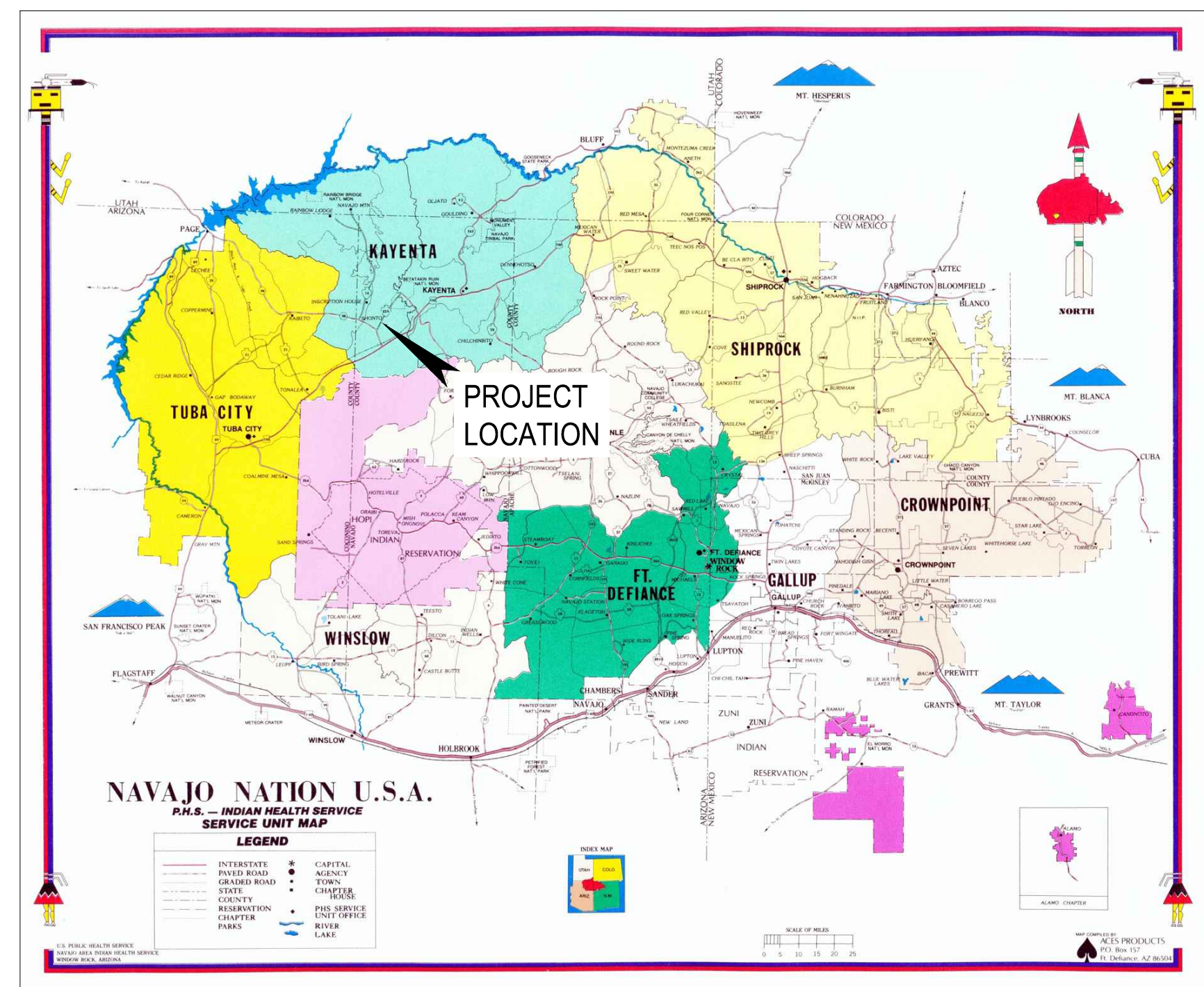


REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

SHONTO CHAPTER, NAVAJO COUNTY, ARIZONA
OCTOBER 2020

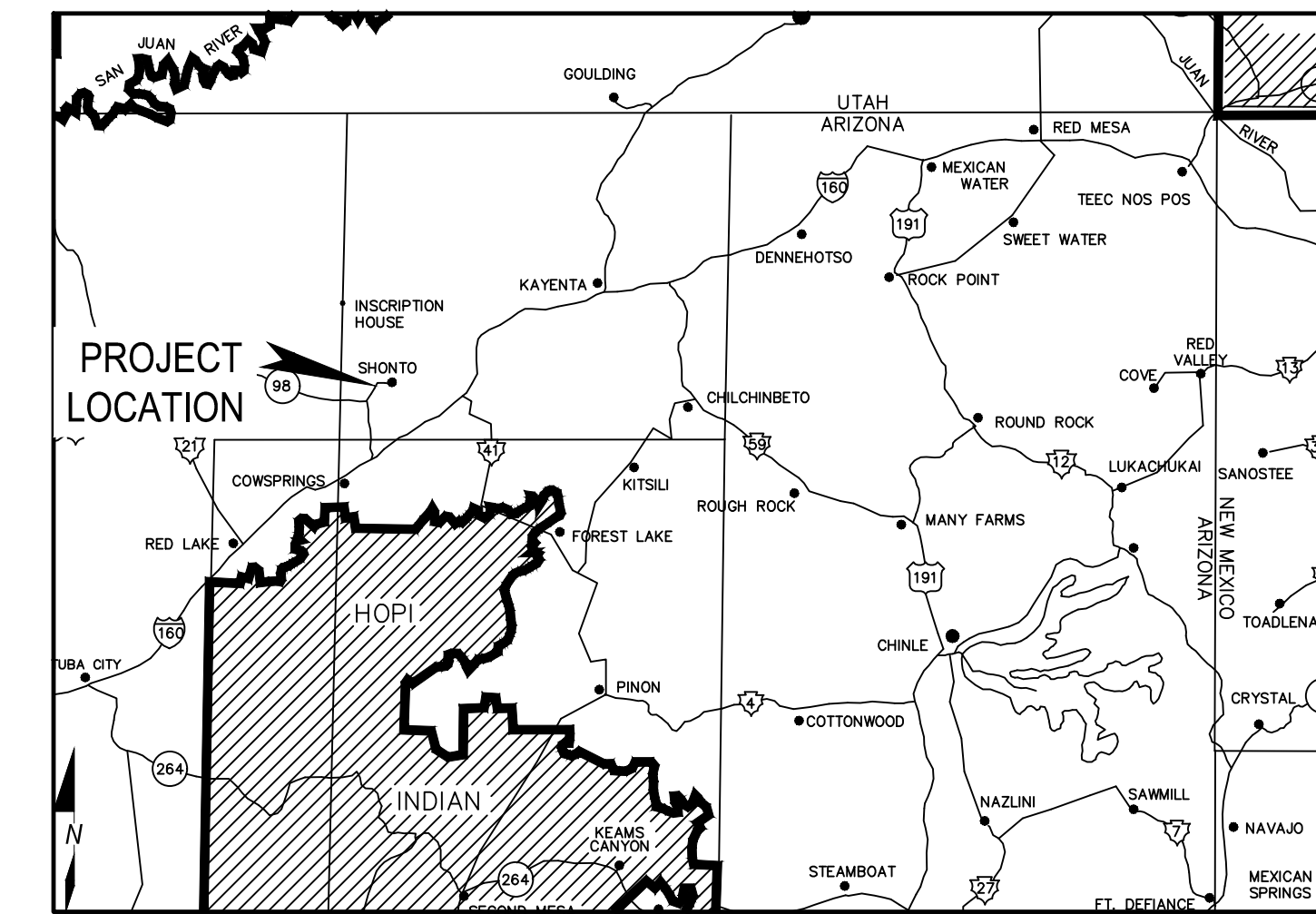


SITE LOCATION MAP
(NOT TO SCALE)



100% PLANS
ISSUED FOR CONSTRUCTION

BY:LASPAAS DATE:Oct 12, 2020 4:44pm



VICINITY MAP
(NOT TO SCALE)

REFURBISHMENT & UPGRADE OF LIFT STATION - SHONTO SHEET INDEX:

DRAWINGS

- G-01 EXISTING FACILITY PLAN
- G-02 EXISTING SITE CONDITIONS LAYOUT
- G-03 BILL OF MATERIALS
- G-04 SITE PLAN
- G-05 MECHANICAL SPECIFICATIONS
- G-06 MECHANICAL SPECIFICATIONS
- D-01 INSTRUMENTATION AND CONTROL STANDARDS
- D-02 PROCESS AND INSTRUMENTATION DIAGRAM
- M-01 MECHANICAL PLAN
- M-02 MECHANICAL SECTIONS
- S-01 STRUCTURAL SECTIONS
- EI-602 ELECTRICAL ONE-LINE DIAGRAM
- EI-702 ELECTRICAL INSTRUMENTATION PANEL

PREPARED FOR:

NAVAJO TRIBAL UTILITY AUTHORITY
P.O. BOX 170
FORT DEFIANCE, AZ 86504

PREPARED BY:



iná bá, Inc.

www.iinaba.com

1812 Schofield Lane P.O. BOX 2606
Farmington, NM 87401 Farmington, NM 87499



EXPIRES: _____

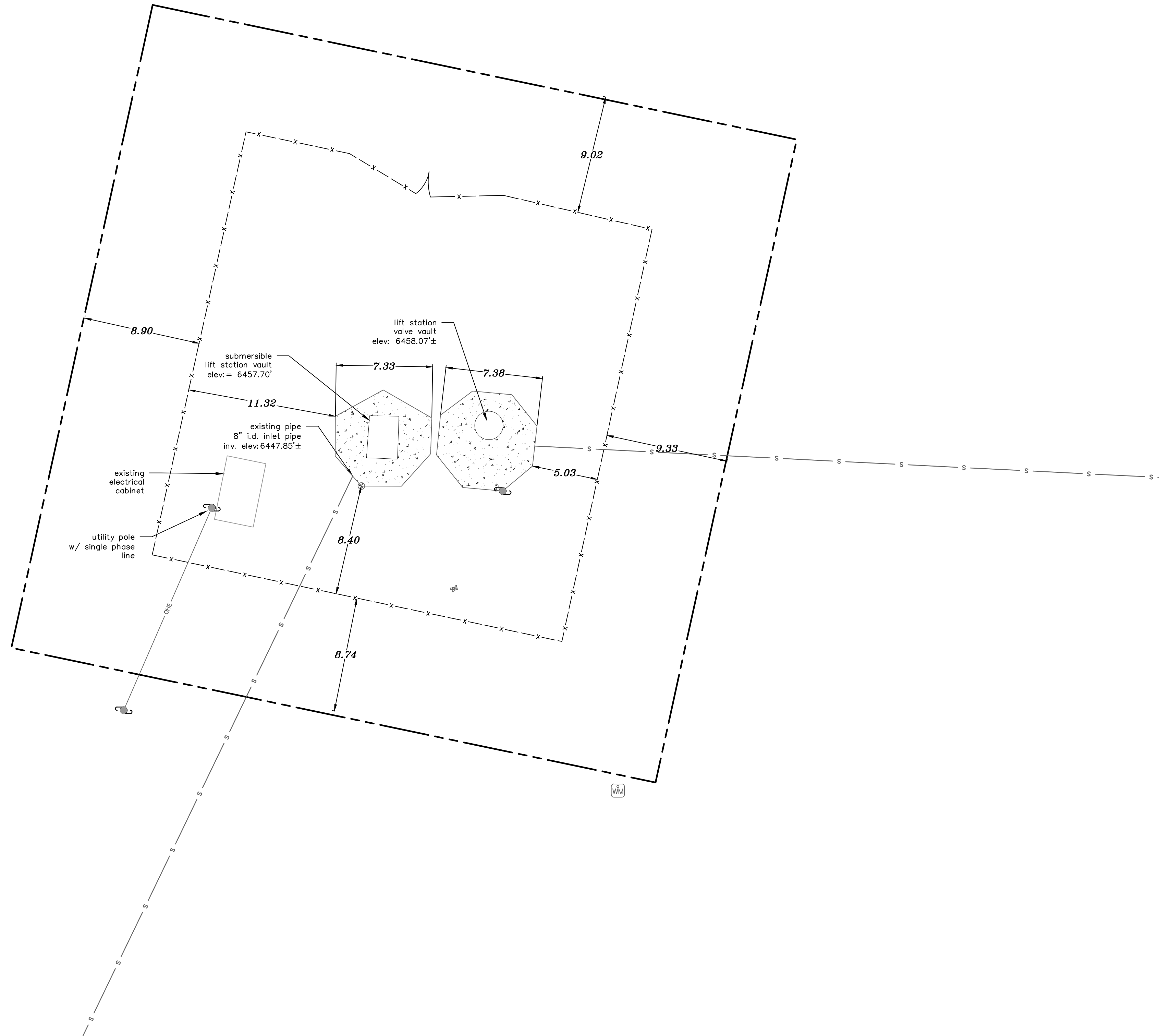
IBI #20-050-02

LEGEND

- TRACT LIMITS (SEE NOTE 4)
- - - - EXISTING GRADE CONTOUR
- EDGE OF GRAVEL
- DOMESTIC WATER
- W ----- UNDERGROUND ELECTRIC
- UE ----- OVERHEAD ELECTRIC
- OHE ----- PROPRANE GAS
- GAS ----- FENCE
- X - - - X
- UTILITY POLE
- LIGHT POLE
- PROPANE TANK
- WATER MANHOLE
- SEWER CLEANOUT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- WATER SHUTOFF
- WATER SPIGOT
- ANTENNA
- ELECTRIC JUNCTION BOX
- VENT PIPE
- GRAVEL SURFACE
- CONCRETE SURFACE

NOTES:

1. TOPOGRAPHIC AND PHYSICAL FEATURES AS SHOWN ARE BASED ON A GROUND SURVEY PERFORMED BY IINA BA, INC. DURING AUGUST 2020.
2. THE LOCATION OF THE EXISTING BELOW GRADE UTILITIES ON THE PROPERTY ARE BASED ON OBSERVED SURFACE EVIDENCE. NO SUBSURFACE INVESTIGATIONS HAVE BEEN PERFORMED BY IINA BA, INC.
3. NORTH AS SHOWN IS BASED ON ARIZONA STATE PLANE COORDINATES (EAST ZONE) NAD 83 BASED ON GPS OBSERVATIONS.
4. ELEVATIONS AS SHOWN ARE REFERENCED TO NAVD 88.
5. ORIGINAL SHONTO LIFT STATION, PARCEL "F", 50' X 50' AS SHOWN PER PLAN.



Iina bá, Inc.
www.iinaba.com

1812 Schofield Lane
Farmington, NM 87401

P.O. BOX 2606
Farmington, NM 87499

CLIENT:

**NAVAJO TRIBAL UTILITY
AUTHORITY**
P.O. BOX 170
Ft. Defiance, AZ, 86504

PROJECT:
REFURBISHMENT & UPGRADE OF
EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054

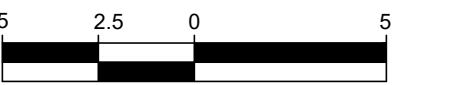
PROJECT:

ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXX
DRAWING SIZE: ANS/D
DRAWING SCALE: 1" = 5'



DRAWING TITLE:

EXISTING FACILITY PLAN

DRAWING NUMBER:

G-01

LEGEND

- TRACT LIMITS (SEE NOTE 4)
- - - - - EXISTING GRADE CONTOUR
- ==== EDGE OF GRAVEL
- W DOMESTIC WATER
- UE UNDERGROUND ELECTRIC
- OHE OVERHEAD ELECTRIC
- GAS PROPAANE GAS
- X-X FENCE
- UTILITY POLE
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EXISTING LIFT STATION

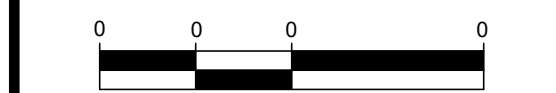
36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA, 86054

ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXX
DRAWING SIZE: ANS/D
DRAWING SCALE: NTS



DRAWING TITLE:

EXISTING CONDITIONS SITE LAYOUT

DRAWING NUMBER:

G-02

BILL OF MATERIALS					
DWG	ITEM NUMBER	QUANTITY	PART NUMBER	MANUFACTURER	DESCRIPTION
M-02	18	1	30005-0008-DI	JWC	MUFFIN MONSTER
M-02	19	1	PC 2200	JWC	CONTROLLER ASSEMBLY, NOT SHOWN
M-02	20	1	-(INCLUDED)	JWC	CUSTOM FRAME ASSEMBLY NOT SHOWN
M-02	21	1	-(INCLUDED)	JWC	CUSTOM GUIDE RAIL ASSEMBLY, NOT SHOWN
M-02	22	1	-(INCLUDED)	JWC	CUSTOM LIFTING BAIL ASSEMBLY
M-02		3	-(INCLUDED)	JWC	O&M MANUALS (HARD COPY)
M-02	23	1	32537R	JWC	FRAME WALL MOUNT
M-02	24	1	32523	JWC	GUIDE PLATE
M-02	25	8	30249	JWC	HHCS 3/8-16 X 3/4 SST
M-02	26	8	30140	JWC	LOCK WASHERS SPLIT 3/8 SST
S-01	27	1	D3A24E	HALLIDAY PRODUCTS	PORTABLE HOIST – 1,500 LB LIMIT; SST
S-01	28	1	SERIES D3S	HALLIDAY PRODUCTS	HOIST SOCKET; LINED
S-01	29	1	8'-0" DIAMETER AND DESIGNED FOR H2O D-LOAD WITH OPENING FOR HATCH	HALLIDAY PRODUCTS	PRECAST LID
S-01	30	1	S1R3654	HALLIDAY PRODUCTS	ACCESS HATCH AND SAFETY GRATE
S-01	31	1	NEOPRENE SEALANT FOR PRECAST LID SEAT ON BARREL OF EXISTING WELL	HALLIDAY PRODUCTS	WATER SEAL FOR SEATING CONNECTION



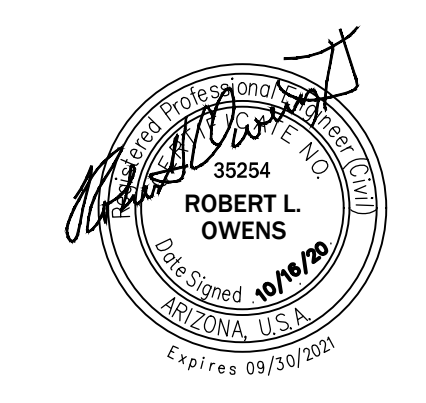
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Ft. Defiance, AZ, 86504

PROJECT:
**REFURBISHMENT & UPGRADE OF
EXISTING LIFT STATION**
36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054



ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-050-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS



DRAWING TITLE:

BILL OF MATERIALS

DRAWING NUMBER:

