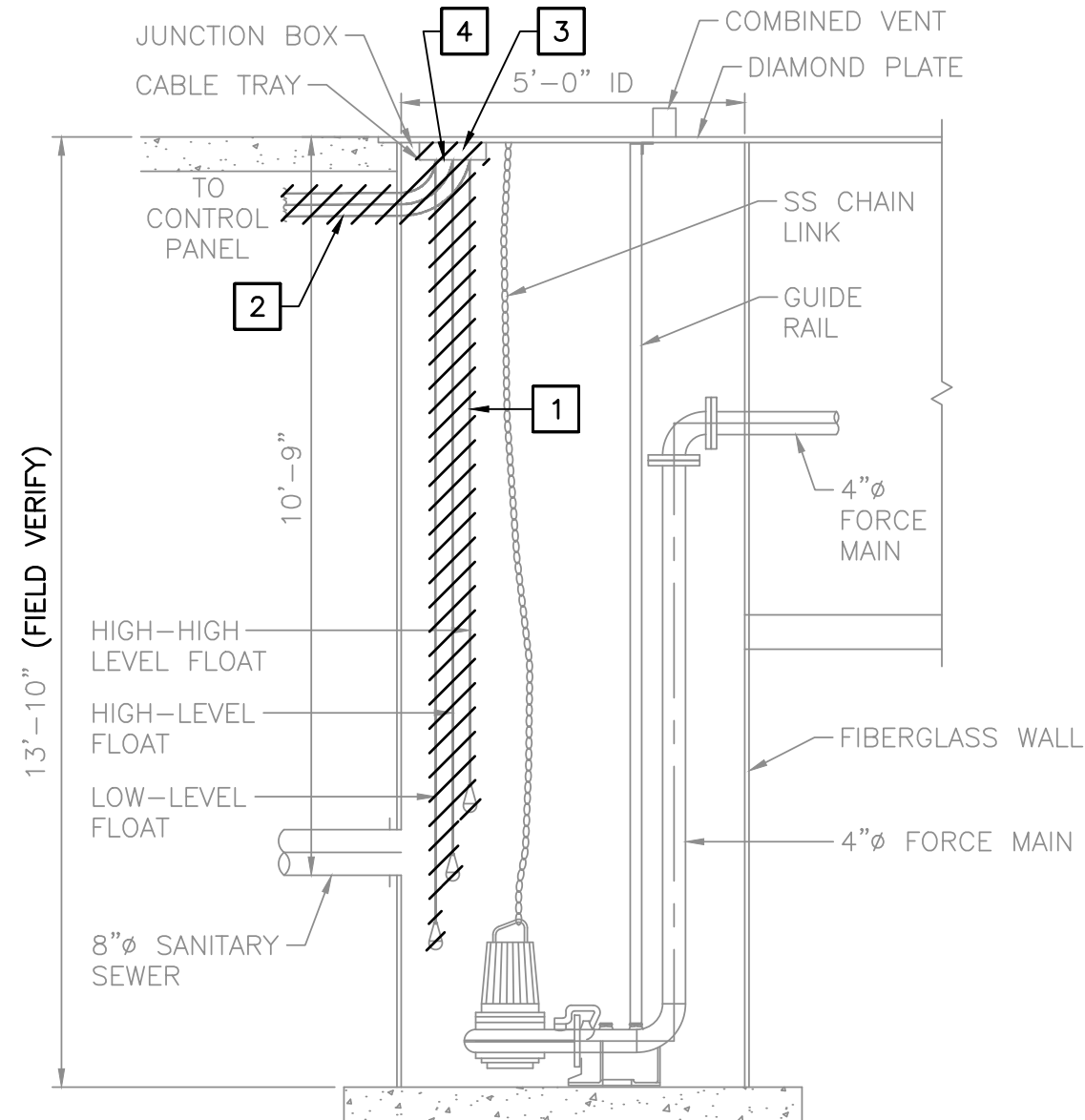
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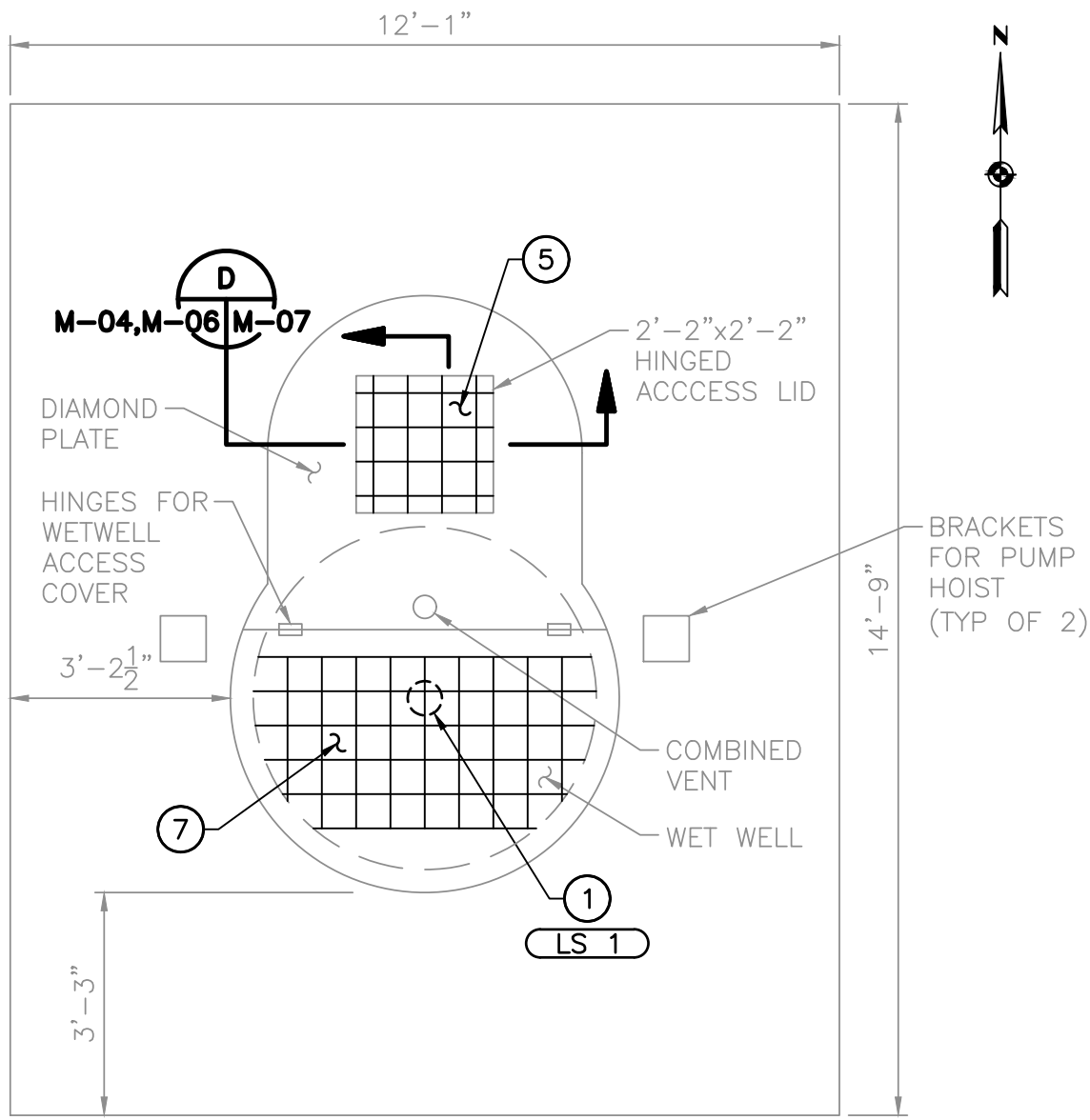
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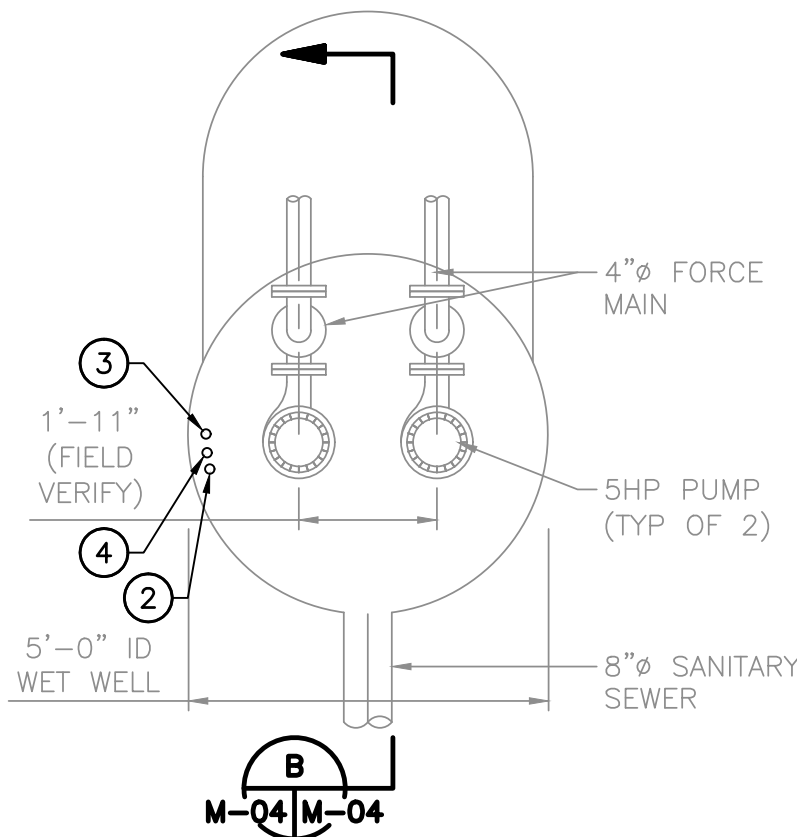
REMOVALS SECTIONAL PLAN
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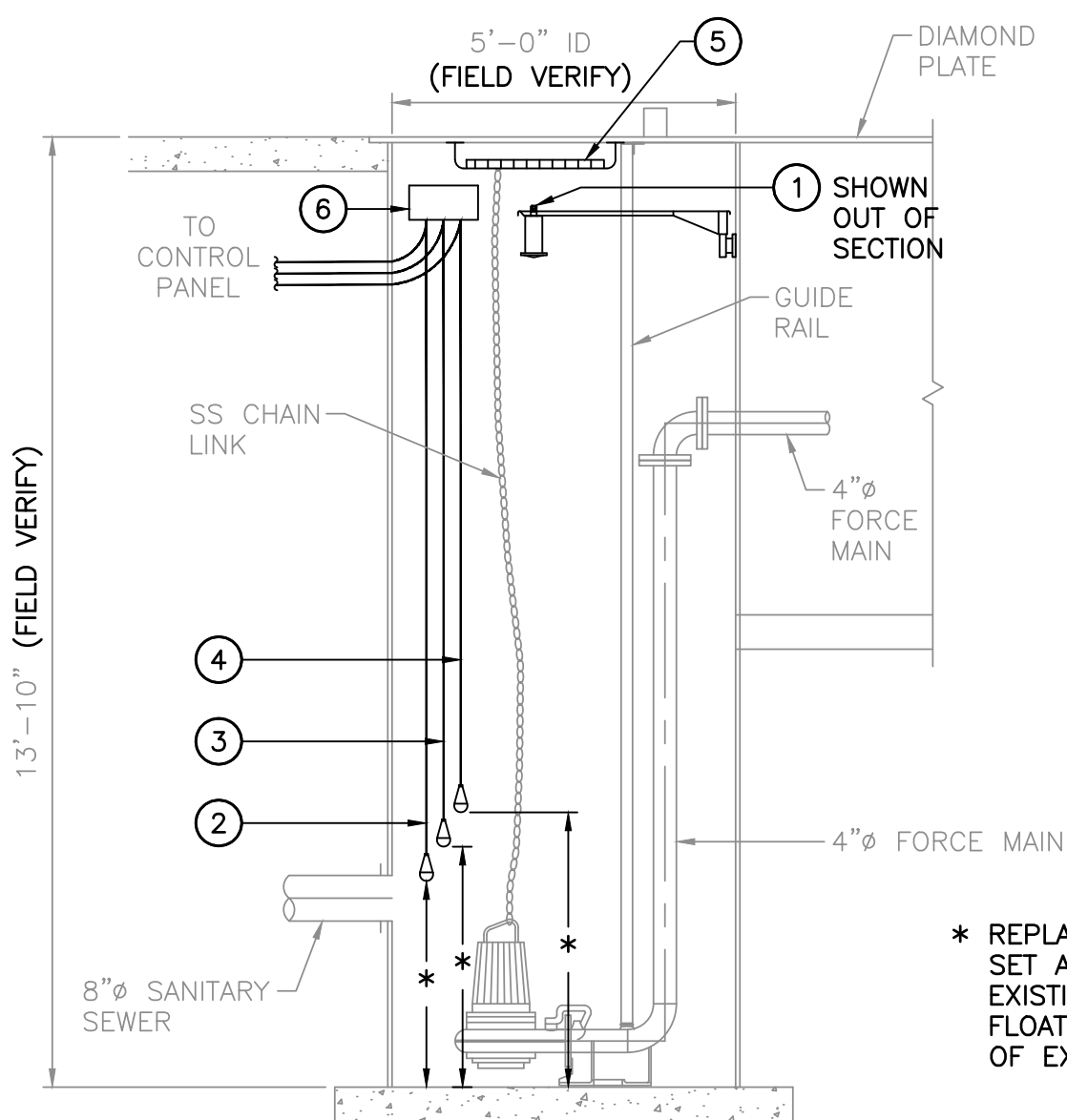
REMOVALS SECTION
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IMPROVEMENTS TOP PLAN
SCALE: 3/8"=1'-0"



IMPROVEMENTS SECTIONAL PLAN
SCALE: 3/8"=1'-0"



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

* REPLACEMENT FLOATS SHOULD BE SET AT THE SAME LEVELS AS THE EXISTING FLOATS. RECORD EXISTING FLOAT LEVELS PRIOR TO REMOVAL OF EXISTING FLOATS.

0' 1' 2' 5'
SCALE: 3/8"=1'-0"

REMOVALS NOTES	
1	REMOVE LEVEL FLOATS.
2	REMOVE ELECTRICAL ASSOCIATED W/ EXISTING LEVEL FLOATS.
3	REMOVE ELECTRICAL JUNCTION BOX.
4	REMOVE CABLE, JUNCTION BOX AND HOLDER.
CONSTRUCTION NOTES	
1	RADAR LEVEL SENSOR. MOUNT LEVEL SENSOR ON WALL OF FIBERGLASS WET WELL. FOR MOUNTING DETAIL SEE SHT M-07.
2	LOW LEVEL FLOAT.
3	HIGH LEVEL FLOAT.
4	HIGH HIGH LEVEL FLOAT.
5	FALL PROTECTION. GRATING SERIES X RETRO-GRATING BY HALLIDAY PRODUCTS. HASP FOR PADLOCK. STRUCTURAL SUPPORTS BY MFR. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE ACCURATE DIMENSIONS FOR EXISTING HATCH OPENING TO HALLIDAY FOR THE FABRICATION OF UNDER-LID MOUNTING TYPE OF FALL PROTECTION GRATING.
6	CABLE HOLDER.
7	FALL PROTECTION. GRATING SERIES X RETRO-GRATING BY HALLIDAY PRODUCTS. HASP FOR PADLOCK. STRUCTURAL SUPPORTS BY MFR. CONTRACTOR SHALL FIELD VERIFY AND PROVIDE ACCURATE DIMENSIONS FOR EXISTING WET WELL INTERIOR DIMENSIONS TO HALLIDAY FOR THE FABRICATION OF WALL MOUNT TYPE OF FALL PROTECTION GRATING.
GENERAL NOTES	
1. FOR ELECTRICAL, SEE ELECTRICAL SHEETS. 2. WHEN INSTALLING EQUIPMENT AND MATERIALS IN WET WELL, MAINTAIN SPACE FOR RADAR LEVEL SENSOR BEAM DIAMETER.	

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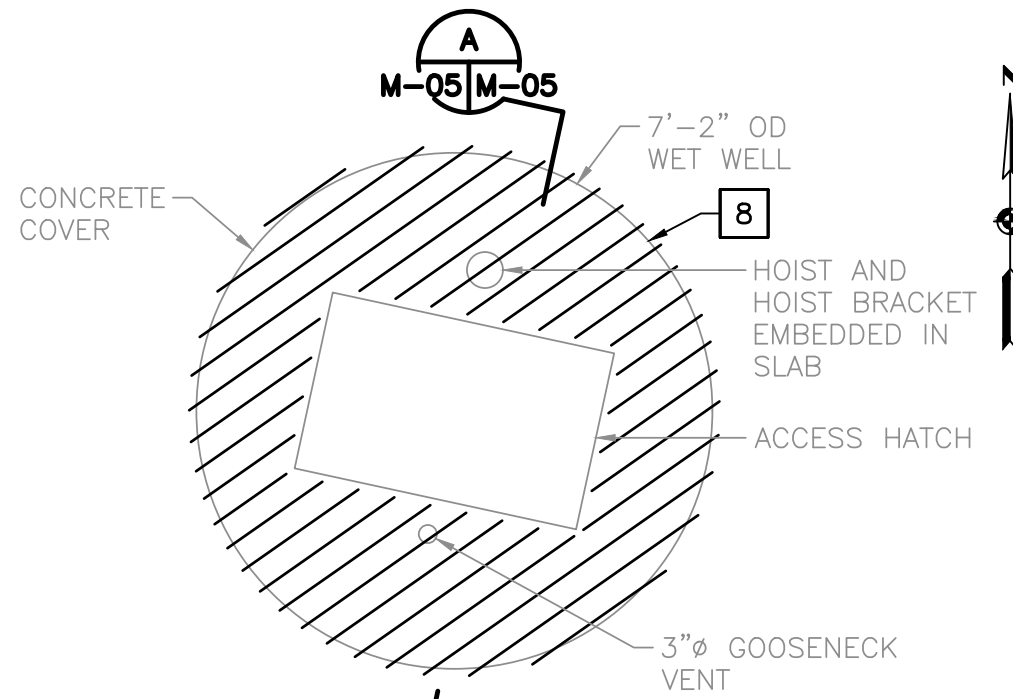
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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

SAWMILL WETWELL REMOVALS AND
IMPROVEMENTS

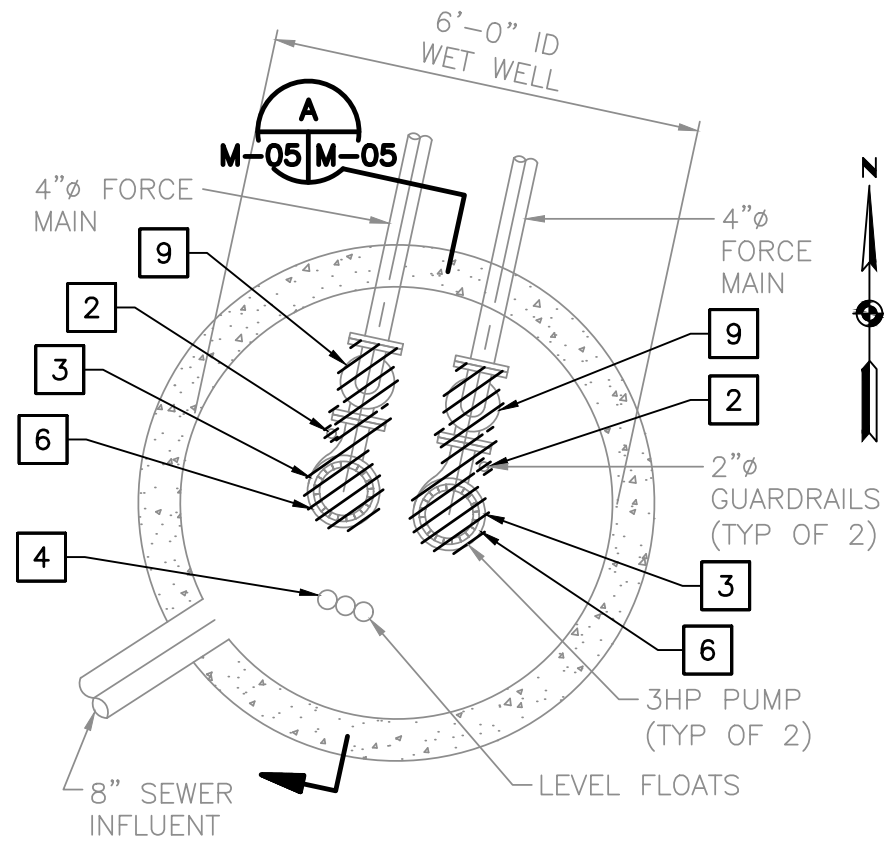
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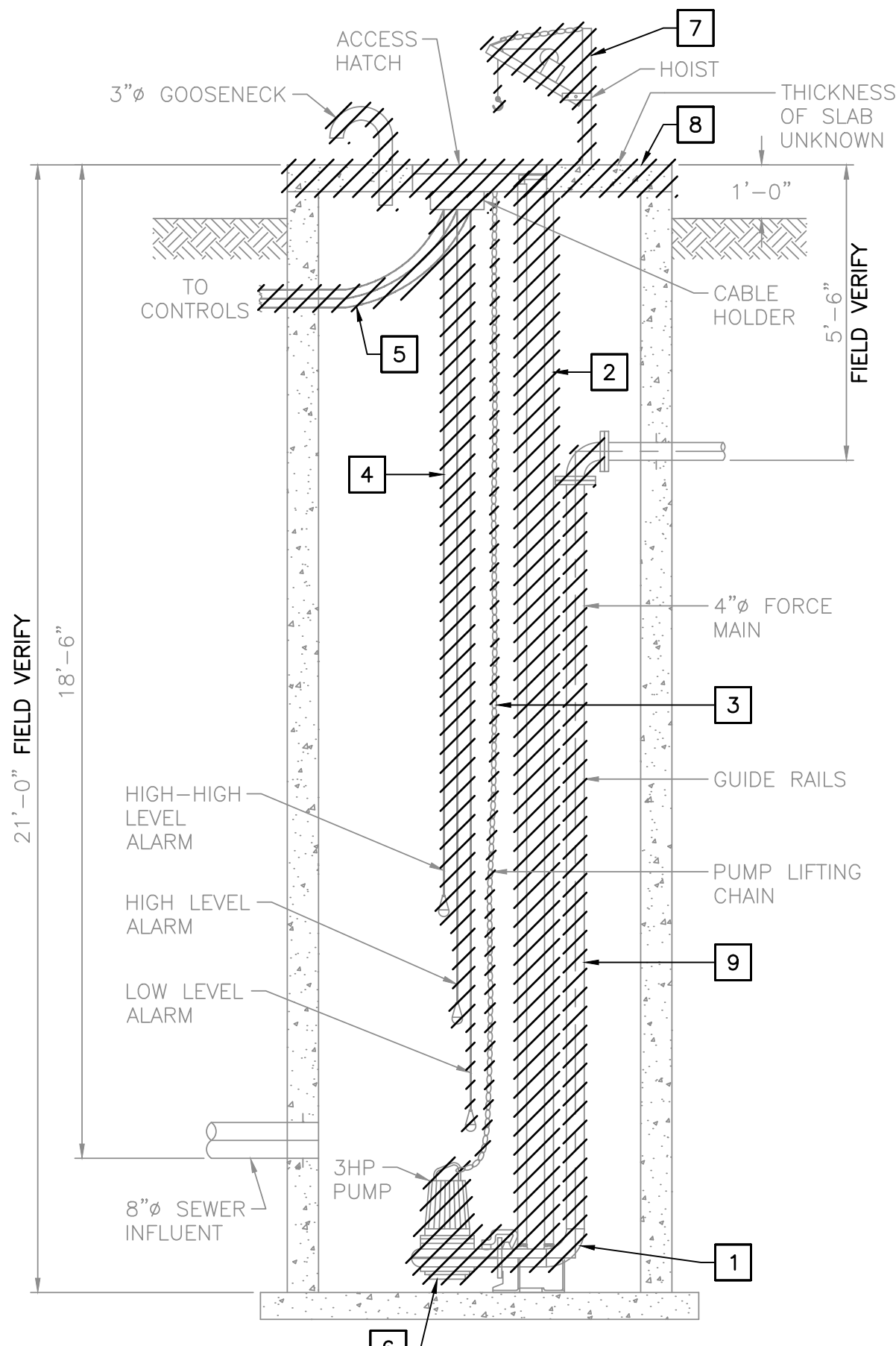
Drawn by: KWB
Design by: LAH
Approved by: RN
Date
12/09/20
Project No.
2144
Sheet No.
M-04



