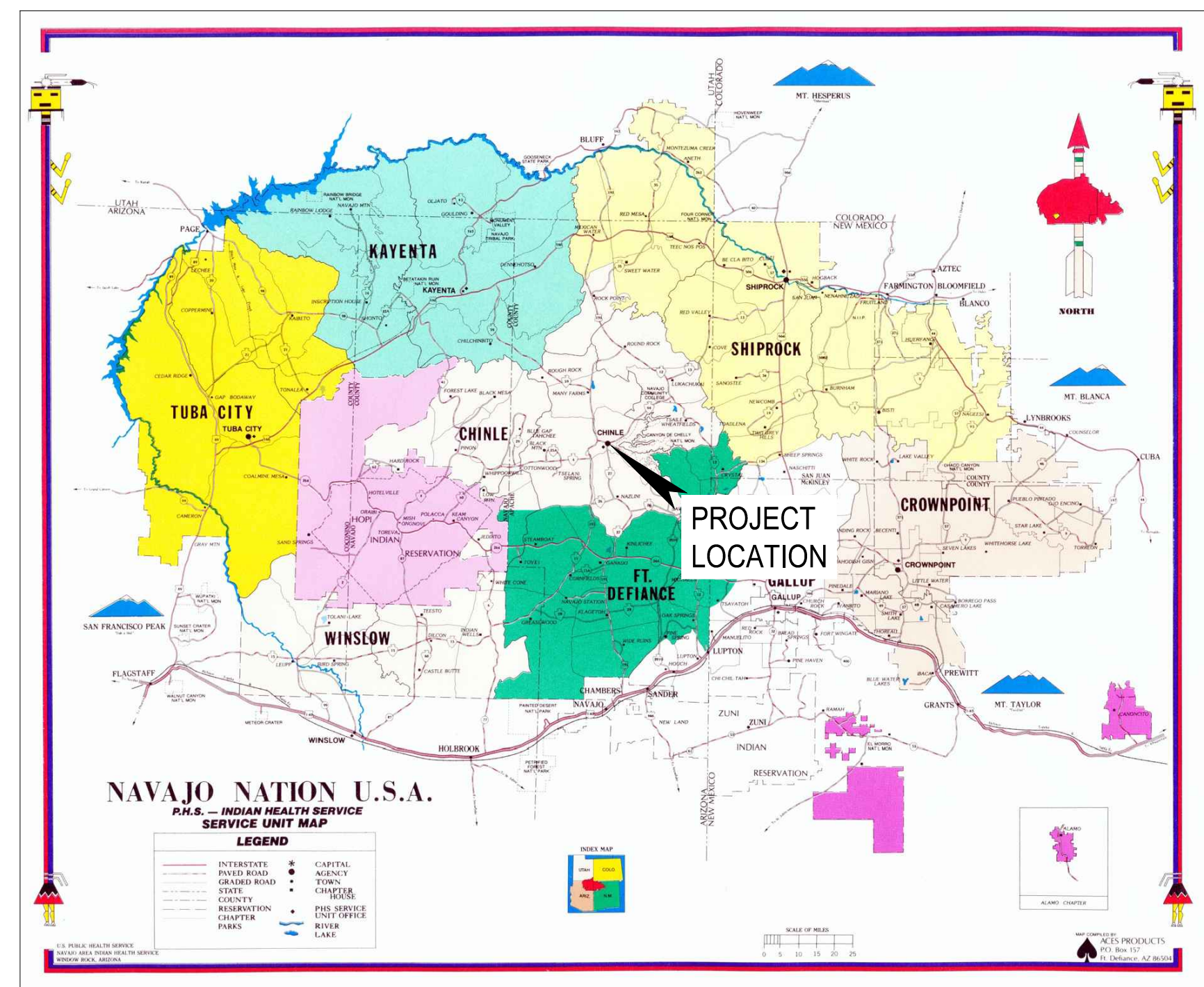


# REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

CHINLE CHAPTER, APACHE COUNTY, ARIZONA  
OCTOBER 2020

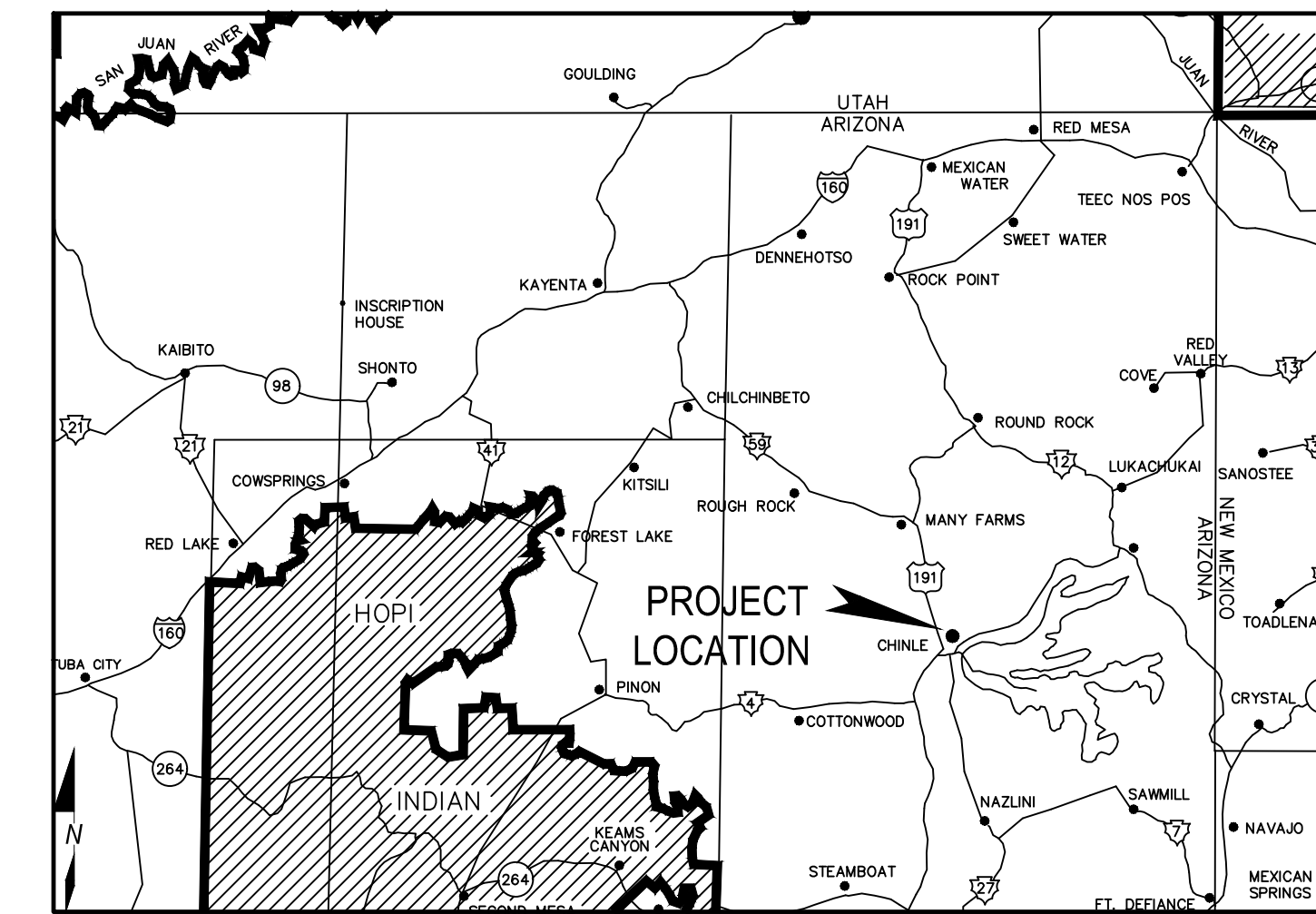


SITE LOCATION MAP  
(NOT TO SCALE)



100% PLANS  
ISSUED FOR CONSTRUCTION

BY: LASPAAS DATE: Oct 12, 2020 4:32pm



VICINITY MAP  
(NOT TO SCALE)

## REFURBISHMENT & UPGRADE OF LIFT STATION - CHINLE 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-603 ELECTRICAL ONE-LINE DIAGRAM
- EI-703 ELECTRICAL INSTRUMENTATION PANEL