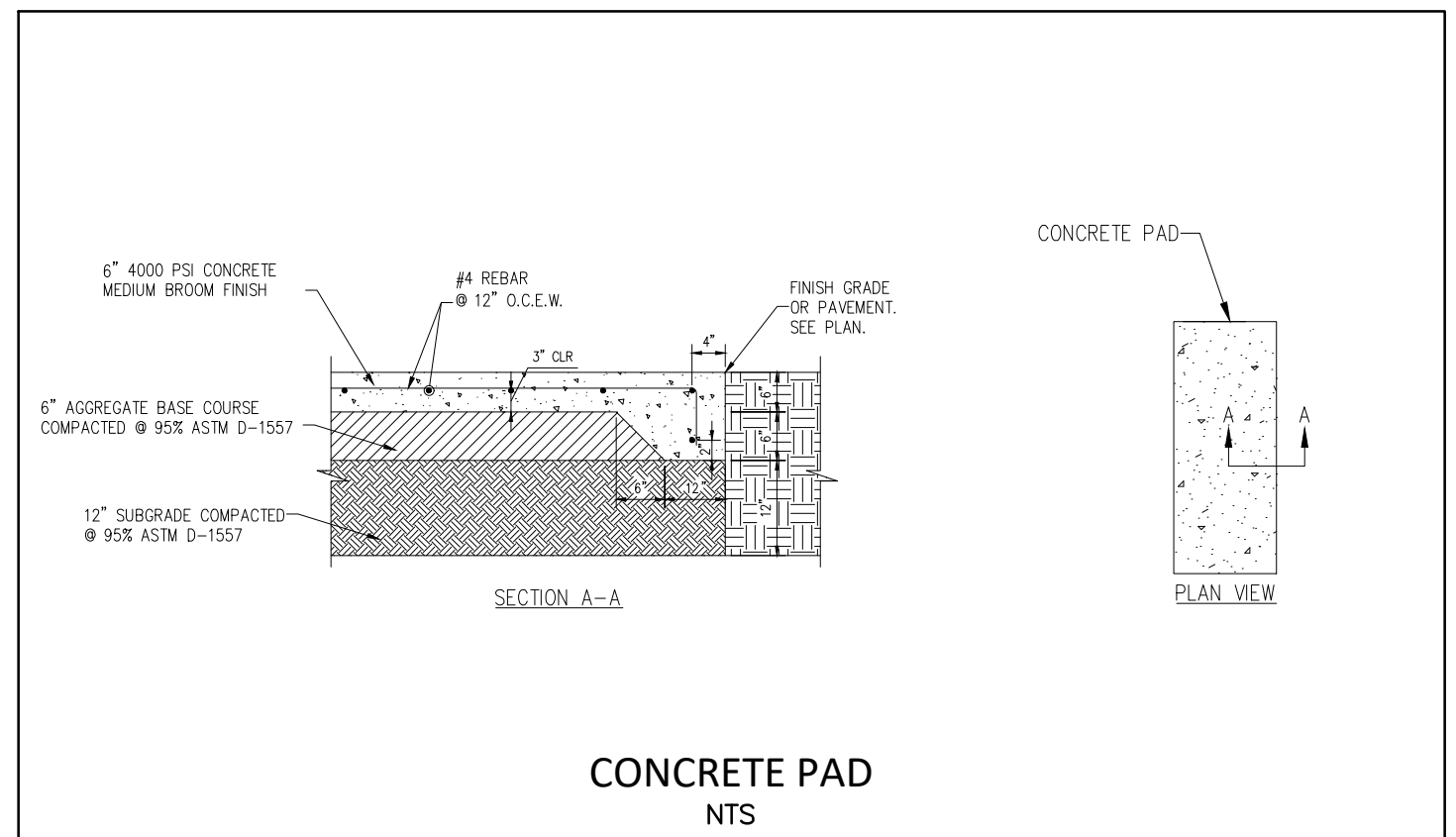
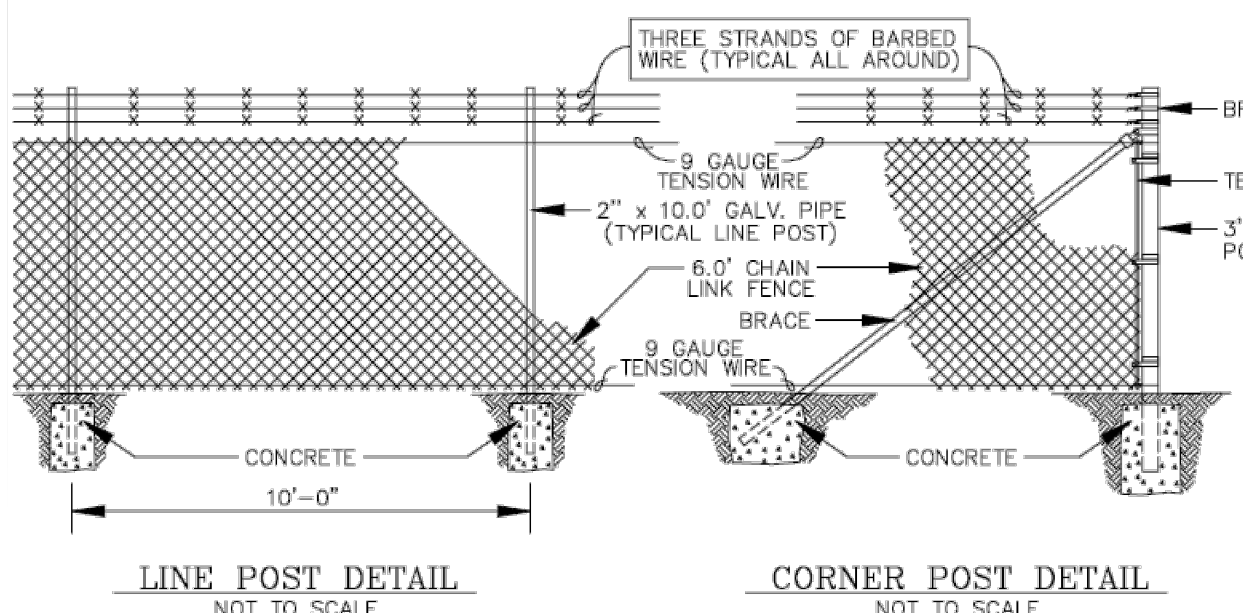
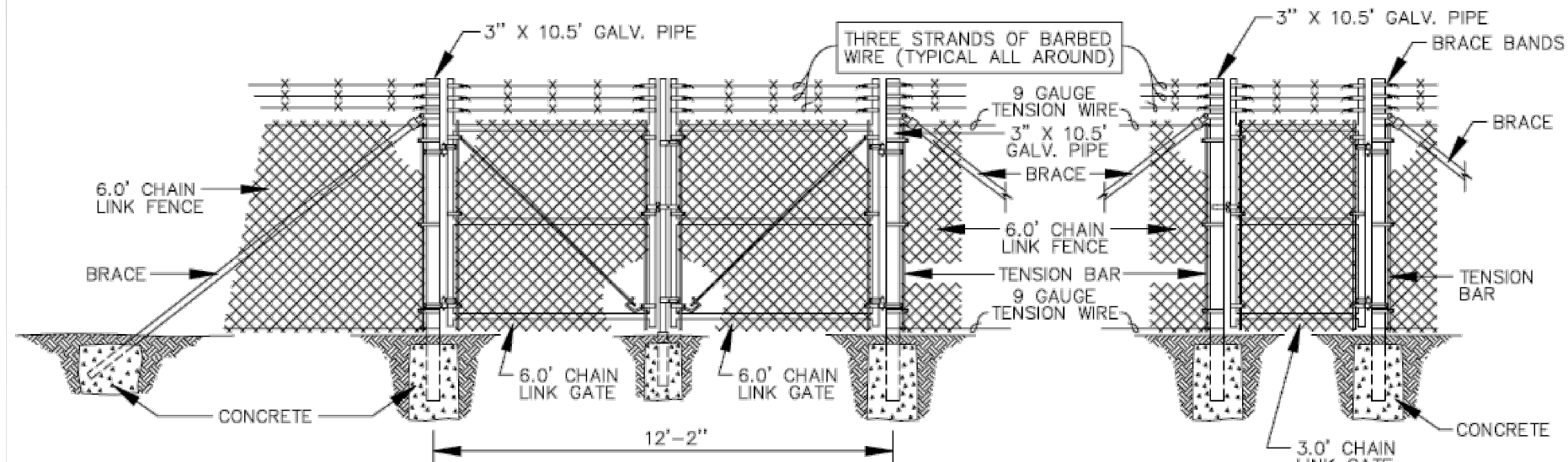
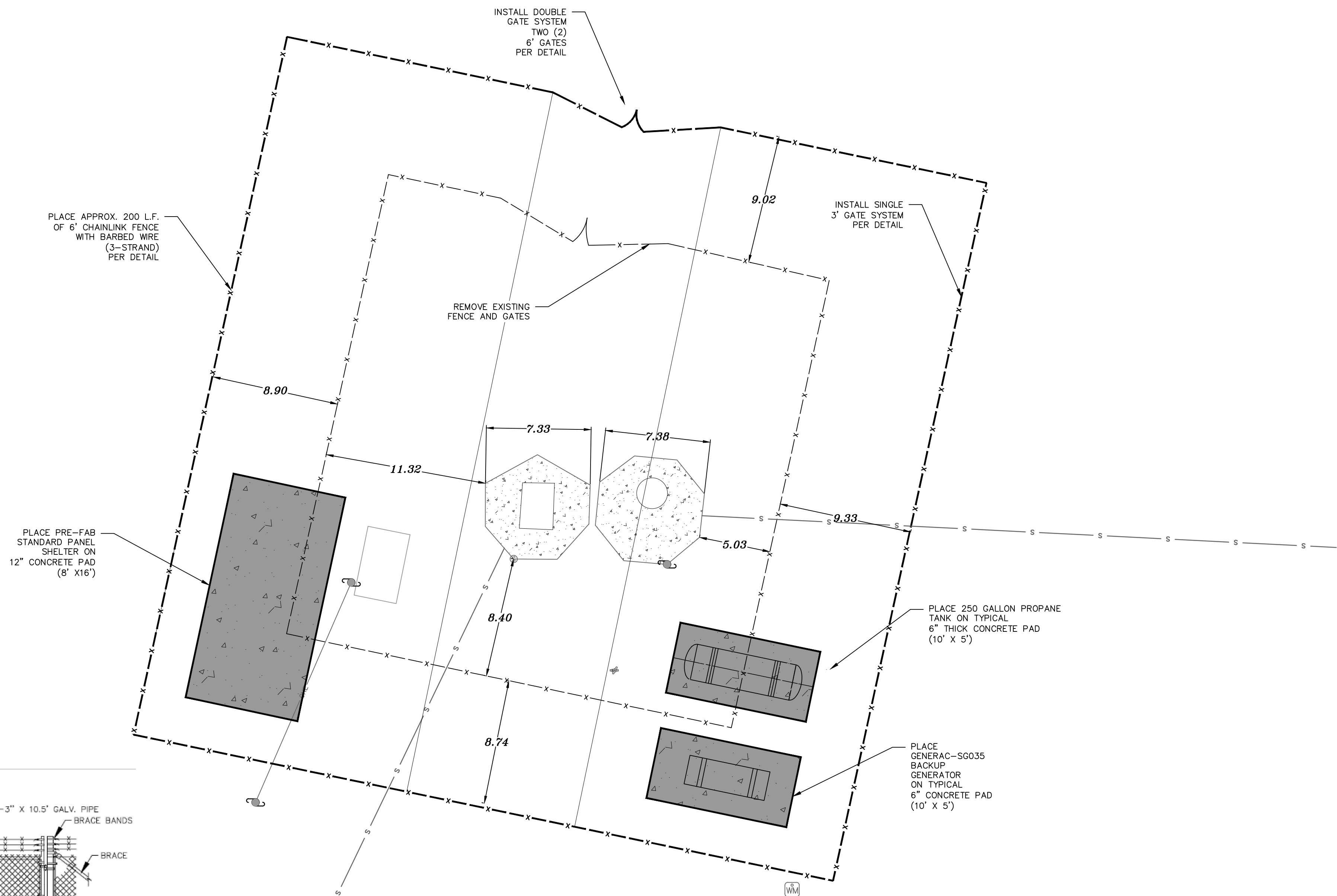
G-03

LEGEND

- TRACT LIMITS (SEE NOTE 4)
- - - - EXISTING GRADE CONTOUR
- EDGE OF GRAVEL
- W DOMESTIC WATER
- UE UNDERGROUND ELECTRIC
- OHE OVERHEAD ELECTRIC
- GAS PROPRANE GAS
- X-X FENCE
- UTILITY POLE
- LIGHT POLE
- PROPANE TANK
- WATER MANHOLE
- SEWER CLEANOUT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- WATER SHUTOFF
- WATER SPIGOT
- ANTENNA
- ELECTRIC JUNCTION BOX
- VENT PIPE
- GRAVEL SURFACE
- CONCRETE SURFACE
- PROPOSED CONCRETE SURFACE

NOTES:

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PROJECT:

REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054




EXPIRES: _____

REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXX
DRAWING SIZE: ANS/D
DRAWING SCALE: 1" = 5'



DRAWING TITLE:

SITE PLAN

DRAWING NUMBER:

G-04

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SHONTO PUMPING STATION

GENERAL

This section applies to all mechanical equipment specified in all divisions. The contractor is responsible for ensuring that all mechanical equipment meets the requirements of this section in addition to the specific requirements of the individual equipment specification.

- A. Arrangement – the arrangement of equipment shown is based on information available at the time of design and site surveys. It is not intended to show exact dimensions peculiar to a specific manufacturer. The drawings are in part diagrammatic and some features of the equipment may require revision to meet actual equipment installation requirements. Structural supports, foundations, connected piping, valves, and electrical conduit specified may have to be altered to accommodate the equipment provided.
- B. Standards – this section contains references to the following standards. They are a part of this section as specified and modified.
- C. Unit responsibility – equipment systems made up of two or more components shall be provided as a unit by a single manufacturer. Unless otherwise specified, the Contractor shall obtain each system by the supplier of the driven equipment.
- D. Nameplates – nameplates shall be provided on each item of equipment including valves, and shall contain the specified equipment name or abbreviation and equipment number as listed on the master equipment list or as directed by the field engineer. Equipment nameplates shall be engraved or stamped stainless steel and fastened to the equipment in an accessible location with stainless steel screws or drive pins.
- E. Protection Against Electrolysis – where dissimilar metals are used in conjunction with each other, provide suitable insulation between adjacent surfaces so as to eliminate direct contact and any transient electrolysis. Connections of dissimilar piping materials shall utilize dielectric unions, flanges, couplings or bushings.
- F. Tools loose parts and lubricants – provide an inventory of tools and loose parts required to be supplied under the project. Turn over inventory and parts to the field engineer. Also provide a list of recommended spare parts and supplies for each equipment furnished with the current prices and a source of supply.

MOTORS

REFERENCE STANDARDS

- A. National Electrical Manufacturers Association (NEMA) Standard:
 - 1. MG 1 Motors and Generators
- B. Institute of Electrical and Electronics Engineers (IEEE) Standard:
 - 1. 112 Test Procedure for Polyphase Induction Motors and Generators
- C. Underwriters Laboratories (UL) Publication: Recognized Component Directory

- b. Service factor of 1.15 or better.
- c. Class F insulation, Class B temperature rise.
- d. Rated for 6 starts per hour.

- e. Listed by either UL or FM for Class 1, Division 1, Groups C and D hazardous locations.
- f. Suitable for operating in free air continuously (i.e., not submerged in sewage).
- g. Bearing B10 life 18,000 hours minimum.
- h. Tungsten carbide seals.
- i. Lower bearings of either the ball or roller type.
- j. If required by the manufacturer to not void the motor warranty, provide a moisture detection system and a motor winding thermostat system. These systems shall be complete, including all necessary interfaces, control panels, conduits, and wires, even though these may not be shown on the Drawings.

INSULATION

- A. Unless otherwise specified with the driven equipment, provide motors with Class B or F insulation, non-hygroscopic. *[For motors located in altitudes between 3,300 and 6,600 feet or in ambient temperatures exceeding 40°C, provide Class F insulation with Class B temperature rise. In motors to be used with adjustable frequency drives, provide Class F insulation with Class B temperature rise].* In single phase motors 1/2 horsepower or smaller, provide Class A insulation or better.
- B. Where called for in the Specifications for the driven equipment, provide the following type of insulation:
 - 1. Moderate Moisture Resistant: Provide extra dip and bake of epoxy or polyester varnish to resist somewhat higher than normal moisture in the atmosphere.

MOTOR HORSEPOWER

- A. The maximum permissible motor loading:
 - 1. Motors with service factor 1.15 or greater: 100% of nameplate horsepower.
 - 2. Motors with service factor less than 1.15: 90% of nameplate horsepower.

MOTOR NOMINAL EFFICIENCIES AT FULL LOAD

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
Open Drip-Proof and Weather Protected Type 1 Motors				
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5

SUBMITTALS

- A. For each motor, include the following data in the shop drawing submittal for the driven equipment:
 - 1. Manufacturer's name.
 - 2. Manufacturer's type and frame designation.
 - 3. Horsepower output.
 - 4. Time rating.
 - 5. Maximum ambient temperature rating.
 - 6. Insulation system designation.
 - 7. Rpm at full load.
 - 8. Voltage, number of phases, frequency and full load amperes.
 - 9. Code letter for locked rotor kVA.
 - 10. Service factor at 40°C ambient.
 - 11. NEMA design letter.
 - 12. Enclosure type.
 - 13. Lubrication requirements, including type and frequency.
 - 14. KW input power and power factor at 75% and 100% of rated horsepower output.
 - 15. Guaranteed minimum efficiency and nominal efficiency per MG1-12.55.
 - 16. Nominal efficiency.

COORDINATION

- A. General: Coordinate motors with driven equipment requirements. Unless otherwise specified, equipment manufacturers or suppliers shall select and provide motors for their equipment in conformance with these Specifications. Give particular attention to coordination of requirements for:
 - 1. Power.
 - 2. Starting torque.
 - 3. Speed.
 - 4. Bearing load.
 - 5. Ambient temperature.
 - 6. Frequency of starting.
 - 7. Moisture exposure.
 - 8. Adjustable speed control, where applicable.
- B. Suppliers of motors to be used with adjustable speed systems shall:
 - 1. Provide all relevant motor data to the adjustable speed control manufacturer for analysis. Provide motors in conformance with and compatible with the adjustable speed control manufacturer's equipment and requirements.
 - 2. Provide all relevant motor data to the pump manufacturer for vibration, reed critical frequency and other required analyses.

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
2	85.5	82.5	82.5	85.5
3	85.5	82.5	82.5	84.0
5	86.5	86.5	85.5	86.5
7.5	87.5	89.5	87.5	88.5
10	90.2	90.2	89.5	86.5
15	90.2	91.7	90.2	89.5
20	91.7	91.7	91.0	90.2
25	91.7	92.4	91.7	90.2
30	92.4	93.0	92.4	92.4
40	91.7	93.0	93.6	93.6
50	93.0	93.0	93.6	93.6
60	93.6	93.6	94.1	94.1
75	94.1	93.6	94.1	93.6
100	94.5	94.5	94.5	94.1
125	94.5	95.0	95.0	94.1
150	95.0	94.5	95.0	94.1
200	95.0	95.0	95.0	94.1
250	94.5	95.0	95.0	94.5
300-500	95.0	95.8	95.8	94.5
Total Enclosed Fan Cooled Motors				
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5
2	85.5	82.5	82.5	85.5
3	86.5	86.5	82.5	84.0
5	88.5	87.5	85.5	86.5
7.5	89.5	90.2	87.5	88.5
10	90.2	91.0	89.5	90.2
15	90.2	92.4	91.0	91.7
20	91.7	92.4	91.0	91.7
25	91.7	93.0	92.4	92.4
30	92.4	93.0	93.0	93.0
40	92.4	93.6	94.1	94.1
50	93.6	93.6	94.1	94.1
60	93.6	94.1	94.1	94.1
75	94.1	94.1	94.1	94.5
100	94.5	95.0	95.0	94.5
125	94.5	95.0	95.4	95.0
150	94.5	95.0	95.4	95.4
200	95.0	95.0	95.4	95.4

SPECIFIC REQUIREMENTS

- A. The following motor characteristics are specified with the driven equipment in all cases:
 - 1. Speed.
 - 2. Horsepower or supplier responsibility to determine.
 - 3. Horizontal or vertical arrangement.
 - 4. Indoor or outdoor location.
- B. Additional motor characteristics are specified with the driven equipment only where the required motor differs from the typical characteristics described below or where additional properties or characteristics are required that are not specified in this Section.

PRODUCTS

GENERAL

- A. Motors shall be designed, built, and installed in the driven equipment, to provide long, trouble-free life in industrial service and shall be rated in conformance with NEMA MG1. Motors rated 100 horsepower or less and rated 600V or less shall be listed in UL Recognized Component Directory or shall be listed and labeled by other organizations acceptable to the authority having code enforcement jurisdiction.
- B. Unless otherwise specified with the driven equipment, provide motors with the following typical characteristics:
 - 1. Motors shall be single speed, and designed for continuous duty and full voltage starting. Motors shall provide standard starting torque.
 - 2. Voltage Ratings:
 - a. 1/2 horsepower or less: 115 volts, single phase, 60 Hz, capacitor start. Small fan motors may be split phase or shaded pole type if standard for the equipment.
 - b. Above 1/2 horsepower: 460 volts, three phase, 60 Hz, squirrel cage induction motors.
 - 3. All motors shall have a service factor of 1.15 in an ambient temperature of 40°C.
 - a. Exceptions: Motors, which have special enclosures or winding configurations, may carry a Unity (1.0) Service Factor. Examples are totally enclosed, explosion proof, or submersible motors.
 - 4. Windings shall be copper.
 - 5. Provide ground lug inside the terminal box.
 - 6. Provide lifting eye on each motor weighing more than 50 pounds.
 - 7. Each motor shall be suitable for six starts per hour (5 minutes on and 5 minutes off, continuously) when powering the specific driven equipment required for this project.
 - 8. Each motor shall have an overall sound power level at no load not greater than given in NEMA MG1-12.49.
 - 9. Motors, which have special operating characteristics such as multi-speed, high torque/high slip, short time intermittent ratings shall be nameplated to show how these characteristics differ from standard design.