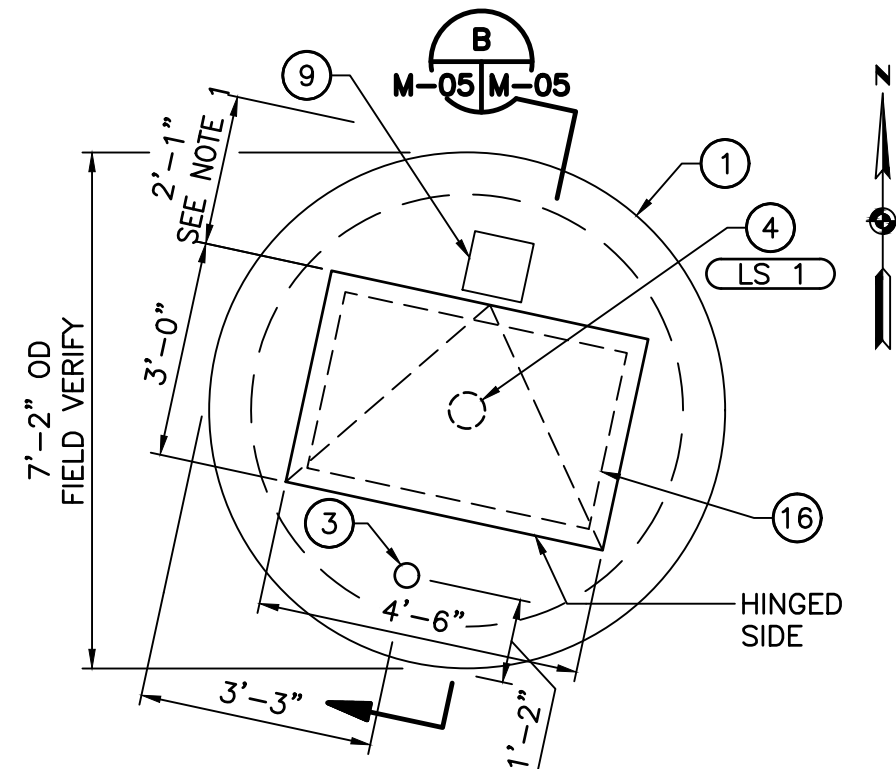
REMOVALS TOP PLAN
SCALE: 3/8"=1'-0"



REMOVALS SECTIONAL PLAN
SCALE: 3/8"=1'-0"

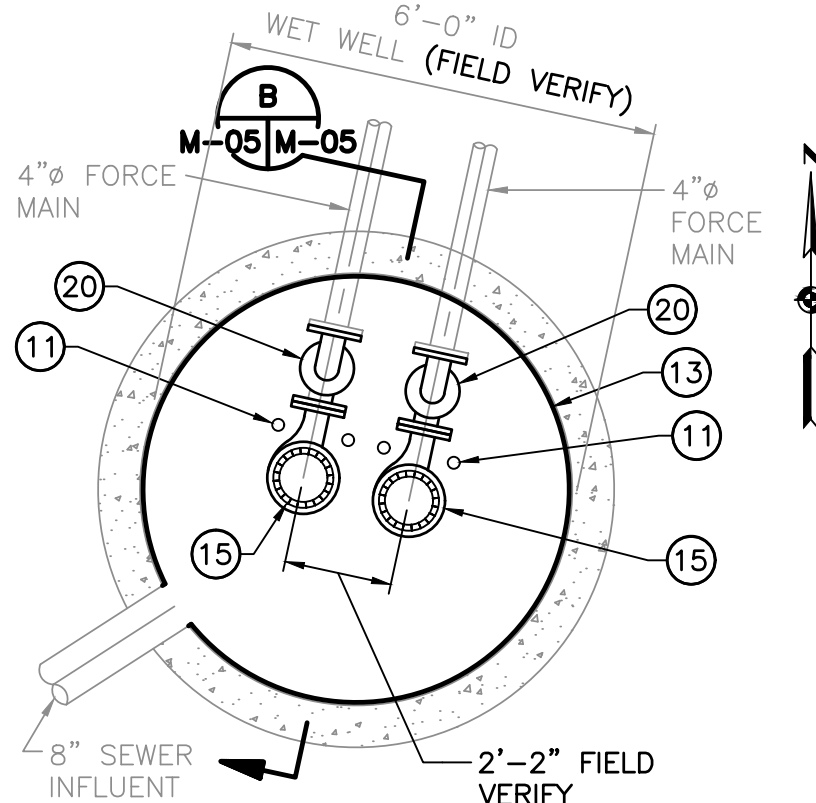


REMOVALS SECTION
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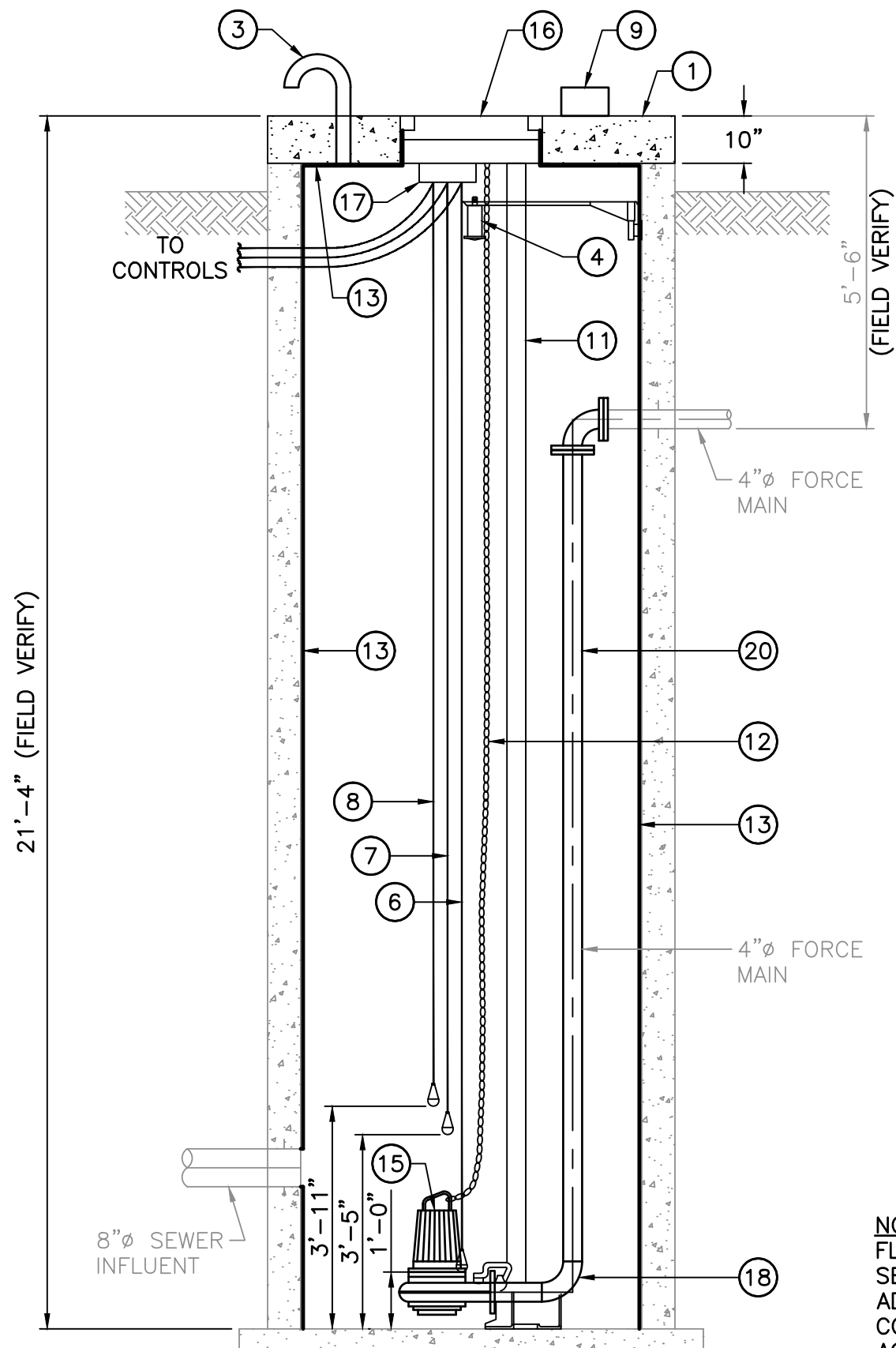


IMPROVEMENTS TOP PLAN
SCALE: 3/8"=1'-0"

- NOTES:
1. FIELD VERIFY DIMENSIONS. CONFIRM LOCATION OF HATCH FOR PUMP REMOVAL BEFORE MANUFACTURE OF TOP SLAB.
 2. FIELD VERIFY LOCATION OF HOIST BRACKETS.



IMPROVEMENTS SECTIONAL PLAN
SCALE: 3/8"=1'-0"



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

NOTE:
FLOAT LEVELS INDICATED ARE INITIAL SETTINGS. FLOAT LEVELS SHOULD BE ADJUSTED PER FIELD OPERATING CONDITIONS DURING START UP ACTIVITIES.

0' 1' 2' 5'
SCALE: 3/8"=1'-0"

REMOVALS NOTES	
1	REMOVE DISCHARGE ELBOW.
2	REMOVE PUMP GUIDE RAIL
3	REMOVE PUMP LIFTING CHAIN.
4	REMOVE LEVEL FLOATS.
5	REMOVE FLOAT CABLES, JUNCTION BOX AND HOLDER.
6	REMOVE 3 HP PUMPS.
7	TURN OVER THE HOIST TO NTUA.
8	REMOVE CONCRETE COVER INCLUDING ACCESS HATCH AND VENT.
9	REMOVE 4" DI PIPE.
CONSTRUCTION NOTES	
1	TOP SLAB, FOR DESIGN LOADINGS, SEE SHT G-04
2	NOT USED
3	4" VENT. SEE DETAIL SHT M-07.
4	RADAR LEVEL SENSOR. FOR MOUNTING DETAIL, SEE SHT M-07.
5	NOT USED
6	LOW LEVEL FLOAT.
7	HIGH LEVEL FLOAT.
8	HIGH HIGH LEVEL FLOAT.
9	HOIST BRACKET FOR (PORTABLE) PUMP LIFTING HOIST.
10	NOT USED
11	PUMP GUIDE RAIL. 2" DIAMETER STAINLESS STEEL WITH MOUNTING BRACKETS.
12	STAINLESS STEEL LIFTING CHAIN.
13	POLYURETHANE COATING. SEE SPECIFICATIONS ON SHT M-07.
14	NOT USED
15	3 HP PUMPS.
16	ACCESS HATCH W/ FALL PROTECTION GRATING, HALLIDAY PRODUCTS, MODEL S1S3048. SEE DETAIL ON SHT M-07.
17	CABLE HOLDER.
18	DISCHARGE ELBOW.
19	NOT USED
20	DI PIPE FLANGED.
GENERAL NOTES	
1. FOR ELECTRICAL, SEE ELECTRICAL SHEETS.	
2. WHEN INSTALLING EQUIPMENT AND MATERIALS IN WET WELL, MAINTAIN SPACE FOR RADAR LEVEL SENSOR BEAM DIAMETER.	

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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

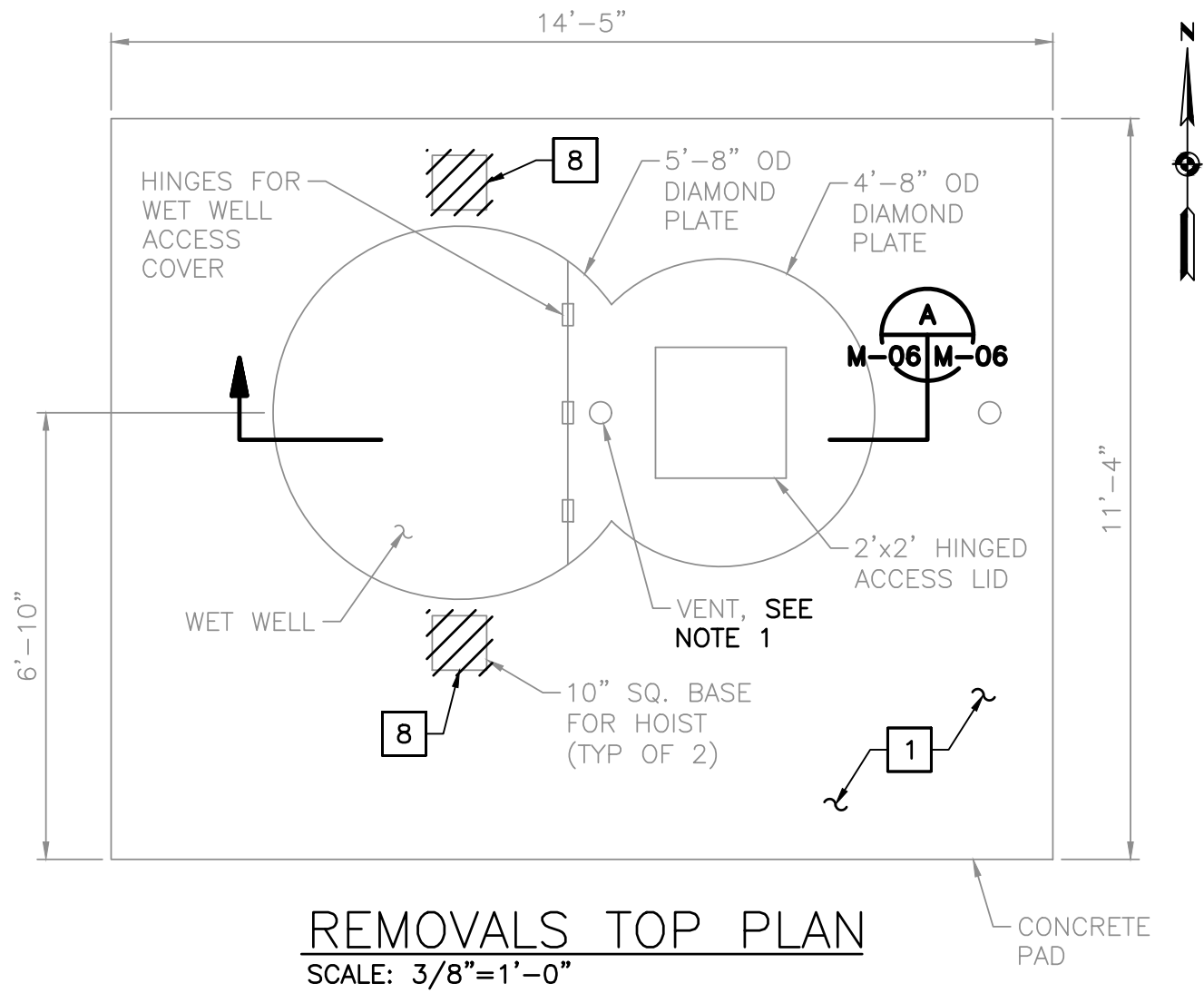
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REMOVALS AND IMPROVEMENTS

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EXPIRATION DATE: 09/30/21

Drawn by: KWB
Design by: LAH
Approved by: RN
Date
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Project No.
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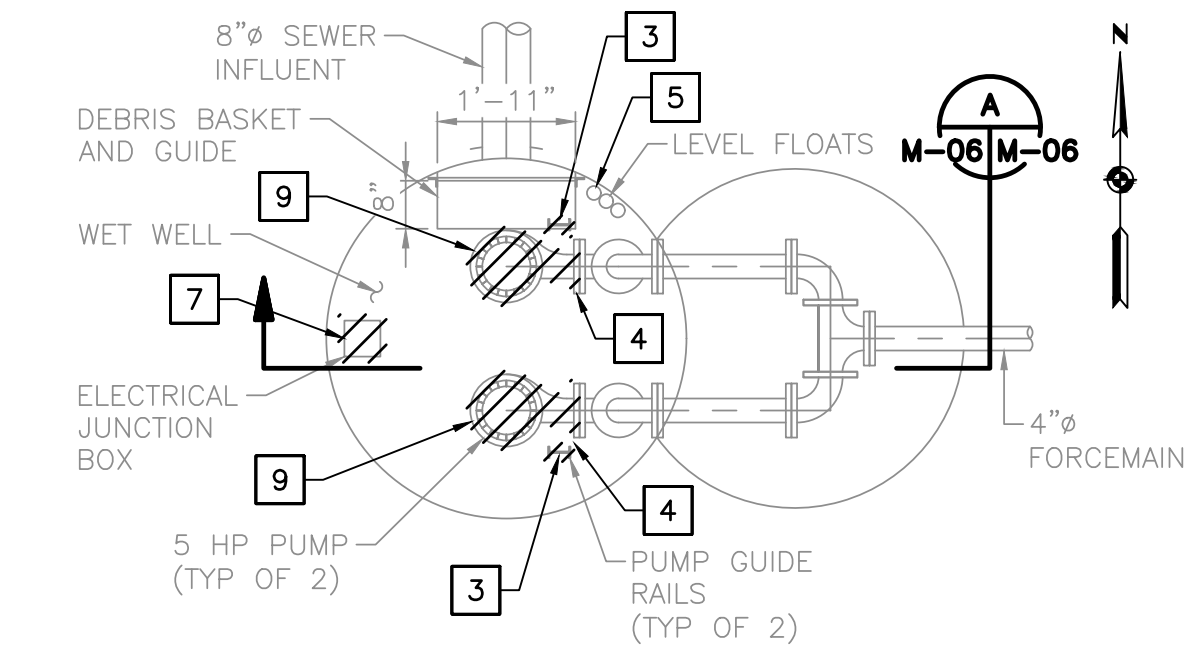


REMOVALS TOP PLAN

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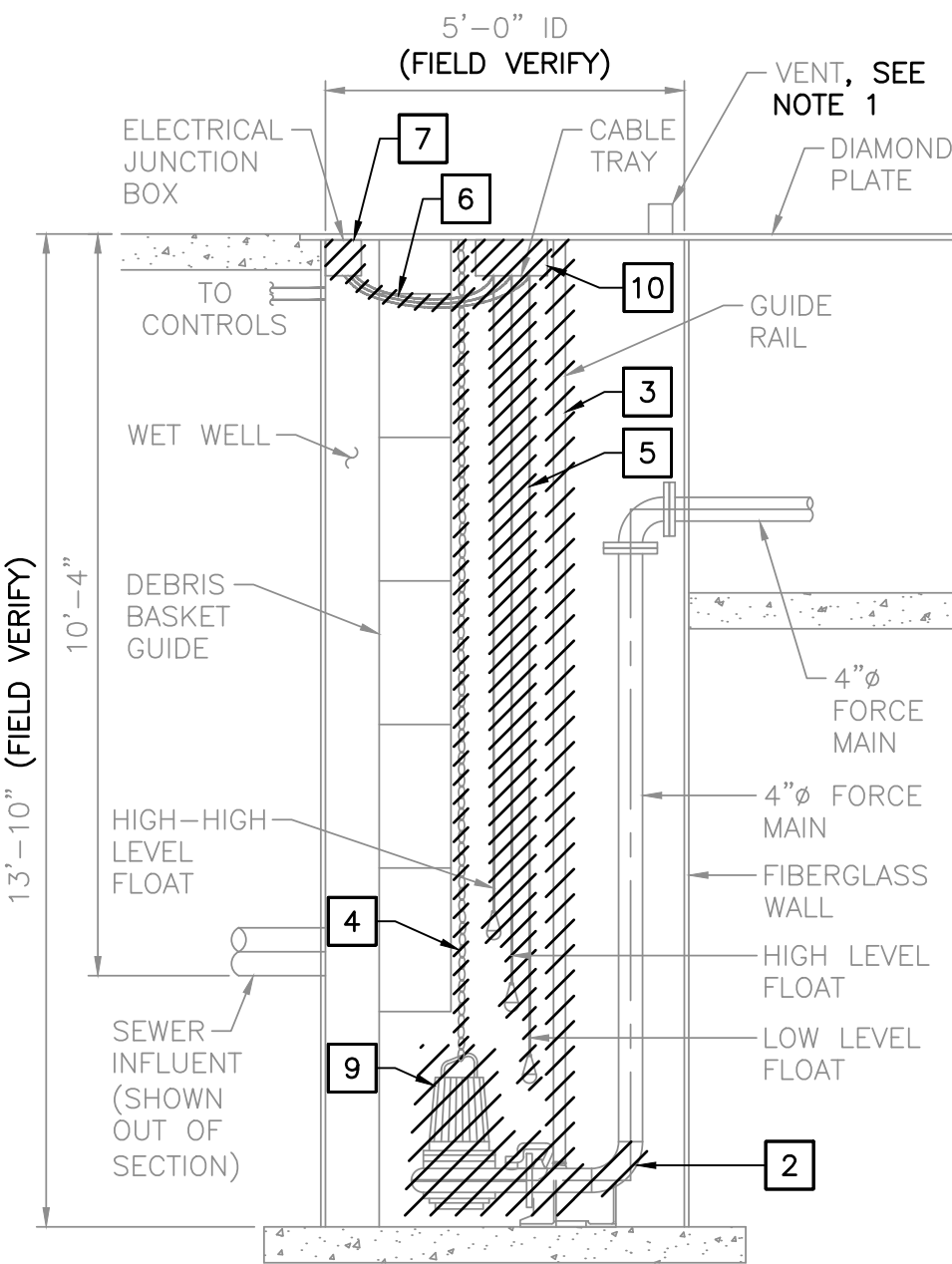
NOTES:

1. NTUA TO RESTORE THE VENT.



REMOVALS SECTIONAL PLAN

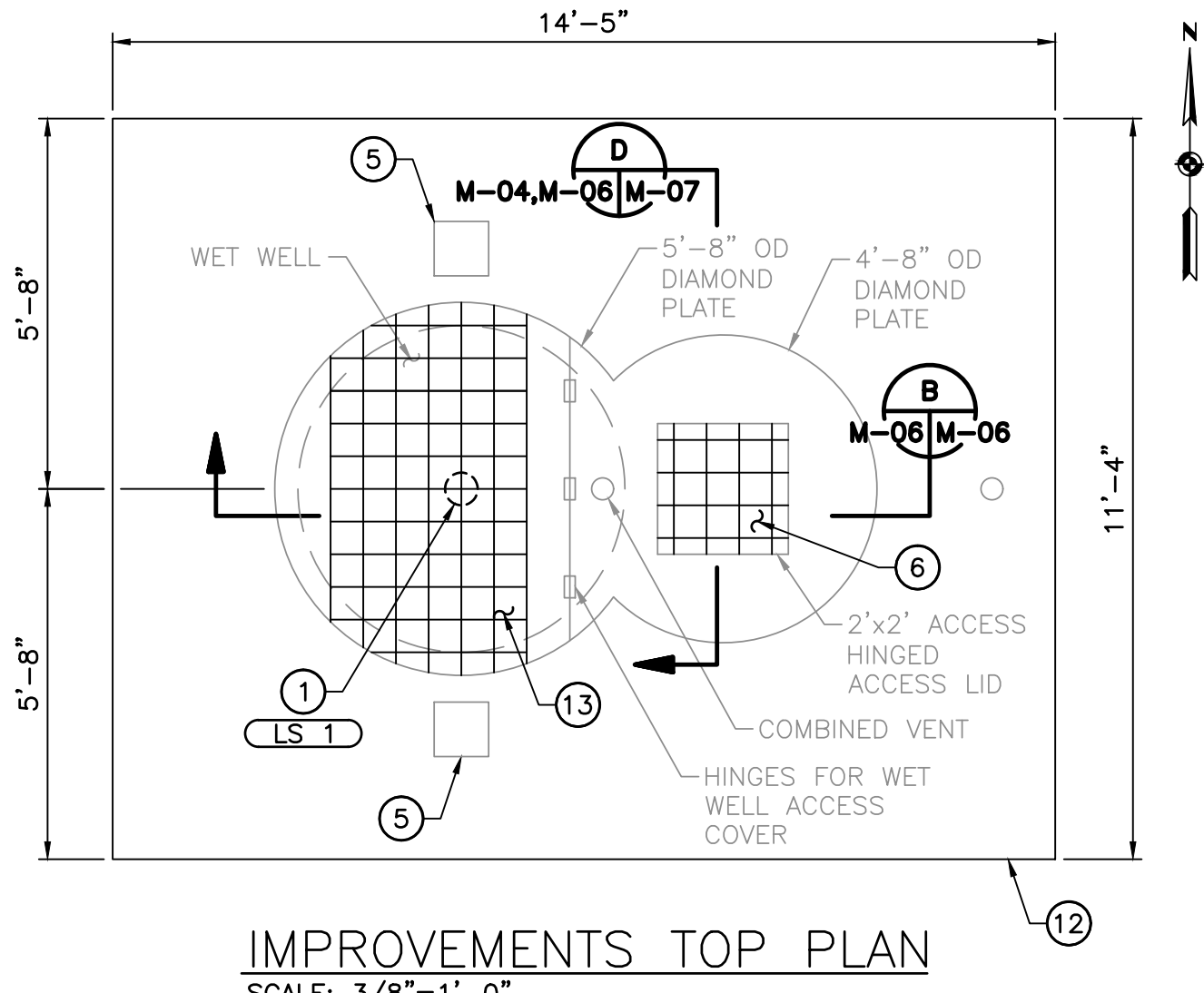
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REMOVALS SECTION

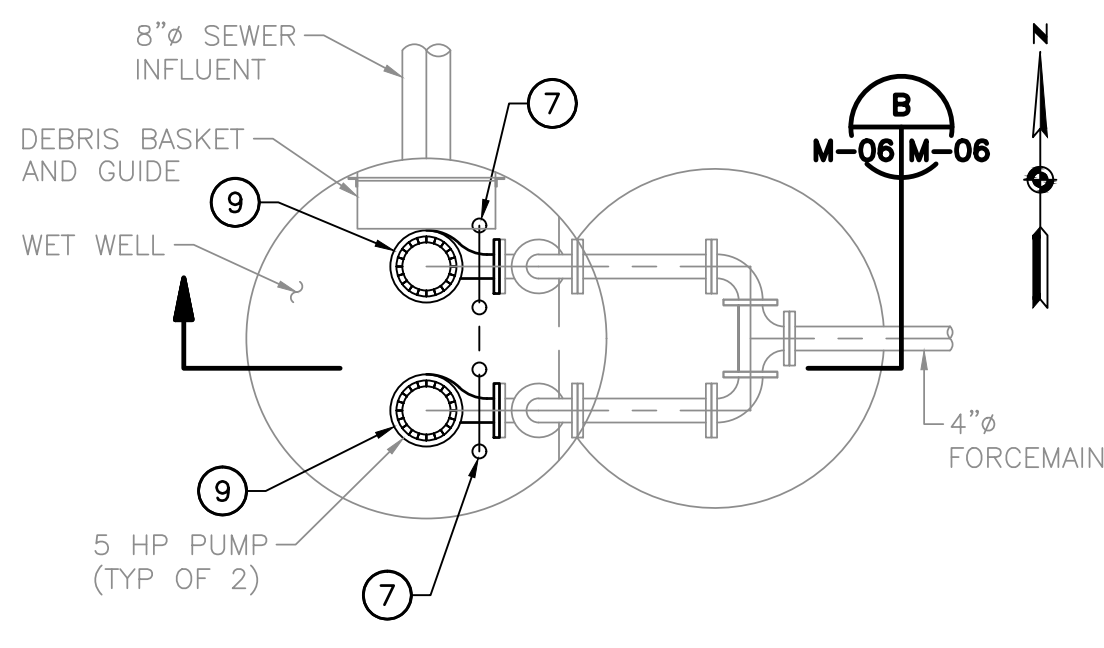
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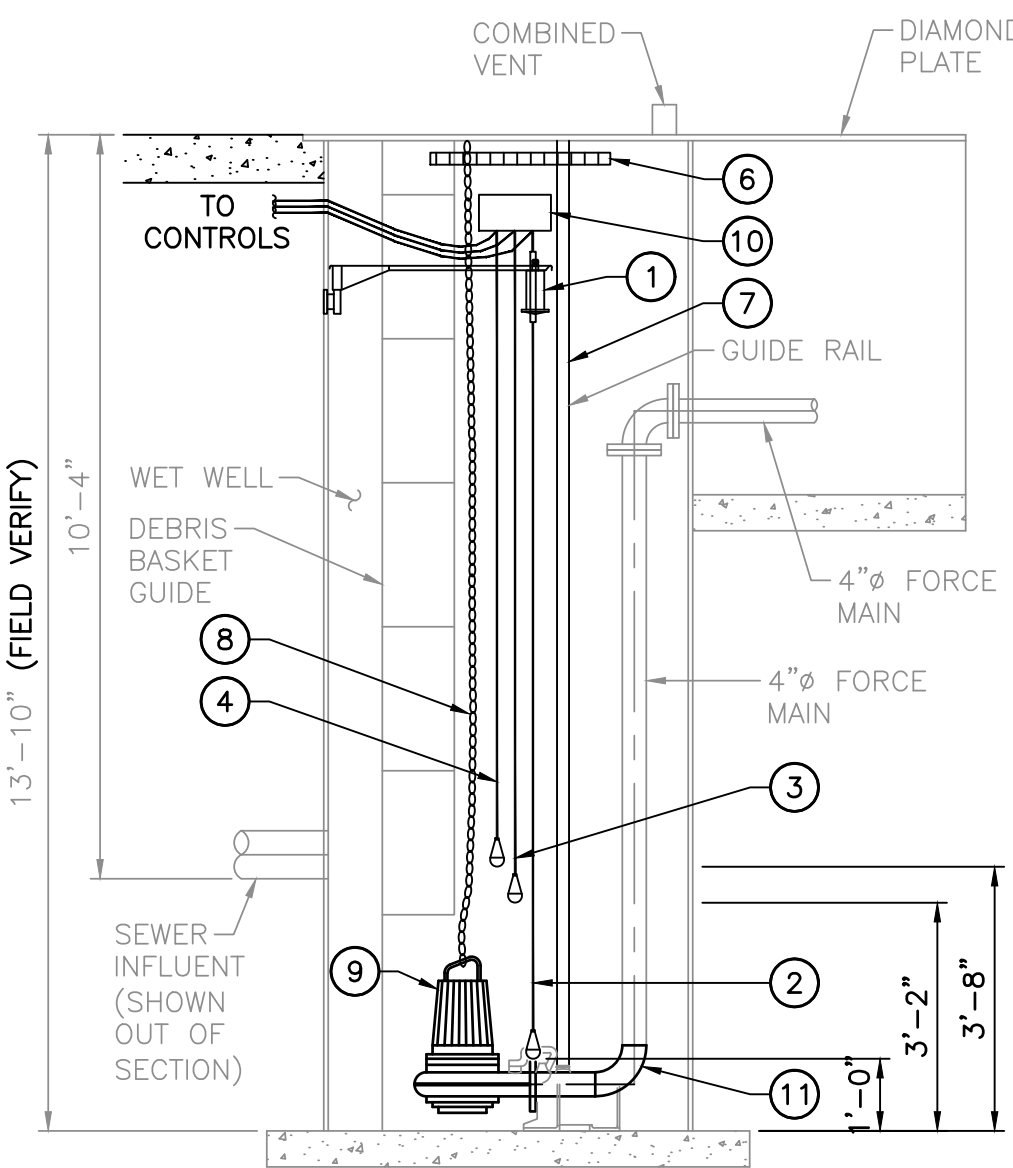
IMPROVEMENTS TOP PLAN

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



IMPROVEMENTS SECTIONAL PLAN

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

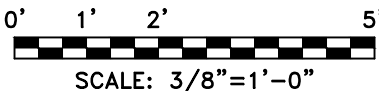


IMPROVEMENTS SECTION

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

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NOTE:
FLOAT LEVELS INDICATED ARE INITIAL SETTINGS. FLOAT LEVELS SHOULD BE ADJUSTED PER FIELD OPERATING CONDITIONS DURING START UP ACTIVITIES.



REMOVALS NOTES	
1	REMOVE CONCRETE SLAB.
2	REMOVE DISCHARGE ELBOW.
3	REMOVE PUMP GUIDE RAIL
4	REMOVE PUMP LIFTING CHAIN.
5	REMOVE LEVEL FLOATS.
6	REMOVE LEVEL FLOAT CABLES.
7	REMOVE ELECTRICAL JUNCTION BOX.
8	SALVAGE HOIST BASES.
9	REMOVE 5 HP PUMPS.
10	REMOVE CABLE HOLDER.
CONSTRUCTION NOTES	
1	RADAR LEVEL SENSOR. MOUNT LEVEL SENSOR ON WALL OF FIBERGLASS WET WELL. OF RMOUNTIN DETIAL, SEE SHT M-07.
2	LOW LEVEL FLOAT.
3	HIGH LEVEL FLOAT.
4	HIGH HIGH LEVEL FLOAT.
5	HOIST BRACKET FOR (PORTABLE) PUMP LIFTING HOIST.
6	FALL PROTECTION GRATING, SERIES X RETRO-GRATING BY HALLIDAY PRODUCTS W/ HASP FOR PADLOCK. CONTRACTOR SHALL PROVIDE ACCURATE DIMENSIONS FOR EXISTING HATCH OPENING TO HALLIDAY FOR THE FABRICATION OF UNDER-LID MOUNTING TYPE OF FALL PROTECTION GRATING.
7	PUMP GUIDE RAIL. 2" DIAMETER STAINLESS STEEL WITH TOP BRACKETS.
8	STAINLESS STEEL LIFTING CHAIN.
9	5 HP SOLIDS HANDLING PUMPS.
10	CABLE HOLDER.
11	DISCHARGE ELBOW.
12	REPLACE CONCRETE SLAB. SEE SHT C-06.
13	FALL PROTECTION GRATING, SERIES X RETRO-GRATING BY HALLIDAY PRODUCTS W/ HASP FOR PADLOCK. CONTRACTOR SHALL PROVIDE ACCURATE DIMENSIONS FOR EXISTING WET WELL INTERIOR DIMENSIONS OPENING TO HALLIDAY FOR THE FABRICATION OF WALL MOUNTING TYPE OF FALL PROTECTION GRATING.
GENERAL NOTES	
1. FOR ELECTRICAL, SEE ELECTRICAL SHEETS. 2. WHEN INSTALLING EQUIPMENT AND MATERIALS IN WET WELL. MAINTAIN SPACE FOR RADAR LEVEL SENSOR BEAM DIAMETER.	

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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

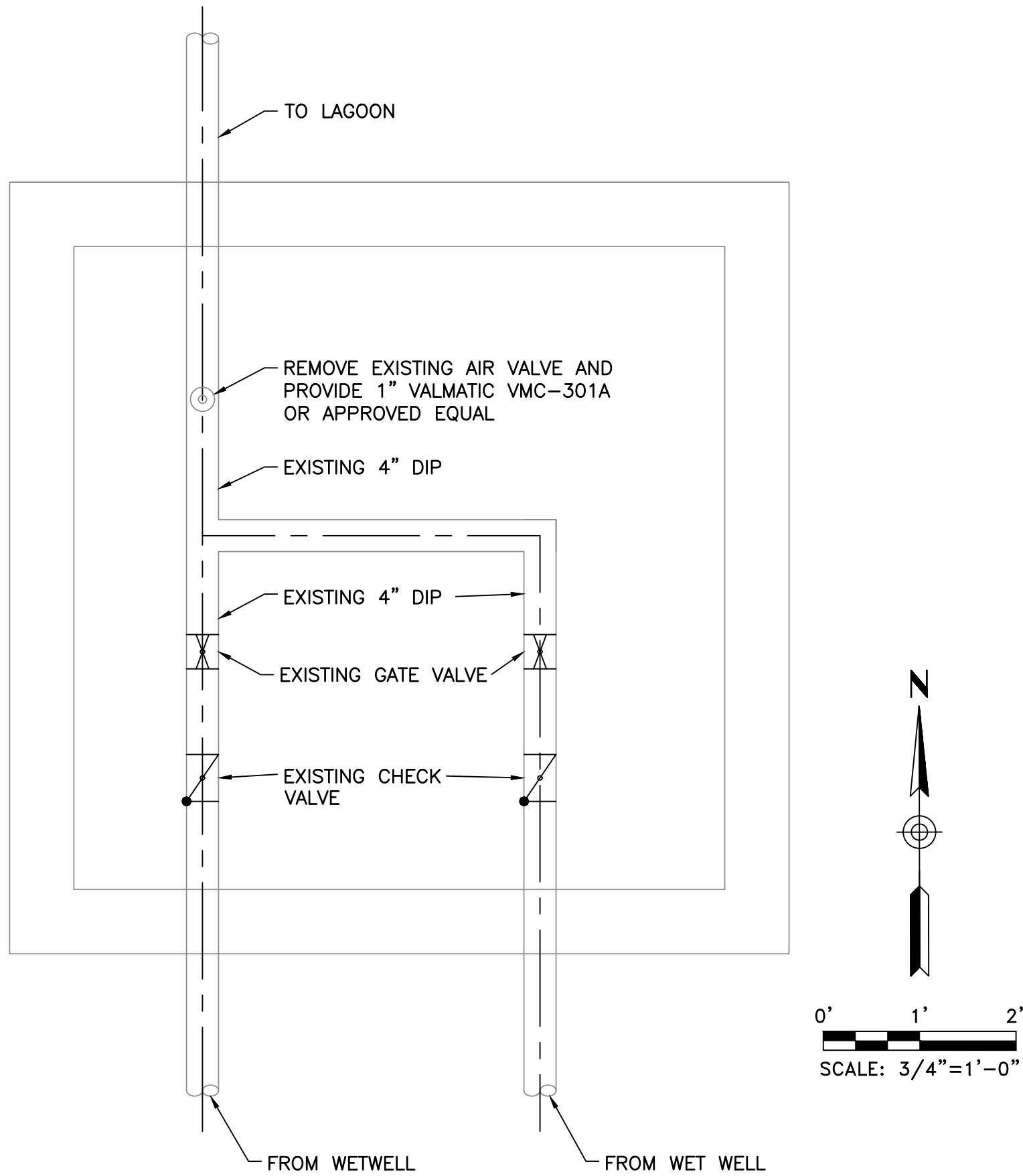
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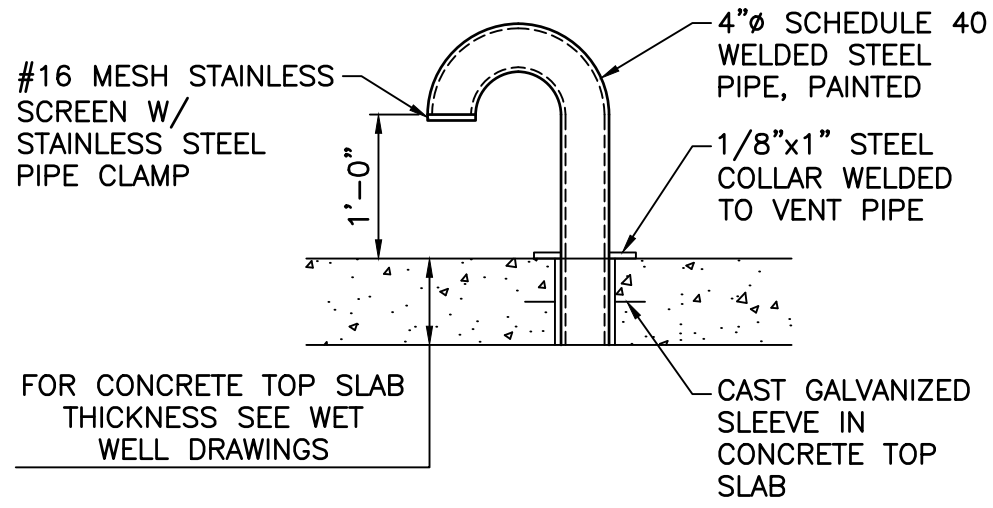
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Arizona, U.S.A.
EXPIRATION DATE: 09/30/21

Drawn by: KWB
Design by: LAH
Approved by: RN
Date: 12/09/20
Project No. 2144
Sheet No. M-06

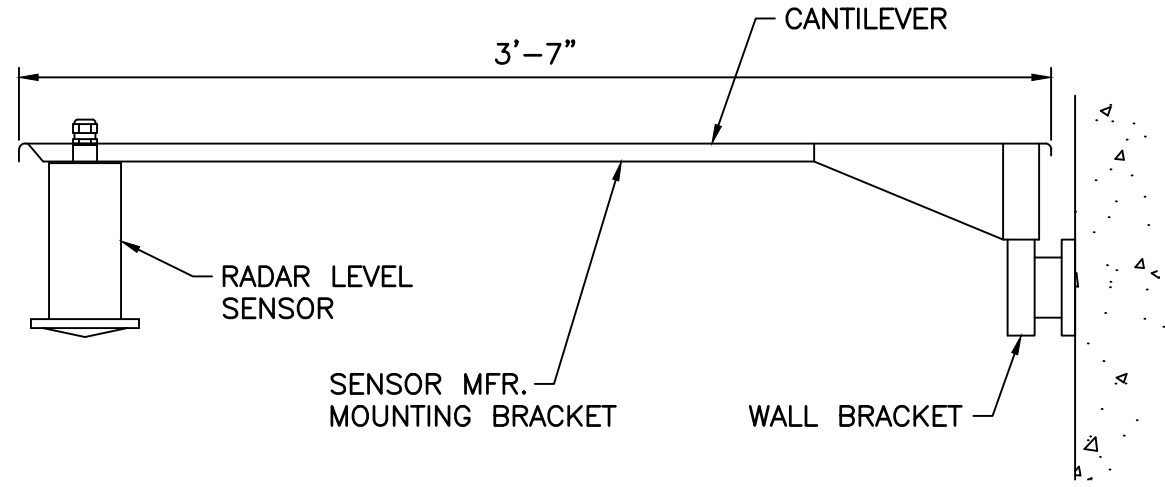
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COALMINE VALVE VAULT-SECTIONAL PLAN
SCALE:3/4"=1'

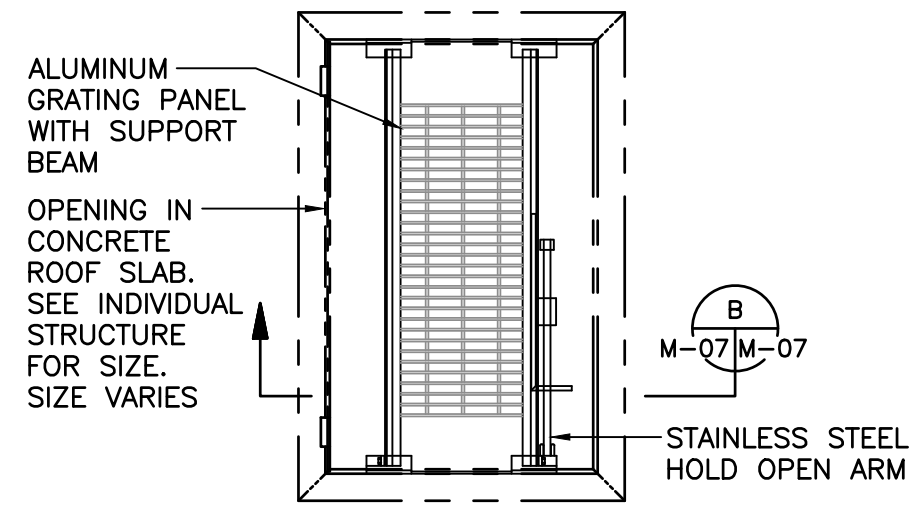


WET WELL VENT DETAIL
SCALE: 3/4"=1'-0"

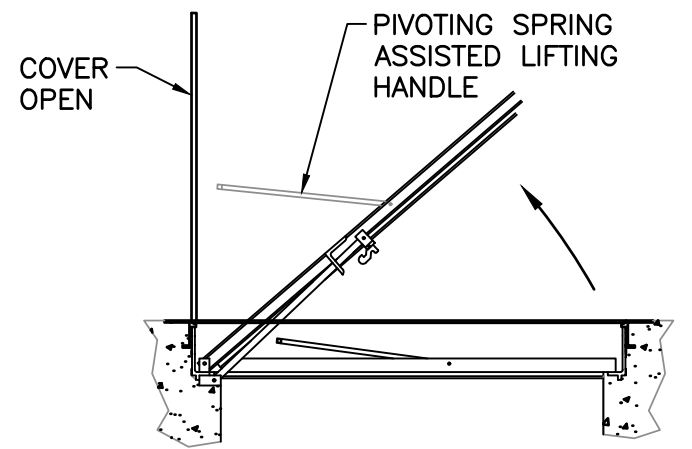


RADAR LEVEL SENSOR MOUNTING DETAIL
SCALE: 1-1/2"=1'-0"

- NOTES:
1. WET WELL WALLS FOR COYOTE CANYON, COALMINE AND LECHEE ARE PRECAST CONCRETE. WET WELL WALLS FOR SAWMILL AND IYANBITO ARE FIBERGLASS. USE STAINLESS STEEL ANCHORS OR CONNECTORS AS APPROPRIATE.
 2. MOUNTING SYSTEM SHALL BE FABRICATED FROM STAINLESS STEEL.