### PREPARED FOR:

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

### PREPARED BY:



**iinábá, Inc.**

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



EXPIRES: \_\_\_\_\_

IBI #20-050-02

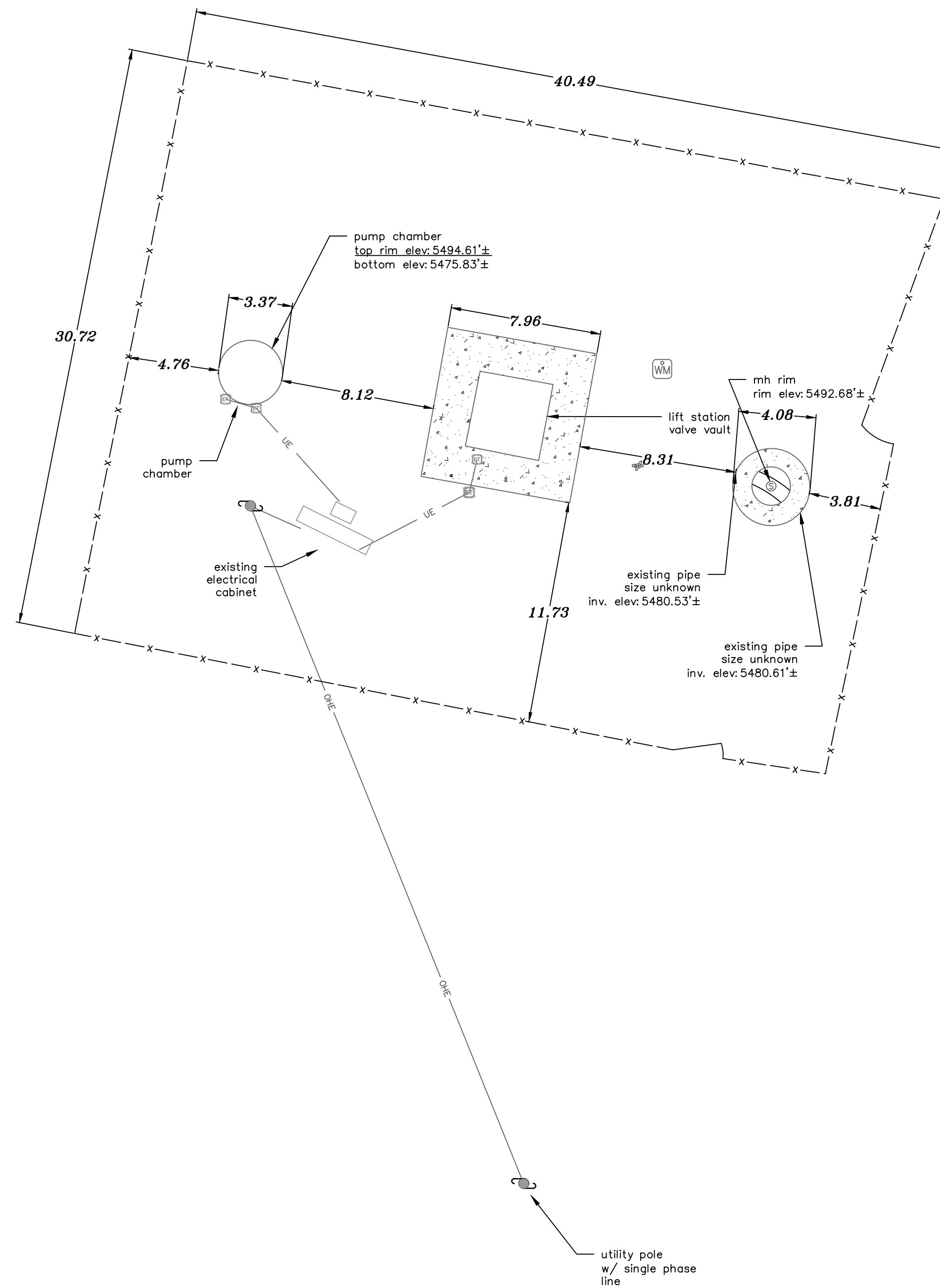


**LEGEND**

- TRACT LIMITS (SEE NOTE 4)
- - - - EXISTING GRADE CONTOUR
- EDGE OF GRAVEL
- DOMESTIC WATER
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC
- GAS
- 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.



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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**

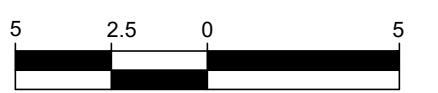
36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA 86503

ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

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ENGINEER: XXX  
DRAWING SIZE: ANS I D  
DRAWING SCALE: 1" = 5'



DRAWING TITLE:

EXISTING FACILITY PLAN

DRAWING NUMBER:

G01



**LEGEND**

- TRACT LIMITS (SEE NOTE 4)
- - - - - EXISTING GRADE CONTOUR
- ===== EDGE OF GRAVEL
- DOMESTIC WATER
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- OVERHEAD ELECTRIC
- PROPANE GAS
- X-X- FENCE
- ⊕ UTILITY POLE
- ⊕ LIGHT POLE
- ⊕ PROPANE TANK
- ⊕ WATER MANHOLE
- ⊕ SEWER CLEANOUT
- ⊕ WATER VALVE
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- ⊕ ELECTRIC JUNCTION BOX
- ⊕ VENT PIPE
- ===== GRAVEL SURFACE
- ===== CONCRETE SURFACE



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Farmington, NM 87401  
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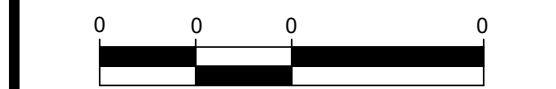
PROJECT:  
**REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION**  
36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA, 86503

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| ENGINEER:       | XXX       |
| DRAWING SIZE:   | ANSI D    |
| DRAWING SCALE:  | NTS       |



DRAWING TITLE:

EXISTING CONDITIONS SITE LAYOUT

DRAWING NUMBER:

**G-02**



| BILL OF MATERIALS |    |   |                   |   |
|-------------------|----|---|-------------------|---|
| DWG               |    | PART NUMBER   | MANUFACTURER      | DESCRIPTION                                     |
| M-02              | 1  | 30005-0008-DI   | JWC               | MUFFIN MONSTER                                  |
| M-02              | 2  | PC 2200   | JWC               | CONTROLLER ASSEMBLY                             |
| M-02              | 3  | (INCLUDED)  | JWC               | CUSTOM FRAME ASSEMBLY                           |
| M-02              | 4  | (INCLUDED)  | JWC               | CUSTOM GUIDE RAIL ASSEMBLY                      |
| M-02              | 5  | (INCLUDED)  | JWC               | CUSTOM LIFTING BAIL ASSEMBLY                    |
| M-02              | 6  | (INCLUDED)  | JWC               | O&M MANUALS (HARD COPY)                         |
| M-02              | 7  | 32537R  | JWC               | FRAME WALL MOUNT                                |
| M-02              | 8  | 32523   | JWC               | GUIDE PLATE                                     |
| M-02              | 9  | 30249   | JWC               | HHCS 3/8-16 X 1/4 SST                           |
| M-02              | 10 | 30140   | JWC               | LOCKWASHERS SPLIT 3/8 SST                       |
| S-01              | 11 | D3A24E  | HALLIDAY PRODUCTS | PORTABLE HOIST - 1,500 LB LIMIT; SST            |
| S-01              | 12 | SERIES D3S  | HALLIDAY PRODUCTS | HOIST SOCKET; LINED                             |
| S-01              | 13 | SERIES 2R   | HALLIDAY PRODUCTS | ACCESS HATCH WITH SAFETY GATE                   |
| M-02              | 14 | PRECAST LID (8'-0") FOR MOUNTING ON 7'-5" DIAMETER STEEL CYLINDER PUMP WELL | HALLIDAY PRODUCTS | PRECAST LID TO COVER TOP OF PUMP ROOM EXTENSION |
|                   |    |   |                   |   |
|                   |    |   |                   |   |

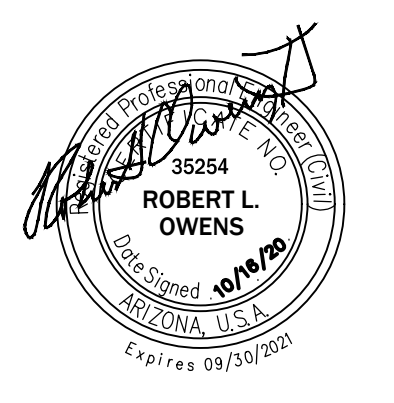


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1812 Schofield Lane  
Farmington, NM 87401  
P.O. BOX 2606  
Farmington, NM 87499

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

PROJECT:  
**REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION**  
36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA, 86503