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
250	95.0	95.4	95.8	95.8
300-500	95.0	95.8	95.8	95.8

- B. Probable motor horsepower ratings have been specified or shown on the Drawings. Changes from the specified horsepower may be accepted, if necessary to assure that motors do not exceed their maximum permissible loading, as defined above, under normal operation. Motor horsepower shall not be less than those specified in driven equipment sections. If a larger horsepower rating is required by the driven equipment, provide all changes required to motor starting and control equipment and to the conduit and wiring system without any additional cost to NTUA.

EFFICIENCY

- A. For motors 1 Horsepower and Larger:
 - 1. Provide premium efficiency motors unless otherwise specified. Premium efficiency motors shall have nominal efficiencies at full load not less than those listed in Table 11002-1.
 - 2. Guaranteed minimum efficiencies of premium efficiency motors shall correspond to nominal values as tabulated in NEMA MG-1, Table 12-8.

- B. Efficiencies shall be determined by using the IEEE 112, Test Method B using segregated loss determination.

- C. Single-phase fractional horsepower motors 1/4 HP through 3/4 HP motors shall be high-efficiency split-capacitor types having minimum efficiency ratings of not less than 64% and power factors of not less than 94.5%.

LOCKED ROTOR KVA - CODE LETTER

- A. Provide motors with locked rotor kVA values less than or equal to those corresponding to the following:

Horsepower	Code Letter
≤5	M
7-1/2-10	H
≥15	G

THERMAL PROTECTION

- C. Motors used with adjustable frequency drives shall have inverter duty complying with NEMA MG-1, Section IV, Part 31.

NAMEPLATE

- A. Provide stainless steel nameplate for each motor, attached to the motor by stainless steel screws or drive pins. Nameplates shall indicate clearly the information required by NEMA MG1, Part 10 and Part 12.

ENCLOSURE TYPE BY LOCATION

- A. Unless otherwise specified with the driven equipment, provide motors with the following typical enclosures:
 - 1. Indoors: Horizontal motors shall be open, drip-proof; vertical motors shall be drip-proof with guard.
 - 2. Outdoors: Vertical motors shall be weather-protected type I. Horizontal motors shall be totally enclosed, fan cooled. All motors shall have the following features:
 - a. Bearing protection.
 - b. Anti-corrosion treatment of external hardware and internal metal parts.
 - c. Weatherproof terminal box with gaskets between the motor, terminal box and terminal box cover.
 - d. Guard screens on ventilation openings.
 - e. Moderate moisture resistant insulation, specified hereinafter.
 - f. Interior and exterior corrosion protection coatings.
 - g. Special attention to leads into terminal box.
- B. When specifically called for in the Specifications for the driven equipment or required by Code, provide the following enclosure types:
 - 1. Hazardous locations: Motors shall be explosion-proof and shall be UL listed for Class I, Division 1, Groups C and D locations; motors shall bear the UL label.
 - 2. Severe duty: Motors shall have the following features:
 - a. Totally enclosed, fan cooled enclosure.
 - b. Stainless steel nameplate.
 - c. Cast iron housing, bearing brackets and fan guard.
 - d. Cast iron conduit box with threaded conduit entrance.
 - e. Corrosion resistant fan.
 - f. Corrosion resistant hardware.
 - g. Automatic breather/drain.
 - h. Ground lug.
 - i. Regreasable bearings.
 - j. Provision for excluding water and dust from bearings.
 - k. Class F insulation.
 - l. Service factor of 1.15.
 - m. Epoxy coating on all external surfaces.
 - 3. Submersible: Submersible motors shall comply with the following:
 - a. Air filled or oil filled squirrel cage induction type.

- A. In each motor to be used with adjustable speed drives, in all motors 60 horsepower and larger, or where called for in the Specifications for the driven equipment, provide integral thermostats or other approved devices to protect the motor from overheating. Thermostats or other devices shall be rated 125 Vac, 1 amp.

SPACE HEATERS

- A. Where called for in the Specifications for the driven equipment, provide space heaters or solid state motor winding heating systems for motors. Heaters shall be 120 or 240 volts, single phase, as required by the control circuit voltage or be of the SCR voltage controlled type. Heater wattage and voltage ratings shall be indicated on motor nameplate. Motor winding heating systems shall be as recommended by manufacturer.

INSTALLATION

- A. Install motors in driven equipment in conformance with motor manufacturer's recommendations and requirements. Motor nameplate shall be visible when installed on the driven equipment.

COMMUNUTOR/MACERATOR



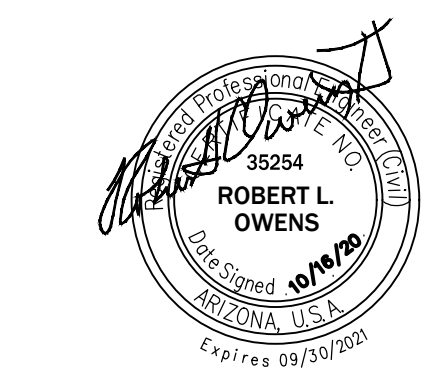
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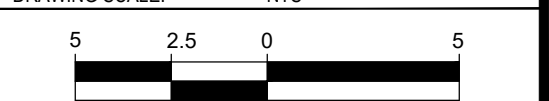
PROJECT:
**REFURBISHMENT & UPGRADE OF
EXISTING LIFT STATION**
36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054



REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-059-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS



DRAWING TITLE:

MECHANICAL SPECIFICATIONS

DRAWING NUMBER:

G-05

SECTION 11330
MUFFIN MONSTER®
IN-CHANNEL GRINDER - SERIES 3005
2" hex/Wipes Ready/XPV Immersible Electric Motor/PC2200 Controller

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall furnish, install, place into satisfactory operation, and warrant the Wipes Ready 3005 for shredding municipal wastewater solids, as shown on the Plans and described by the Specifications.
- B. All items detailed in this section shall be provided by the same manufacturer.

1.2 REFERENCE STANDARDS

- A. Equipment shall, as applicable, meet the requirements of the following industry standards:
 - American Society for Testing and Materials (ASTM) A36 Carbon Steel Plate
 - American Society for Testing and Materials (ASTM) A536-84 Ductile Iron Castings
 - American Iron and Steel Institute (AISI) 4130 Heat Treated Alloy Steel
 - American Iron and Steel Institute (AISI) 4140 Heat Treated Alloy Steel
 - American Iron and Steel Institute (AISI) 8620 Heat Treated Alloy Steel
 - American Iron and Steel Institute (AISI) 303 Stainless Steel
 - American Iron and Steel Institute (AISI) 304 Stainless Steel
 - American Iron and Steel Institute (AISI) 316 Stainless Steel
 - American Iron and Steel Institute (AISI) 17-4 PH Stainless Steel
 - Society of Automotive Engineers (SAE) 660 Bearing Bronze
- B. Controllers shall, as applicable, meet the requirements of the following Regulatory Agencies:
 - National Electrical Manufacturer's Association (NEMA) Standards
 - National Electrical Code (NEC)
 - Underwriters Laboratory (UL and cUL)
 - International Electrotechnical Commission (IEC)

1.3 QUALITY ASSURANCE

- A. Identification
 - Equipment shall be identified with a corrosion-resistant nameplate affixed in a conspicuous location.
 - Nameplate information shall include manufacturer's name and address, equipment model number, and serial number.

8. Transfer Gears

- a. Intermediate shaft yokes shall be factory lubricated with high temperature marine grade grease.
- b. Grease fittings shall be provided on intermediate shaft yokes for periodic maintenance.
- c. Intermediate shaft yokes shall only be supplied on cutter stacks of 32-inches (813mm) and taller.
- 4. Side Rails
 - Side rails shall be constructed of ASTM A536 ductile iron.
 - Cutter side rail shall have evenly-spaced horizontal fingers. Fingers shall be designed to create a pressure differential towards the center of the grinder, directing solids into the cutter stack, while at the same time minimizing overall pressure drop through the grinder.
 - Clearance between cutter side rail and adjacent cutters shall not exceed 0.100" (2.54 mm).
- 5. Shaft Bearings and Seals
 - Radial and axial loads shall be borne by sealed, oversized, deep-groove ball bearings.
 - Shaft seal type shall be mechanical.
 - Each bearing and seal arrangement shall be incorporated into a cartridge-style housing.
 - Cutter shafts shall be supported on both ends. Cantilever-style arrangements shall not be permitted.
 - Dynamic and rotating seal faces shall be Tungsten Carbide with 6% Nickel binder.
 - Seal cartridges shall be rated to a maximum pressure of 90 psi (620 kPa).
 - O-rings shall be of BUNA-N.
 - Seal cartridges shall not require flushing.
 - Seals shall be rated to operate wet or dry.
- 6. Housings and Covers
 - Housings and top cover shall be of ASTM A536 ductile iron. Bottom cover shall be of A36 carbon steel.
 - End housings shall have integral bushing deflectors to guide solids away from seal cartridges.

A. Manufacturer

- Supplier shall be ISO9001 certified and have a minimum 40 years experience as a manufacturer of municipal waste water equipment and a minimum 10000 prior installations of similar equipment.
- Supplier shall, at request, provide a list of reference sites of similar equipment for verification by the Engineer or Owner's representative.
- Supplier shall conduct factory testing and verification of equipment prior to shipment.
- Supplier shall have factory-owned bi-coastal service centers in USA.
- Supplier shall have an exchange/repair service program.

1.4 SUBMITTALS

- A. Approval Documents

Supplier shall submit approval documents in .pdf format. Submittals shall include equipment descriptions, functional descriptions, dimensional and assembly drawings, catalog data, job specific drawings, manufacturer's instructions, and recommended spares.
- B. Operation and Maintenance Manuals

The supplier shall submit one (1) copy of a suitable operation & maintenance manual. An electronic version shall be supplied to create additional copies. The manuals shall include equipment descriptions, operating instructions, drawings, troubleshooting techniques, a recommended maintenance schedule, recommended lubricants, and recommended spares.
- C. Warranty Documentation

The supplier shall submit a warranty statement clearly identifying the scope and term of the warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaging and Shipment
 - Equipment shall be packaged in containers or on skids suitable for normal shipping, handling, and storage.
 - Equipment shall be protected from rain, snow, impact and abrasion while in the possession of the carrier.
- B. Delivery and Acceptance Requirements

Contractor shall review the contents of the shipment at time of delivery and promptly notify the carrier and supplier of any discrepancies.

C. Storage and Handling Requirements

- Equipment shall remain in the packaging provided by the supplier until it is installed.
- Equipment shall be stored in a dry environment between 40° F (4.5° C) and 100° F (37.8° C).

D. Packaging Waste Management

Contractor shall be responsible for discarding all packaging materials in an environmentally-friendly manner and in accordance with local regulations.

1.6 WARRANTY

Manufacturer's standard 12-month limited warranty shall be provided with the equipment.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Equipment shall be in accordance with these plans and specifications and shall be supplied by one of the following manufacturers:
 - JWC Environmental, LLC, 290 Paulirino Ave., Costa Mesa, CA 92626; Tel: 800-331-2277
Muffin Monster Grinder Model 30005, Wipes Ready Motor Controller Model PC2200
 - Approved equal.

2.2 PRE-APPROVAL OF ALTERNATE EQUIPMENT

- A. Manufacturers requesting to be selected as an approved equal shall either: (i) perform a pilot test at the facility, or; (ii) coordinate a site visit to allow the Engineer and owner the opportunity to witness the performance of the proposed equipment. This task shall be completed a minimum of 10 days prior to the bid. All expenses associated with (i) or (ii) above shall be paid for by the submitting manufacturer.
- B. Manufacturers requesting to be selected as an approved equal shall also submit certified documentation showing compliance with these specifications a minimum of ten (10) days prior to bid opening. Selected equipment manufacturers shall be added to the list of approved manufacturers at engineer's discretion.

2.3 PERFORMANCE REQUIREMENTS

- A. General

Grinder shall reduce or shred influent solids for protection of downstream equipment.
- 8. Transfer Gears
 - Grinder shall be fitted with two (2) lifting rings.

2.6 MOTOR CONTROLLER

- A. Description

Controller shall provide programmable operation of the grinder system. Controller shall have switches, indicator lights, and other control devices.

Controller shall be designed to suit the supply power and motor characteristics listed in Performance Requirements.
- B. Components
 - Enclosure
 - Enclosure shall be fiberglass reinforced plastic, NEMA 4X.
 - Enclosure shall house motor starter, PLC, and control devices.
 - Selector switches
 - Selector switches shall be 22 mm, rated equal to or better than the enclosure.
 - Grinder selector switch shall be three-position and indicate On-Off/Reset-Remote.
 - Pilot Lights
 - Lights shall be 22 mm, LED (pilot lamp), rated equal or better than the enclosure.
 - Lights shall indicate POWER ON, grinder RUN, grinder JAMMED and MOTOR FAULT.
 - Motor Starter
 - Starter shall be IEC, full voltage, reversing.
 - Contactors shall have 120-volt operating coils.
 - Overload relays shall be adjustable and sized to full load amperes (FLA) of the motor.
 - Control Power Transformer
 - Control power transformer shall produce 120-volt AC power from the supply power. Transformer shall be sized and fused in accordance with code to accommodate the control power requirements.
 - Programmable Logic Controller
 - PLC shall be a Panasonic FX.
 - Current Transducer

B. Design Summary

- Number of grinders 1
- Number of motor controllers 1
- Environment rating for grinders Hazardous, subject to flooding
- Environment rating for motor controllers Non-hazardous
- Supply power characteristics 460 volt / 3 phase / 60 Hertz
- Nominal stack height —" (___ mm)
- Minimum liquid handling capacity per grinder —" CFM (___ /s)
- Maximum head drop across cutter stack —" (___ mm) at minimum capacity
- Cutter type Serrated 17-tooth
- Spacer type Knurled
- Side rail type Delta-P high flow, high capture
- Shaft seal type Mechanical, Tungsten Carbide
- Seal maximum pressure 90 psi (620 kPa)
- Speed reducer type and ratio Cycloidal, 29:1
- Installed horsepower 3 hp (2.2 kW)
- Motor type XPV, Immersible
- Motor service factor 1.15
- Minimum motor efficiency (at full load) 88.8%
- Minimum motor power factor (at full load) 65.0%
- Minimum peak shaft torque 5,185 lb-in/hp (786 Nm/kW)
- Minimum peak force at cutter tip 2,202 lb/ft (13,134 N/kW)

2.4 FRAME AND SUPPORTS

- A. General

Frame and/or supports shall provide a method for properly securing the grinder in an open channel or wet well. The frame shall allow installation or removal without any disassembly of the frame or grinder.
- B. Components
 - Frame shall be fabricated of 304 stainless steel.
 - Frame shall provide proper support and interface to prevent unwanted bypass.

2.5 GRINDER

- A. General

Grinder shall be of two-shafted design consisting of individual cutters and spacers driven by hexagonal shafts. The cutters shall actively grab and pull material into the stack for shredding. Grinder shall have upper and lower end housings to retain shaft support bearings and seals. Side rails shall provide structural rigidity while optimizing throughput and capture. Grinder shall have a motor and speed reducer to drive the cutter shafts. The equipment shall operate at low speed with a maximum cutter shaft speed of 60 rpm and shall be specifically-designed for capturing and shredding wipes.
- B. Components
 - Current transducer shall be a discrete output type.
 - Current transducer shall have adjustable set point from 1-135A with 200 ms or faster response time.

C. Operation

- Grinder control shall be in accordance with the setting of the On-Off/Reset-Remote selector switch.
 - In the OFF/RESET position the grinder shall not run. Motor controller faults shall be cleared.
 - In the ON position, the grinder shall run forward.
 - In the REMOTE position, the grinder shall operate as controlled by a remote start/stop dry contact.
- When an obstruction jams the grinder, the controller shall stop the grinder and reverse the rotation to clear the obstruction. If the obstruction is cleared, the controller shall return the grinder to normal operation. If three (3) reverses occur within a 30 second interval, the controller shall stop the grinder motor and activate the grinder FAIL indicator and relay.
- When a motor overload or motor over-temperature condition occurs, the motor shall be de-energized, the MOTOR FAULT indicator lamp shall be illuminated and the FAIL contact shall be closed.
- When a power failure occurs while the system is operating, the system shall return to normal operation when power is restored.
- When a power failure occurs while the grinder is in a fail condition, the system shall return to a fail state when power is restored. The fail state shall not be cleared until reset.
- Reset of the grinder shall be accomplished from the controller only.

2.7 FINISHES

- A. Paint Coatings (Ferrous Materials)

Ferrous metal surfaces shall be prepared to SSPC-SP6 (Commercial Blast Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) paint of type and color listed in Performance Requirements.
- B. Paint Coatings (Previously-Coated Components)

Previously-coated components (motors, speed reducers, etc.) shall be prepared to SSPC-SP1 (Solvent Cleaning) and SSPC-SP2 (Hand Tool Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) paint of type and color listed in Performance Requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

1. Cutters and Spacers

- Cutting stack shall be of nominal height listed in Performance Requirements.
- Cutting stack shall consist of interleaved cutters and spacers.
- Cutters and spacers shall be individual disks constructed of heat treated alloy steel.
- Cutters shall be heat treated to 45-53 HRC.
- Spacers shall be heat treated to 34-53 HRC.
- Cutters shall have 17 teeth and be 0.438" (11.13 mm) thick.
- Cutters shall have radial serrations on the leading edges designed to perforate material as it passes between the cutter and adjacent spacer.
- Cutter tooth height shall be not greater than ½-inch (13 mm) above the root diameter of the cutter.
- Cutter outside diameter shall not exceed a maximum 4.73" (120.14 mm).
- Cutter thickness tolerance shall be +.000/- .001" (+.000/- .025 mm). Spacer thickness tolerance shall be +.001/- .000" (+.025/- .000 mm).
- Spacers shall have a knurled outside diameter designed to aid in tearing of material as it passes through the cutter stack.
 - Spacers shall be 0.446" (11.33 mm) thick.
 - Cutter to cutter clearance shall be a maximum of 0.010" (0.25 mm).
 - Clearance between any cutter tip and adjacent spacer shall be nominal 0.015" (0.38 mm).
- Shafts
 - Shafts shall be hexagonal, 2" (50.8 mm) across flats.
 - Shafts shall be of heat treated 4140 alloy steel with a minimum tensile strength of 149,000 psi (1,027 kPa).
 - Shaft hardness shall be 38-42 Rockwell C.
- Intermediate Shaft Yoke (as applicable)
 - Intermediate shaft yokes shall provide radial support to the shafts during severe grinding demands.
 - Intermediate shaft yokes shall be constructed of 304 stainless steel, 600 bronze, and 17-4PH Stainless steel.

3.2 SYSTEM START-UP

The Contractor shall coordinate installation of the equipment in accordance with the manufacturer's installation instructions, drawings and related specification sections, and in accordance with all OSHA, local, state, and federal codes and regulations.

3.3 TRAINING

Field training shall be provided for operations, maintenance and supervisory staff members. Field instruction shall cover key components of the equipment, operating and maintenance requirements and troubleshooting techniques.