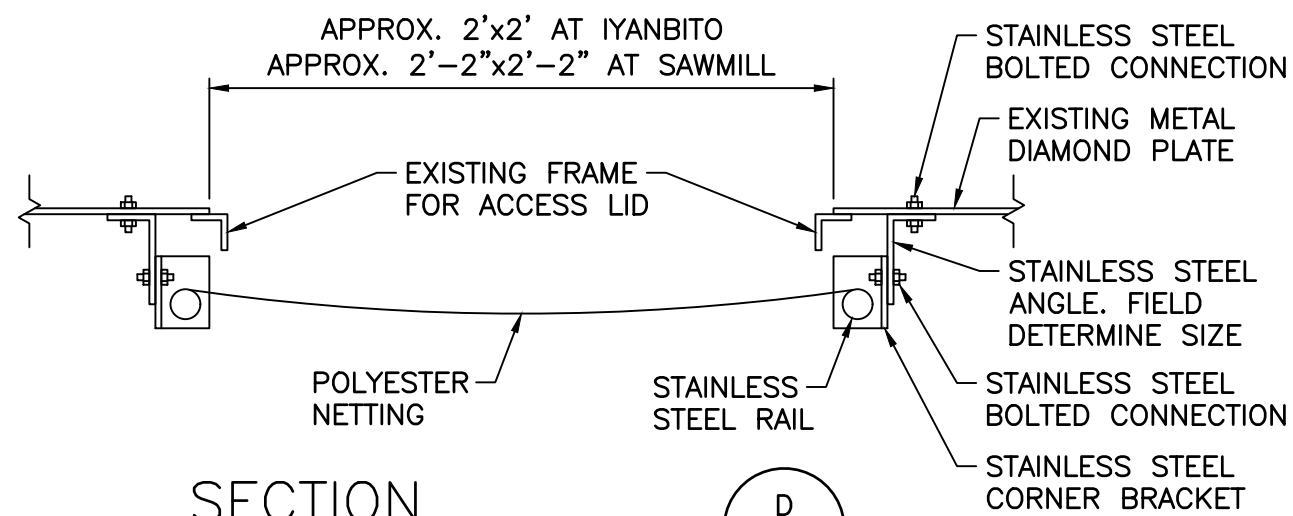


FALL PROTECTION GRATING DETAIL
SCALE: NTS



SECTION
SCALE: NTS

- NOTES:
1. THE GRATING SHALL BE OF ALUMINUM 1" (MIN.) BAR CONSTRUCTION.
 2. T-316 STAINLESS STEEL HARDWARE SHALL BE USED.
 3. THE GRATING SHALL HAVE MINIMUM 100 LBS. PER SQ. FT. LOAD RATING.
 4. MFR: PROTECTIVE GRATING BY HALLIDAY PRODUCTS OR APPROVED EQUAL.
 5. PROVIDE HASP FOR PADLOCK ON FALL PROTECTION GRATING.



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

- NOTES:
1. FALL THROUGH PROTECTION SYSTEM, SAFE APPROACH, HATCH 120S, OR APPROVED EQUAL.
 2. PROVIDE STAINLESS FRAMING AND BOLTS AS NEEDED TO SUPPORT FALL THROUGH PROTECTION SYSTEM FROM VALVE VAULT TOP PLATE.
 3. FIELD DETERMINE ALL DIMENSIONS.
 4. HINGED VALVE VAULT ACCESS LID NOT SHOWN FOR CLARITY.

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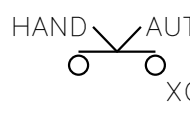
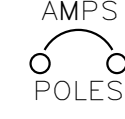
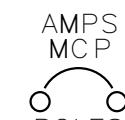
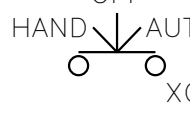
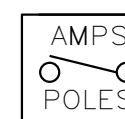
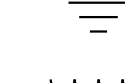
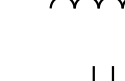
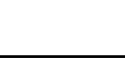
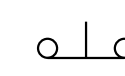
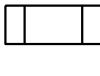
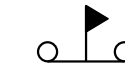
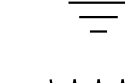
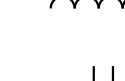
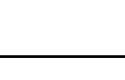
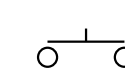
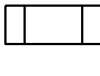
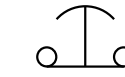
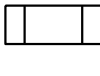
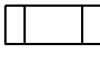
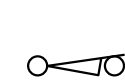
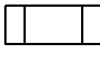
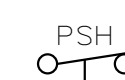
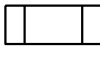
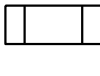
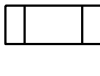
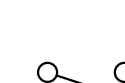
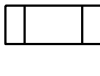
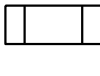
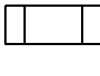
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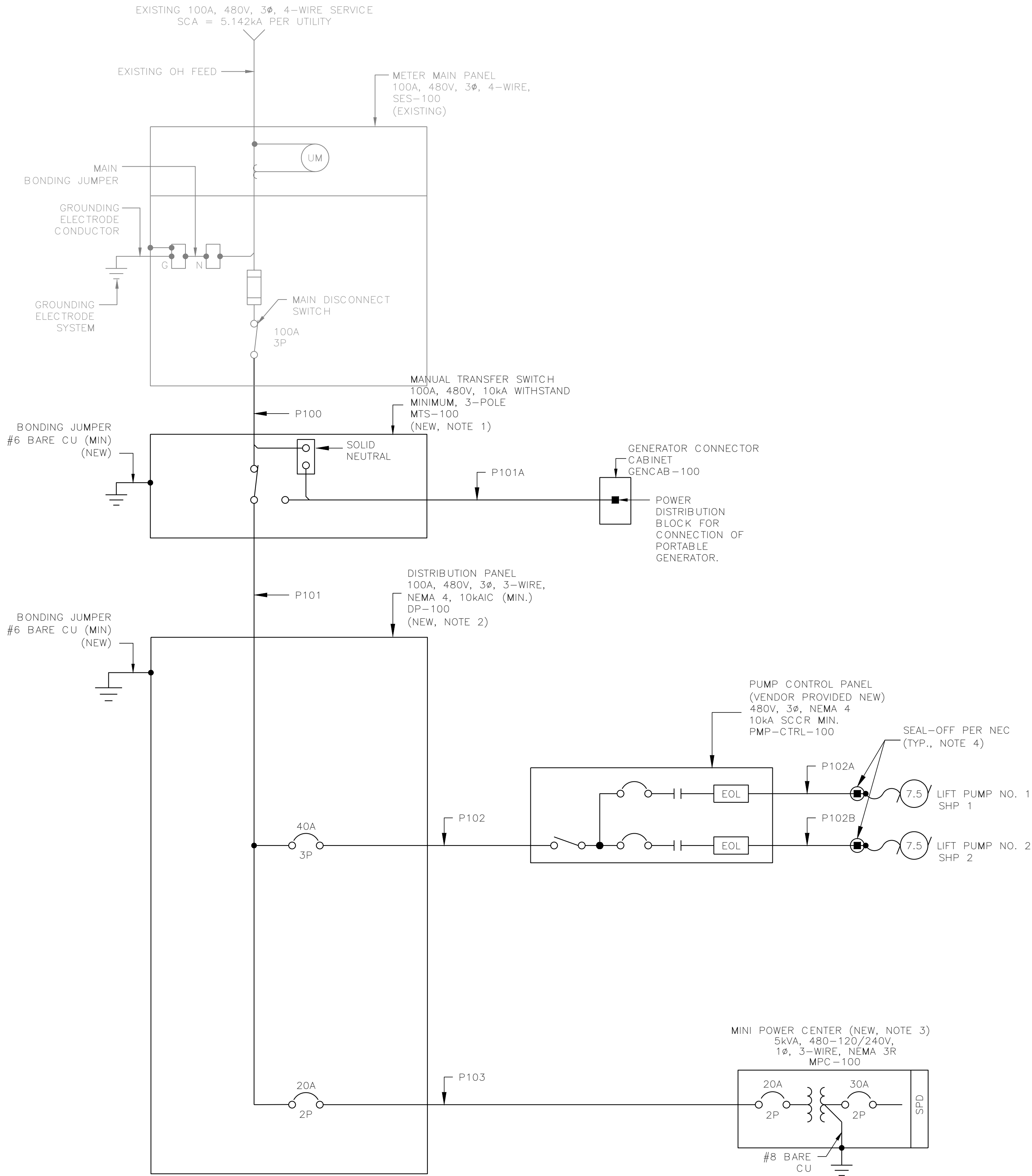
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M-07

SCHEMATIC DIAGRAM SYMBOLS				POWER SINGLE LINE DIAGRAM SYMBOLS				ELECTRICAL ABBREVIATIONS				COPYRIGHT © 2012																						
	CONTROL RELAY		2 POSITION SELECTOR SWITCH POSITION LEGEND: X=CLOSED O=OPEN		JUNCTION BOX WITH POWER DISTRIBUTION BLOCK OR LUGS		CIRCUIT BREAKER, SHOWN WITH TRIP RATING AND NUMBER OF POLES	A AMPERE AFD ADJUSTABLE FREQUENCY DRIVE AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AI ANALOG INPUT AIC AMPS INTERRUPTING CAPACITY AO ANALOG OUTPUT AS AIR SUPPLY ATS AUTOMATIC TRANSFER SWITCH BC BYPASS CONTACTOR C CONDUIT CB CIRCUIT BREAKER CCW COUNTER CLOCKWISE CL2 CHLORINE CON CONTACTOR CPB CONTROL PULLBOX CU COPPER, BARE CV CONTROL VALVE CW CLOCKWISE DCS DISTRIBUTED CONTROL SYSTEM DI DISCRETE INPUT DO DISCRETE OUTPUT DP DISTRIBUTION PANEL DV/DT DIFFERENTIAL VOLTAGE/TIME DWG DRAWING ETM ELAPSED TIME METER EOL ELECTRONIC OVERLOAD EXIST EXISTING FA FOUL AIR FC FAIL CLOSED FE FLOW ELEMENT FLA FULL LOAD AMPS FS FLOW SWITCH FVNR FULL VOLTAGE NON-REVERSING FW FINISHED WATER GFCI GROUND FAULT CIRCUIT INTERRUPTER GFP GROUND FAULT PROTECTION GND GROUND GPD GALLONS PER DAY GPH GALLONS PER HOUR GPM GALLONS PER MINUTE GRS GALVANIZED RIGID STEEL H, HI HIGH H2S HYDROGEN SULFIDE HMI HUMAN MACHINE INTERFACE HOA HAND-OFF-AUTO HOR HAND-OFF-REMOTE I CURRENT IC INSTRUMENTATION CABLE ICR INTERMITTENT CYCLE REACTOR IO INPUT/OUTPUT ISC SHORT CIRCUIT CURRENT		MOTOR CIRCUIT PROTECTOR WITH TRIP RATING AND NUMBER OF POLES	MCB MAIN CIRCUIT BREAKER MCC MOTOR CONTROL CENTER MCP MOTOR CIRCUIT PROTECTOR MFR(S) MANUFACTURER(S) MGD MILLION GALLONS PER DAY MGL MILLIGRAMS PER LITER MH MANHOLE MIN MINIMUM MOV MOTOR OPERATED VALVE MMR MOTOR MANAGEMENT RELAY MTU MASTER TELEMETRY UNIT NEC NATIONAL ELECTRICAL CODE NECA NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION N.C. NORMALLY CLOSED N.O. NORMALLY OPEN NIC NOT IN CONTRACT NOTC NORMALLY OPEN TIMED CLOSED NPW NON-POTABLE WATER NS NITROGEN SUPPLY NTS NOT TO SCALE NTU TURBIDITY OF OVERFLOW OIT OPERATOR INTERFACE TERMINAL OL OVERLOAD OLR OVERLOAD RELAY OO ON/OFF (MAINTAINED) OR OFF-REMOTE OSC OPEN/STOP/CLOSE P PHASE PB PULL BOX PCP PROCESS CONTROL PANEL PCV PRESSURE CONTROL VALVE PFR PHASE/POWER FAILURE RELAY PI PULSE INPUT PLC PROGRAMMABLE LOGIC CONTROLLER PLI PLANT INFLUENT PMP PUMP	PNL PANEL PO PULSE OUTPUT PPB POWER PULLBOX PPG POUNDS PER GALLON PPH POUNDS PER HOUR PPM POUNDS PER MILLION PR PAIR PRES PRESSURE PS PRESSURE SWITCH PSH PRESSURE SWITCH, HIGH PSI POUNDS PER SQUARE INCH PV PROCESS VARIABLE RAS RETURN ACTIVATED SLUDGE RW RAW WATER RF RADIO FREQUENCY RIO REMOTE INPUT OUTPUT RS RAW SEWAGE RSP RAW SEWAGE PUMP RST RESET RTD RESISTANCE TEMPERATURE DETECTOR RTU REMOTE TELEMETRY UNIT RWT REFLECTED WAVE TRAP SCA SHORT CIRCUIT AMPS SCCR SHORT CIRCUIT CURRENT RATING SEQ SERVICE ENTRANCE EQUIPMENT SES SERVICE ENTRANCE SECTION SLC SINGLE LOOP CONTROLLER SLOS START-LOCK-OUT-STOP SMC SUBMERSIBLE MANUFACTURER CABLE SO2 SULFUR DIOXIDE SP SET POINT SPC SPARE CONDUIT SPR SPARE SS START/STOP SSS SOLID STATE STARTER (SOFT START) ST SHUNT TRIP TC TELEPHONE CABLE TS TEMPERATURE SWITCH TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR TYP TYPICAL UG UNDERGROUND UL UNDERWRITERS LABORATORIES UM UTILITY METER UNO UNLESS NOTED OTHERWISE V VOLT VFD VARIABLE FREQUENCY DRIVE W WATT, WIRE WAS WASTE ACTIVATED SLUDGE WP WEATHERPROOF XFMR TRANSFORMER XMR TRANSFORMER XMTR TRANSMITTER ZS POSITION (i.e., LIMIT) SWITCH	Check	Drawn	Date	Revision	Note	No.																
	TIME DELAY RELAY		3 POSITION SELECTOR SWITCH HAND - OFF - AUTO POSITION LEGEND: X=CLOSED O=OPEN		CONDUIT SEALOFF		DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES	AMPERS MCP MOTOR CIRCUIT PROTECTOR POLES		MOTOR MANAGEMENT RELAY		SURGE PROTECTIVE DEVICE		SOLID STATE STARTER		VARIABLE FREQUENCY DRIVE		HARMONIC FILTER		ELECTRONIC OVERLOAD RELAY		GROUND CONNECTION		TRANSFORMER		CONTACTOR	ELECTRICAL LINETYPES				GENERAL NOTES			
	ALARM RELAY		NORMALLY CLOSED PUSH BUTTON		LTC CONNECTION		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES										
	ELAPSED TIME METER		LOCKOUT STOP PUSH BUTTON		MC CONNECTION		SURGE PROTECTIVE DEVICE		SOLID STATE STARTER		VARIABLE FREQUENCY DRIVE		HARMONIC FILTER		ELECTRONIC OVERLOAD RELAY														GROUND CONNECTION		TRANSFORMER		CONTACTOR	SITE PLAN SYMBOLS
	MOTOR STARTER OR CONTACTOR COIL		NORMALLY OPEN PUSH BUTTON		BOND TO METALLIC WATER PIPE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES												
	PHOTO CELL		EMERGENCY STOP PUSH BUTTON (MAINTAINED)		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR													SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES
	BEACON ALARM LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN		DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES												
	PILOT LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN		LIMIT OR POSITION SWITCH		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR													SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES
	OUTPUT DV/DT FILTER		PRESSURE SWITCH HIGH		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES												
	HEATING ELEMENT		PRESSURE SWITCH LOW		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR													SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES
	TRANSFORMER		FLOW SWITCH		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES												
	CURRENT TRANSFORMER		LEVEL FLOAT SWITCH		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR													SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES
	GROUND CONNECTION		TIMER RELAY CONTACT INSTANTANEOUS CLOSE TIME DELAY OPEN		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR	SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES												
	GENERATOR		TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		UTILITY METER		FUSE		FUSEHOLDER OR FUSEBLOCK		GENERATOR													SITE PLAN SYMBOLS				ELECTRICAL LINETYPES				GENERAL NOTES
	HORN		TEMPERATURE SWITCH		MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE																													



A SINGLE LINE DIAGRAM

CIRCUIT/DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
LIFT PUMP NO. 1 SHP 1		7.5	11.0
LIFT PUMP NO. 2 SHP 2		7.5	11.0
NON-MOTOR LOADS			
MINI POWER CENTER MPC-100	5.0		10.4
SUBTOTAL			
+ 25% OF LARGEST MOTOR			2.8
TOTAL AMPS @ 480V/3PHASE			35.2
SERVICE SIZE (AMPS)			100.0

B LOAD CALCULATIONS

CALLOUT NO.	NO. SETS	CONDUIT SIZE	CIRCUIT CONDUCTORS	CIRCUIT NO.'s
P100	1	1 1/2"	3 - #1, #1 NEUT, #8 GND	ATS100-P1
P101	1	1 1/2"	3 - #1, #8 GND	DP100-P1
P101A	1	1"	3 - #6, #6 NEUT, #10 GND	GENCAB100-P1
P102	1	1"	3 - #10, #10 GND	PMPCTRL100-P1
P102A	1	1"	3 - #12, #12 GND	SHP1-P1
P102B	1	1"	3 - #12, #12 GND	SHP2-P1
P103	1	1"	2 - #12, #12 GND	MPC100-P1

C CALLOUT SCHEDULE

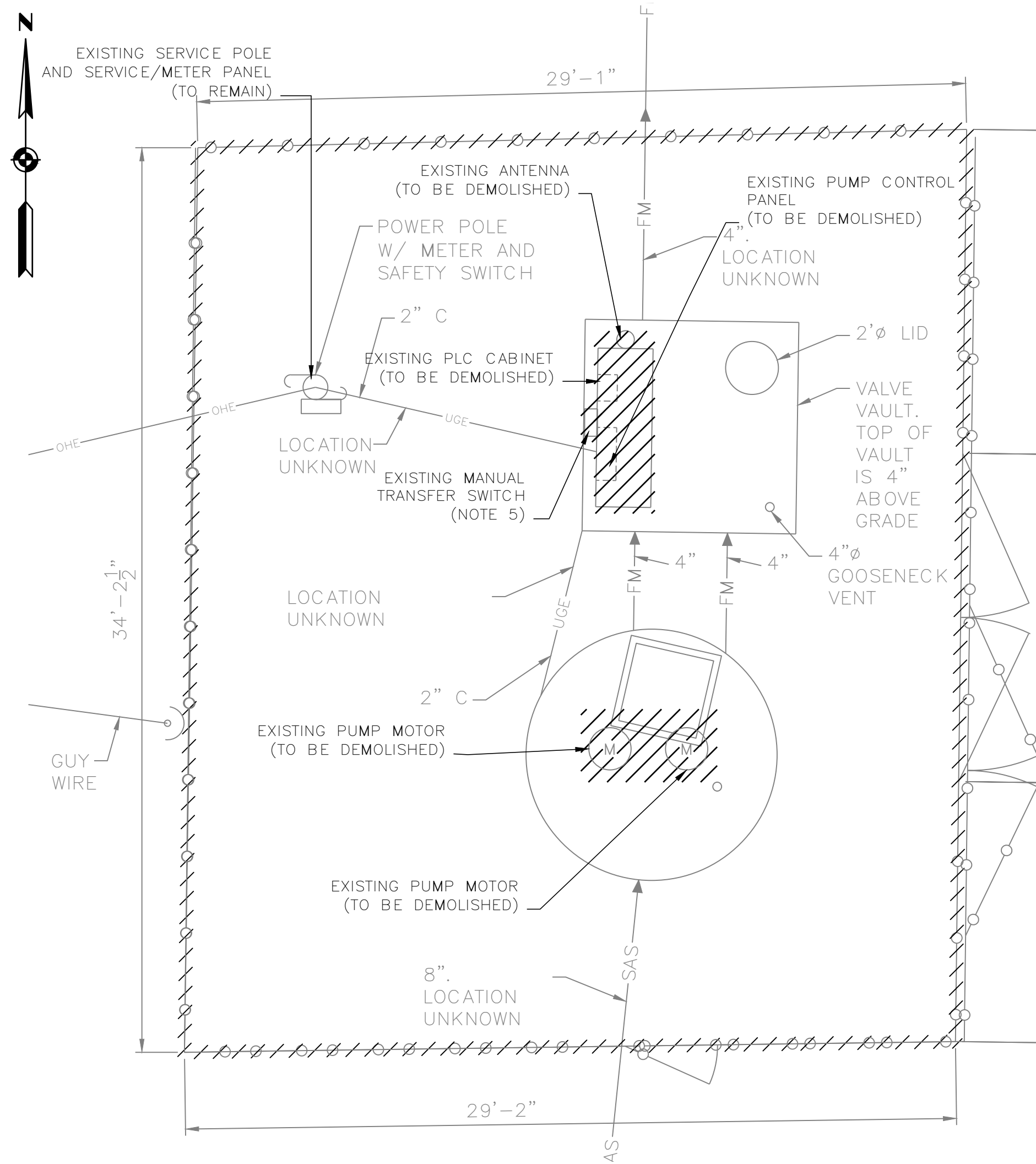
NOTES:

- CONTRACTOR SHALL REUSE AND RELOCATE EXISTING MANUAL TRANSFER SWITCH IF POSSIBLE. IF EXISTING TRANSFER SWITCH IS DEEMED NOT SUITABLE FOR USE BY CONTRACTOR, PROVIDE SQUARE D, OR EQUIVALENT, DOUBLE THROW MANUAL TRANSFER SWITCH WITH NEMA 3R, PAD-LOCKABLE ENCLOSURE.. SEE DWG E-04 FOR LOCATION.
- PROVIDE SQUARE D, OR EQUAL, PANELBOARD RATED AS SHOWN ON DRAWING. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
- PROVIDE MINI POWER CENTER BY SQUARE D, OR EQUAL. MINI POWER CENTER SHALL HAVE TWO 5% FULL CAPACITY PRIMARY TAPS BELOW NORMAL. MINI POWER CENTER SHALL BE RATED FOR 115 DEGREE FAHRENHEIT TEMPERATURE RISE ABOVE 40 DEGREE FAHRENHEIT AMBIENT TEMPERATURE(MINIMUM). MINI POWER CENTER SHALL INCLUDE INTEGRALLY MOUNTED AND WIRED PRIMARY AND SECONDARY MAIN CIRCUIT BREAKERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
- PROVIDE CROUSE-HINDS SEAL-OFF AND CHICO SEALING COMPOUND.