ONLY VALID WITH ORIGINAL STAMP

REVISIONS:

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

DRAWING TITLE:  
**BILL OF MATERIALS**

DRAWING NUMBER:  
**G-03**

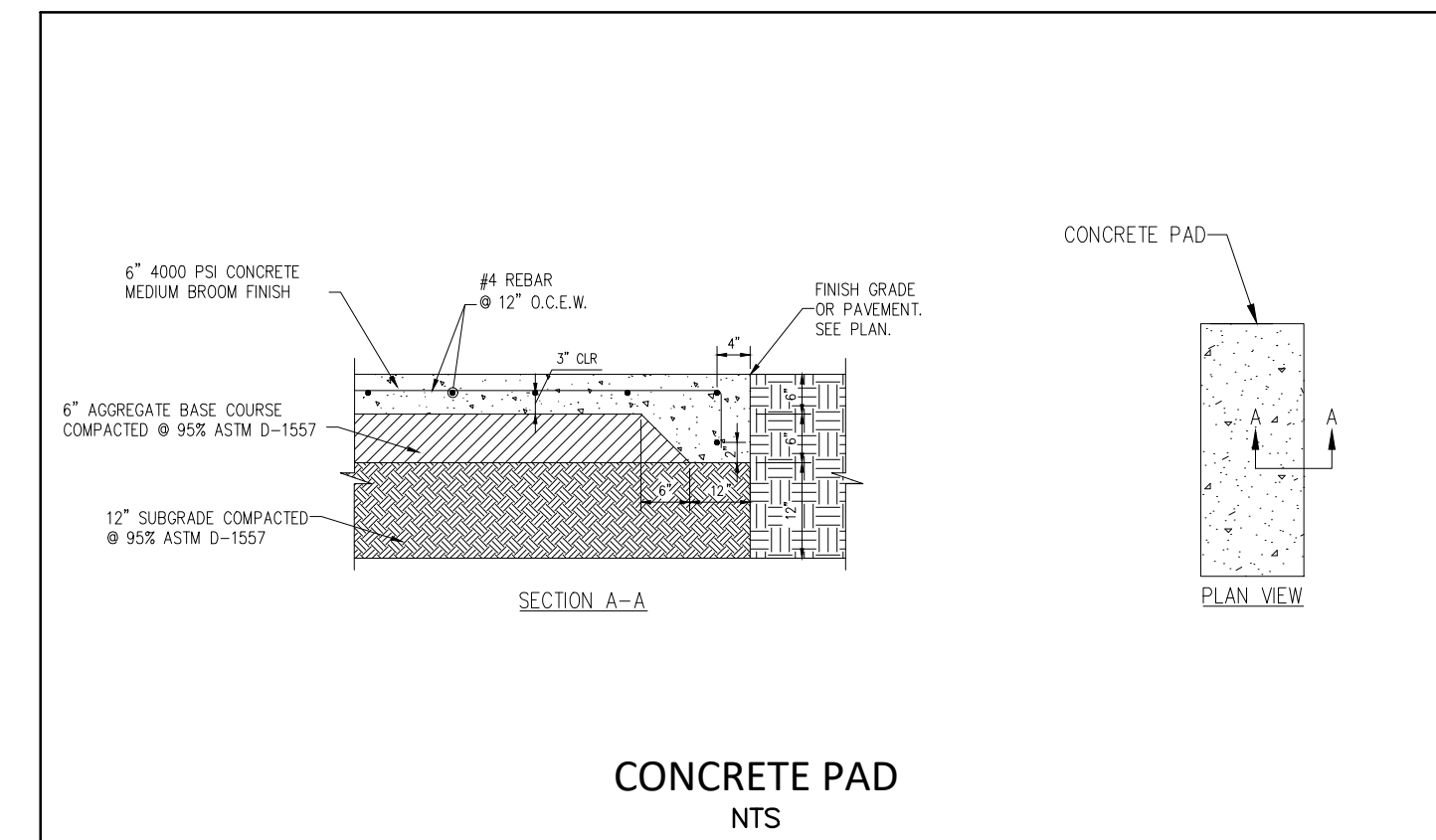
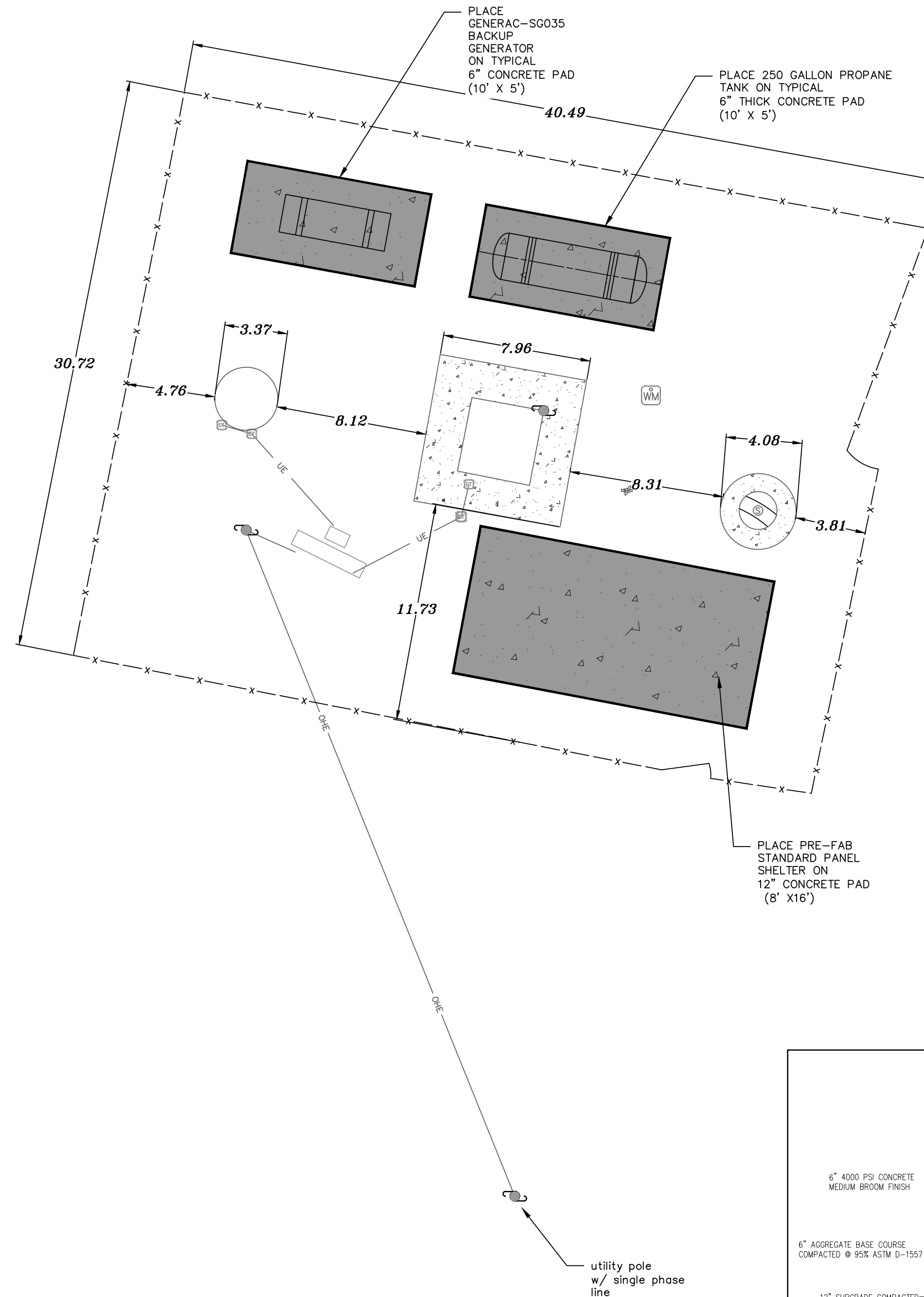


**LEGEND**

- TRACT LIMITS (SEE NOTE 4)
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- CONCRETE SURFACE
- PROPOSED CONCRETE SURFACE

**NOTES:**

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| ENGINEER:       | XXX       |
| DRAWING SIZE:   | ANSI D    |
| DRAWING SCALE:  | 1" = 5'   |

DRAWING TITLE:  
**SITE PLAN**

DRAWING NUMBER:  
**G-04**



CHINLE 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

Table with 5 columns: HP, 900 RPM, 1,200 RPM, 1,800 RPM, 3,600 RPM. Rows for Open Drip-Proof and Weather Protected Type 1 Motors at 1 HP and 1.5 HP.