END OF SECTION



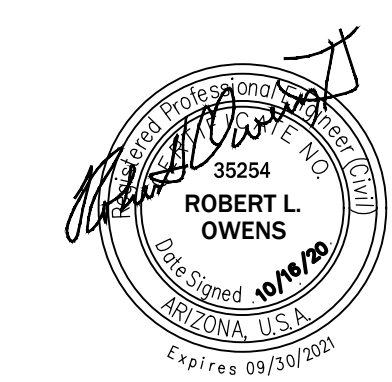
iiná bá, Inc.
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1812 Schofield Lane
Farmington, NM 87401

P.O. BOX 2606
Farmington, NM 87499

CLIENT:
**NAVAJO TRIBAL UTILITY
AUTHORITY**
P.O. BOX 170
Ft. Defiance, AZ, 86504

PROJECT:
**REFURBISHMENT & UPGRADE OF
EXISTING LIFT STATION**
36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054



REVISIONS:

NO.	DESCRIPTION	DATE

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-059-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS

DRAWING TITLE:
MECHANICAL SPECIFICATIONS

DRAWING NUMBER:
G-06

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INSTRUMENT SYMBOL IDENTIFIERS

J-3	J-4, J-5	J-1: IDENTIFICATION LETTERS (SEE TABLE BELOW)	J-4: FUNCTION BLOCK (SEE TABLE BELOW)
J-1	J-2	J-2: LOOP NUMBER	J-5: PANEL NUMBER
J-2	J-6	J-3: VENDOR DESIGNATOR (NOTE 3)	J-6: HANDSWITCH DESIGNATOR (SEE BELOW)

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL	DAMPER		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY	SWITCH		
T	TEMPERATURE			TRANSMIT	
U	MULTI VARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENTS				
SHARED DISPLAY, SHARED CONTROL				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROL				

J-4 FUNCTION BLOCK DESIGNATORS

SUMMING	ROOT EXTRACTION
DIFFERENCE	SQUARE ROOT
INTEGRAL	EXPONENTIAL
DERIVATIVE	HIGH SELECTING
MULTIPLYING	LOW SELECTING
DIVIDING	BIAS
CONVERT:	NONLINEAR OR UNSPECIFIED FUNCTION

* E - VOLTAGE
I - CURRENT
P - PNEUMATIC
A - ANALOG
B - BINARY

H - HYDRAULIC
O - ELECTROMAGNETIC, SONIC
R - RESISTANCE (ELECT)
D - DIGITAL

J-6 HANDSWITCH DESIGNATORS

HOA HAND-OFF-AUTO	LR LOCAL-REMOTE
HOR HAND-OFF-REMOTE	OC OPEN-CLOSE
F-R FORWARD-REVERSE	OCA OPEN-CLOSE-AUTO
1-0 ON-OFF	

INSTRUMENT SERVICES

AS> INSTRUMENT AIR SUPPLY (NOTE 4)
> 120 VAC ELECTRICAL SERVICE (DIFFERENT VOLTAGES ARE SPECIFICALLY NOTED)

PLC INPUT/OUTPUT

DISCRETE INPUT	ANALOG INPUT
DISCRETE OUTPUT	ANALOG OUTPUT

FLOW PRIMARY ELEMENTS

	ORIFICE PLATE
	SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE
	VENTURI TUBE
	AVERAGING PITOT TUBE
	FLUME
	WEIR
	TURBINE OR PROPELLER-TYPE PRIMARY ELEMENT
	ROTAMETER
	ROTAMETER WITH INTEGRAL VALVE
	THERMAL MASS FLOWMETER
	POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
	VORTEX SENSOR
	TARGET TYPE SENSOR
	FLOW NOZZLE
	MAGNETIC FLOWMETER
	SONIC FLOWMETER

LINES

	MAIN PROCESS
	SECONDARY PROCESS
	DOUBLE CONTAINED PIPE
	REFERENCES TO OTHER SHEET
	LINE CONTINUATION DRAWING REFERENCE
	PIPE SYSTEM
	PIPE SIZE IN INCHES
	PNEUMATIC
	ELECTRICAL SIGNAL ANALOG
	ELECTRICAL SIGNAL DISCRETE
	HYDRAULIC
	CAPILLARY TUBE
	SOFTWARE OR DATA LINK
	ELECTROMAGNETIC OR SONIC (GUIDED)

	MECHANICAL		ELECTRICAL
	CONNECTED		NOT CONNECTED
	NOT CONNECTED		CONNECTED
	NOT CONNECTED		NOT CONNECTED

VALVES

	GATE VALVE
	GLOBE VALVE
	PLUG VALVE
	CHECK VALVE
	PINCH VALVE
	DIAPHRAGM VALVE
	BUTTERFLY VALVE
	BALL VALVE
	NEEDLE VALVE
	PLUG (COCK)
	PRESSURE REDUCING REGULATING VALVE, SELF-CONTAINED
	BACK PRESSURE REGULATING VALVE, SELF-CONTAINED
	PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP
	3-WAY VALVE
	4-WAY VALVE
	ANGLE VALVE
	PRESSURE RELIEF VALVE
	* FC = FAIL CLOSED
	FO = FAIL OPEN
	LC = LOCKED CLOSED
	LO = LOCKED OPEN
	CLOSED DURING NORMAL OPERATION
	SHADING INDICATES PORT TO BE CLOSED DURING NORMAL OPERATION. DOT INDICATES PORT TO BE CLOSED DURING ALTERNATE OPERATION.

VALVE OPERATORS

	DIAPHRAGM		CYLINDER OPERATOR
	DIAPHRAGM PRESSURE BALANCED		SOLENOID
	HAND		SOLENOID VALVE
	MOTOR		

TYPICAL CONNECTION

	DIRECT CONNECTION TO PROCESS
	TEMPERATURE ELEMENT WITH WELL
	IN-LINE DEVICE
	RADIATION OR SONIC SENSING
	FILLED SYSTEM, DIAPHRAGM SEAL CONNECTION

EQUIPMENT

	PUMP
	SUBMERSIBLE PUMP
	BLOWER
	CHEMICAL PUMP
	INJECTOR
	DOUBLE DIAPHRAGM AIR DRIVEN PUMP
	MIXER
	TURBINE PUMP
	PERISTALTIC PUMP

MISCELLANEOUS

	FLANGE
	UNION
	Y STRAINER
	FLOW STRAIGHTENING VANE
	TEE
	SCREWED CAP
	WELDED CAP
	BLIND FLANGE
	REDUCER
	HOSE BIBB CONNECTION
	DIAPHRAGM SEAL
	RUPTURE DISK, PRESSURE
	RUPTURE DISK, VACUUM
	PURGE
	DRAIN
	THERMOMETER WELL
	TORQUE SWITCH
	INTERLOCK. NUMBER IS THE CROSS REFERENCE TO A SPECIFIC ELEMENTARY DIAGRAM OR TO A SPECIFIC CONTROL STRATEGY DESCRIBED IN THE SPECS
	EXPANSION JOINT
	FLEXIBLE COUPLING
	SLUICE GATE OR SLIDE GATE
	WATER

* AV - AIR VALVE T - TRAP
F - FILTER FH - FIRE HYDRANT

- ### NOTES
- THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.
 - INSTRUMENTS MARKED WITH AN ASTERISK ARE FURNISHED WITH THE EQUIPMENT.
 - INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. SEE ALSO ISA S5.1, S5.3 AND S7.3.
 - REFER TO ISA RP7.7 FOR INSTRUMENT AIR QUALITY STANDARDS.



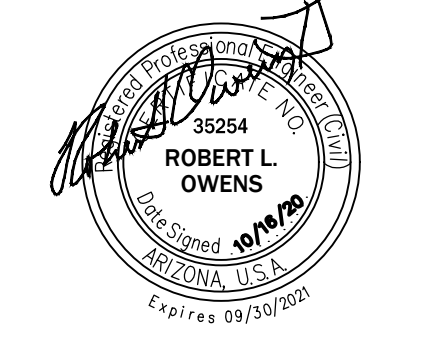
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www.inoba.com

1812 Schofield Lane
Farmington, NM 87401
P.O. BOX 2606
Farmington, NM 87499

CLIENT:
NAVAJO TRIBAL UTILITY AUTHORITY
P.O. BOX 170
Ft. Defiance, AZ, 86504

PROJECT: REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054



ROBERT L. OWENS
Professional Engineer
No. 35254
Arizona, U.S.A.
Expires 09/30/2021

REV	DESCRIPTION	DATE	DFTR	CHGR

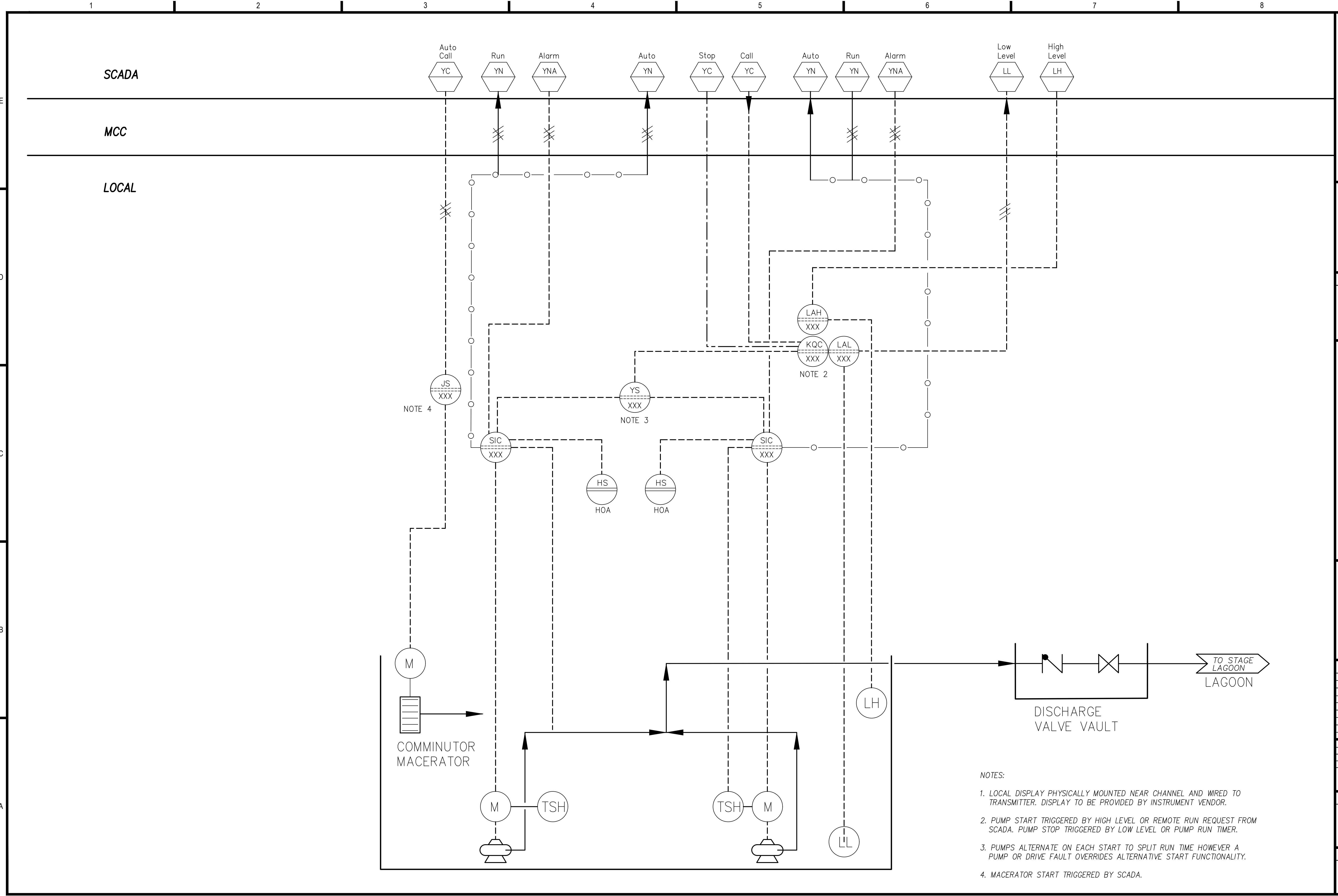
PROJECT NUMBER: 20-050-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS

INSTRUMENTATION AND CONTROL STANDARDS

DRAWING NUMBER:
D-01

E
D
C
B
A

ONLY VALID WITH ORIGINAL STAMP



- NOTES:
1. LOCAL DISPLAY PHYSICALLY MOUNTED NEAR CHANNEL AND WIRED TO TRANSMITTER. DISPLAY TO BE PROVIDED BY INSTRUMENT VENDOR.
 2. PUMP START TRIGGERED BY HIGH LEVEL OR REMOTE RUN REQUEST FROM SCADA. PUMP STOP TRIGGERED BY LOW LEVEL OR PUMP RUN TIMER.
 3. PUMPS ALTERNATE ON EACH START TO SPLIT RUN TIME HOWEVER A PUMP OR DRIVE FAULT OVERRIDES ALTERNATIVE START FUNCTIONALITY.
 4. MACERATOR START TRIGGERED BY SCADA.

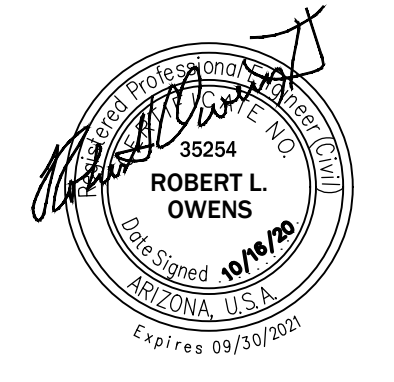


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1812 Schofield Lane
Farmington, NM 87401
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PROJECT NUMBER:	20-055-02
ENGINEER:	XXX
DRAWING SIZE:	ANSI D
DRAWING SCALE:	NTS



DRAWING TITLE:
**PROCESS AND INSTRUMENTATION
DIAGRAM**

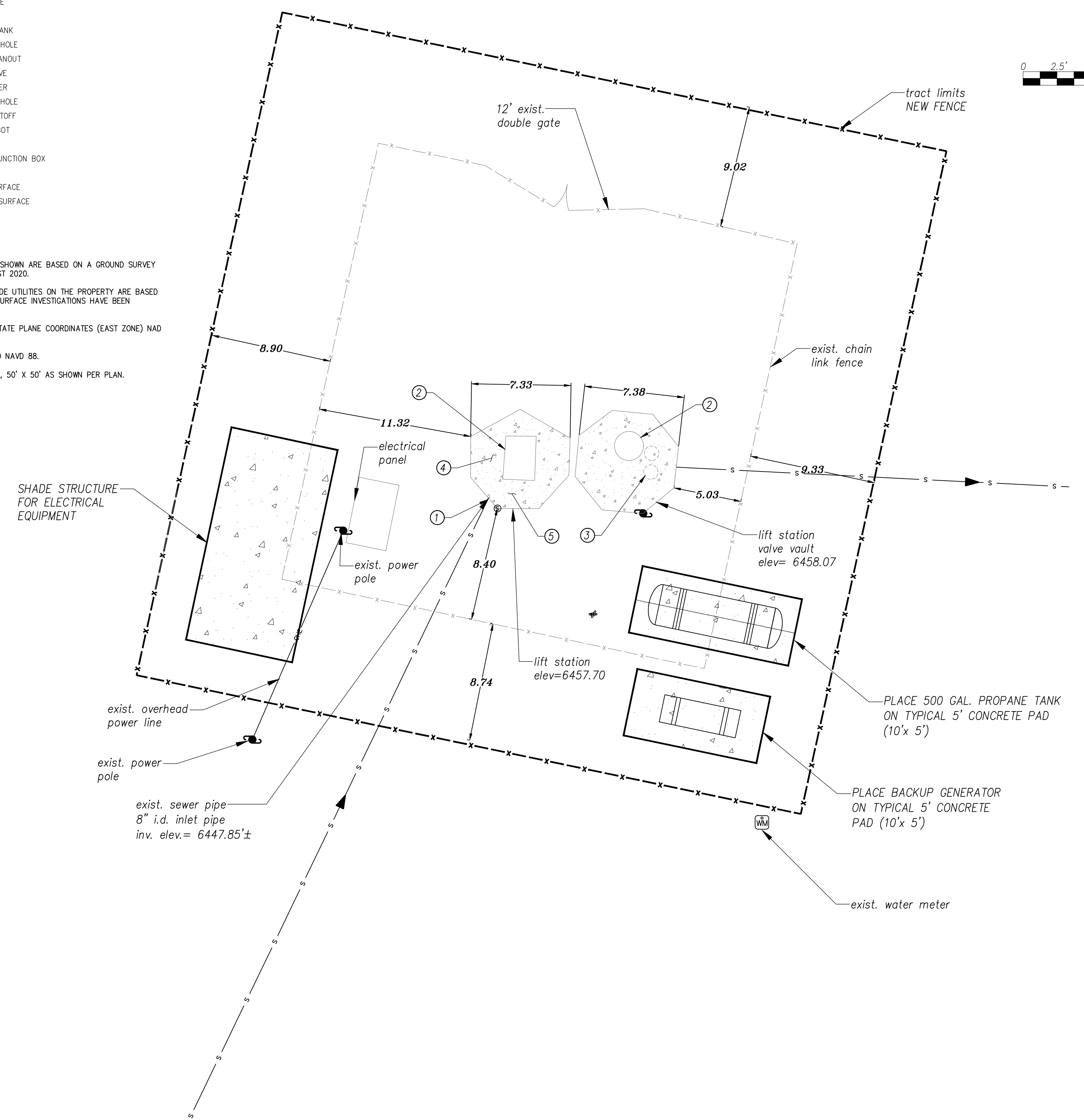
DRAWING NUMBER:
D-02

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LEGEND

---	TRACT LIMITS (SEE NOTE 4)
---	EXISTING GRADE CONTOUR
---	EDGE OF GRAVEL
---	DOMESTIC WATER
---	UNDERGROUND ELECTRIC
---	OVERHEAD ELECTRIC
---	PROPANE GAS
---	NEW FENCE
---	FENCE
---	UTILITY POLE
---	LIGHT POLE
---	PROPANE TANK
---	WATER MANHOLE
---	SEWER CLEANOUT
---	WATER VALVE
---	WATER METER
---	WATER MANHOLE
---	WATER SHUTOFF
---	WATER SPIGOT
---	ANTENNA
---	ELECTRIC JUNCTION BOX
---	VENT PIPE
---	GRAVEL SURFACE
---	CONCRETE SURFACE

- NOTES:**
1. TOPOGRAPHIC AND PHYSICAL FEATURES AS SHOWN ARE BASED ON A GROUND SURVEY PERFORMED BY IINA BA, INC. DURING AUGUST 2020.
 2. THE LOCATION OF THE EXISTING BELOW GRADE UTILITIES ON THE PROPERTY ARE BASED ON OBSERVED SURFACE EVIDENCE. NO SUBSURFACE INVESTIGATIONS HAVE BEEN PERFORMED BY IINA BA, INC.
 3. NORTH AS SHOWN IS BASED ON ARIZONA STATE PLANE COORDINATES (EAST ZONE) NAD 83 BASED ON GPS OBSERVATIONS.
 4. ELEVATIONS AS SHOWN ARE REFERENCED TO NAVD 88.
 5. ORIGINAL SHONTO LIFT STATION, PARCEL "F", 50' X 50' AS SHOWN PER PLAN.



EXIST. COMPONENTS

No.	Description
01	wet well inlet pipe
02	hatch
03	submersible pumps, hidden
04	valves, hidden

NEW COMPONENTS

No.	Description
05	COMMINUTOR/MACERATOR, SEE M-02

Iina Ba, Inc.
www.iinaba.com

1812 Schofield Lane
Farmington, NM 87401

P.O. BOX 2606
Farmington, NM 87499

CLIENT:
NAVAJO TRIBAL UTILITY AUTHORITY
P.O. BOX 170
Ft. Defiance, AZ, 86504

PROJECT:
REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054

ROBERT L. OWENS
38254
AZ, U.S.A.
Expires 09/30/2021

ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS

DRAWING TITLE:
MECHANICAL SITE PLAN

DRAWING NUMBER:
M-01

SK2-Shonto

Item	Dimensions
Halliday Products Series S1R Access Door w/ safety grate	3654
Series D Hoist Sockets	D3S Lined
Series Portable Hoist	D3A or D3B?

*this is just the socket, does NTUA need a hoist?
*this two Hoist pair with the D3S lined socket.