Nov 26, 2020 -- 4:25pm
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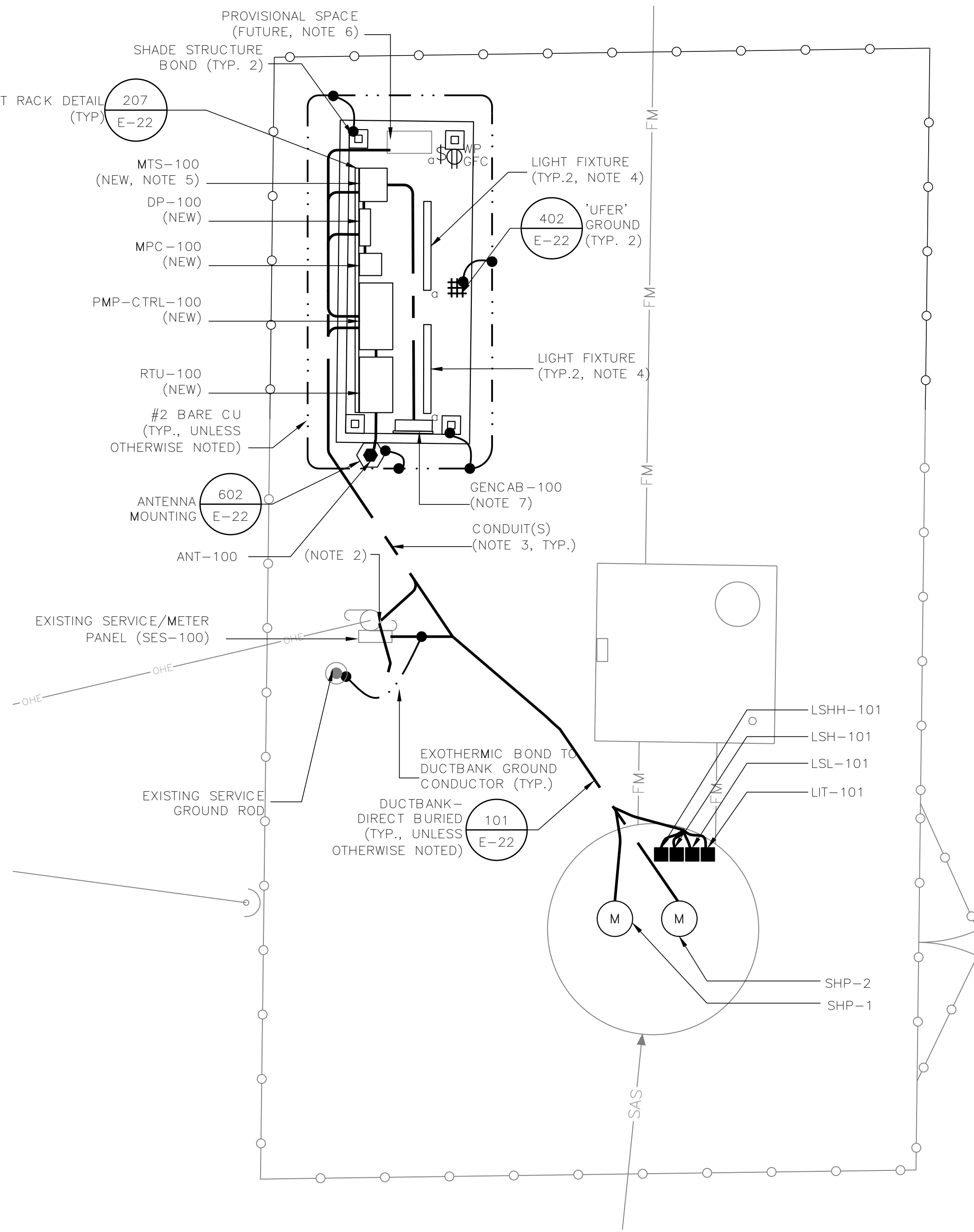
PANEL TAG No.		MPC-100										NEMA TYPE/MOUNTING				3R/SURFACE	
LOCATION		ELECTRICAL EQUIPMENT PAD										MAIN DEVICE				30A MCB	
BUS AMPACITY		100A										AIC RATING				10k (MIN)	
VOLTS, PHASE, WIRE		240 V/1-PHASE/3-WIRE										FED FROM				DP-100	
REMARKS												ACCESSORIES					

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A COALMINE ELECTRICAL DEMOLITION PLAN
(NOTE 1)

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



B COALMINE ELECTRICAL PLAN
(NOTE 2)

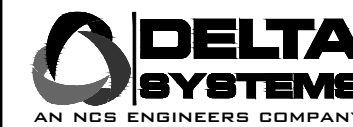
4 3 2 1 0 2 4
SCALE: 1/4" = 1'-0"

NOTES:

- DEMOLISHED EQUIPMENT INCLUDING ASSOCIATED WIRE AND ABOVE GROUND CONDUITS SHALL BE EITHER RETURNED TO OWNER OR PROPERLY DISPOSED OF AS DIRECTED BY OWNER.
- PROVIDE CONDUIT STUB UP FOR OWNER UTILIZATION IN INSTALLATION OF SITE LIGHT.
- REFER TO CONDUIT BLOCK DIAGRAM ON SHEET E-05 FOR SYSTEM CONDUIT INFORMATION/REQUIREMENTS (I.E. TO/FROM INFO, SIZES, TAG#'S, CONTENTS ETC.).
- REFER TO LIGHTING FIXTURE SCHEDULE ON SHEET E-03.
- FIELD SHALL VERIFY CONDITION OF EXISTING MANUAL TRANSFER SWITCH AND REUSE IF POSSIBLE. IF REUSE IS NOT SUITABLE, REFER TO SHEET E-02 FOR REPLACEMENT CRITERIA.
- PROVIDE 1" CONDUIT STUB UP, CAPPED AT FINISHED FLOOR LEVEL FOR FUTURE USE BY OWNER.
- PROVIDE GENERATOR TERMINATION CABINET, NEMA 4. SIZE AS REQUIRED.
- ALL INSTALLATIONS WITHIN WETWELL SHALL BE CLASS 1, DIVISION 1 COMPLIANT AND SHALL COMPLY WITH ALL REQUIREMENTS FOR CLASSIFIED AREAS AS DEFINED IN ARTICLE 500 OF THE NATIONAL ELECTRICAL CODE.

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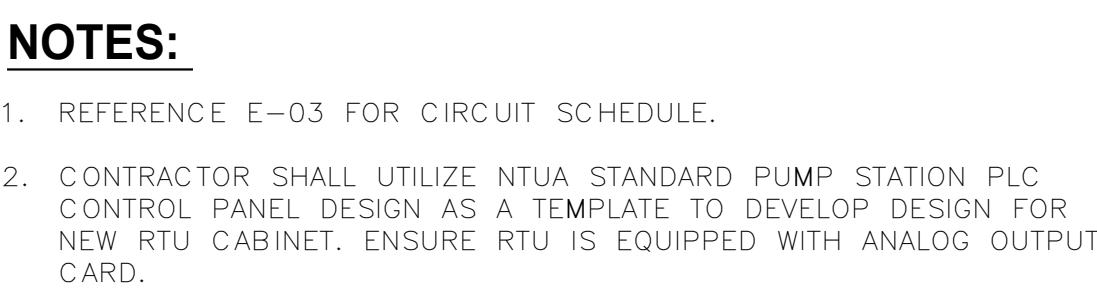
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Approved by: BDD

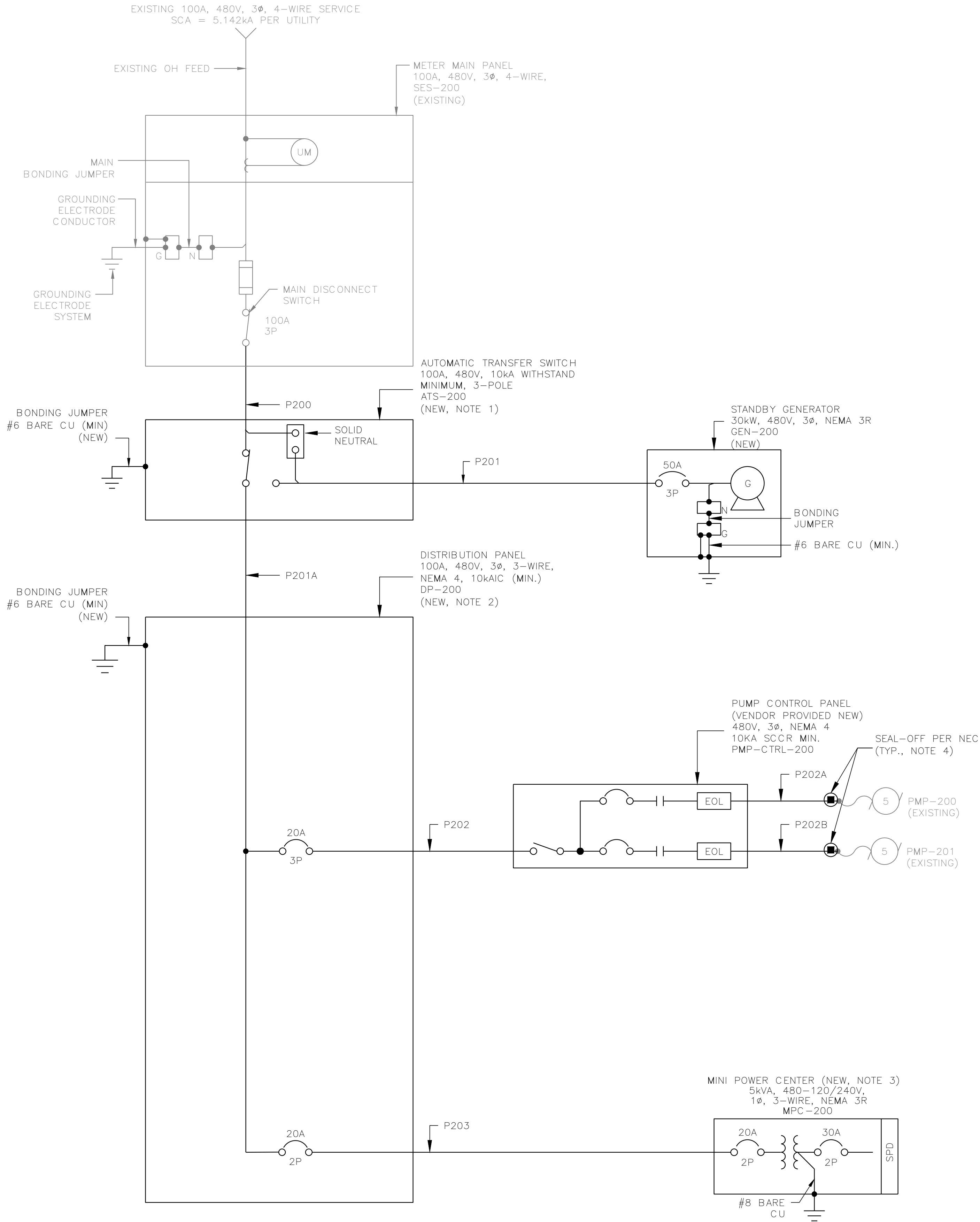
Date: 11/24/20

Project No. 2144

Sheet No. E-04

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A SINGLE LINE DIAGRAM

CIRCUIT/DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
LIFT PUMP NO. 1 PMP-200 (EXISTING)		5.0	7.6
LIFT PUMP NO. 2 PMP-201 (EXISTING)		5.0	7.6
NON-MOTOR LOADS			
MINI POWER CENTER MPC-200	5.0		10.4
SUBTOTAL			
+ 25% OF LARGEST MOTOR			1.9
TOTAL AMPS @ 480V/3PHASE			27.5
SERVICE SIZE (AMPS)			100.0

B LOAD CALCULATIONS

CALLOUT NO.	NO. SETS	CONDUIT SIZE	CIRCUIT CONDUCTORS	CIRCUIT NO.'s
P200	1	1 1/2"	3 - #1, #1 NEUT, #8 GND	ATS200-P1
P201	1	1"	3 - #6, #6 NEUT, #10 GND	GEN200-P1
P201A	1	1 1/2"	3 - #1, #8 GND	DP200-P1
P202	1	1"	3 - #12, #12 GND	PMPCTRL200-P1
P202A	1	1"	3 - #12, #12 GND	PMP200-P1
P202B	1	1"	3 - #12, #12 GND	PMP201-P1
P203	1	1"	2 - #12, #12 GND	MPC200-P1

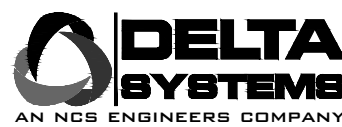
C CALLOUT SCHEDULE

NOTES:

- PROVIDE NEW AUTOMATIC TRANSFER SWITCH THAT COMPLIES WITH THE FOLLOWING: INCLUDES ADJUSTABLE TIME DELAY FOR GENERATOR START, TIME DELAY TRANSFER TO GENERATOR, TIME DELAY IN "OFF" POSITION, TIME DELAY RE-TRANSFER TO NORMAL POWER, TIME DELAY FOR GENERATOR STOP AND SWITCHES CAPABLE OF TRANSFERRING SUCCESSFULLY IN EITHER DIRECTION WITH 70 PERCENT OF RATED VOLTAGE APPLIED TO THE TERMINALS. SHALL BE TIME DELAY NEUTRAL OPEN TRANSITION, BREAK-BEFORE-MAKE. SHALL BE LISTED UNDER UL-1008. TRANSFER SWITCH MUST BE COMPATIBLE WITH THE STANDBY GENERATOR AND SHALL BE SUPPLIED WITH THE GENERATOR
- PROVIDE SQUARE D, OR EQUAL, PANELBOARD RATED AS SHOWN ON DRAWING. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
- PROVIDE MINI POWER CENTER BY SQUARE D, OR EQUAL. MINI POWER CENTER SHALL HAVE TWO 5% FULL CAPACITY PRIMARY TAPS BELOW NORMAL. MINI POWER CENTER SHALL BE RATED FOR 115 DEGREE FAHRENHEIT TEMPERATURE RISE ABOVE 40 DEGREE FAHRENHEIT AMBIENT TEMPERATURE(MINIMUM). MINI POWER CENTER SHALL INCLUDE INTEGRALLY MOUNTED AND WIRED PRIMARY AND SECONDARY MAIN CIRCUIT BREAKERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
- PROVIDE CROUSE-HINDS SEAL-OFF AND CHICO SEALING COMPOUND.

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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
LECHEE SINGLE LINE DIAGRAM AND
LOAD CALCULATIONS



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Drawn by: AGA

Design by: AGA

Approved by: BDD

Date

11/24/20

Project No.

2144

Sheet No.

E-06

* - Each branch circuit		VA	AMPS	TOTAL CONNECTED VA - PER PHASE	1000	1680
shall have an	TOTAL PANEL CONNECTED LOAD	2680	11.17	TOTAL DEMAND VA - PER PHASE	1250	2055
equipment grounding conductor	TOTAL PANEL DEMAND LOAD	3305	13.77	TOTAL DEMAND PHASE AMPS	10.4	17.1
sized per N.E.C. Article 250	PANEL DEMAND FACTOR	123%				

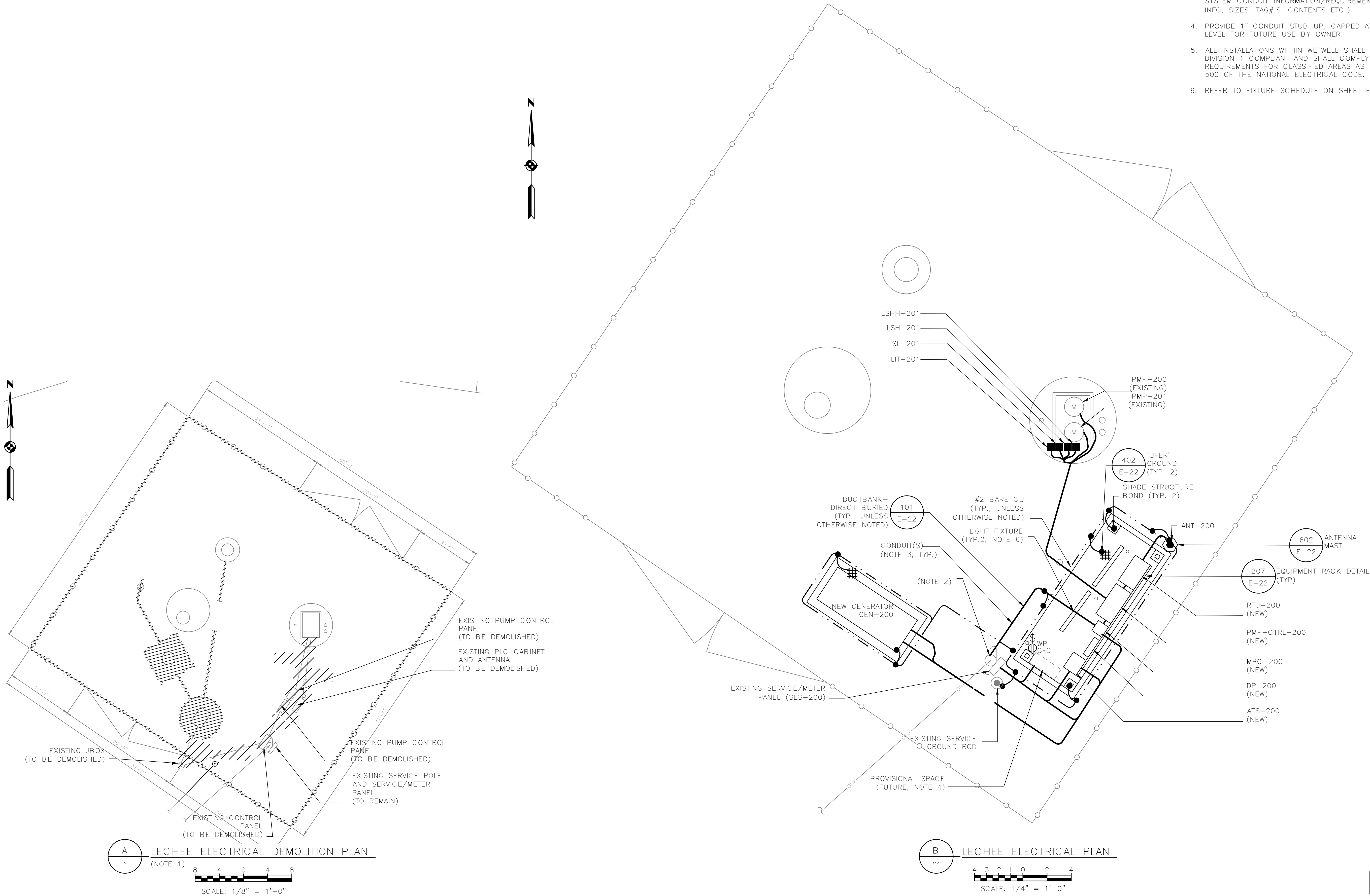
SHEET NO.	CIRCUIT	CONDUCTORS
E-09	ANT200-C1	1 - ANTENNA CABLE
E-09	PMPCTRL200-C1	30 - #14, #14 GND
E-09	PMPCTRL200-C2	1 - MODBUS CABLE
E-09	LIT201-C2	1 - IC, #14 GND
E-09	ATS200-C1	4 - #14, #14 GND
E-09	GEN200-C1	6 - #14, #14 GND
E-09	TSH202-C1	2 - #14, #14 GND
E-09	YS202-C1	2 - #14, #14 GND
E-09	TSH203-C1	2 - #14, #14 GND
E-09	YS203-C1	2 - #14, #14 GND
E-09	LSL201-C1	2 - #14, #14 GND
E-09	LSH201-C1	2 - #14, #14 GND
E-09	LSHH201-C1	2 - #14, #14 GND
E-09	LIT201-C1	1 - IC, #14 GND
E-09	GEN200-C2	2 - #14, #14 GND



LIGHTING FIXTURE SCHEDULE			
SYMBOL	DESCRIPTION	MOUNTING	MANUFACTURER
	120V, 4' LED FIXTURE, NARROW LENSED STRIPLIGHT, UL LISTED FOR DAMP LOCATIONS.	SURFACE/ PENDANT	EATON METALUX SNLED LENSED LED OR EQUAL



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NOTES:

1. DEMOLISHED EQUIPMENT INCLUDING ASSOCIATED WIRE AND ABOVE GROUND CONDUITS SHALL BE EITHER RETURNED TO OWNER OR PROPERLY DISPOSED OF AS DIRECTED BY OWNER.
2. PROVIDE CONDUIT STUB UP FOR USE BY OWNER PROVIDED LIGHTING.
3. REFER TO CONDUIT BLOCK DIAGRAM ON SHEET E-09 FOR SYSTEM CONDUIT INFORMATION/REQUIREMENTS (I.E. TO/FROM INFO, SIZES, TAG#'S, CONTENTS ETC.).
4. PROVIDE 1" CONDUIT STUB UP, CAPPED AT FINISHED FLOOR LEVEL FOR FUTURE USE BY OWNER.
5. ALL INSTALLATIONS WITHIN WETWELL SHALL BE CLASS 1, DIVISION 1 COMPLIANT AND SHALL COMPLY WITH ALL REQUIREMENTS FOR CLASSIFIED AREAS AS DEFINED IN ARTICLE 500 OF THE NATIONAL ELECTRICAL CODE.
6. REFER TO FIXTURE SCHEDULE ON SHEET E-07.

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No.	Revision	Note	Date	Drawn	Check

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
LECHEE DEMOLITION AND SITE
IMPROVEMENT PLANS



Drawn by:	AGA
Design by:	AGA
Approved by:	BDD
Date	11/24/20
Project No.	2144
Sheet No.	E-08





1. REFERENCE E-07 FOR CIRCUIT SCHEDULE.
2. CONTRACTOR SHALL UTILIZE NTUA STANDARD PUMP STATION PLC CONTROL PANEL DESIGN AS A TEMPLATE TO DEVELOP DESIGN FOR NEW RTU CABINET. ENSURE RTU IS EQUIPPED WITH ANALOG OUTPUT CARD.