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.

Large table with 5 columns: HP, 900 RPM, 1,200 RPM, 1,800 RPM, 3,600 RPM. Includes 'Total Enclosed Fan Cooled Motors' section.

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 MG 1. 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.

Table with 5 columns: HP, 900 RPM, 1,200 RPM, 1,800 RPM, 3,600 RPM. Rows for 250 and 300-500 HP.

- 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:

Table with 2 columns: Horsepower, Code Letter. Rows for ≤5, 7-1/2-10, ≥15.

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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1812 Schofield Lane Farmington, NM 87401

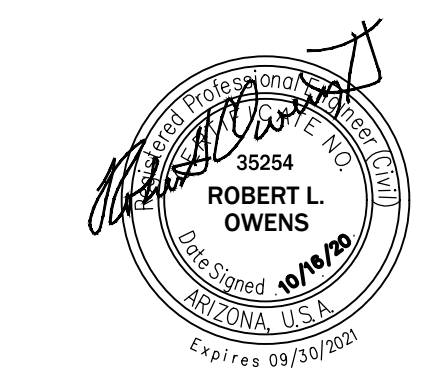
P.O. BOX 2606 Farmington, NM 87499

CLIENT:

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

PROJECT: REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION

36°09'34.23"N, 109°34'27.52"W CHINLE, ARIZONA, 86503



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REVISIONS:

Table with 5 columns: REV, DESCRIPTION, DATE, DFTR, CHKD. Includes project number 20-059-02, engineer name XXX, drawing size ANSI D, drawing scale NTS.

DRAWING TITLE:

MECHANICAL SPECIFICATIONS

DRAWING NUMBER:

G-05



**SECTION 11330**  
**MUFFIN MONSTER®**  
**IN-CHANNEL GRINDER – SERIES 3000S**  
2" hex/Wipes Ready/XPNV 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 3000S 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:  
1. American Society for Testing and Materials (ASTM) A36 Carbon Steel Plate  
2. American Society for Testing and Materials (ASTM) A536-84 Ductile Iron Castings  
3. American Iron and Steel Institute (AISI) 4130 Heat Treated Alloy Steel  
4. American Iron and Steel Institute (AISI) 4140 Heat Treated Alloy Steel  
5. American Iron and Steel Institute (AISI) 8620 Heat Treated Alloy Steel  
6. American Iron and Steel Institute (AISI) 303 Stainless Steel  
7. American Iron and Steel Institute (AISI) 304 Stainless Steel  
8. American Iron and Steel Institute (AISI) 316 Stainless Steel  
9. American Iron and Steel Institute (AISI) 17-4 PH Stainless Steel  
10. Society of Automotive Engineers (SAE) 660 Bearing Bronze  
B. Controllers shall, as applicable, meet the requirements of the following Regulatory Agencies:  
1. National Electrical Manufacturer's Association (NEMA) Standards  
2. National Electrical Code (NEC)  
3. Underwriters Laboratory (UL and cUL)  
4. International Electrotechnical Commission (IEC)

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

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  
a. Side rails shall be constructed of ASTM A536 ductile iron.  
b. 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.  
c. Clearance between cutter side rail and adjacent cutters shall not exceed 0.100" (2.54 mm).  
5. Shaft Bearings and Seals  
a. Radial and axial loads shall be borne by sealed, oversized, deep groove ball bearings.  
b. Shaft seal type shall be mechanical.  
c. Each bearing and seal arrangement shall be incorporated into a cartridge-style housing.  
d. Cutter shafts shall be supported on both ends. Cantilever-style arrangements shall not be permitted.  
e. Dynamic and rotating seal faces shall be Tungsten Carbide with 6% Nickel binder.  
f. Seal cartridges shall be rated to a maximum pressure of 90 psi (620 kPa).  
g. O-rings shall be of BUNA-N.  
h. Seal cartridges shall not require flushing.  
i. Seals shall be rated to operate wet or dry.  
6. Housings and Covers  
d. Housings and top cover shall be of ASTM A536 ductile iron. Bottom cover shall be of A36 carbon steel.  
e. End housings shall have integral bushing defectors to guide solids away from seal cartridges.

**A. Manufacturer**  
1. 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.  
2. Supplier shall, at request, provide a list of reference sites of similar equipment for verification by the Engineer or Owner's representative.  
3. Supplier shall conduct factory testing and verification of equipment prior to shipment.  
4. Supplier shall have factory-owned bi-coastal service centers in USA.  
5. 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  
1. Equipment shall be packaged in containers or on skids suitable for normal shipping, handling, and storage.  
2. 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.

**8. Transfer Gears**  
a. Transfer gears shall be of involute profile and fabricated from heat treated alloy steel.  
b. Transfer gear tooth design, thickness and hardness shall be suitable to transfer torque between shafts up to the rated breakdown torque of the motor.  
c. The interface between transfer gears shall be factory lubricated with grease to minimize wear.  
d. The transfer gear ratio shall be such that the ratio of cutter tip speed of the low speed shaft to cutter tip speed of the high speed shaft shall be greater than 0.90 and less than 1.00 to promote tearing of material as it passes through the cutter stack and at the same time facilitate cleanout of material from between the cutters.

**9. Low Speed Coupling**  
a. Low speed coupling shall be a 3-jaw type.  
b. The 3-jaw halves shall be of hardened 4140 alloy steel.  
c. Each low speed coupling half shall be encapsulated on its mating shaft to facilitate proper engagement of coupling lobes (1/16" - 1/8").  
d. The interface between low speed coupling halves shall be factory lubricated with grease to minimize wear.  
**7. Speed Reducer**  
a. Speed reducer shall be manufactured by Sumitomo Machinery Corporation of America.  
b. Speed reducer shall be a cycloidal type.  
c. Speed reduction ratio shall be 29:1.  
d. Speed reducer shall be grease lubricated.

**8. High Speed Coupling**  
a. High speed coupling shall be a 3-jaw type with elastomer spidars.  
b. The 3-jaw halves shall be of sintered iron.  
c. The spider shall be of BUNA-N.

**9. Motor**  
a. Motor shall be manufactured by Baldor Electric Company.  
b. Motor shall have characteristics as listed in Performance Requirements.

**12. Lifting Brackets**

**C. Storage and Handling Requirements**  
1. Equipment shall remain in the packaging provided by the supplier until it is installed.  
2. 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:  
1. JWC Environmental, LLC, 290 Paulirino Ave., Costa Mesa, CA 92626; Tel: 800-331-2277  
Muffin Monster Grinder Model 3000S, Wipes Ready Motor Controller Model PC2200

**2. Approved equal.**  
B. Manufacturers requesting to be selected as an approved equal shall satisfy the requirements of the following section "Pre-Approval of Alternate Equipment."

**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.

a. 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  
1. Enclosure  
a. Enclosure shall be fiberglass reinforced plastic, NEMA 4X.  
b. Enclosure shall house motor starter, PLC, and control devices.  
2. Selector switches  
a. Selector switches shall be 22 mm, rated equal to or better than the enclosure.  
b. Grinder selector switch shall be three-position and indicate On Off/Reset Remote.

**3. Pilot Lights**  
a. Lights shall be 22 mm, LED (pilot lamp), rated equal or better than the enclosure.  
b. Lights shall indicate POWER ON, grinder RUN, grinder JAMMED and MOTOR FAULT.  
**4. Motor Starter**  
a. Starter shall be IEC, full voltage, reversing.  
b. Contactors shall have 120-volt operating coils.  
c. Overload relays shall be adjustable and sized to full load amperes (FLA) of the motor.  
**5. Control Power Transformer**  
a. 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.  
**6. Programmable Logic Controller**  
a. PLC shall be a Panasonic FX.

**7. Current Transducer**  
**B. Design Summary**  
1. Number of grinders 1  
2. Number of motor controllers 1  
3. Hazardous, subject to flooding Non-hazardous  
4. Environment rating for grinders 460 volt / 3 phase / 60 Hertz  
5. Supply power characteristics 460 volt / 3 phase / 60 Hertz  
6. Nominal stack height "-" ( \_ mm)  
7. Minimum liquid handling capacity per grinder — GPM ( L / s)  
8. Maximum head drop across cutter stack "-" ( \_ mm) at minimum capacity  
9. Cutter type Serrated 17 tooth  
10. Spacer type Knurled  
11. Side rail type Delta-P high flow, high capture  
12. Shaft seal type Mechanical, Tungsten Carbide  
13. Seal maximum pressure 90 psi (620 kPa)  
14. Speed reducer type and ratio Cycloidal, 29:1  
15. Installed horsepower 3 hp (2.2 kW)  
16. Motor type XPNV, Immersible  
17. Motor service factor 1.15  
18. Minimum motor efficiency (at full load) 88.8%  
19. Minimum motor power factor (at full load) 65.0%  
20. Minimum peak shaft torque 5,185 lb-in/hp (786 Nm/kW)  
21. Minimum peak force at cutter tip 2,202 lb/hp (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  
1. Frame shall be fabricated of 304 stainless steel.  
2. 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  
a. Current transducer shall be a discrete output type.  
b. Current transducer shall have adjustable set point from 1-135A with 200 ms or faster response time.