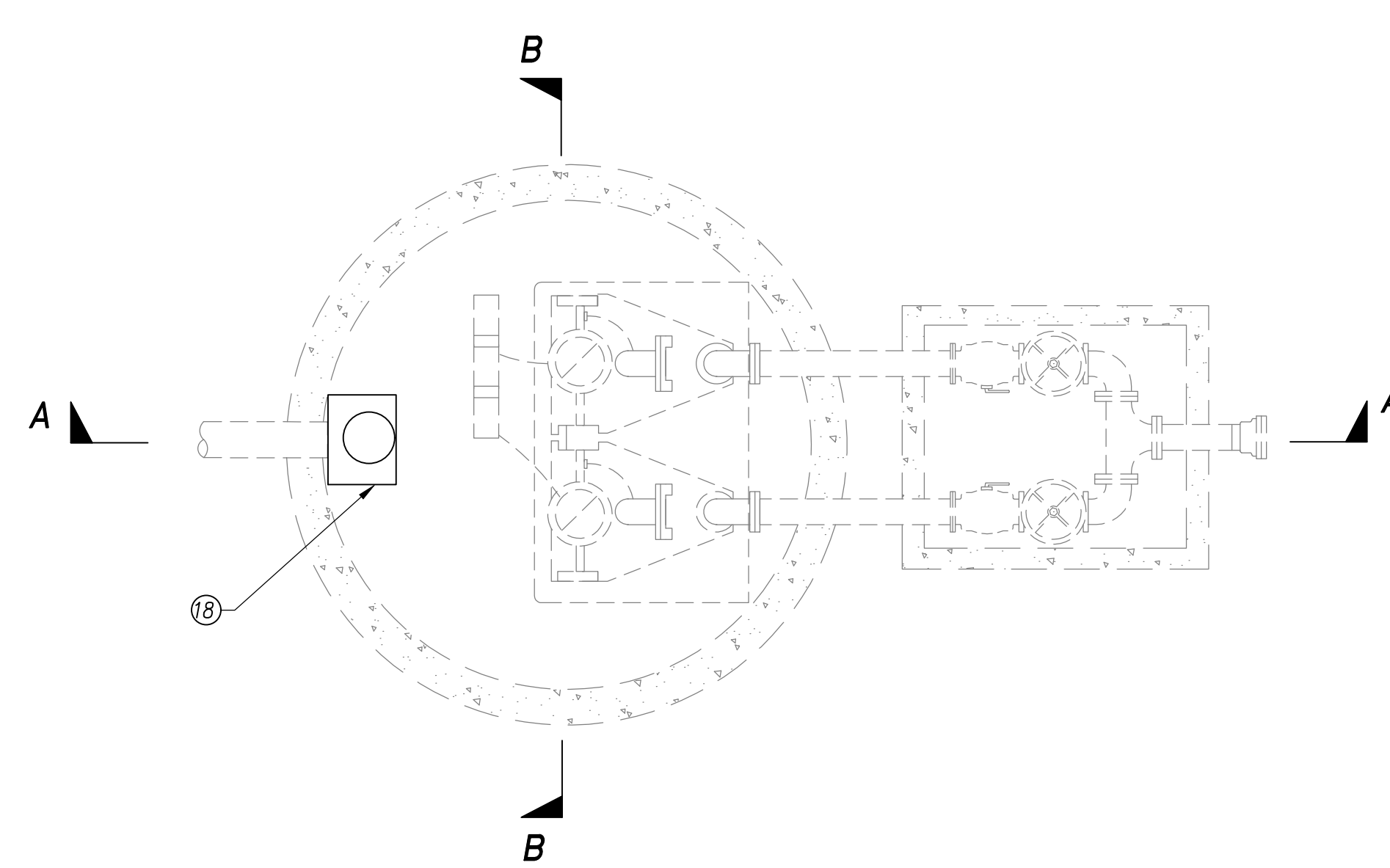
Item	Dimensions
Concrete Lid	
H-20 rated	6ft ID 10" traffic rated lid
Bottom of Lid	*Outside Diameter is 86". Flat or grooved?

DATE	DESCRIPTION	DATE	APPROVED
08-20-02	REVISED TO ADD HOIST SOCKET	08-20-02	[Signature]
08-20-02	REVISED TO ADD HOIST SOCKET	08-20-02	[Signature]

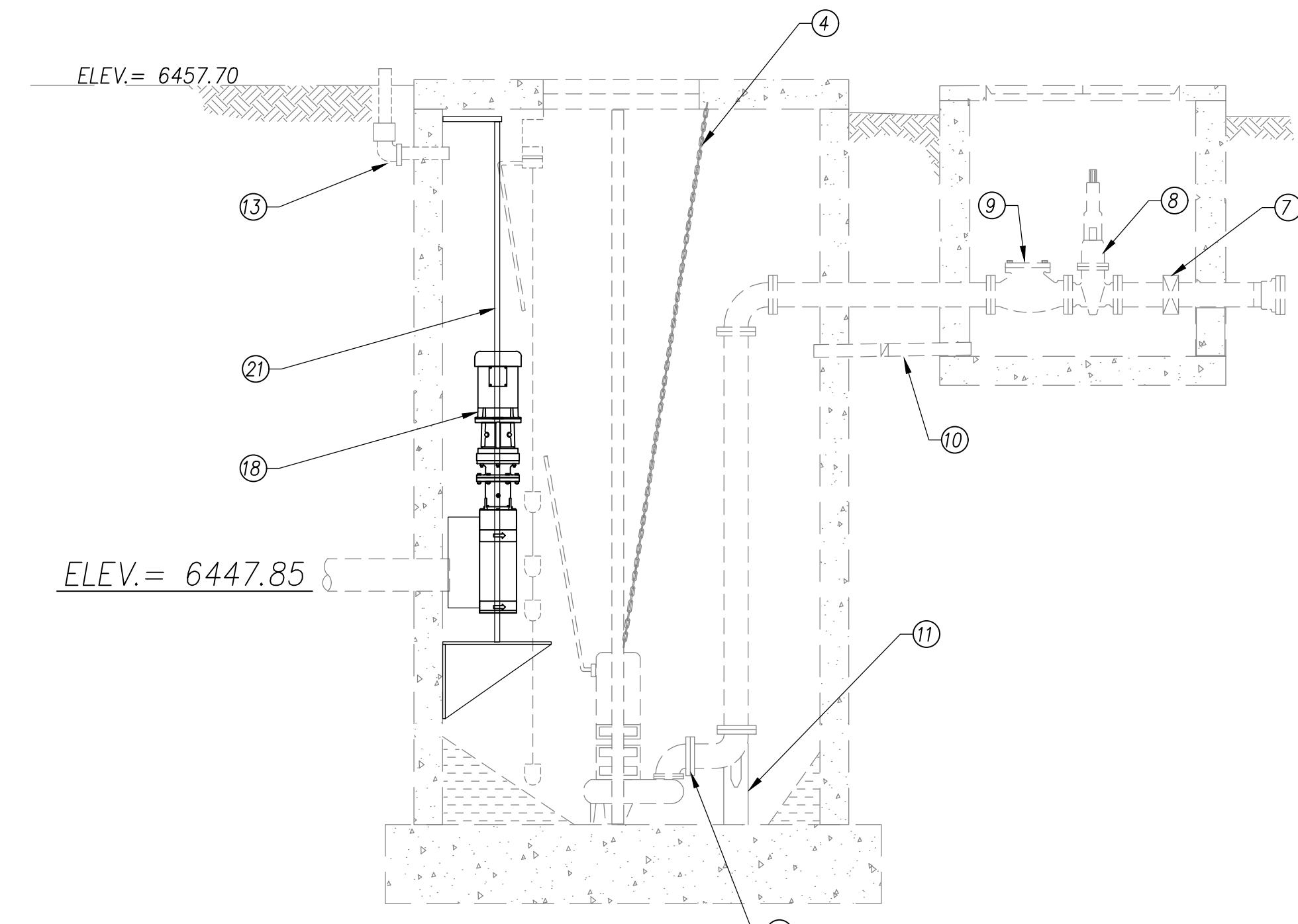
MODEL NO.	DIMENSIONS & QUANTITIES						
	A	B	C	D	E	F	G
30005-8	20 3/4 (527)	19 1/2 (495)	26 3/4 (679)	8	8 15/16 (151)	1 1/2 (38)	10
30005-12	24 7/8 (632)	23 5/8 (600)	30 7/8 (784)	8	6 13/16 (173)	2 (51)	10
30005-18	30 3/4 (781)	29 1/2 (749)	36 3/4 (933)	8	8 7/16 (214)	1 1/2 (38)	10
30005-24	36 1/2 (927)	35 1/4 (895)	42 1/2 (1090)	8	9 3/4 (248)	1 1/2 (38)	10
30005-32	44 1/4 (1124)	43 (1092)	50 1/4 (1276)	10	9 3/8 (238)	1 1/2 (38)	12
30005-40	52 1/4 (1327)	51 (1295)	58 1/4 (1480)	10	10 7/8 (276)	2 1/2 (64)	12
30005-50	62 1/4 (1581)	61 (1549)	68 1/4 (1734)	12	10 11/16 (271)	2 1/2 (64)	14
30005-60	72 5/8 (1845)	71 3/8 (1813)	78 5/8 (1997)	14	10 11/16 (271)	2 1/2 (64)	16

QTY	DESCRIPTION	QTY	DESCRIPTION
4	B	30140	LOCKWASHER, SPLIT 3/8
3	B	30249	HHCS 3/8-16 X 3/4
2	T	32523	GUIDE PLATE
1	T	32537R	FRAME-ROUND WALL MOUNT

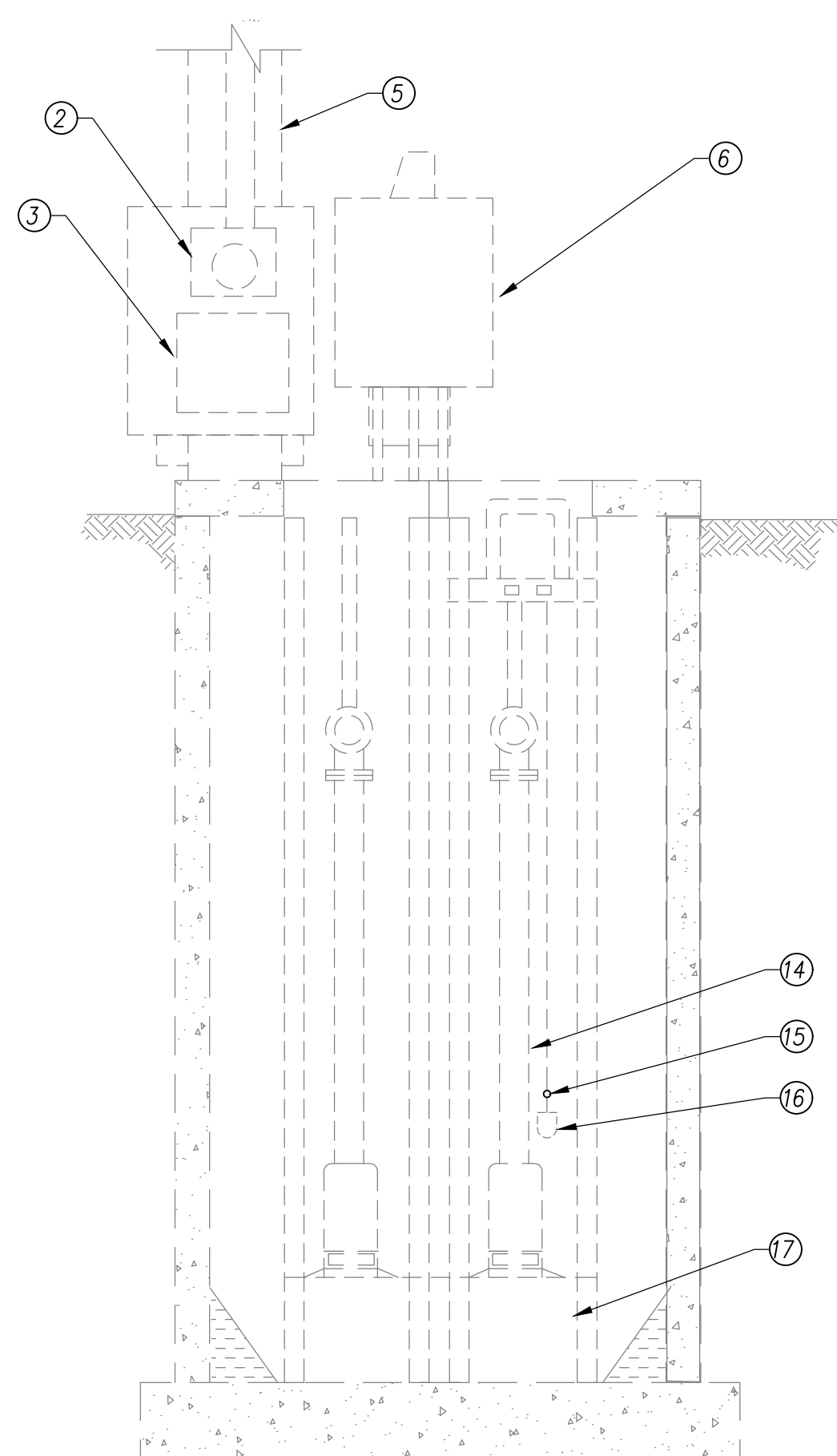
NOTES: UNLESS OTHERWISE SPECIFIED
1. ANCHOR BOLTS 1/2 (4) X 3 3/4 (95) MIN NOT PROVIDED BY JAC.
2. SEE DRAWING 30005-CD FOR GRINDER DETAILS AND DIMENSIONS.



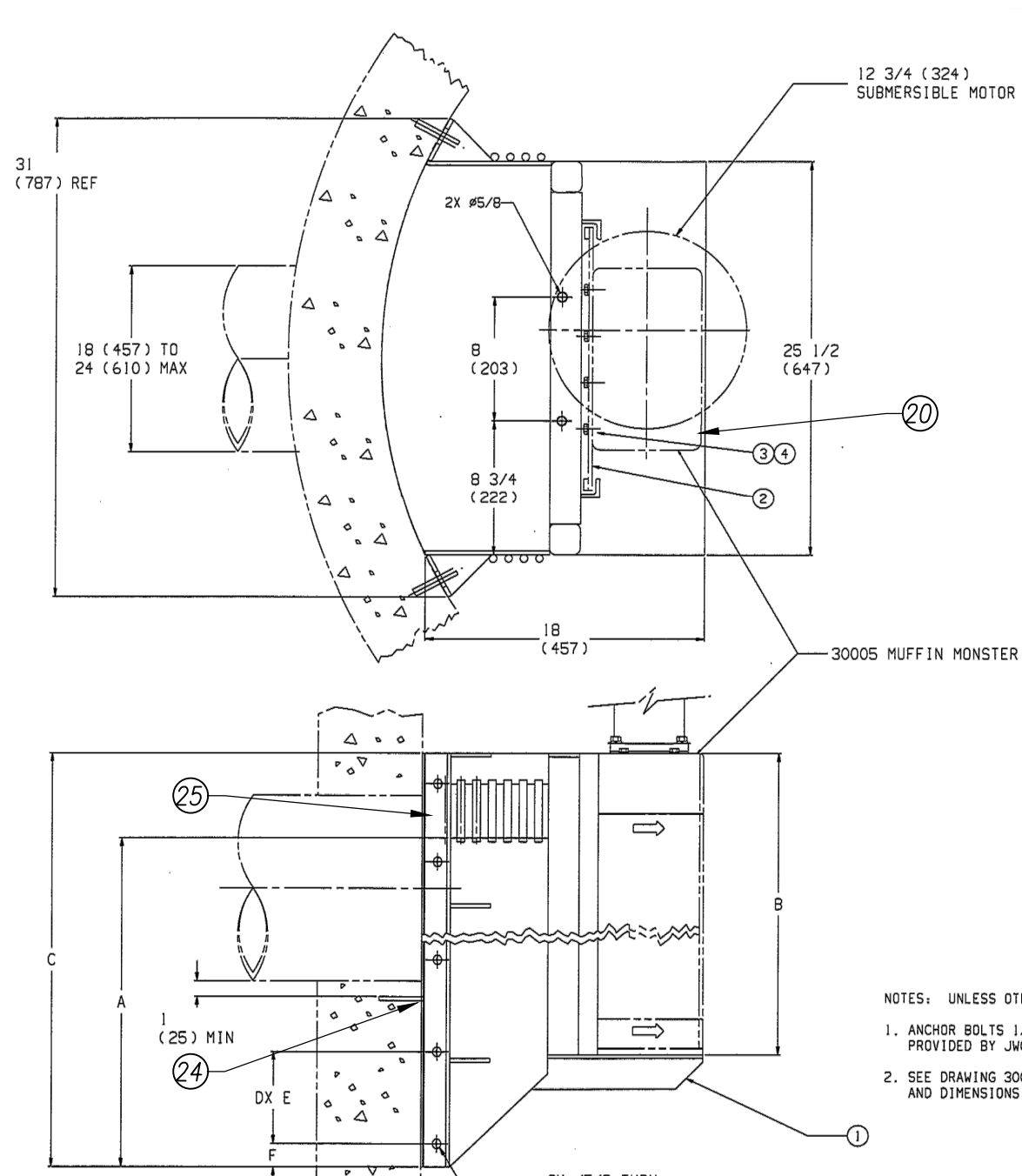
LIFT STATION PLAN VIEW
N.T.S.



SECTION A
N.T.S.



SECTION B
N.T.S.



COMMUNOTOR / MACERATOR
N.T.S.

EXIST. LIFT STATION MATERIALS	
1	2" galv. service mast
2	meter enclosure
3	main disconnect
4	pump lifting chain
5	service pole
6	pump controls nema 4
7	4" piping & valve
8	gate valve
9	check valve w/ swing type lever
10	3" drain pipe w/ ck valve
11	pump & support plate w/ discharge elbow
12	hydrologically sealed discharge flange no mechanical contract, self-cleaning
13	vent pipe
14	turn on level (two pump)
15	turn on level (one pump)
16	sealed mercury switch
17	pump support bracket

NEW LIFT STATION MATERIALS	
18	COMMUNOTOR/MACERATOR
19	CONTROLLER ASSEMBLY, NOT SHOWN
20	CUSTOM FRAME ASSEMBLY
21	CUSTOM GUIDE RAIL ASSEMBLY
22	CUSTOM LIFTING BAIL ASSEMBLY
23	FRAME WALL MOUNT
24	GUIDE PLATE
25	HHCS 3/8*-16 X 3/4 SST
26	LOCK WASHERS SPLIT 3/8 SST
27	PORTABLE HOIST 1,500 LB LIMIT; SST
28	HOIST SOCKET; LINED
29	PRECAST LID
30	ACCESS HATCH AND SAFETY GRATE
31	WATER SEAL FOR SEATING CONNECTION

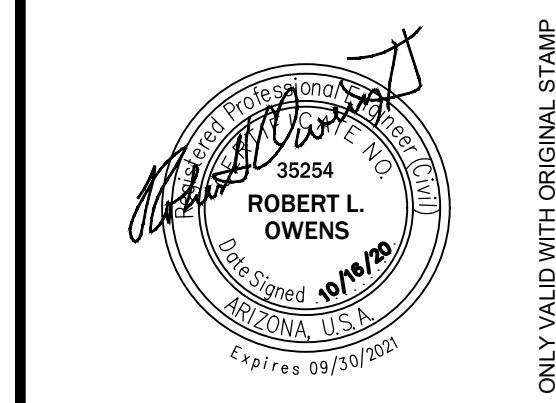
"ALL STAINLESS STEEL FOR STRUCTURAL ITEMS SHALL BE 316 TYPE"



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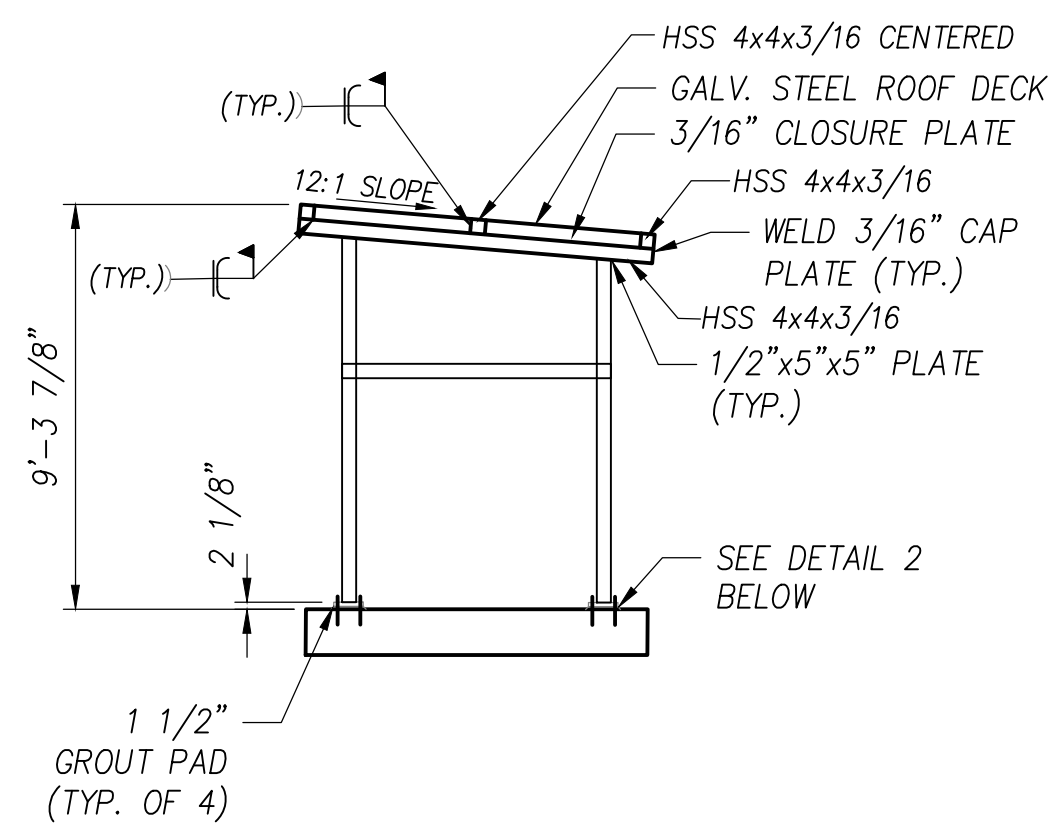
PROJECT:
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36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054