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

LECHEE SCHEMATIC/CONNECTION DIAGRAMS
AND CONDUIT BLOCK DIAGRAM



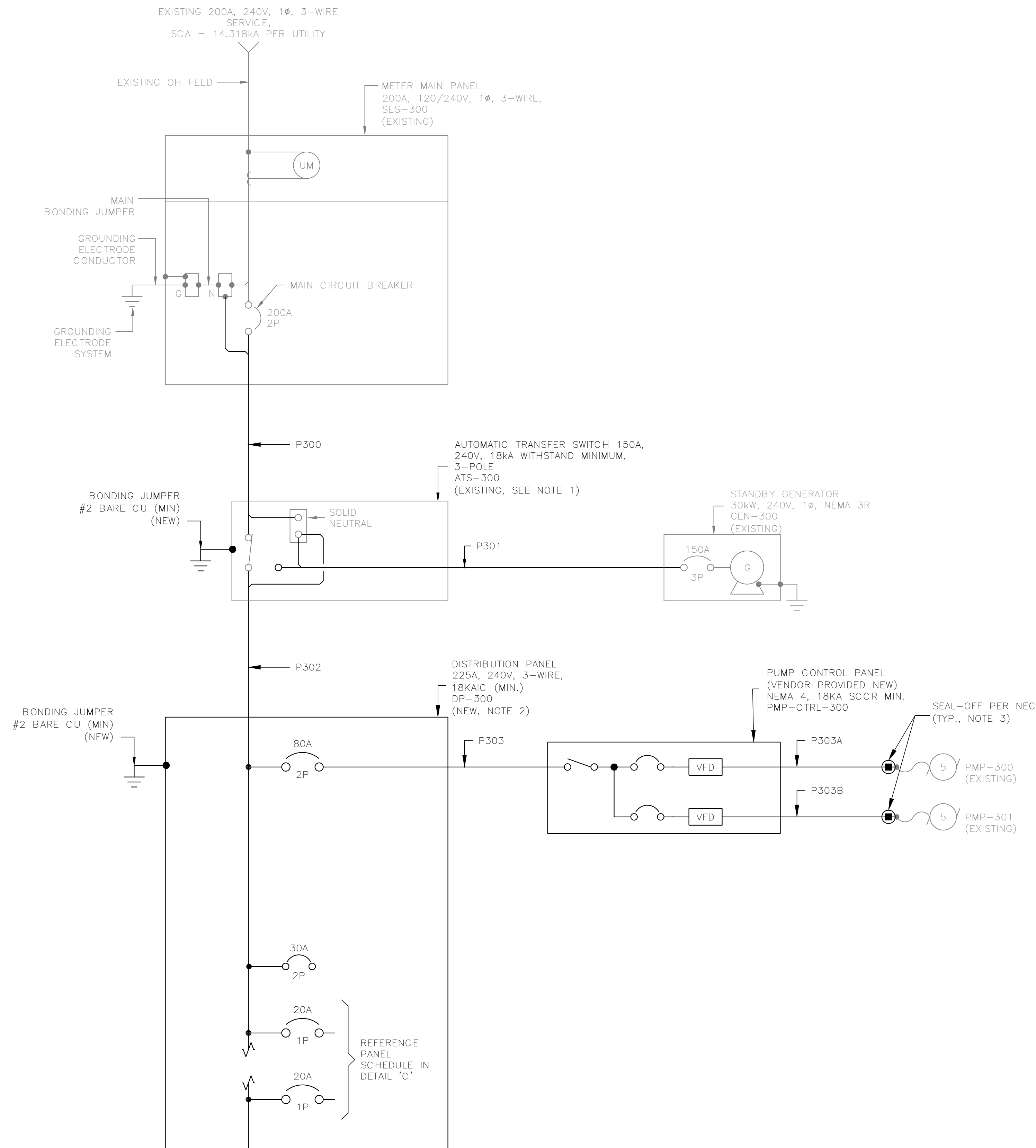
Design by: AGA

Date _____

11/24/20

Project No.
2144

Sheet No.
F-09

 SINGLE LINE DIAGRAM

NOTES:

1. CONTRACTOR SHALL REUSE AND RELOCATE ATS-300. PROVIDE NEW CONDUIT AND CABLE CONNECTIONS TO ATS FROM SES-300 AND GEN-300. FOR RELOCATION INFORMATION SEE DWG E-12.
2. PROVIDE SQUARE D, OR EQUAL, PANELBOARD RATED AS SHOWN ON DRAWING. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
3. PROVIDE CROUSE-HINDS SEAL-OFF AND CHICO SEALING COMPOUND.

CALLOUT NO.	NO. SETS	CONDUIT SIZE	CIRCUIT CONDUCTORS	CIRCUIT NO.'s
P300	1	2"	2 - #3/0, #3/0 NEUT, #6 GND	ATS300-P1
P301	1	1 1/2"	2 - #1/0, #1/0 NEUT, #6 GND	GEN300-P1
P302	1	2"	2 - #4/0, #4/0 NEUT, #6 GND	DP300-P1
P303	1	1"	2 - #4, #4 NEUT, #8 GND	PMPCTRL300-P1
P303A	1	1"	3 - #12, #12 GND	PMP300-P1
P303B	1	1"	3 - #12, #12 GND	PMP301-P1

 CALLOUT SCHEDULE

PANEL TAG No.		DP-300		NEMA TYPE/MOUNTING 4/SURFACE									
LOCATION		ELECTRICAL EQUIPMENT PAD		MAIN DEVICE MLO									
BUS AMPACITY		225A		AIC RATING 18k (MIN)									
VOLTS, PHASE, WIRE		240 V/1-PHASE/3-WIRE		FED FROM ATS-300									
REMARKS				ACCESSORIES									

LOAD VA											LOAD VA		
PHASE A	PHASE B	LOAD DESCRIPTION	WIRE SIZE	DEMAND	BKR	BKR. NO.	BKR	DEMAND	WIRE SIZE	LOAD DESCRIPTION	PHASE A	PHASE B	
200		SITE LTG	#12	1.25	20/1	1 2	20/1	1.25	#12	RTU-300	200		
	1500	GEN-300 BLOCK HTR	#12	1.25	20/1	3 4		1.25	#2	PMP-CTRL-300		7400	
600		GEN-300 BATTERY CHARGER	#12	1.25	20/1	5 6	80/2	1.25	#2	PMP-CTRL-300	7400		
	180	RECEPTACLE	#12	1.00	20/1	7 8	30/2			SPARE		0	
0		SPARE			20/1	9 10				SPARE	0		
	0	SPARE			20/1	11 12	20/1			SPARE		0	
0		SPARE			20/1	13 14	20/1			SPARE	0		
	0	SPARE			20/1	15 16	20/1			SPARE		0	
0		SPACE				17 18				SPACE	0		
	0	SPACE				19 20				SPACE		0	
800	1680	CONNECTED VA								CONNECTED VA	7600	7400	
1000	2055	DEMAND VA								DEMAND VA	9500	9250	

* - Each branch circuit shall have an equipment grounding conductor sized per N.E.C. Article 250	VA	AMPS	TOTAL CONNECTED VA - PER PHASE	8400	9080	
	TOTAL PANEL CONNECTED LOAD	17480	72.83	TOTAL DEMAND VA - PER PHASE	10500	11305
	TOTAL PANEL DEMAND LOAD	21805	90.85	TOTAL DEMAND PHASE AMPS	87.5	94.2
	PANEL DEMAND FACTOR	125%				

SITE LOAD CALC

C DP-300 PANEL SCHEDULE

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SHEET NO.	CIRCUIT	CONDUCTORS
E-13	ANT300-C1	1 - ANTENNA CABLE
E-13	PMPCTRL300-C1	34 - #14, #14 GND
E-13	PMPCTRL300-C2	1 - MODBUS CABLE
E-13	LIT301-C2	1 - IC, #14 GND
E-13	ATS300-C1	4 - #14, #14 GND
E-13	GEN300-C1	6 - #14, #14 GND
E-13	TSH302-C1	2 - #14, #14 GND
E-13	YS302-C1	2 - #14, #14 GND
E-13	TSH303-C1	2 - #14, #14 GND
E-13	YS303-C1	2 - #14, #14 GND
E-13	LSL301-C1	2 - #14, #14 GND
E-13	LSH301-C1	2 - #14, #14 GND
E-13	LSHH301-C1	2 - #14, #14 GND
E-13	LIT301-C1	1 - IC, #14 GND
E-13	GEN300-C2	2 - #14, #14 GND

A
~
CIRCUIT SCHEDULE

LIGHTING FIXTURE SCHEDULE			
SYMBOL	DESCRIPTION	MOUNTING	MANUFACTURER
	120V, 4' LED FIXTURE, NARROW LENSED STRIPLIGHT, UL LISTED FOR DAMP LOCATIONS.	SURFACE/ PENDANT	EATON METALUX SNLED LENSED LED OR EQUAL

B
~
LIGHTING FIXTURE SCHEDULE

NAVAGO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

SAWMILL
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11/24/20
Arizona U.S.A.
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Design by: AGA

Approved by: BDD

Date
11/24/20

Project No.
2144

Sheet No.
E - 11

No.

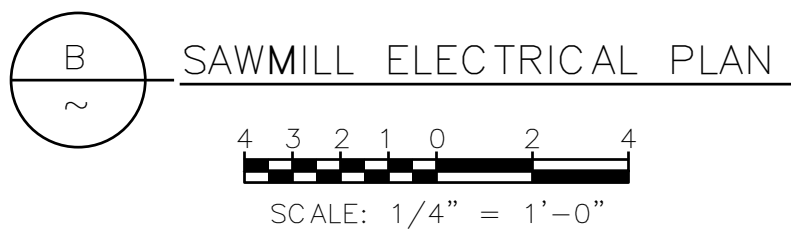
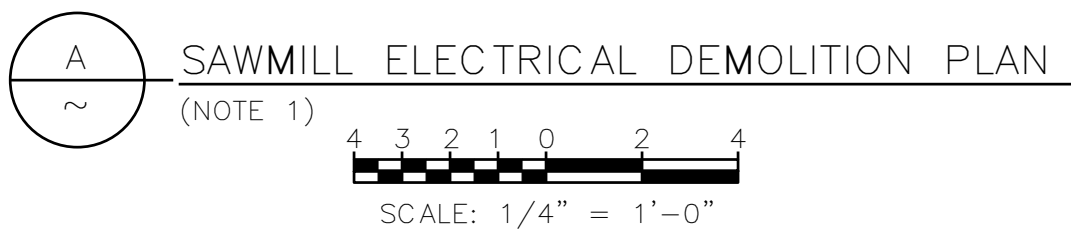
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1. DEMOLISHED EQUIPMENT INCLUDING WIRE AND CONDUIT SHALL BE EITHER RETURNED TO OWNER OR PROPERLY DISPOSED OF AS DIRECTED BY OWNER.
2. DEMO EXISTING UNDERGROUND CONDUIT FEEDING EQUIPMENT TO BE DEMOED OR RELOCATED.
3. CONTRACTOR SHALL REUSE AND RELOCATE EXISTING AUTOMATIC TRANSFER SWITCH TO LOCATION SHOWN ON DRAWING.
4. REFER TO CONDUIT BLOCK DIAGRAM ON SHEET E-13 FOR SYSTEM CONDUIT INFORMATION/REQUIREMENTS (I.E. TO/FROM INFO, SIZES, TAG#S, CONTENTS ETC.).
5. CONTRACTOR SHALL ENSURE PROPER GENERATOR FUNCTIONALITY VIA INSPECTION AND NECESSARY REPAIRS.
6. PROVIDE 1" CONDUIT STUB UP, CAPPED AND FLUSH AT FINISHED FLOOR LEVEL FOR FUTURE USE BY OWNER.
7. ALL INSTALLATIONS WITHIN WETWELL SHALL BE CLASS 1, DIVISION 1 COMPLIANT AND SHALL COMPLY WITH ALL REQUIREMENTS FOR CLASSIFIED AREAS AS DEFINED IN ARTICLE 500 OF THE NATIONAL ELECTRICAL CODE.

[illegible]

**DELTA
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Approved by:	BDD
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Project No.	2144
Sheet No.	E-12



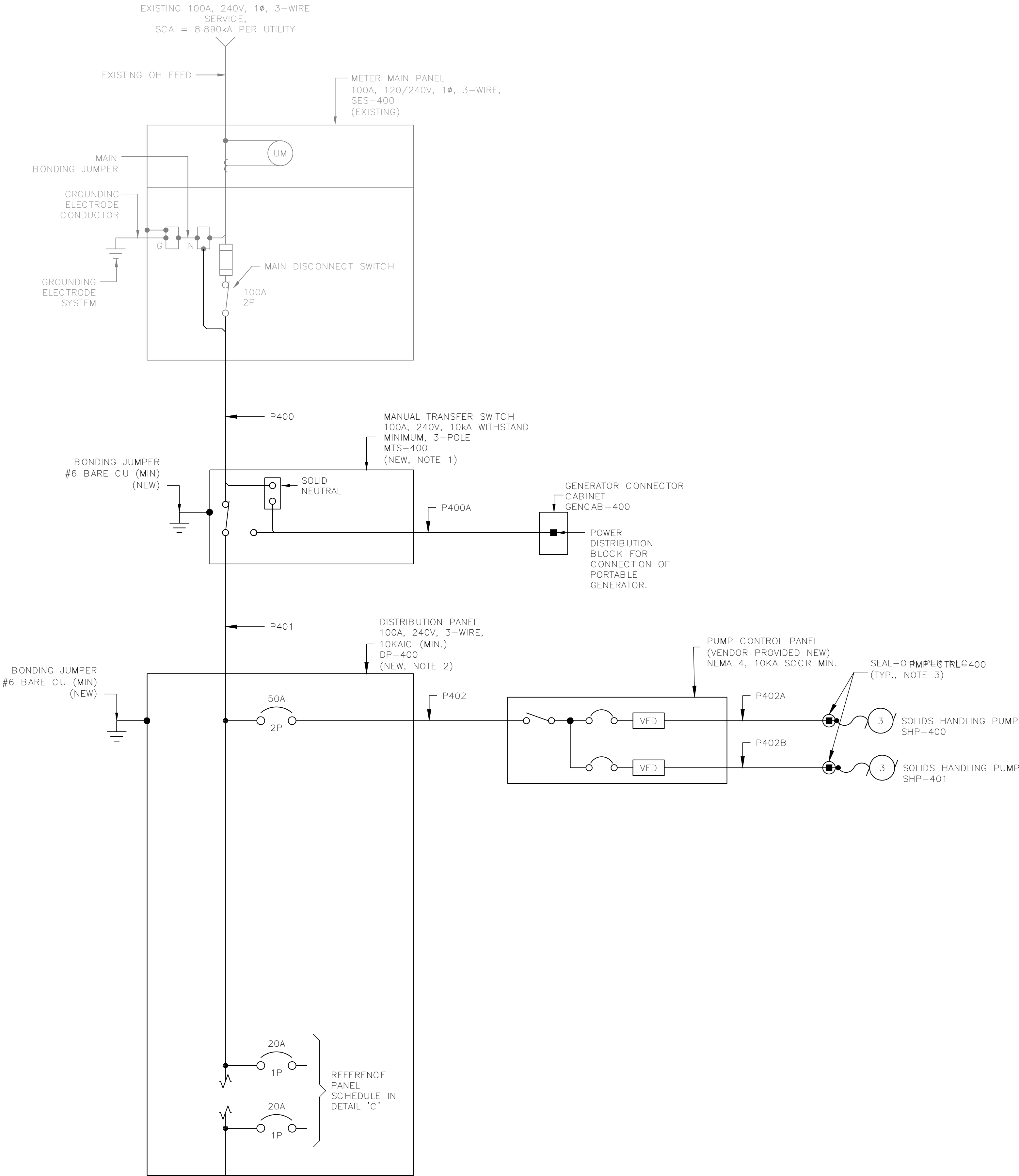
1. REFERENCE E-11 FOR CIRCUIT SCHEDULE.
2. CONTRACTOR SHALL UTILIZE NTUA STANDARD PUMP STATION PLC CONTROL PANEL DESIGN AS A TEMPLATE TO DEVELOP DESIGN FOR NEW RTU CABINET. ENSURE RTU IS EQUIPPED WITH ANALOG OUTPUT CARD.

C 100 1" ← CONDUIT NUMBER & SIZE
LP100-4 ← CIRCUIT NUMBER(S)



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NAVAJO TRIBAL UTILITY AUTHORITY DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES SAWMILL SCHEMATIC/CONNECTION DIAGRAMS AND CONDUIT BLOCK DIAGRAM	
 DELTA SYSTEMS AN NCS ENGINEERS COMPANY	
 NCS Engineers 202 E. Earll Drive Suite 110 Phoenix, AZ 85012 Phone (602)629-0206 www.ncseng.com	
	
Drawn by:	AGA
Design by:	AGA
Approved by:	BDD
Date	11/24/20
Project No.	2144
Sheet No.	E-13

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A SINGLE LINE DIAGRAM

NOTES:

1. PROVIDE SQUARE D, OR EQUIVALENT, DOUBLE THROW MANUAL TRANSFER SWITCH WITH NEMA 3R, PAD-LOCKABLE ENCLOSURE.. SEE DWG E-16 FOR LOCATION.
2. PROVIDE SQUARE D, OR EQUAL, PANELBOARD RATED AS SHOWN ON DRAWING. PROVIDE SHOP DRAWING SUBMITTAL FOR APPROVAL BY ENGINEER.
3. PROVIDE CROUSE-HINDS SEAL-OFF AND CHICO SEALING COMPOUND.

CALLOUT NO.	NO. SETS	CONDUIT SIZE	CIRCUIT CONDUCTORS	CIRCUIT NO.'s
P400	1	1 1/2"	2 - #1, #1 NEUT, #6 GND	MTS400-P1
P400A	1	1 1/2"	2 - #1, #1 NEUT, #4 GND	GENCAB400-P1
P401	1	1 1/2"	2 - #1, #1 NEUT, #6 GND	DP400-P1
P402	1	1"	2 - #8, #8 NEUT, #10 GND	PMPCTRL400-P1
P402A	1	1"	3 - #12, #12 GND	PMP400-P1
P402B	1	1"	3 - #12, #12 GND	PMP401-P1

B CALLOUT SCHEDULE

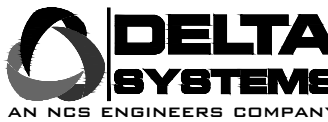
PANEL TAG No. DP-400				NEMA TYPE/MOUNTING 4/SURFACE									
LOCATION ELECTRICAL EQUIPMENT PAD				MAIN DEVICE MLO									
BUS AMPACITY 100A				AIC RATING 18k (MIN)									
VOLTS, PHASE, WIRE 240 V/1-PHASE/3-WIRE				FED FROM ATS-400									
REMARKS				ACCESSORIES									
LOAD VA												LOAD VA	
PHASE A	PHASE B	LOAD DESCRIPTION	WIRE SIZE	DEMAND	BKR	BKR. NO.	BKR	DEMAND	WIRE SIZE	LOAD DESCRIPTION	PHASE A	PHASE B	
200		SITE LTG	#12	1.25	20/1	1 2	20/1	1.25	#12	RTU-400	200		
	0	SPARE			20/1	3 4	50/2	1.25	#6	PMP-CTRL-400		4590	
0		SPARE			20/1	5 6		1.25	#6	PMP-CTRL-400	4590		
	180	RECEPTACLE	#12	1.00	20/1	7 8	30/2			SPARE		2040	
0		SPARE			20/1	9 10				SPARE	2040		
	0	SPARE			20/1	11 12	20/1			SPARE		0	
0		SPARE			20/1	13 14	20/1			SPARE	0		
	0	SPARE			20/1	15 16	20/1			SPARE		0	
0		SPACE				17 18				SPACE	0		
	0	SPACE				19 20				SPACE		0	
200	180	CONNECTED VA								CONNECTED VA	6830	6630	
250	180	DEMAND VA								DEMAND VA	5988	5738	
* - Each branch circuit shall have an equipment grounding conductor sized per N.E.C. Article 250				VA		AMPS		TOTAL CONNECTED VA - PER PHASE				7030	6810
TOTAL PANEL CONNECTED LOAD				13840		57.67		TOTAL DEMAND VA - PER PHASE				6238	5918
TOTAL PANEL DEMAND LOAD				12155		50.65		TOTAL DEMAND PHASE AMPS				52.0	49.3
PANEL DEMAND FACTOR				88%									

C DP-400 PANEL SCHEDULE

SITE LOAD CALC

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
COYOTE CANYON SINGLE LINE DIAGRAM
AND LOAD CALCULATIONS



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Design by: AGA

Approved by: BDD

Date: 11/24/20

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Sheet No. E-14

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SHEET NO.	CIRCUIT	CONDUCTORS
E-17	ANT400-C1	1 - ANTENNA CABLE
E-17	PMPCTRL400-C1	34 - #14, #14 GND
E-17	PMPCTRL400-C2	1 - MODBUS CABLE
E-17	LIT401-C2	1 - IC, #14 GND
E-17	MTS400-C1	4 - #14, #14 GND
E-17	TSH402-C1	2 - #14, #14 GND
E-17	YS402-C1	2 - #14, #14 GND
E-17	TSH403-C1	2 - #14, #14 GND
E-17	YS403-C1	2 - #14, #14 GND
E-17	LSL401-C1	2 - #14, #14 GND
E-17	LSH401-C1	2 - #14, #14 GND
E-17	LSHH401-C1	2 - #14, #14 GND
E-17	LIT401-C1	1 - IC, #14 GND



LIGHTING FIXTURE SCHEDULE			
SYMBOL	DESCRIPTION	MOUNTING	MANUFACTURER
	120V, 4' LED FIXTURE, NARROW LENSED STRIPLIGHT, UL LISTED FOR DAMP LOCATIONS.	SURFACE/ PENDANT	EATON METALUX SNLED LENSED LED OR EQUAL



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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

COYOTE CANYON
ELECTRICAL SCHEDULES



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Design by: AGA

Approved by: BDD

Date

11/24/20

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Sheet No.

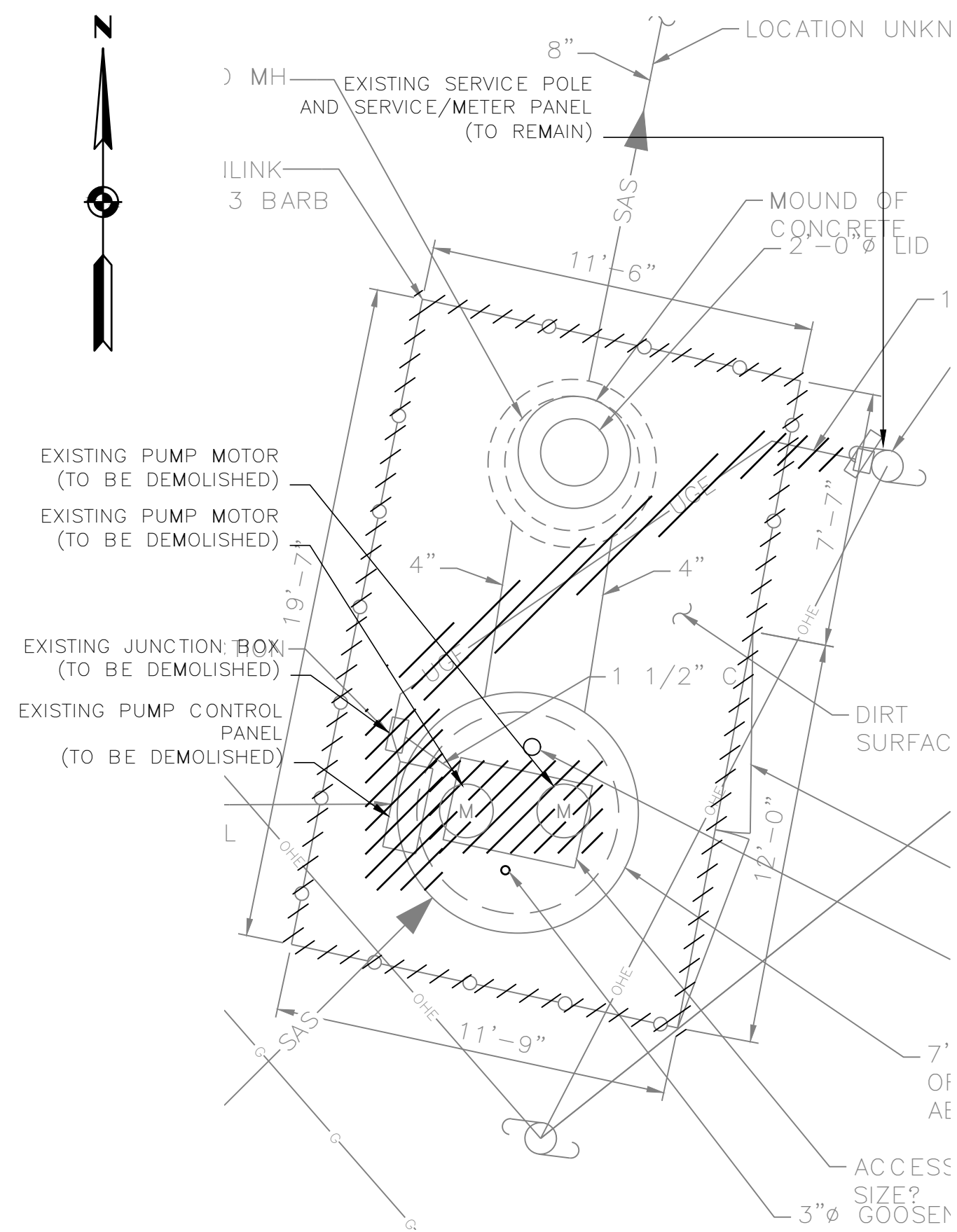
E-15

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES**

COYOTE CANYON DEMOLITION AND SITE IMPROVEMENT PLANS



Two working days before you dig,
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1-800-782-5348
 Blue Stakes Center





1. REFERENCE E-15 FOR CIRCUIT SCHEDULE.
2. CONTRACTOR SHALL UTILIZE NTUA STANDARD PUMP STATION PLC CONTROL PANEL DESIGN AS A TEMPLATE TO DEVELOP DESIGN FOR NEW RTU CABINET. ENSURE RTU IS EQUIPPED WITH ANALOG OUTPUT CARD.