**C. Operation**  
1. Grinder control shall be in accordance with the setting of the On-Off/Reset-Remote selector switch.  
a. In the OFF/RESET position the grinder shall not run. Motor controller faults shall be cleared.  
b. In the ON position, the grinder shall run forward.  
c. In the REMOTE position, the grinder shall operate as controlled by a remote start/stop dry contact.  
2. 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.  
3. 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.  
4. When a power failure occurs while the system is operating, the system shall return to normal operation when power is restored.  
5. 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.  
6. 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**  
a. Cutting stack shall be of nominal height listed in Performance Requirements.  
b. Cutting stack shall consist of interleaved cutters and spacers.  
c. Cutters and spacers shall be individual disks constructed of heat treated alloy steel.  
d. Cutters shall be heat treated to 45-53 HRC.  
e. Spacers shall be heat treated to 34-53 HRC.  
f. Cutters shall have 17 teeth and be 0.438" (11.13 mm) thick.  
g. Cutters shall have radial serrations on the leading edges designed to perforate material as it passes between the cutter and adjacent spacer.  
h. Cutter tooth height shall be not greater than ¼-inch (13 mm) above the root diameter of the cutter.  
i. Cutter outside diameter shall not exceed a maximum 4.73" (120.14 mm).  
j. Cutter thickness tolerance shall be +.000/-.001" (+.000/-.025 mm). Spacer thickness tolerance shall be +.001/-.000" (+.025/-.000 mm).  
k. Spacers shall have a knurled outside diameter designed to aid in tearing of material as it passes through the cutter stack.  
l. Spacers shall be 0.446" (11.33 mm) thick.  
m. Cutter to cutter clearance shall be a maximum of 0.010" (0.25 mm).  
n. Clearance between any cutter tip and adjacent spacer shall be nominal 0.015" (0.38 mm).  
**2. Shafts**  
a. Shafts shall be hexagonal, 2" (50.8 mm) across flats.  
b. Shafts shall be of heat treated 4140 alloy steel with a minimum tensile strength of 149,000 psi (1,027 kPa).  
c. Shaft hardness shall be 38-42 Rockwell C.  
**3. Intermediate Shaft Yoke (as applicable)**  
a. Intermediate shaft yokes shall provide radial support to the shafts during severe grinding demands.  
b. Intermediate shaft yokes shall be constructed of 304 stainless steel, 660 bronze, and 17-4PH Stainless steel.

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.  
**3.2 SYSTEM START-UP**  
The equipment supplier shall provide the services of a factory or manufacturer's representative for a minimum of one (1) day to inspect the equipment for proper installation, apply power for the first time and check for proper motor rotation, oversee the initial introduction of material into the system and confirm the equipment operates as intended. Representative shall also provide services as detailed in Training below.  
**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



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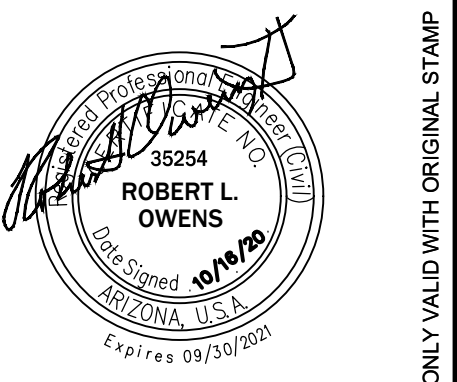
1812 Schofield Lane  
Farmington, NM 87401  
P.O. BOX 2606  
Farmington, NM 87499

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

**REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION**

36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA, 86503

PROJECT:



ONLY VALID WITH ORIGINAL STAMP

| REV                       | DESCRIPTION | DATE | DFTR | CHKR |
|---------------------------|-------------|------|------|------|
|                           |             |      |      |      |
|                           |             |      |      |      |
|                           |             |      |      |      |
| PROJECT NUMBER: 20-050-02 |             |      |      |      |
| ENGINEER: XXX             |             |      |      |      |
| DRAWING SIZE: ANSI D      |             |      |      |      |
| DRAWING SCALE: NTS        |             |      |      |      |

DRAWING TITLE:  
**MECHANICAL SPECIFICATIONS**

DRAWING NUMBER:  
**G-06**



### 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

|                           |  |
|---------------------------|--|
| $\Sigma$ SUMMING          | $\sqrt{\quad}$ ROOT EXTRACTION           |
| $\Delta$ DIFFERENCE       | $\sqrt{\quad}$ SQUARE ROOT               |
| $\int$ INTEGRAL           | $x^n$ EXPONENTIAL                        |
| $\frac{d}{dt}$ DERIVATIVE | $>$ HIGH SELECTING                       |
| $\times$ MULTIPLYING      | $<$ LOW SELECTING                        |
| $\div$ DIVIDING           | $\pm$ BIAS                               |
| $\frac{1}{s}$ CONVERT:    | $f(x)$ 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

|                             |                                |
|-----------------------------|--------------------------------|
| $\downarrow$ DISCRETE INPUT | $\nabla$ ANALOG INPUT          |
| $\uparrow$ DISCRETE OUTPUT  | $\blacktriangle$ 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 | OR | CONNECTED     |  | ELECTRICAL |
|  |            |    | 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   |
|  | F - FILTER   |
|  | T - TRAP   |
|  | 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.



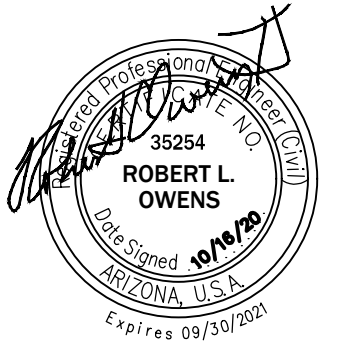
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1812 Schofield Lane  
Farmington, NM 87401  
P.O. BOX 2606  
Farmington, NM 87499