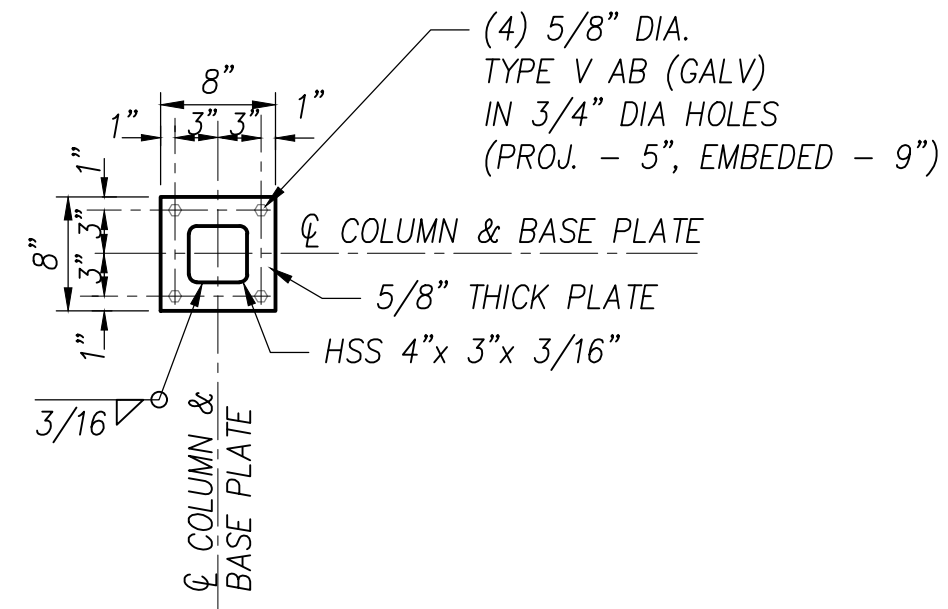
REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS

DRAWING TITLE:
MECHANICAL SECTIONS
DRAWING NUMBER:
M-02



① **SIDE VIEW**
NTUA STANDARD DETAIL N.T.S.



② **POST BASE DETAIL**
NTUA STANDARD DETAIL N.T.S.

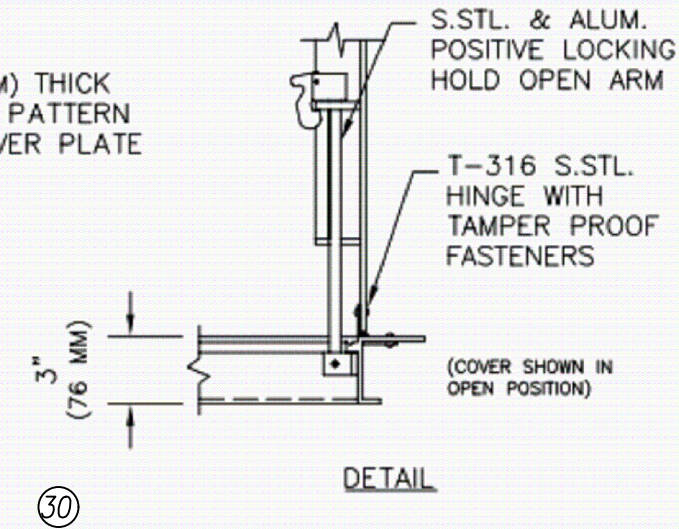
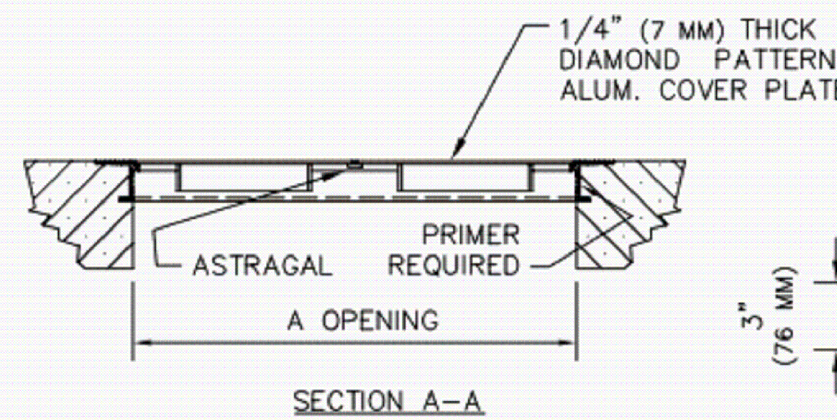
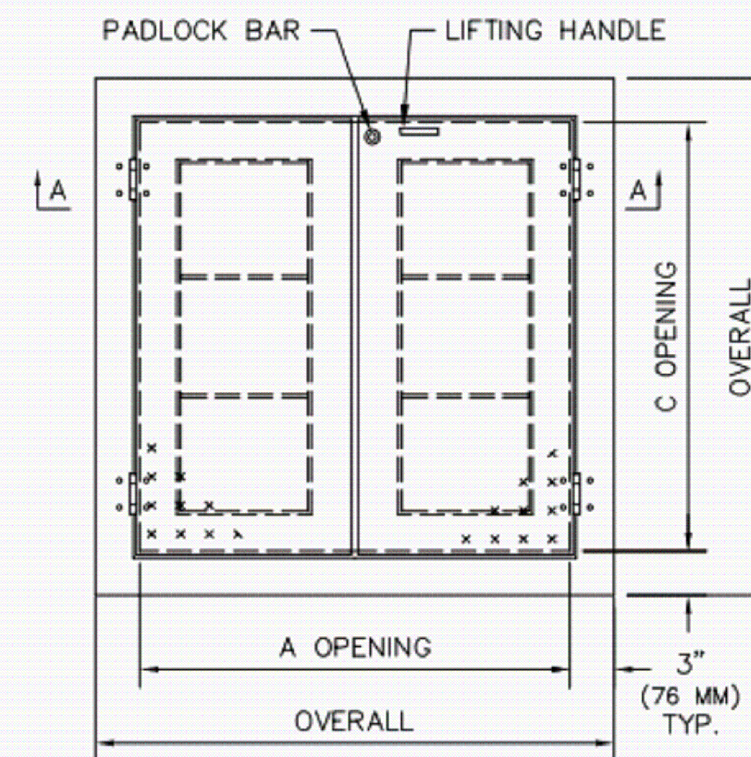
SERIES S2R ACCESS DOOR

- STANDARD FEATURES:**
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
 - T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
 - NON-CORROSIVE PADLOCK BAR
 - DOUBLE LEAF CONSTRUCTION
 - 300 LBS. PER SQ. FT. LOAD RATING (1464 KG. PER SQ. METER LOAD RATING)
 - EXTRUDED ALUMINUM FRAME
 - RECESSED LIFTING HANDLE
 - LIFETIME GUARANTEE

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Fax 407-298-4534
Sales@HolidayProducts.com

STANDARD SIZES

QTY.	MODEL NO.	A DIM. INCHES (MM)	C DIM. INCHES (MM)	UNIT WT. LBS. (KG.)
	S2R4242	42 (1067)	42 (1067)	93 (42)
	S2R4842	48 (1219)	42 (1067)	99 (45)
	S2R4848	48 (1219)	48 (1219)	110 (50)
	S2R5442	54 (1372)	42 (1067)	108 (49)
	S2R5448	54 (1372)	48 (1219)	119 (54)
	S2R5454	54 (1372)	54 (1372)	127 (58)
	S2R6030	60 (1524)	30 (762)	87 (39)
	S2R6036	60 (1524)	36 (914)	100 (45)
	S2R6042	60 (1524)	42 (1067)	115 (52)
	S2R6048	60 (1524)	48 (1219)	130 (59)
	S2R6054	60 (1524)	54 (1372)	143 (65)
	S2R6060	60 (1524)	60 (1524)	158 (72)
	S2R6636	66 (1676)	36 (914)	109 (49)
	S2R6648	66 (1676)	48 (1219)	141 (64)
	S2R7236	72 (1829)	36 (914)	116 (53)
	S2R7242	72 (1829)	42 (1067)	135 (61)
	S2R7248	72 (1829)	48 (1219)	151 (68)
	S2R7254	72 (1829)	54 (1372)	168 (76)
	S2R7260	72 (1829)	60 (1524)	178 (81)



SERIES DA PORTABLE HOIST

- STANDARD FEATURES:**
- TYPE-304 STAINLESS STEEL CONSTRUCTION
 - 30 FEET (9 METERS) OF 1/4" (7 MM) STAINLESS STEEL CABLE
 - GALVANIZED 1 TON HOOK
 - DUTTON-LAINSON MARINE GRADE BRAKE WINCH
 - 3 YEAR GUARANTEE

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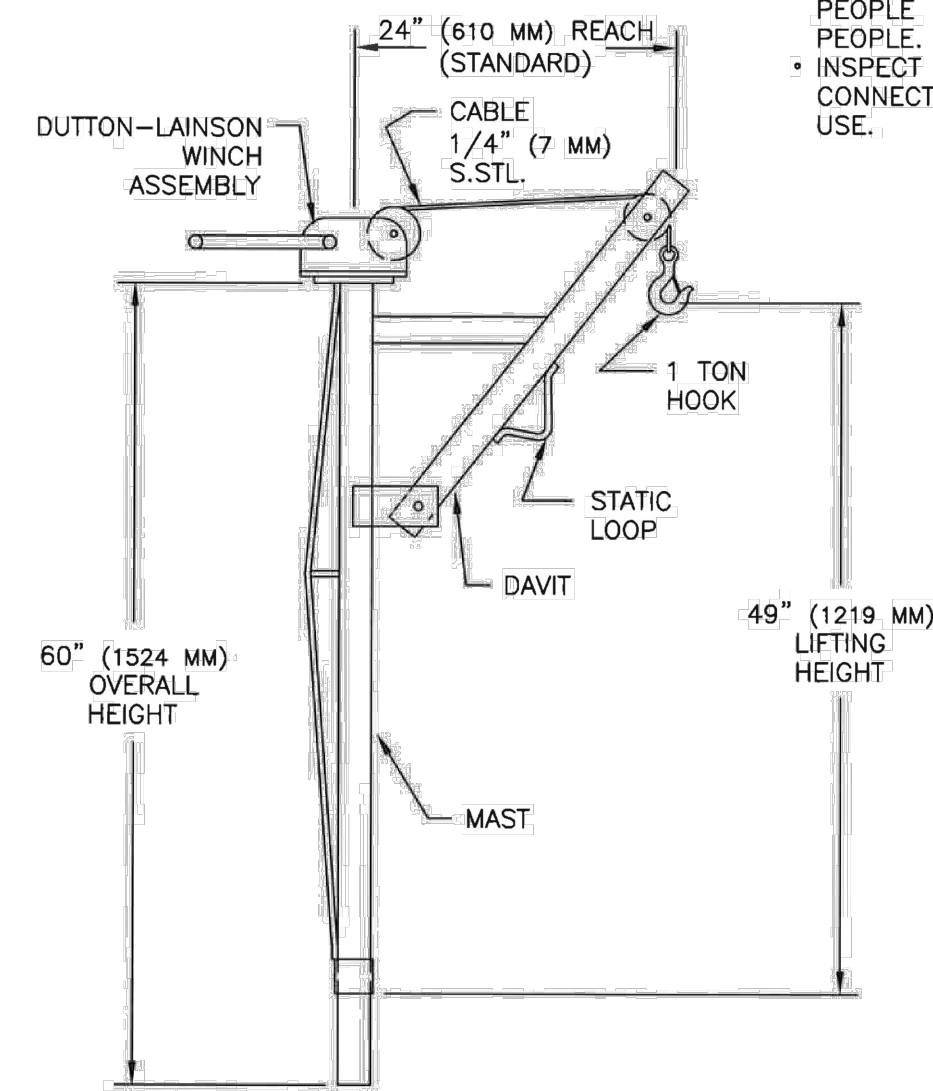
STANDARD SIZES

QTY.	MODEL NO.	MAX. LOAD LBS. (KG.)	UNIT WT. LBS. (KG.)
	D1A24C	500 (227)	85 (30)
	D2A24D	1000 (454)	88 (40)
	D3A24E	1500 (680)	103 (48)

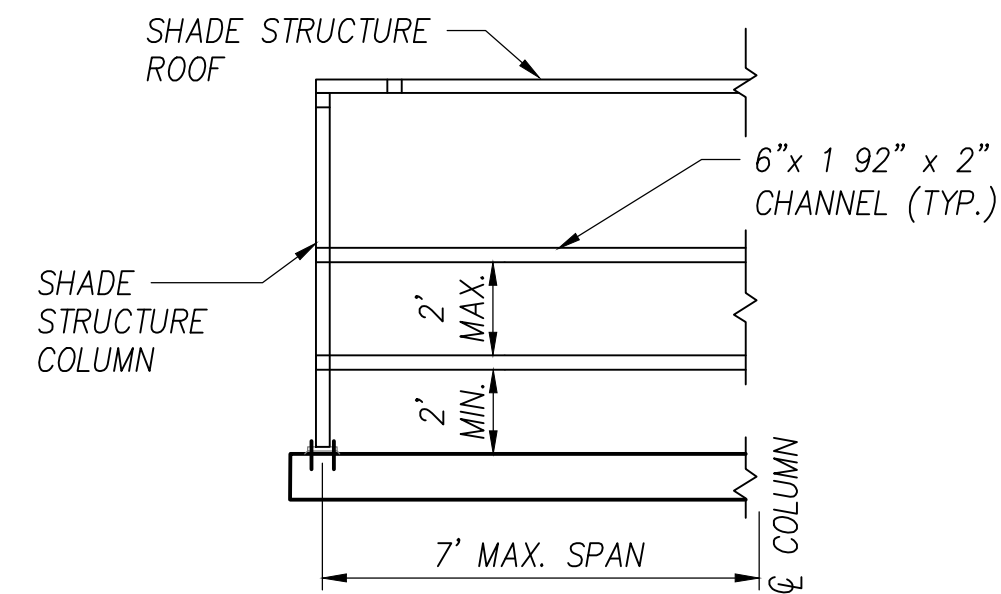
- OPTIONS:**
- TYPE-316 CONSTRUCTION
 - ADDITIONAL CABLE AVAILABLE (SPECIFY LENGTH)
 - STAINLESS STEEL WINCH
 - STAINLESS STEEL HOOK
 - OTHER REACHES AVAILABLE UPON REQUEST (CONSULT FACTORY)

NOTICE:

- HALLIDAY PRODUCTS STAINLESS STEEL PORTABLE HOIST SHOULD NOT BE USED TO MOVE PEOPLE OR LOADS ABOVE PEOPLE.
- INSPECT CABLE AND HOOK CONNECTIONS BEFORE EACH USE.



SR-DA-0 6/5/12

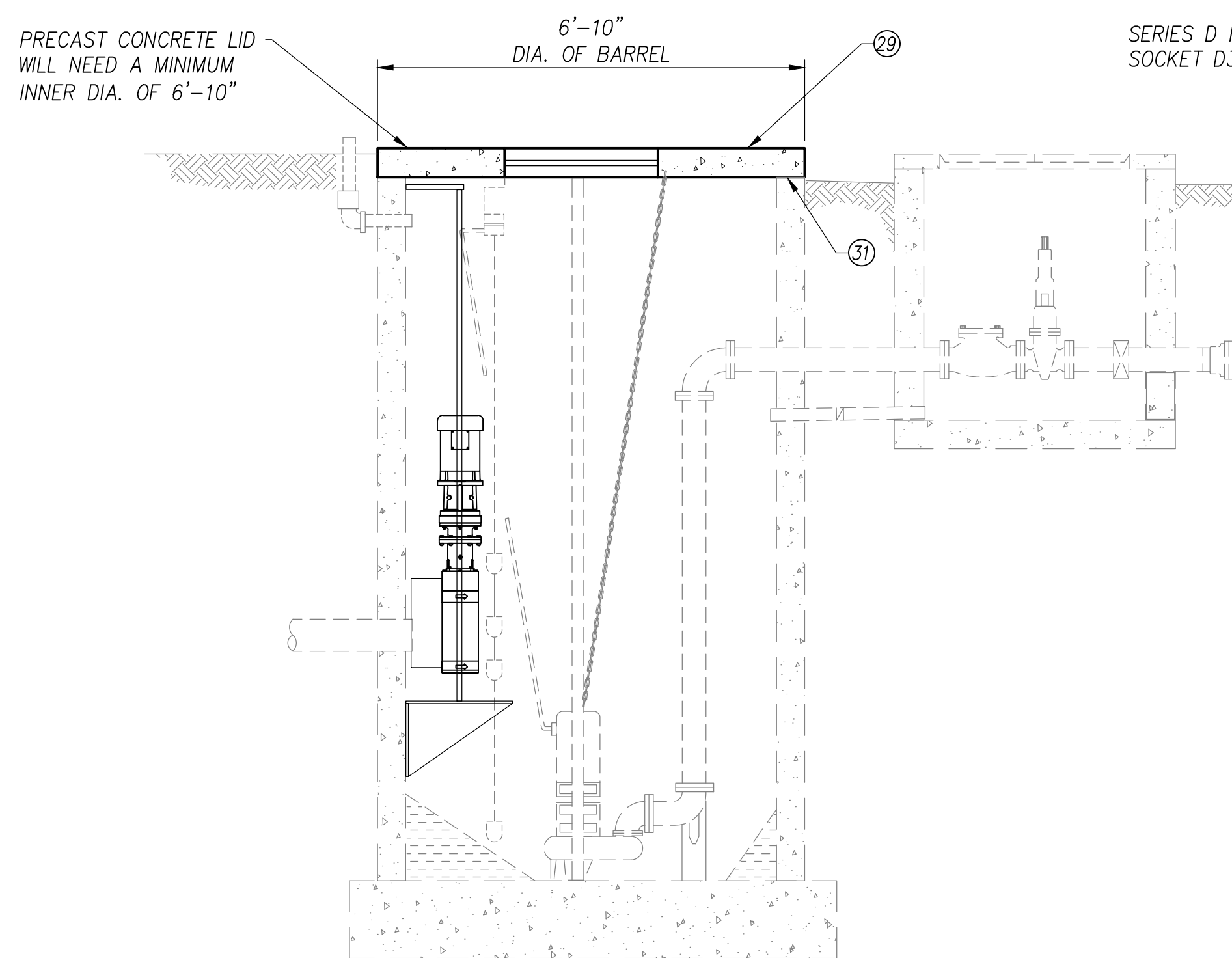


③ **RACK SUPPORT DETAIL**
NTUA STANDARD DETAIL N.T.S.