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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

COYOTE CANYON SCHEMATIC/CONNECTION
DIAGRAMS AND CONDUIT BLOCK DIAGRAM



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Sheet No.
E-17

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SHEET NO.	CIRCUIT	CONDUCTORS
E-21	ANT500-C1	1 - ANTENNA CABLE
E-21	PMPCTRL500-C1	34 - #14, #14 GND
E-21	PMPCTRL500-C2	1 - MODBUS CABLE
E-21	LIT501-C2	1 - IC, #14 GND
E-21	ATS500-C1	4 - #14, #14 GND
E-21	GEN500-C1	6 - #14, #14 GND
E-21	TSH502-C1	2 - #14, #14 GND
E-21	YS502-C1	2 - #14, #14 GND
E-21	TSH503-C1	2 - #14, #14 GND
E-21	YS503-C1	2 - #14, #14 GND
E-21	LSL501-C1	2 - #14, #14 GND
E-21	LSH501-C1	2 - #14, #14 GND
E-21	LSHH501-C1	2 - #14, #14 GND
E-21	LIT501-C1	1 - IC, #14 GND
E-21	GEN500-C2	2 - #14, #14 GND



LIGHTING FIXTURE SCHEDULE			
SYMBOL	DESCRIPTION	MOUNTING	MANUFACTURER
	120V, 4" LED FIXTURE, NARROW LENSED STRIPLIGHT, UL LISTED FOR DAMP LOCATIONS.	SURFACE/ PENDANT	EATON METALUX SNLED LENSED LED OR EQUAL



NAVajo TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

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11/24/20

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2144

Sheet No.
E-19

No.

Revision

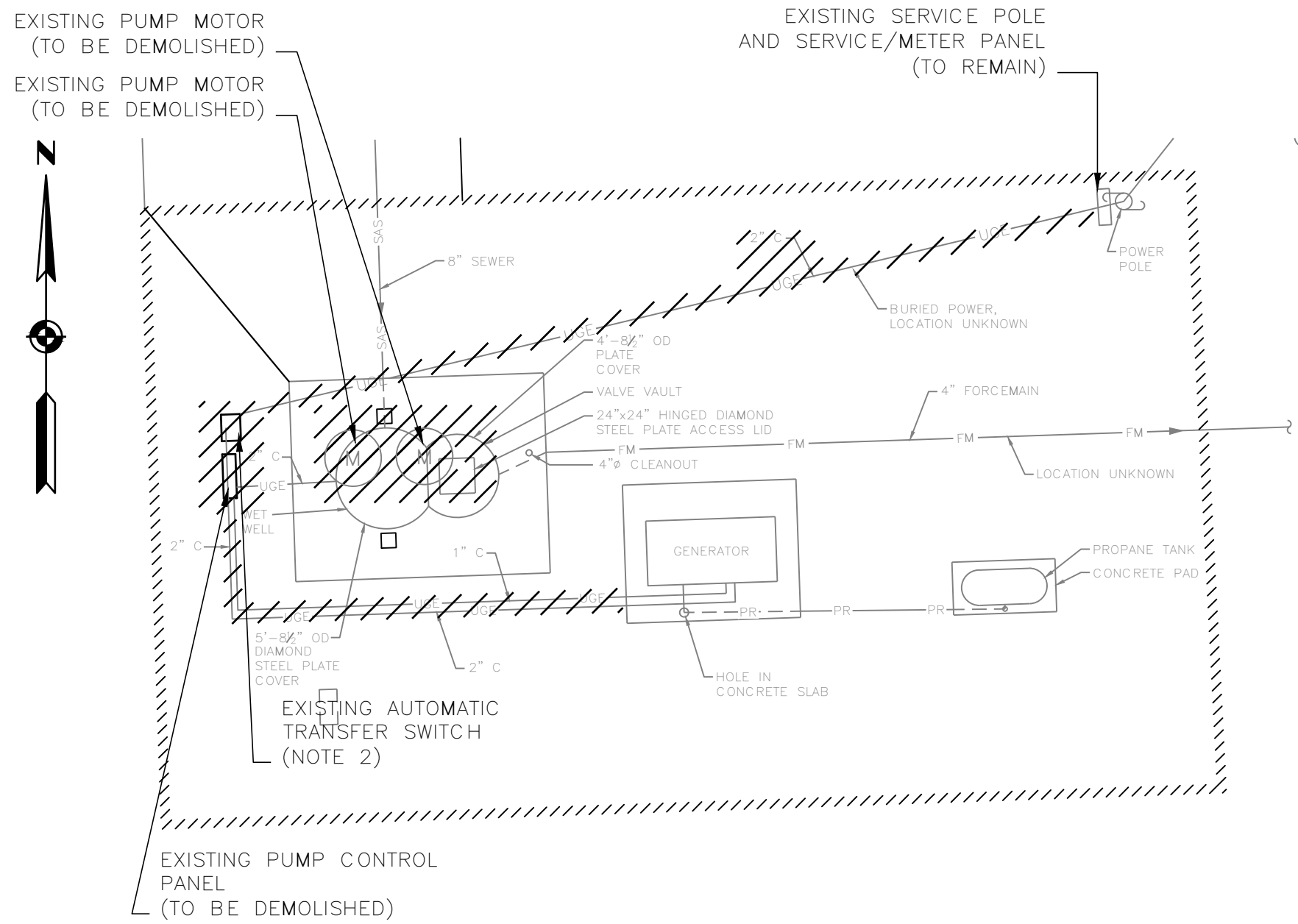
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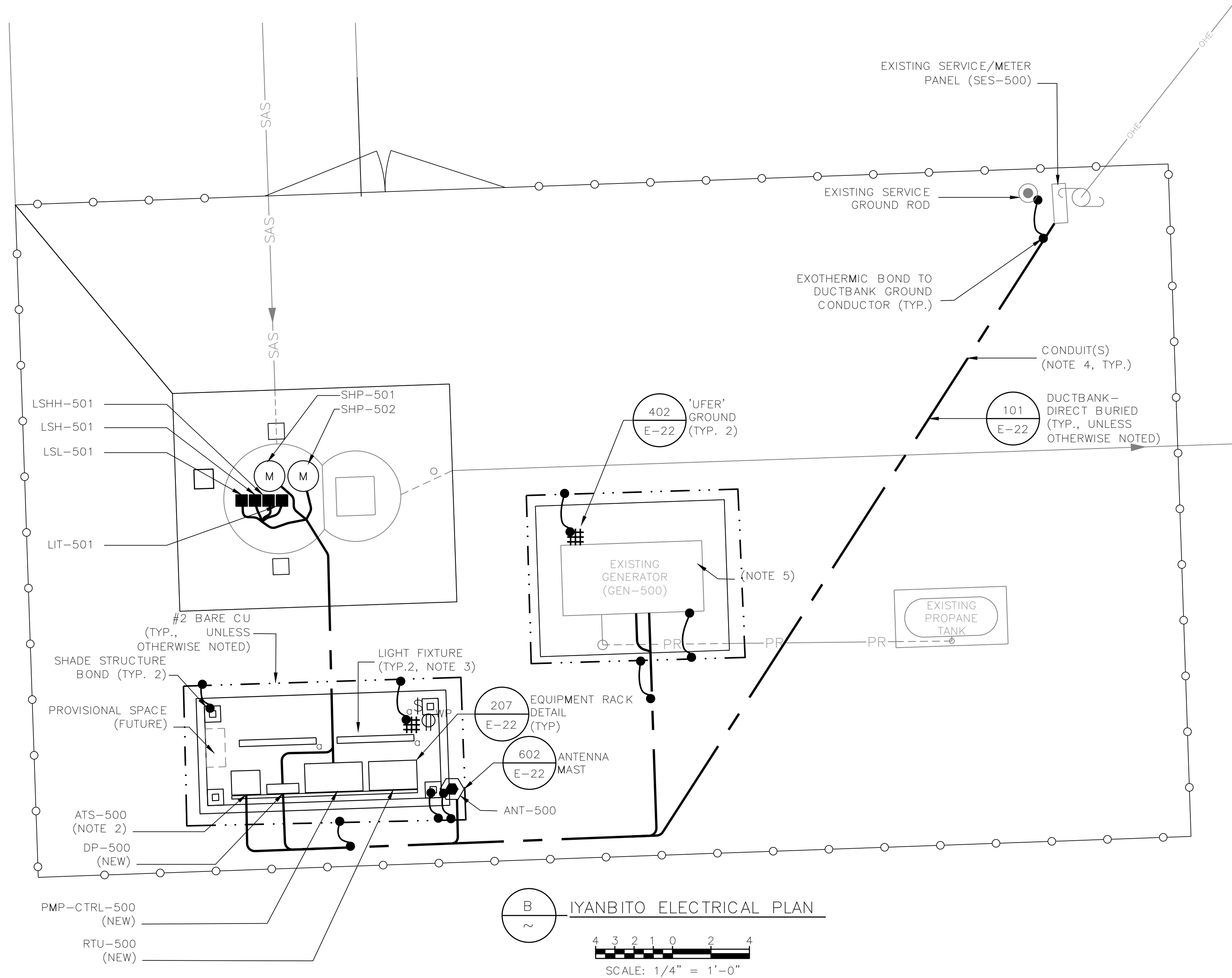
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A IYANBITO ELECTRICAL DEMOLITION PLAN
(NOTE 1)
SCALE: 1/8" = 1'-0"

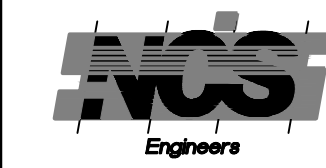


B IYANBITO ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

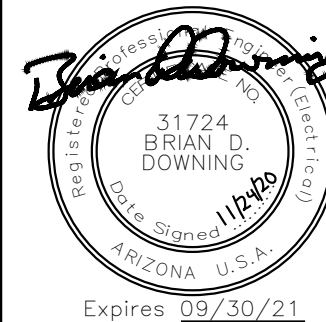
NOTES:

1. DEMOLISHED EQUIPMENT INCLUDING WIRE AND CONDUIT SHALL BE EITHER RETURNED TO OWNER OR PROPERLY DISPOSED OF AS DIRECTED BY OWNER.
2. CONTRACTOR SHALL REUSE AND RELOCATE EXISTING AUTOMATIC TRANSFER SWITCH TO LOCATION SHOWN ON DRAWING.
3. REFER TO FIXTURE SCHEDULE ON SHEET E-19 FOR FIXTURE REQUIREMENTS.
4. REFER TO CONDUIT BLOCK DIAGRAM ON SHEET E-21 FOR SYSTEM CONDUIT INFORMATION/REQUIREMENTS (I.E. TO/FROM INFO, SIZES, TAG#'S, CONTENTS ETC.).
5. CONTRACTOR SHALL ENSURE PROPER FUNCTIONALITY OF EXISTING GENERATOR VIA NECESSARY INSPECTION AND REPAIR.
6. ALL INSTALLATIONS WITHIN WETWELL SHALL BE CLASS 1, DIVISION 1 COMPLIANT AND SHALL COMPLY WITH ALL REQUIREMENTS FOR CLASSIFIED AREAS AS DEFINED IN ARTICLE 500 OF THE NATIONAL ELECTRICAL CODE.

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
IYANBITO - DEMOLITION AND
SITE IMPROVEMENTS PLANS



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11/24/20

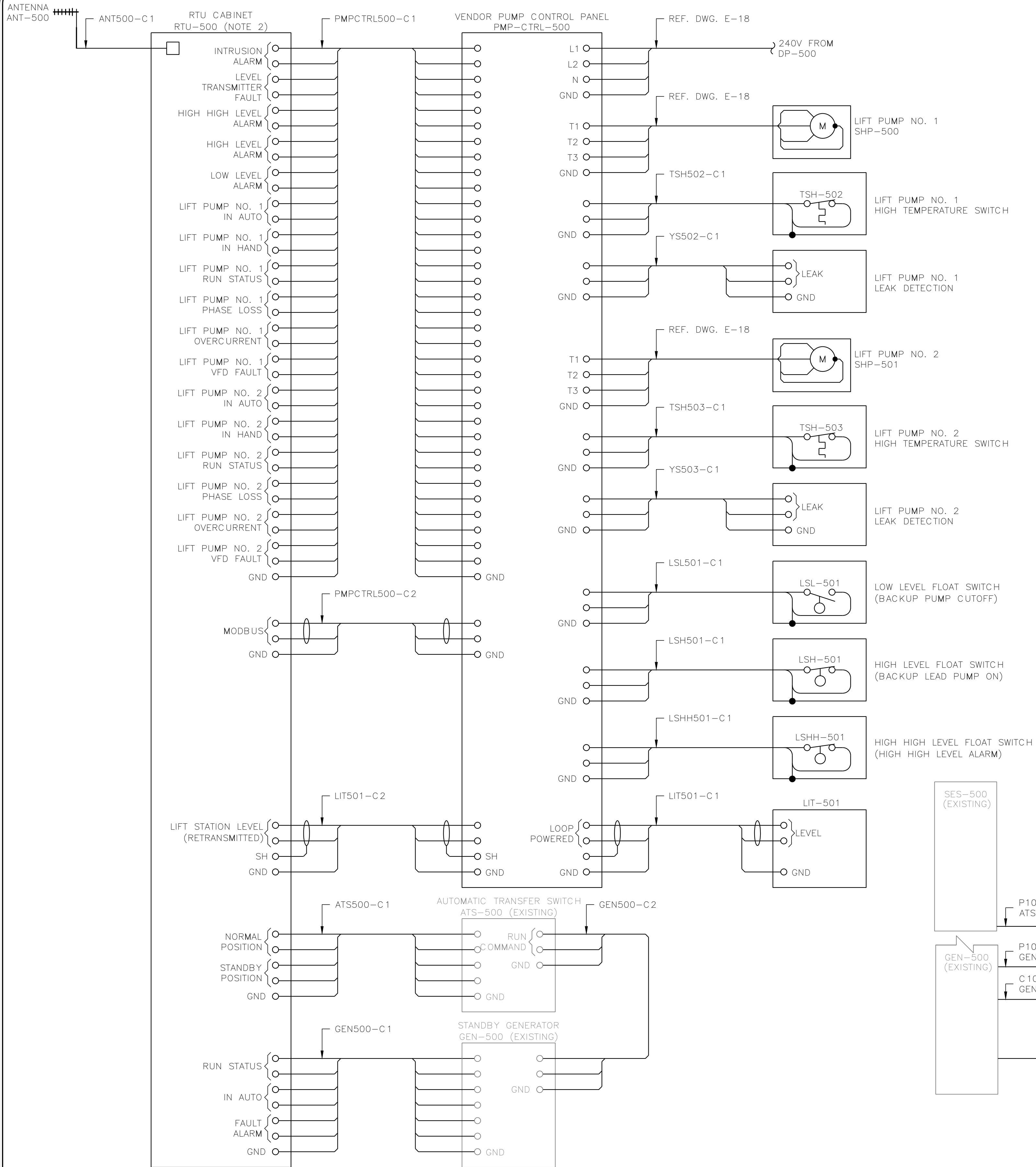
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2144

Sheet No.
E-20

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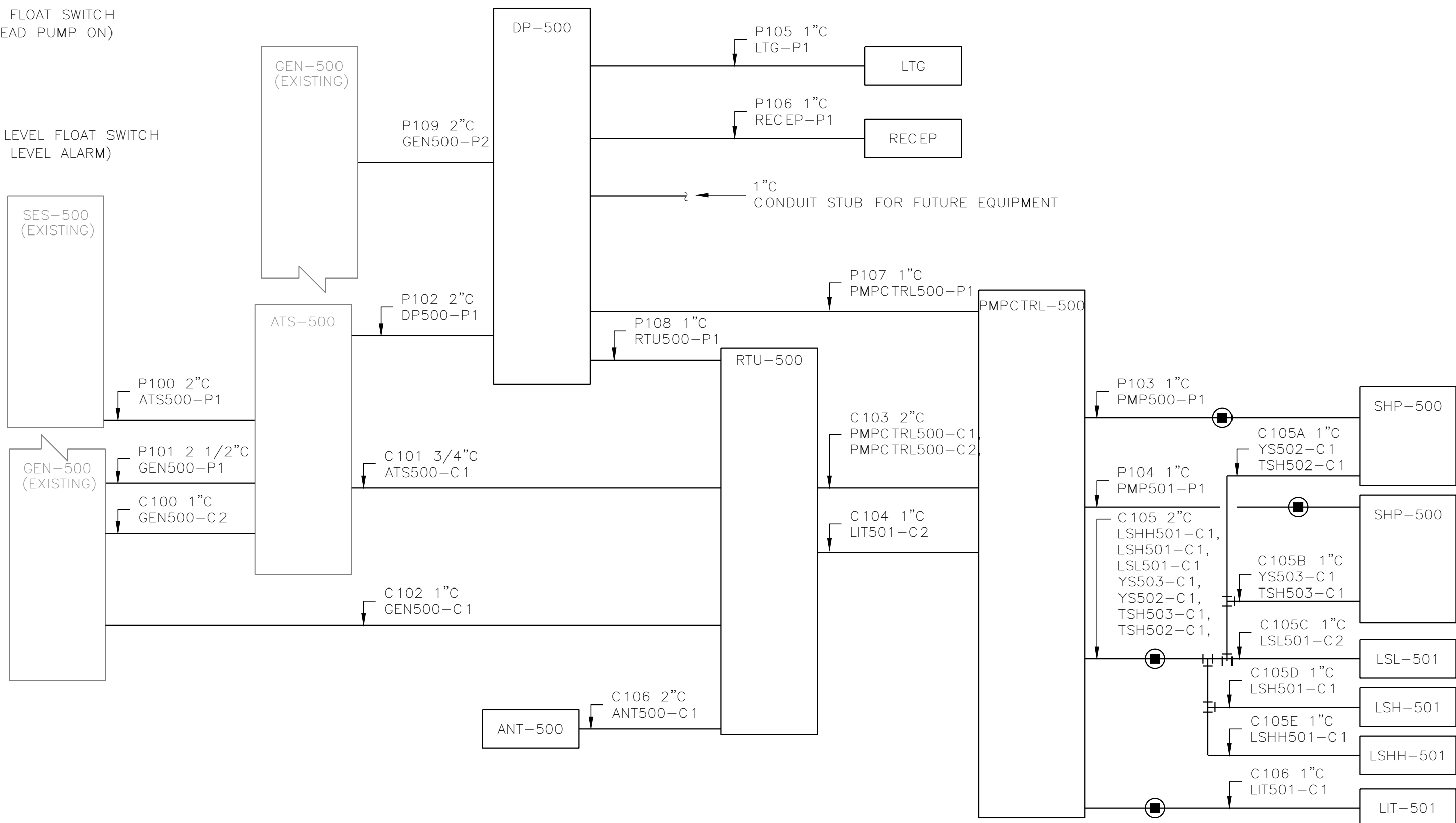
A IYANBITO CONNECTION DIAGRAM

NOTES:

- REFERENCE E-19 FOR CIRCUIT SCHEDULE.
- CONTRACTOR SHALL UTILIZE NTUA STANDARD PUMP STATION PLC CONTROL PANEL DESIGN AS A TEMPLATE TO DEVELOP DESIGN FOR NEW RTU CABINET. ENSURE RTU IS EQUIPPED WITH ANALOG OUTPUT CARD.

LEGEND:

C100 1" CONDUIT NUMBER & SIZE
LP100-4 CIRCUIT NUMBER(S)



B IYANBITO CONDUIT BLOCK DIAGRAM

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
IYANBITO SCHEMATIC/CONNECTION DIAGRAMS
AND CONDUIT BLOCK DIAGRAM



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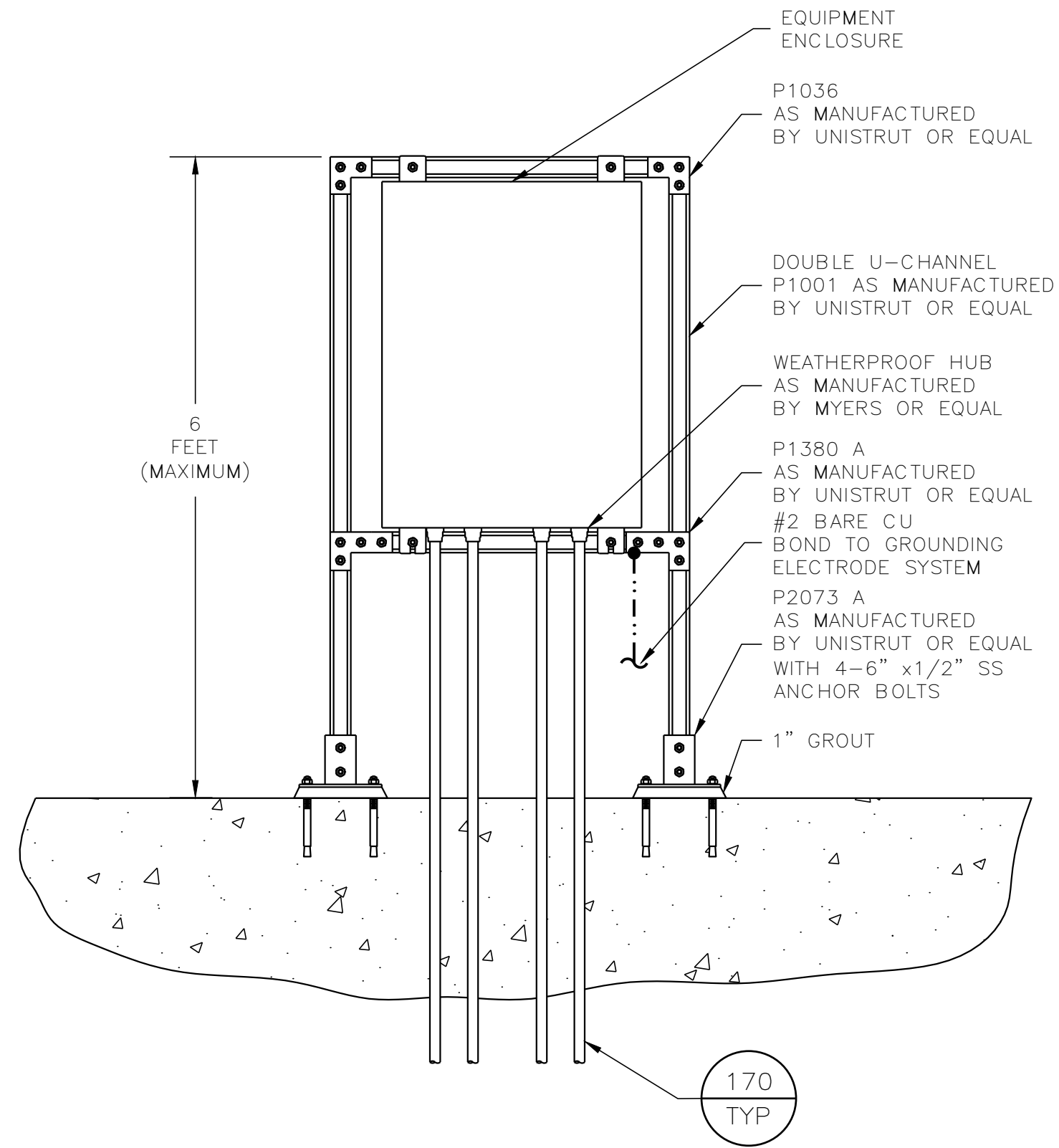
Project No.