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

PROJECT:  
**REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION**

36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA, 86503



ONLY VALID WITH ORIGINAL STAMP

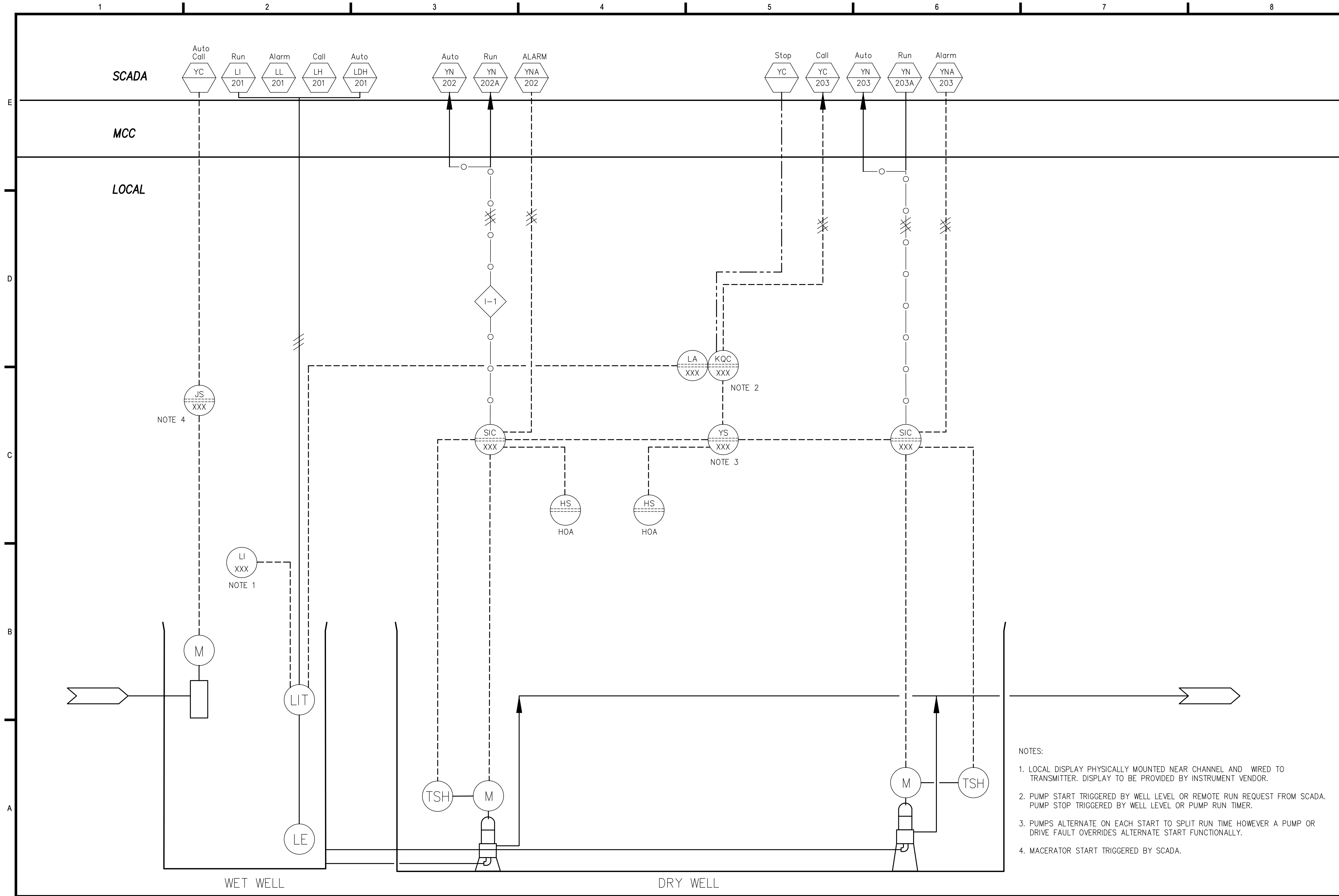
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PROJECT NUMBER: 20-050-02  
ENGINEER: XXX  
DRAWING SIZE: ANSI D  
DRAWING SCALE: NTS

DRAWING TITLE:  
**INSTRUMENTATION AND CONTROL STANDARDS AND CONTROL STANDARDS**

DRAWING NUMBER:  
**D-01**



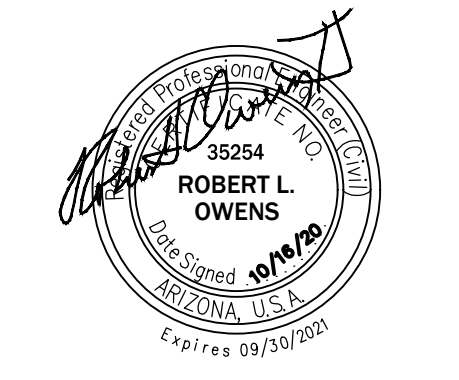


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CHINLE, ARIZONA, 86503



REVISIONS:

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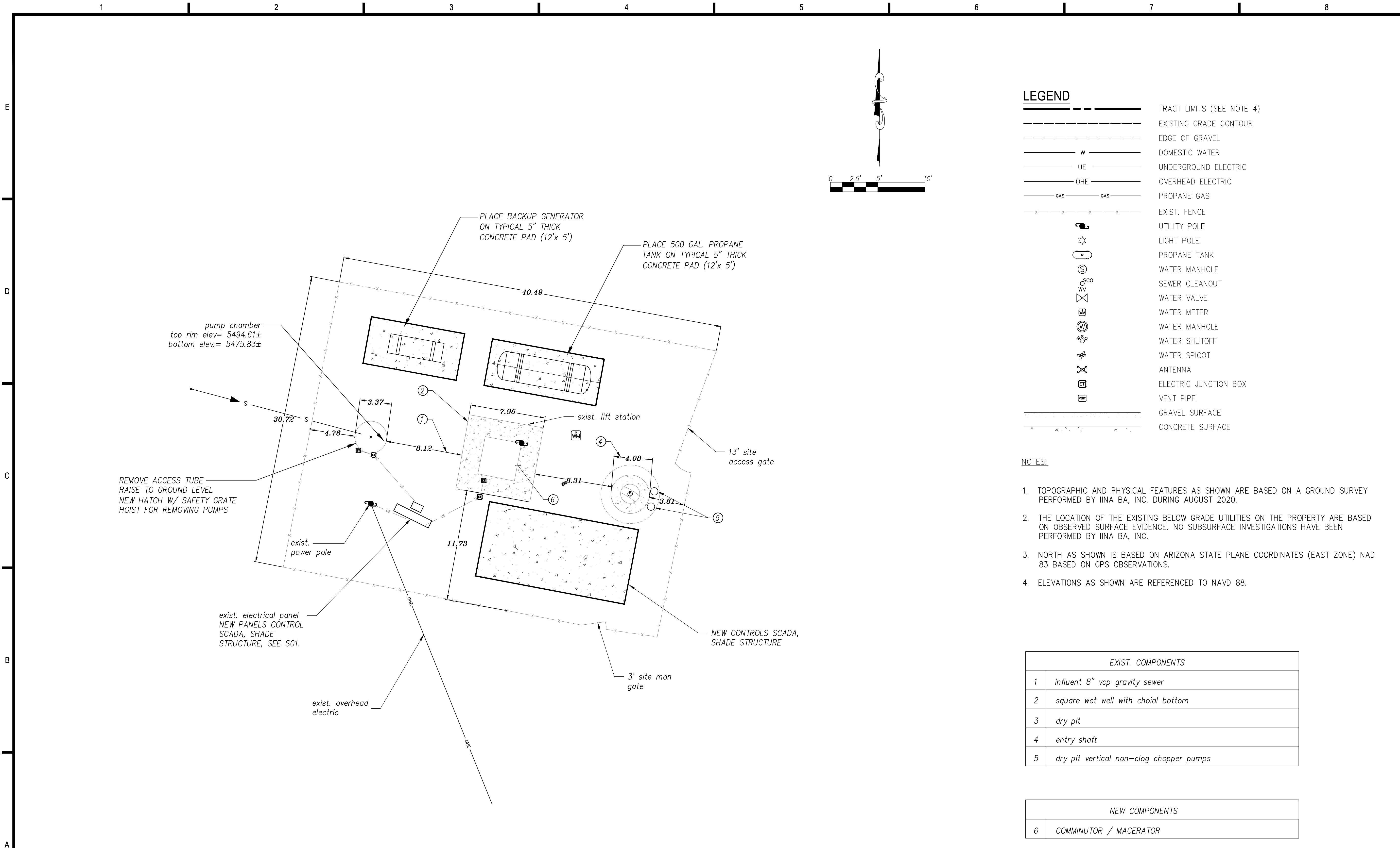
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ENGINEER: XXX  
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DRAWING SCALE: NTS

DRAWING TITLE:  
**PROCESS AND INSTRUMENTATION DIAGRAM**

DRAWING NUMBER:  
**D-02**

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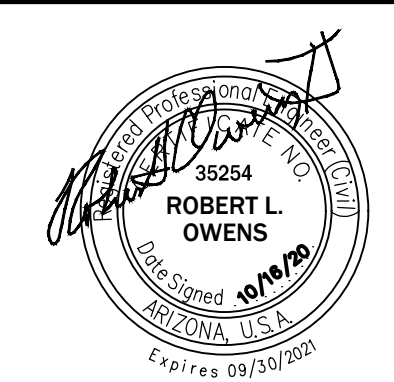
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REVISIONS:

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REV DESCRIPTION DATE DFTR CHKR  
PROJECT NUMBER: 20-050-02  
ENGINEER: XXX  
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DRAWING SCALE: NTS