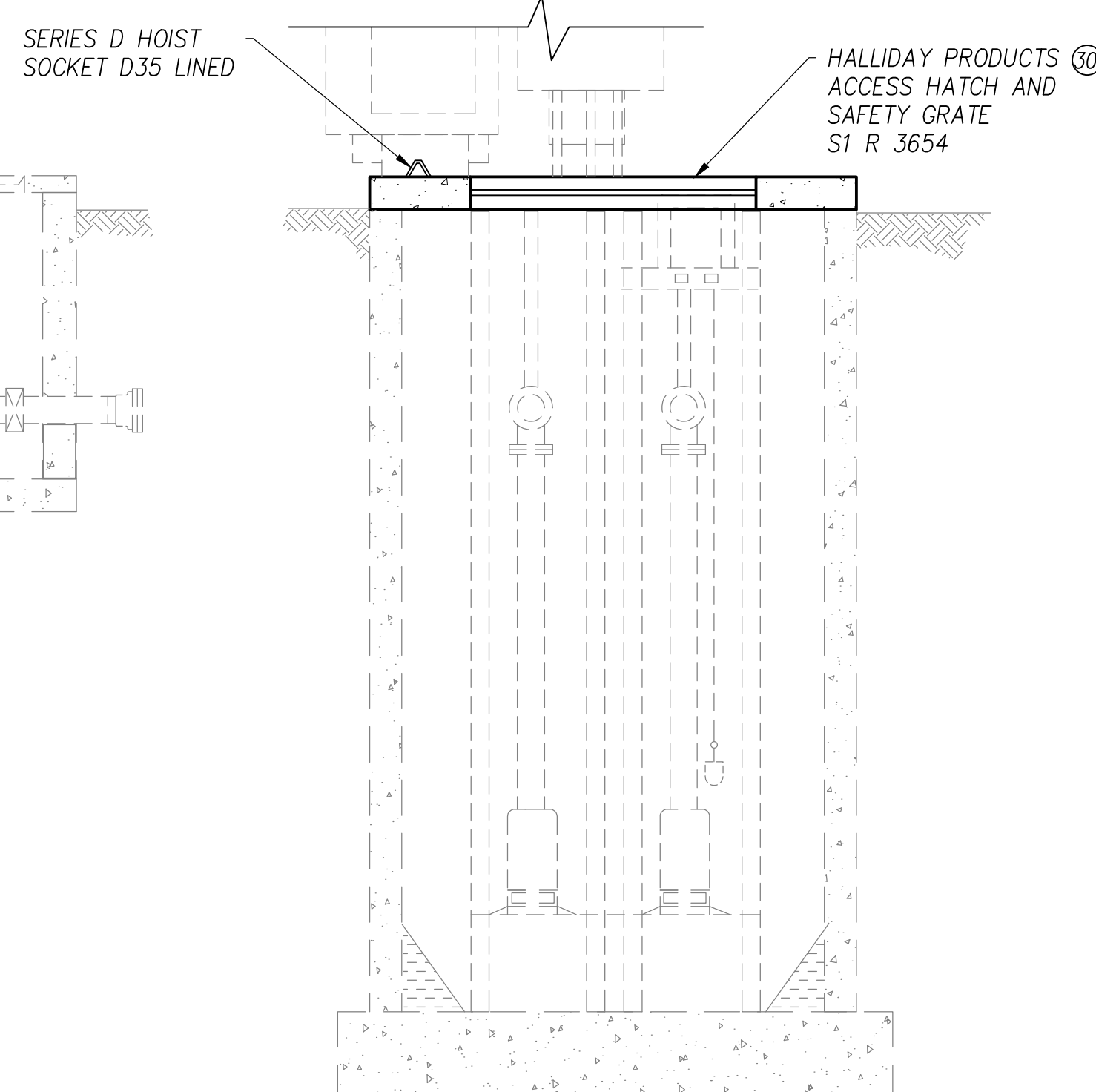
NOTE:
ALL CONCRETE SHALL COMPLY WITH THE LATEST EDITION OF ACI 318.

YES
D3A24E (specify 20 ft. cable)

Flat



SECTION A
N.T.S.

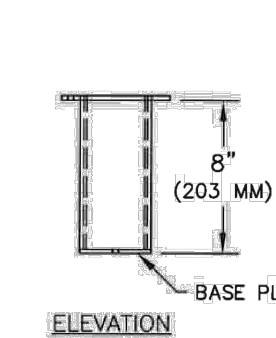
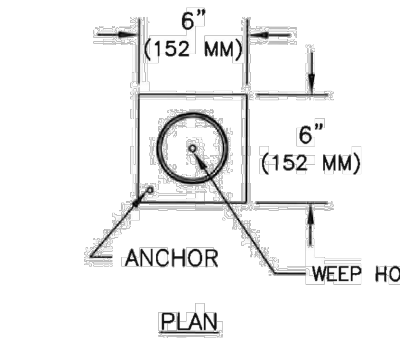


SECTION B
N.T.S.

SERIES D HOIST SOCKETS

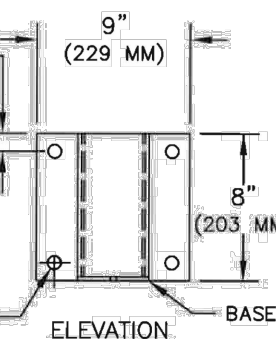
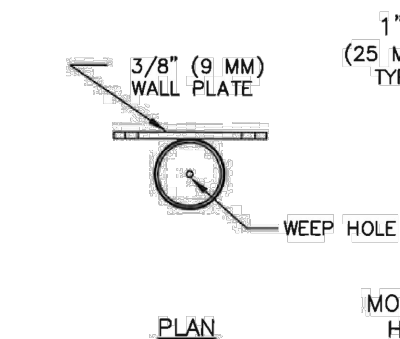
- STANDARD FEATURES:**
- STAINLESS STEEL TYPE-304 (STANDARD) OR TYPE-316 (OPTIONAL) CONSTRUCTION
 - AVAILABLE IN 3 STYLES
 - SUPPLIED WITH POLYMER LINING FOR SMOOTHER ROTATION
 - 3 YEAR GUARANTEE

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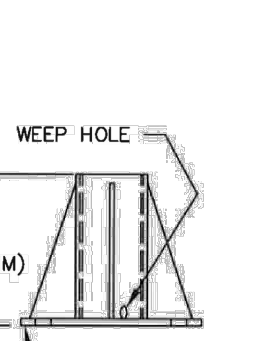
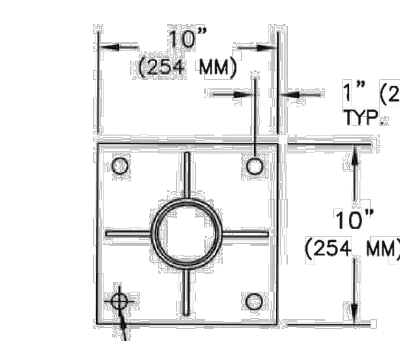
EMBED STYLE HOIST SOCKETS

SOCKET MODEL #	FOR HOIST MODELS
D1R LINED	D1A AND D1B
D2R LINED	D2A AND D2B
D3R LINED	D3A AND D3B



WALL STYLE HOIST SOCKETS

SOCKET MODEL #	FOR HOIST MODELS
D1V LINED	D1A AND D1B
D2V LINED	D2A AND D2B
NOT AVAILABLE	D3A AND D3B



FLOOR STYLE HOIST SOCKETS

SOCKET MODEL #	FOR HOIST MODELS
D1S LINED	D1A AND D1B
D2S LINED	D2A AND D2B
D3S LINED	D3A AND D3B

NOTES:
MOUNTING HOLES ARE #3/4" (#19 MM)

SR-D-0 6/5/12



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www.linaba.com

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P.O. BOX 2606
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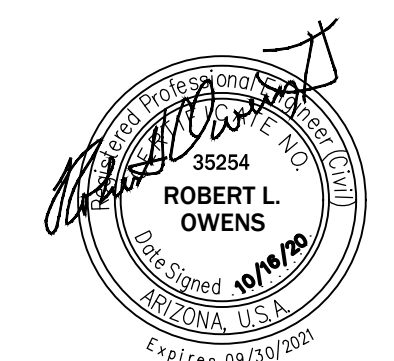
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REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054

PROJECT:



REVISIONS:

REV	DESCRIPTION	DATE	DFTR	CHKR

PROJECT NUMBER: 20-055-02
ENGINEER: XXX
DRAWING SIZE: ANSI D
DRAWING SCALE: NTS

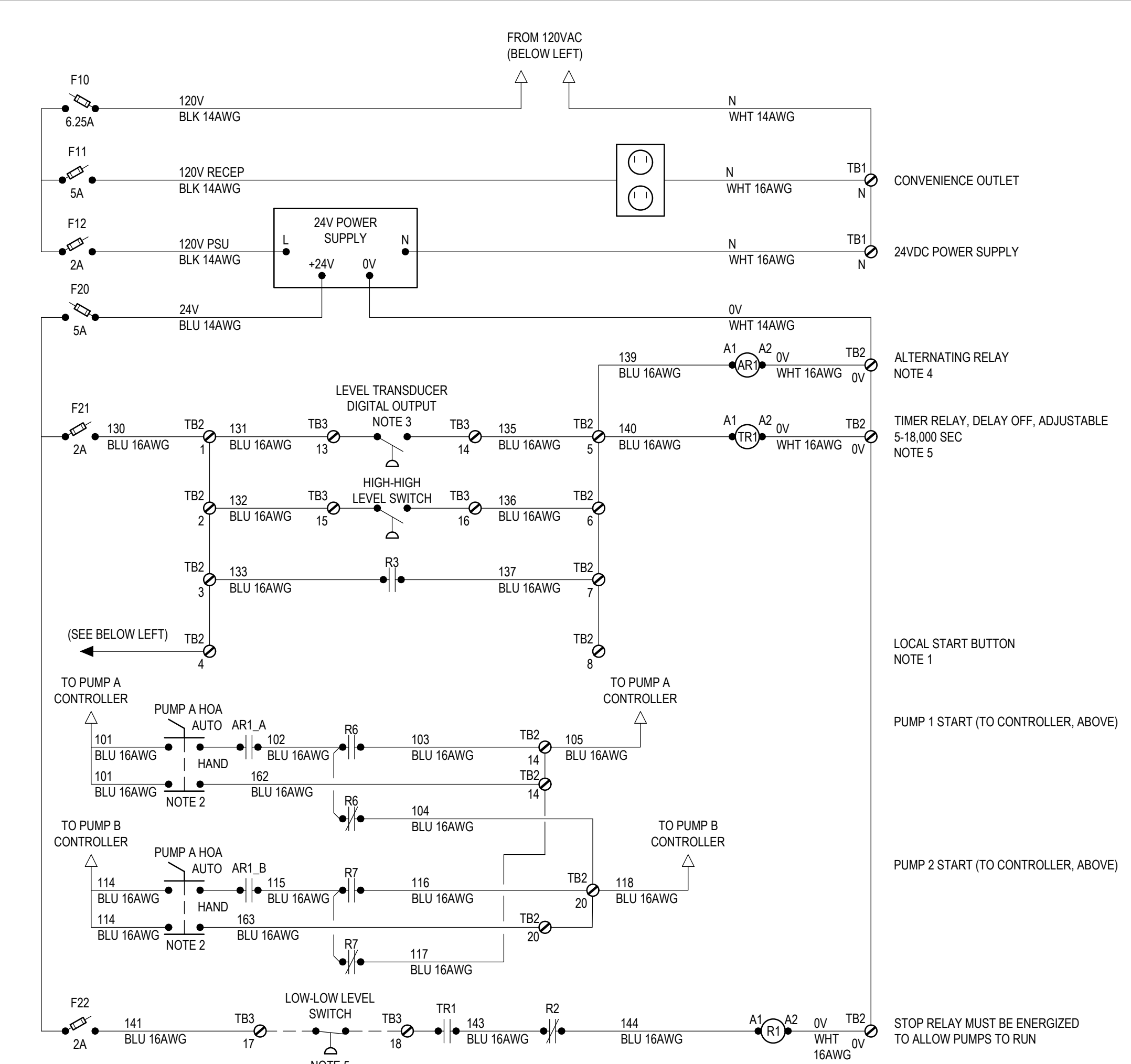
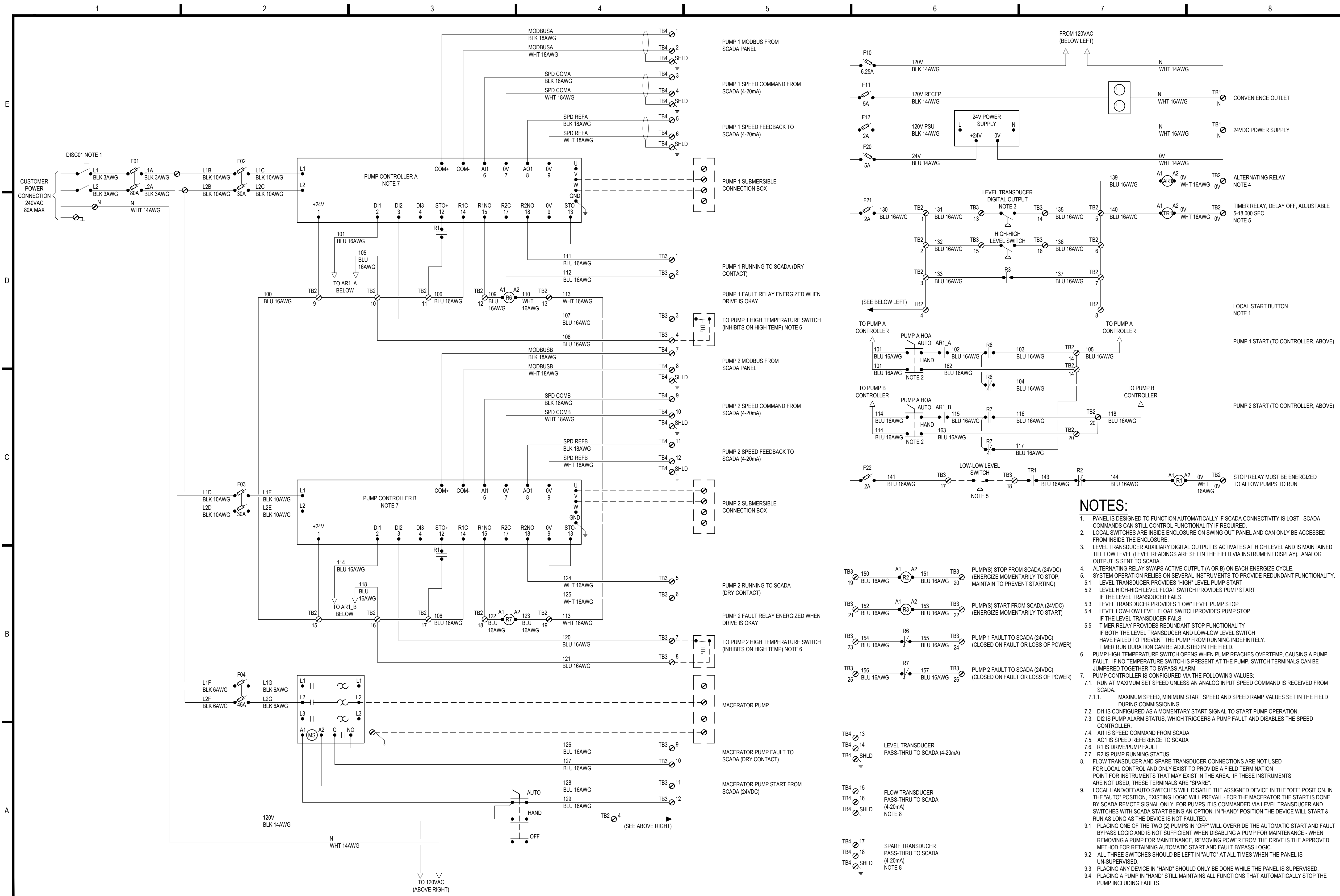
DRAWING TITLE:

MECHANICAL SECTIONS


DRAWING NUMBER:

S-01

ONLY VALID WITH ORIGINAL STAMP




- NOTES:**
- PANEL IS DESIGNED TO FUNCTION AUTOMATICALLY IF SCADA CONNECTIVITY IS LOST. SCADA COMMANDS CAN STILL CONTROL FUNCTIONALITY IF REQUIRED.
 - LOCAL SWITCHES ARE INSIDE ENCLOSURE ON SWING OUT PANEL AND CAN ONLY BE ACCESSED FROM INSIDE THE ENCLOSURE.
 - LEVEL TRANSDUCER AUXILIARY DIGITAL OUTPUT IS ACTIVATES AT HIGH LEVEL AND IS MAINTAINED TILL LOW LEVEL (LEVEL READINGS ARE SET IN THE FIELD VIA INSTRUMENT DISPLAY). ANALOG OUTPUT IS SENT TO SCADA.
 - ALTERNATING RELAY SWAPS ACTIVE OUTPUT (A OR B) ON EACH ENERGIZE CYCLE.
 - SYSTEM OPERATION RELIES ON SEVERAL INSTRUMENTS TO PROVIDE REDUNDANT FUNCTIONALITY.
 - LEVEL TRANSDUCER PROVIDES "HIGH" LEVEL PUMP START
 - LEVEL HIGH-HIGH LEVEL FLOAT SWITCH PROVIDES PUMP START IF THE LEVEL TRANSDUCER FAILS
 - LEVEL TRANSDUCER PROVIDES "LOW" LEVEL PUMP STOP
 - LEVEL LOW-LOW LEVEL FLOAT SWITCH PROVIDES PUMP STOP IF THE LEVEL TRANSDUCER FAILS
 - TIMER RELAY PROVIDES REDUNDANT STOP FUNCTIONALITY IF BOTH THE LEVEL TRANSDUCER AND LOW-LOW LEVEL SWITCH HAVE FAILED TO PREVENT THE PUMP FROM RUNNING INDEFINITELY. TIMER RUN DURATION CAN BE ADJUSTED IN THE FIELD.
 - PUMP HIGH TEMPERATURE SWITCH OPENS WHEN PUMP REACHES OVERTEMP, CAUSING A PUMP FAULT. IF NO TEMPERATURE SWITCH IS PRESENT AT THE PUMP, SWITCH TERMINALS CAN BE JUMPERED TOGETHER TO BYPASS ALARM.
 - PUMP CONTROLLER IS CONFIGURED VIA THE FOLLOWING VALUES:
 - RUN AT MAXIMUM SET SPEED UNLESS AN ANALOG INPUT SPEED COMMAND IS RECEIVED FROM SCADA.
 - MAXIMUM SPEED, MINIMUM START SPEED AND SPEED RAMP VALUES SET IN THE FIELD DURING COMMISSIONING
 - DI1 IS CONFIGURED AS A MOMENTARY START SIGNAL TO START PUMP OPERATION.
 - DI2 IS PUMP ALARM STATUS, WHICH TRIGGERS A PUMP FAULT AND DISABLES THE SPEED CONTROLLER.
 - A1 IS SPEED COMMAND FROM SCADA
 - A01 IS SPEED REFERENCE TO SCADA
 - R1 IS DRIVE/PUMP FAULT
 - R2 IS PUMP RUNNING STATUS
 - FLOW TRANSDUCER AND SPARE TRANSDUCER CONNECTIONS ARE NOT USED FOR LOCAL CONTROL AND ONLY EXIST TO PROVIDE A FIELD TERMINATION POINT FOR INSTRUMENTS THAT MAY EXIST IN THE AREA. IF THESE INSTRUMENTS ARE NOT USED, THESE TERMINALS ARE "SPARE".
 - LOCAL HAND/OFF/AUTO SWITCHES WILL DISABLE THE ASSIGNED DEVICE IN THE "OFF" POSITION. IN THE "AUTO" POSITION, EXISTING LOGIC WILL PREVAIL - FOR THE MACERATOR THE START IS DONE BY SCADA REMOTE SIGNAL ONLY. FOR PUMPS IT IS COMMANDED VIA LEVEL TRANSDUCER AND SWITCHES WITH SCADA START BEING AN OPTION. IN "HAND" POSITION THE DEVICE WILL START & RUN AS LONG AS THE DEVICE IS NOT FAULTED.
 - PLACING ONE OF THE TWO (2) PUMPS IN "OFF" WILL OVERRIDE THE AUTOMATIC START AND FAULT BYPASS LOGIC AND IS NOT SUFFICIENT WHEN DISABLING A PUMP FOR MAINTENANCE - WHEN REMOVING A PUMP FOR MAINTENANCE, REMOVING POWER FROM THE DRIVE IS THE APPROVED METHOD FOR RETAINING AUTOMATIC START AND FAULT BYPASS LOGIC.
 - ALL THREE SWITCHES SHOULD BE LEFT IN "AUTO" AT ALL TIMES WHEN THE PANEL IS UN-SUPERVISED.
 - PLACING ANY DEVICE IN "HAND" SHOULD ONLY BE DONE WHILE THE PANEL IS SUPERVISED.
 - PLACING A PUMP IN "HAND" STILL MAINTAINS ALL FUNCTIONS THAT AUTOMATICALLY STOP THE PUMP INCLUDING FAULTS.