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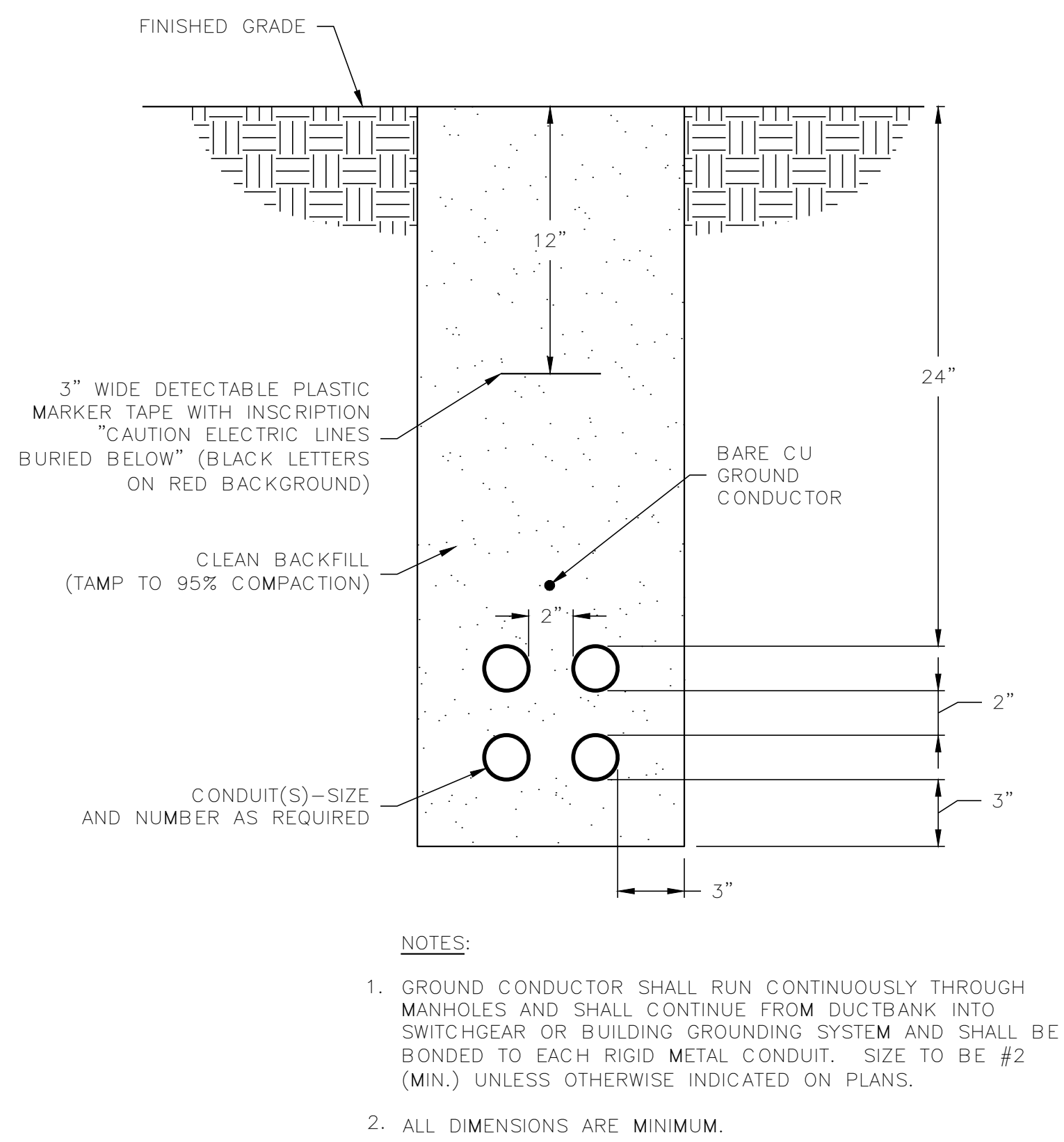
Sheet No.

E-21

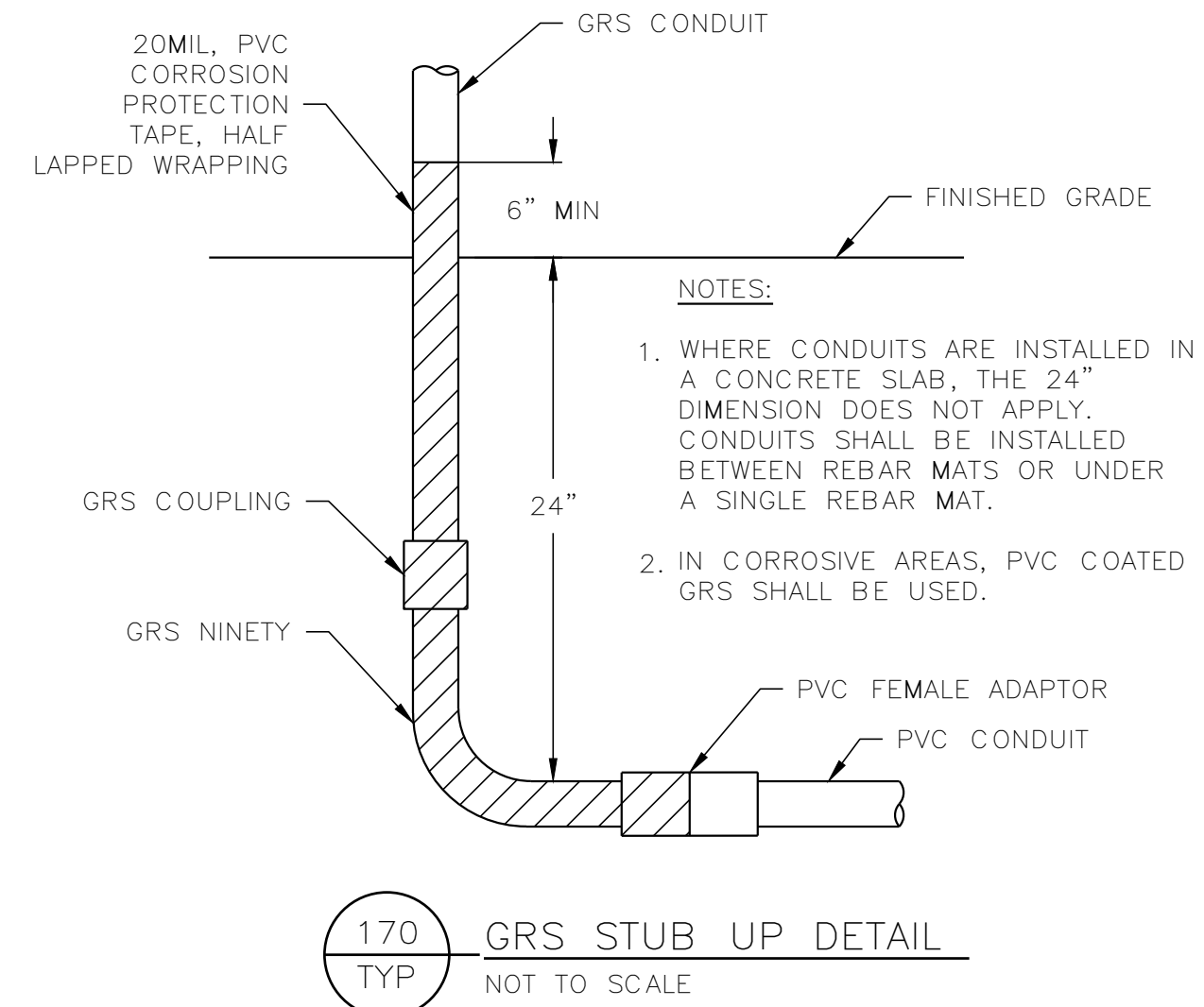
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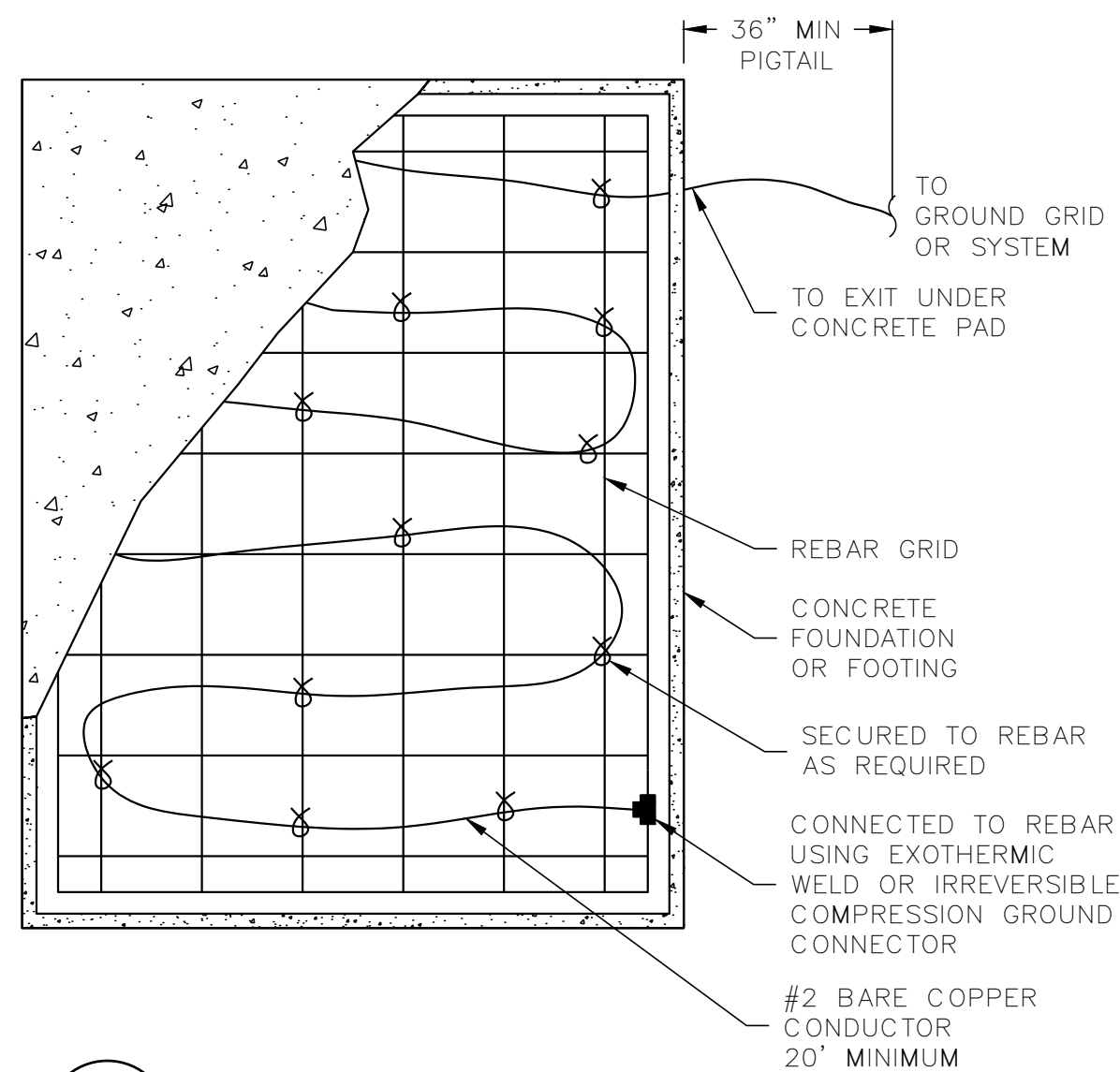
207
TYP EQUIPMENT RACK DETAIL - NON-CLASSIFIED AREAS
NOT TO SCALE



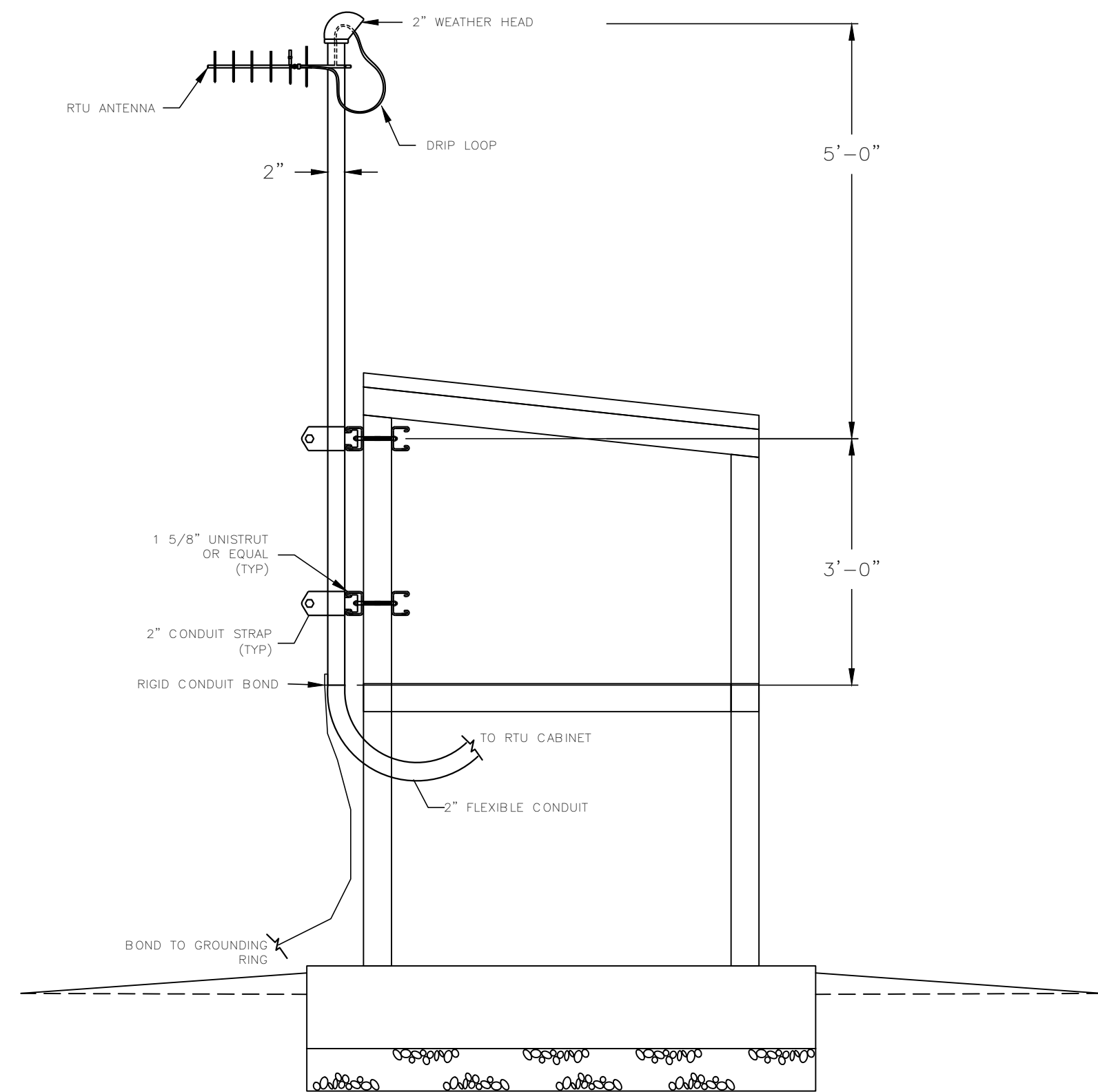
101
TYP DUCTBANK - DIRECT BURIED
NOT TO SCALE



170
TYP GRS STUB UP DETAIL
NOT TO SCALE



402
TYP "UFER" GROUNDING DETAIL
NOT TO SCALE



602
TYP ANTENNA POLE MOUNTING
NOT TO SCALE

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

ELECTRICAL DETAILS SHEET 1

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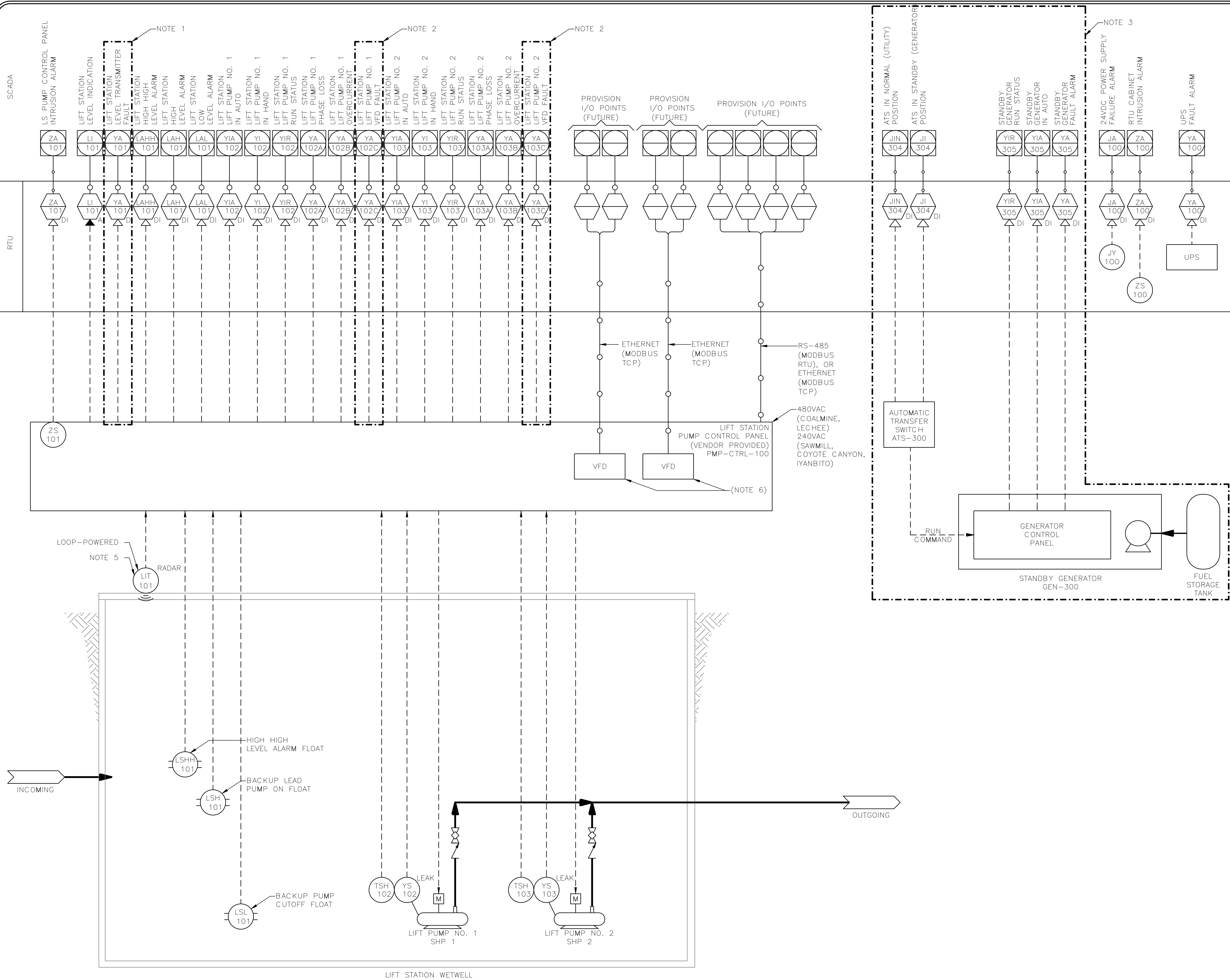
Sheet No.

E-22

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

PROCESS AND INSTRUMENTATION DIAGRAM
SYMBOLS AND LEGEND

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NOTES:

1. LEVEL TRANSMITTER FAULT SHALL BE MONITORED IF AVAILABLE FROM LEVEL TRANSMITTER.
2. VFD FAULT ONLY APPLICABLE AT SINGLE PHASE SITES (SAWMILL, COYOTE CANYON, AND IYANBITO) WHERE VARIABLE FREQUENCY DRIVES WILL BE INCORPORATED IN PUMP CONTROL PANELS TO DERIVE THREE PHASE POWER FOR LIFT PUMPS.
3. NEW GENERATOR AND ASSOCIATED AUTOMATIC TRANSFER SWITCH (ATS) SHALL BE INSTALLED AT THE FOLLOWING SITE: LECHEE. EXISTING GENERATORS AND ASSOCIATED ATS'S SHALL BE RE-UTILIZED. STATUSES AND ALARMS SHOWN ON THIS P&ID SHALL BE MONITORED FOR ALL NEW GENERATORS AND ATS. ANY OF THESE POINTS THAT ARE AVAILABLE FOR MONITORING IN ASSOCIATION WITH EXISTING GENERATORS AND ASSOCIATED ATS'S SHALL ALSO BE MONITORED.
4. THE '100' SERIES INSTRUMENT TAG #'S SHOWN ON THIS DRAWING ARE FOR THE COAL MINE SITE. THE FOLLOWING SERIES #'S WILL BE UTILIZED FOR OTHER SITES: LECHEE - '200' SERIES, SAWMILL - '300' SERIES, COYOTE CANYON - '400' SERIES, IYANBITO - '500' SERIES (I.E. TAG # FOR LEVEL TRANSMITTER AT SAWMILL SITE WOULD BE 'LIT-301').
5. RADAR LEVEL TRANSMITTER SHALL BE: LOOP POWERED, HAVE A 4-20mA OUTPUT, HAVE A MINIMUM MEASUREMENT RANGE OF 66FT., ACCURACY OF UP TO +/- .08IN., AND BE EQUIPPED WITH BOTH FRONT AND REAR THREADS TO ALLOW WALL OR CEILING MOUNTING. TRANSMITTER SHALL BE AN ENDRESS + HAUSER MICROPILOT FMR20 OR APPROVED EQUAL.
6. VFD ARE APPLICABLE TO 240V SITES ONLY.

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DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

TYPICAL PROCESS AND
INSTRUMENTATION DIAGRAM



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I-02