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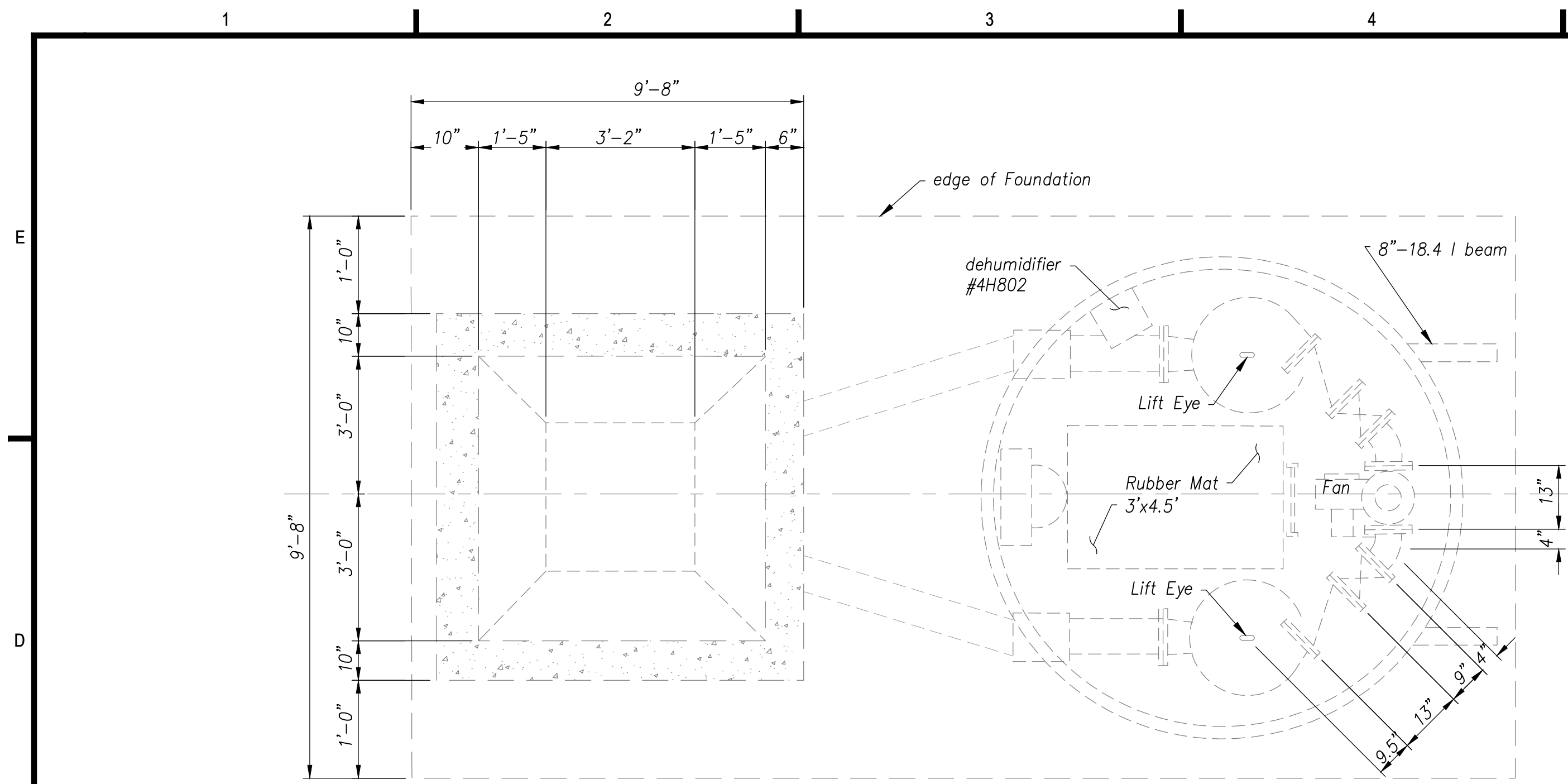
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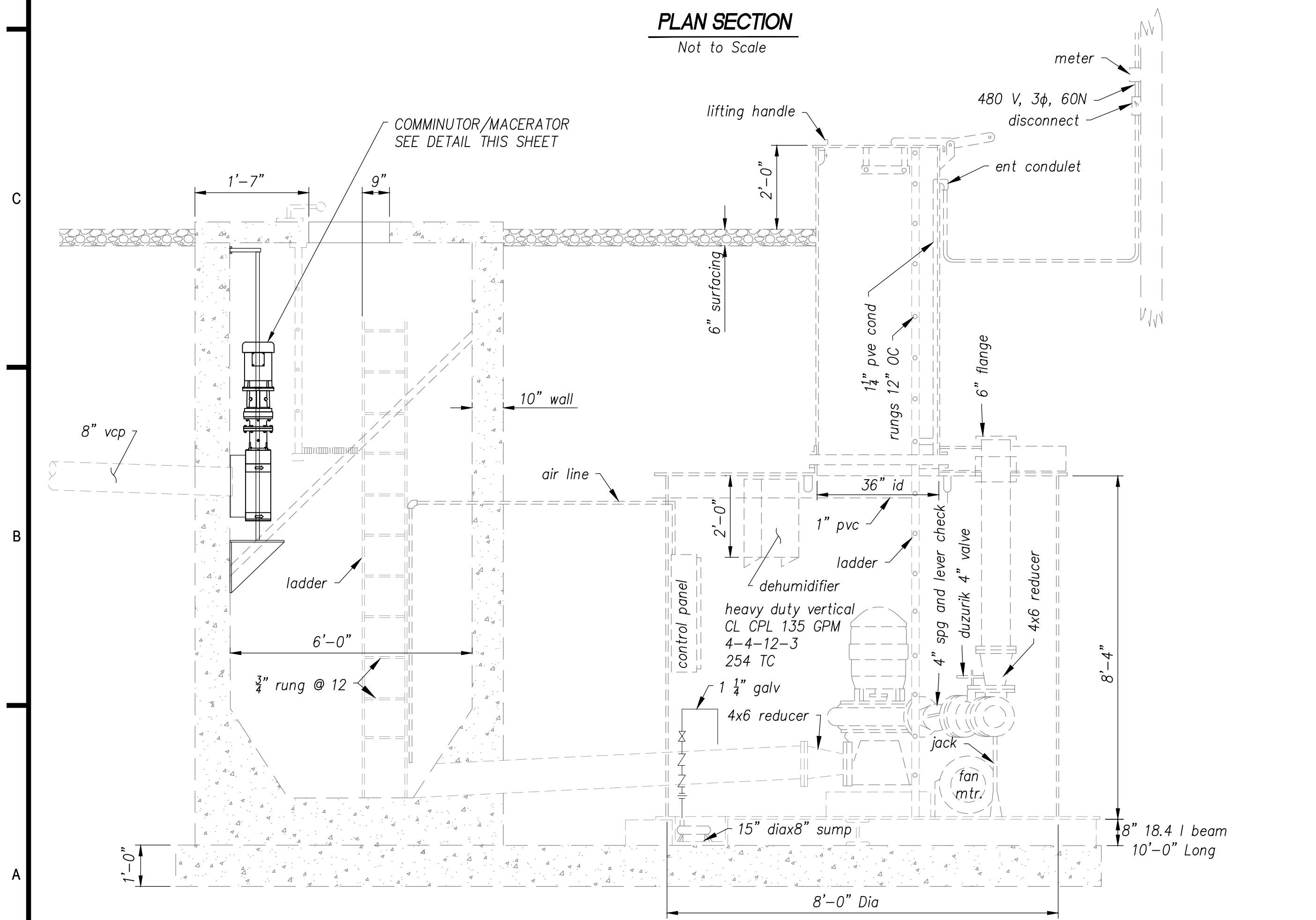
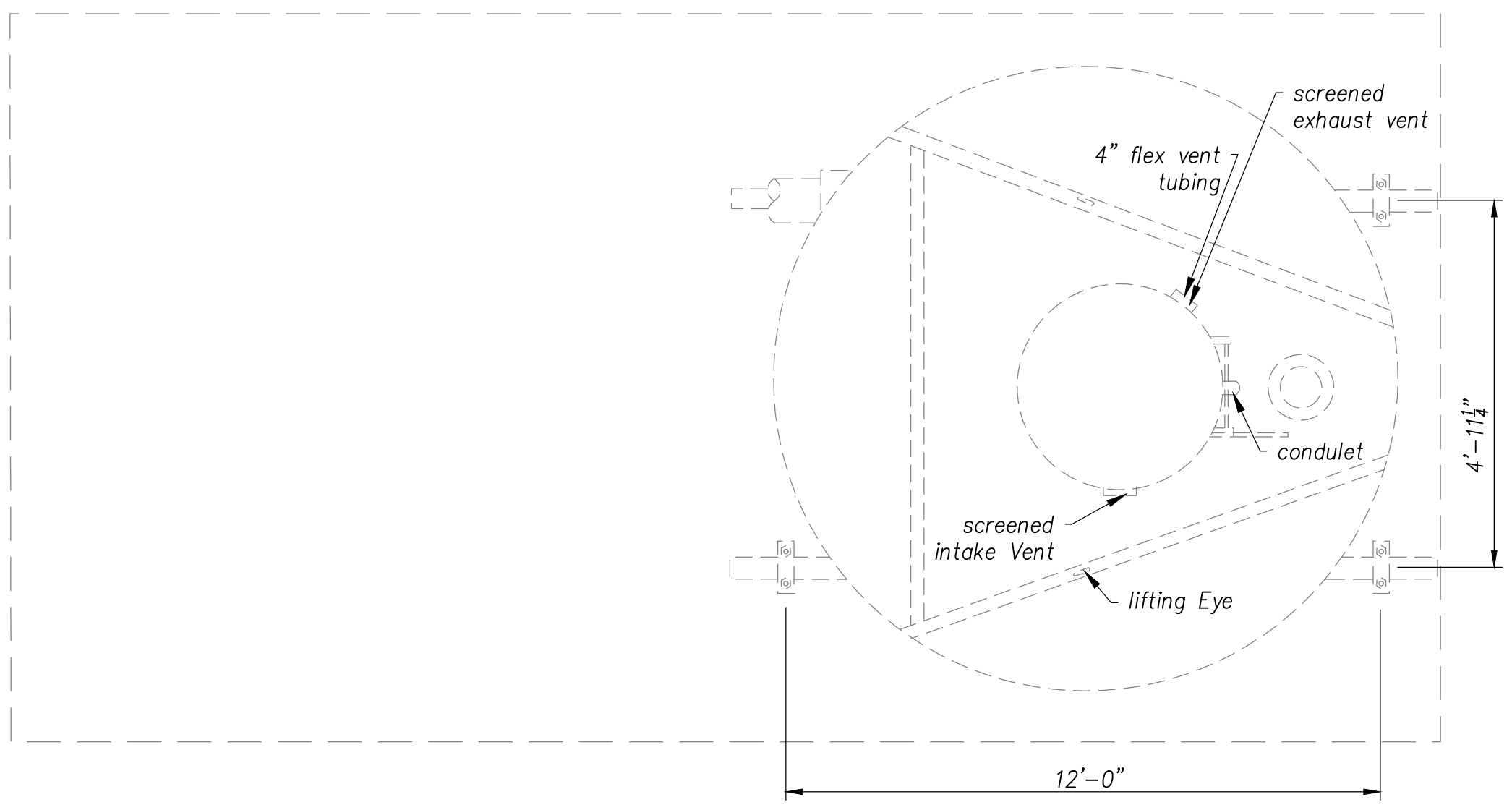
**M-01**