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1812 Schofield Lane
Farmington, NM 87401

P.O. BOX 2606
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FT. DEFIANCIE, AZ 86504

PROJECT:
REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

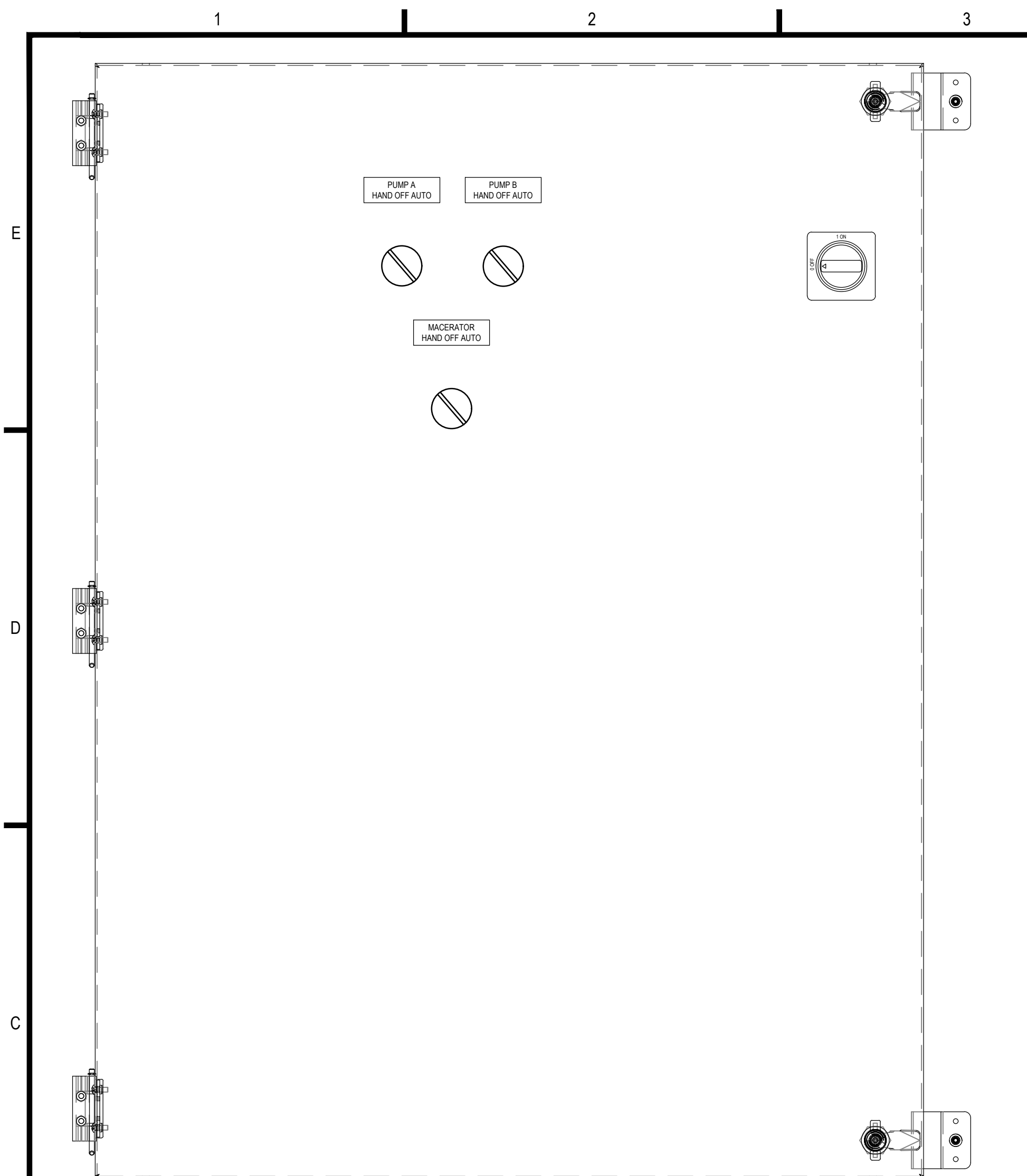
36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054

REVISIONS:				
REV	DESCRIPTION	DATE	DFTR	CHKR
0	100% SUBMISSION	2020-10-06	SBV	GMC

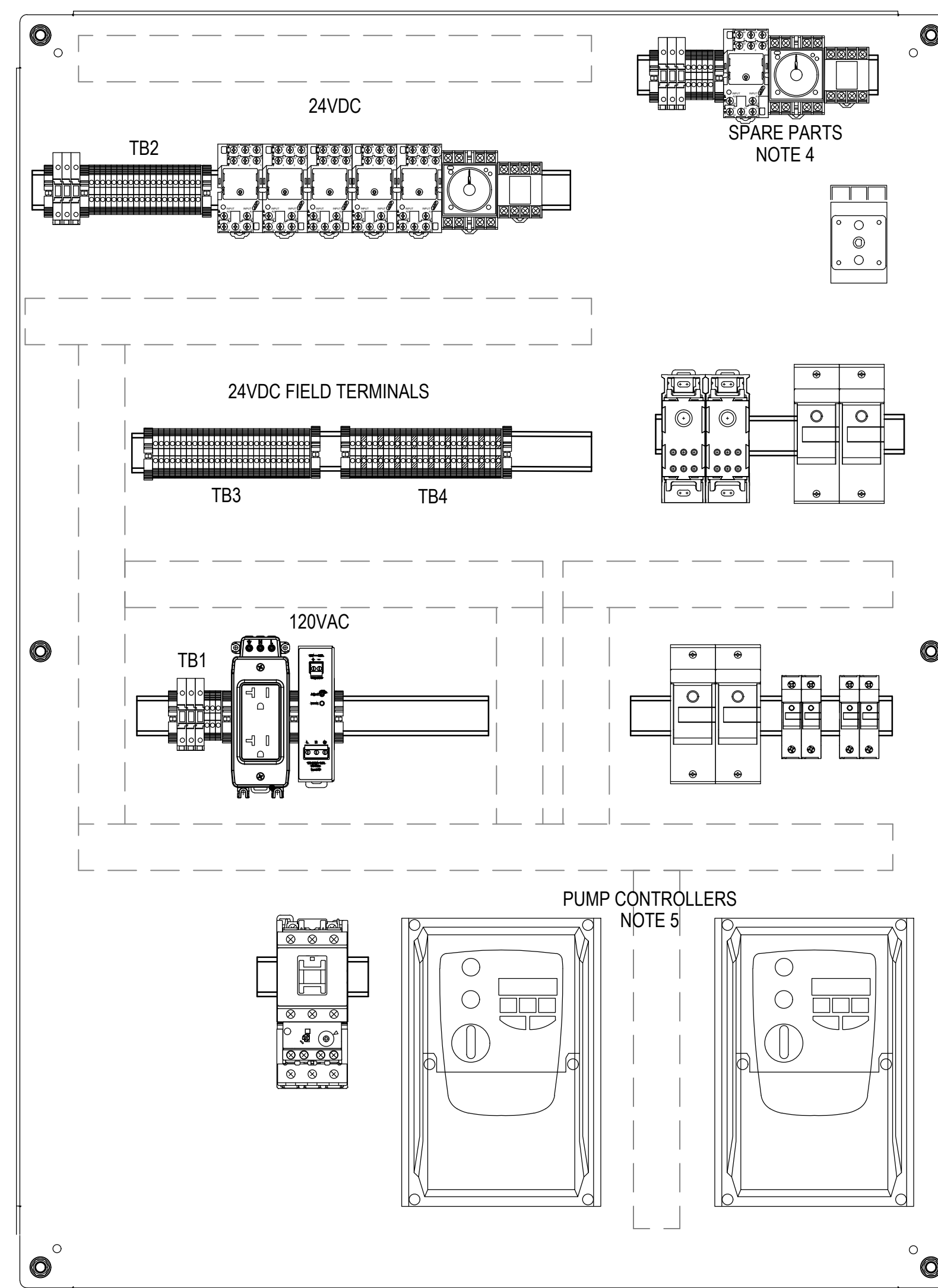
DRAWING NUMBER: 2024
ENGINEER: GMC
DRAWING SCALE: NTS
DRAWING SIZE: ANSI D

DRAWING TITLE:
**SHONTO SITE PANEL PUMP PANEL
240V ONE-LINE DIAGRAM**

DRAWING NUMBER:
E1602

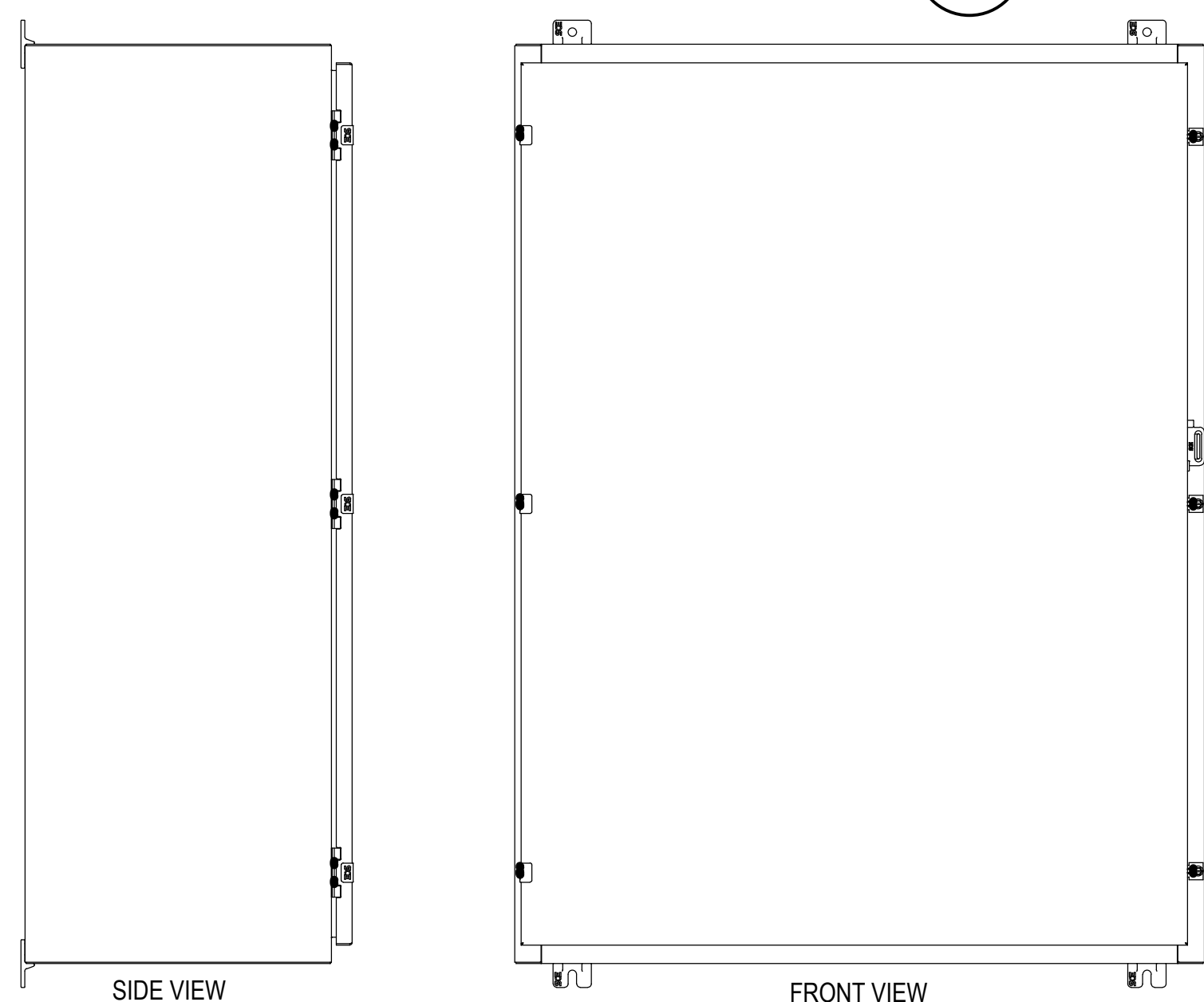


INTERIOR DEAD PANEL LAYOUT



INTERIOR SUB PANEL LAYOUT

1 PANEL LAYOUT
SCALE: 3" = 1'-0"



SIDE VIEW

FRONT VIEW

2 PANEL DOOR LAYOUT
SCALE: 1 1/2" = 1'-0"

SPARE PARTS				
ITEM	QTY	MANUFACTURER	PART NO	DESCRIPTION
1	2	AUTOMATION DIRECT	KN-F10L24DC	6.3A FUSE BLOCK, 24VDC LED
2	1	AUTOMATION DIRECT	KN-F10L110AC	6.3A FUSE BLOCK, 120VAC LED
3	1	AUTOMATION DIRECT	783-3C-24D	ICE CUBE RELAY, 24VDC, 3PDT, 15A
4	1	AUTOMATION DIRECT	783-3C-SKT	RELAY BASE, 3PDT
5	1	FUJI ELECTRIC	MS4SM-CE-ADC	TIMER RELAY, 24VDC, DPDT, ADJUSTABLE
6	1	FUJI ELECTRIC	TP411X	TIMER RELAY BASE FOR MS4SM SERIES
7	1	LITTELFUSE	ALT024-S-SW	ALTERNATING RELAY, 24VDC, INCLUDES MANUAL OVERRIDE SWITCH
8	1	LITTELFUSE	OT08PC	RELAY SOCKET, 10A
9	5	AUTOMATION DIRECT	KN-T12GRY	TERMINAL BLOCK, GREY, SINGLE TIER, 0.20 WIDE
10	1	AUTOMATION DIRECT	KN-ECT6GRY-25	TERMINAL BLOCK BARRIER, GREY
11	2	AUTOMATION DIRECT	KN-EB4-10	TERMINAL BLOCK END BRACKET, GREY
12	2			MIDGET FUSE, 30A
13	2			5 X 20MM FUSE, 6.25A
14	2			5 X 20MM FUSE, 5A
15	2			5 X 20MM FUSE, 2A
16	2			CLASS J FUSE, 80A
17	2			CLASS J FUSE, 45A

NOTES:

- PANEL EXTERNAL LABELS, WARNINGS AND TAGGING TO BE DETERMINED FOR EACH SITE. ENCLOSURE MUST INDICATE POWER DISCONNECT IS MOUNTED INTERNALLY.
- PANEL EXTERIOR HAS CAPABILITY FOR EXTERNALLY MOUNTED PADLOCK TO SECURE THE EXTERIOR DOOR. NO CONTROLS ARE ACCESSIBLE ON THE OUTSIDE OF THE ENCLOSURE.
- WHEN OPENED, PANEL REVEALS AN INTERIOR DEAD PANEL, LEAVING ROUGHLY 2.5" BETWEEN THE INNER FACE OF THE DOOR AND THE DEAD PANEL. PANEL CANNOT BE OPENED UNLESS THE PANEL IS DE-ENERGIZED.
- SPARE PARTS LISTED ARE TO BE INCLUDED AND MOUNTED TO DINRAIL (EXCEPT FUSES) WHICH SHALL BE CLEARLY LABELED AS "SPARE FUSES" AND PROTECTED INSIDE A CLEAR WATERPROOF BAG. BAG MUST BE SECURED TO THE PANEL INTERIOR BEFORE SHIPPING.
- PANEL HAS BEEN DESIGNED TO ACCOMMODATE TWO (2) THREE HORSEPOWER, 240V PUMP DRIVES. THESE DRIVES SHALL BE SPECIFIED AND PROVIDED BY THE PUMP SUPPLIER AND INSTALLED IN THIS PANEL.
- PANEL HAS BEEN DESIGNED TO POWER A FIVE HORSEPOWER, 240V MACERATOR VIA REMOTE COMMAND.

BILL OF MATERIALS

ITEM	QTY	MANUFACTURER	PART NO	DESCRIPTION
1	1	SAGINAW CONTROL	SCE-48H3616LP	48 X 36 X 16 NEMA 4 ENCLOSURE
2	1	SAGINAW CONTROL	SCE-48P36	45 X 33 SUB PANEL FOR 48 X 36 ENCLOSURE
3	1	SAGINAW CONTROL	SCE-DF48EL36LP	DEAD FRONT SWING-OUT INTERNAL PANEL 2.5" FROM DEAD PANEL TO DOOR
4	1	C3 CONTROLS	DDS2-380-DHGRY	DISCONNECT, 80A, 3 POLE NON-FUSED
5	1	BUSSMANN	JM60100-1CR-2	2 POLE FUSE HOLDER, 100A MAX, CLASS J FUSES
6	2	EDISON	EHM2DU	2 POLE FUSE HOLDER, 30A MAX, MIDGET FUSES
7	2	EDISON	EPDB306	DISTRIBUTION BLOCK, FINGER SAFE
9	3	AUTOMATION DIRECT	KN-F10L24DC	6.3A FUSE BLOCK, 24VDC LED
10	3	AUTOMATION DIRECT	KN-F10L110AC	6.3A FUSE BLOCK, 120VAC LED
11	1	RHINO	PSB24-060S	24VDC POWER SUPPLY, 60W
12	2	(BY VENDOR) NOTE 5	(BY VENDOR) NOTE 5	5HP PUMP CONTROLLER, VFD, INCLUDING RELAY CARD AND MODBUS COMMUNICATION
13	1	FUJI ELECTRIC	SC-E1G-24VDC	IEC CONTACTOR, 24VDC COIL, 32A FRAME
14	1	FUJI ELECTRIC	TK-E2-3600	THERMAL OVERLOAD RELAY, ADJUSTABLE, 24-36A
15	1	AUTOMATION DIRECT	FA-REC2	DIN RAIL MOUNT RECEPTACLE
16	5	AUTOMATION DIRECT	783-3C-24D	ICE CUBE RELAY, 24VDC, 3PDT, 15A
17	5	AUTOMATION DIRECT	783-3C-SKT	RELAY BASE, 3PDT
18	1	FUJI ELECTRIC	MS4SM-CE-ADC	TIMER RELAY, 24VDC, DPDT, ADJUSTABLE
19	1	FUJI ELECTRIC	TP411X	TIMER RELAY BASE FOR MS4SM SERIES
20	1	LITTELFUSE	ALT024-S-SW	ALTERNATING RELAY, 24VDC, INCLUDES MANUAL OVERRIDE SWITCH
21	1	LITTELFUSE	OT08PC	RELAY SOCKET, 10A
22	3	FUJI ELECTRIC	AR30PR-311BZC	30MM SWITCH, 3POS, MAINTAINED, 1NO/1NC
23	69	AUTOMATION DIRECT	KN-T12GRY	TERMINAL BLOCK, GREY, SINGLE TIER, 0.20 WIDE
24	4	AUTOMATION DIRECT	KN-ECT6GRY-25	TERMINAL BLOCK BARRIER, GREY
25	11	AUTOMATION DIRECT	KN-EB4-10	TERMINAL BLOCK END BRACKET, GREY
26	9	AUTOMATION DIRECT	KN-G12SP-10	GROUND BLOCK, GREEN_YEL, SINGLE TIER
27	4			MIDGET FUSE, 30A
28	1			5 X 20MM FUSE, 6.25A
29	2			5 X 20MM FUSE, 5A
30	3			5 X 20MM FUSE, 2A
31	2			CLASS J FUSE, 80A
32	2			CLASS J FUSE, 45A
33	1	BUSSMANN	CVRI-J-60100-M-2	FUSE BLOCK COVER FOR 100A BLOCKS, 2 POLE
34	1	BUSSMANN	CH60J2I	2 POLE FUSE HOLDER, 60A MAX, CLASS J FUSES



1812 Schofield Lane
Farmington, NM 87401
P.O. BOX 2606
Farmington, NM 87499



encorus.com

CLIENT:

NAVAJO TRIBAL UTILITY
AUTHORITY
P.O. BOX 170
FT. DEFIANCANCE, AZ 86504

PROJECT:
REFURBISHMENT & UPGRADE OF
EXISTING LIFT STATION

36°35'44.73"N, 110°39'43.52"W
SHONTO, ARIZONA 86054

REVISIONS:

REV	DESCRIPTION	DATE	SBV	GMC
0	100% SUBMISSION	2020-10-06	SBV	GMC

PROJECT NUMBER: 2034
ENGINEER: GMC
DRAWING SCALE: NTS
DRAWING SIZE: ANS I D

DRAWING TITLE:

SHONTO SITE PUMP PANEL 480V
FABRICATION DIAGRAM

DRAWING NUMBER:

E1702