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**PLAN SECTION**  
Not to Scale



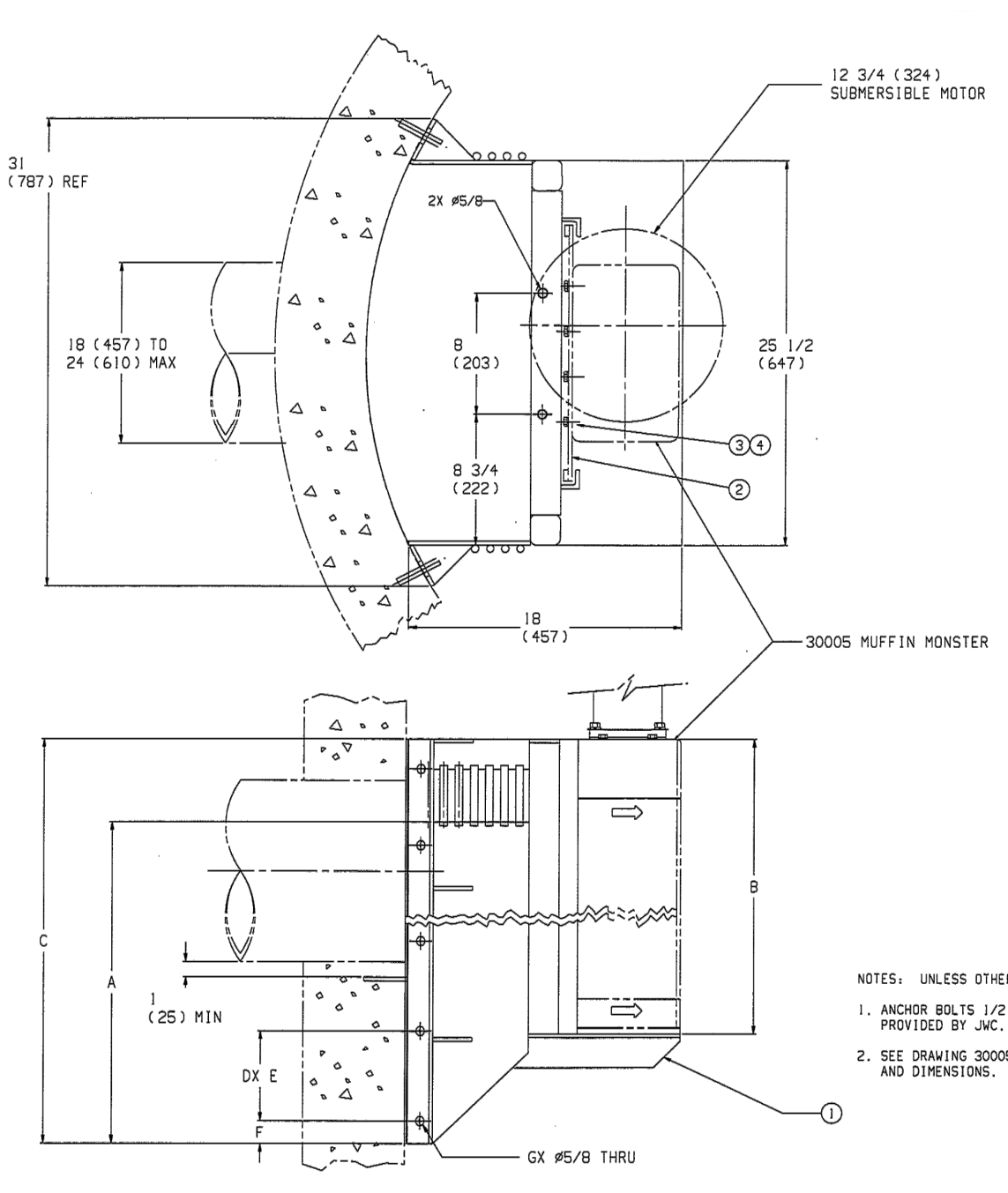
**ELEVATION**  
Not to Scale

| SK-2 Chinle                           | Dimensions  |
|---------------------------------------|-------------|
| Halliday Products                     | what size?  |
| Series S2R Access Door w/ Safety Gate | D3S Lined   |
| Series D Hoist Sockets                | D3A or D3B? |
| Series Portable Hoist                 |             |

\*not indicated on plans.  
\*this is just the socket, does NTUA need a hoist?  
\*this two Hoist pair with the D3S lined socket.

| Concrete Lid  | Dimensions                   |
|---------------|------------------------------|
| H-20 rated    | 8ft ID 10" traffic rated lid |
| Bottom of Lid | Flat or grooved?             |

\*Outside Diameter is 114"



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|---|------|----------|-----------|
|   |      |          |           |

| 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)  | B  | 5 15/16 (151)  | 1 1/2 (38) | 10 |
| 30005-12  | 24 7/8 (632)            | 23 5/8 (600)  | 30 7/8 (784)  | B  | 6 13/16 (173)  | 2 (51)     | 10 |
| 30005-18  | 30 3/4 (781)            | 29 1/2 (749)  | 36 3/4 (933)  | B  | 7 7/16 (214)   | 1 1/2 (38) | 10 |
| 30005-24  | 36 1/2 (927)            | 35 1/4 (895)  | 42 1/2 (1083) | B  | 8 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 (1483) | 10 | 10 7/8 (276)   | 1 1/2 (38) | 12 |
| 30005-50  | 62 1/4 (1591)           | 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 |

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

| REV | DESCRIPTION | DATE | DFR | CHR |
|-----|-------------|------|-----|-----|
| 1   | 3253R       |      |     |     |
| 2   | 3253C       |      |     |     |
| 3   | 3253A       |      |     |     |
| 4   | 3253B       |      |     |     |

**COMMINUTOR MACERATOR DETAIL**  
Not to Scale

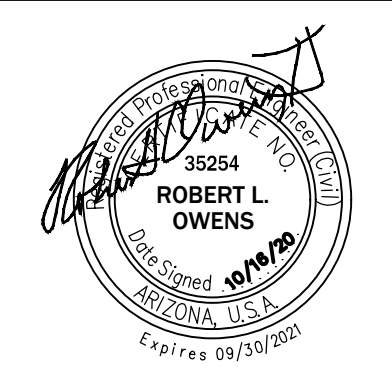


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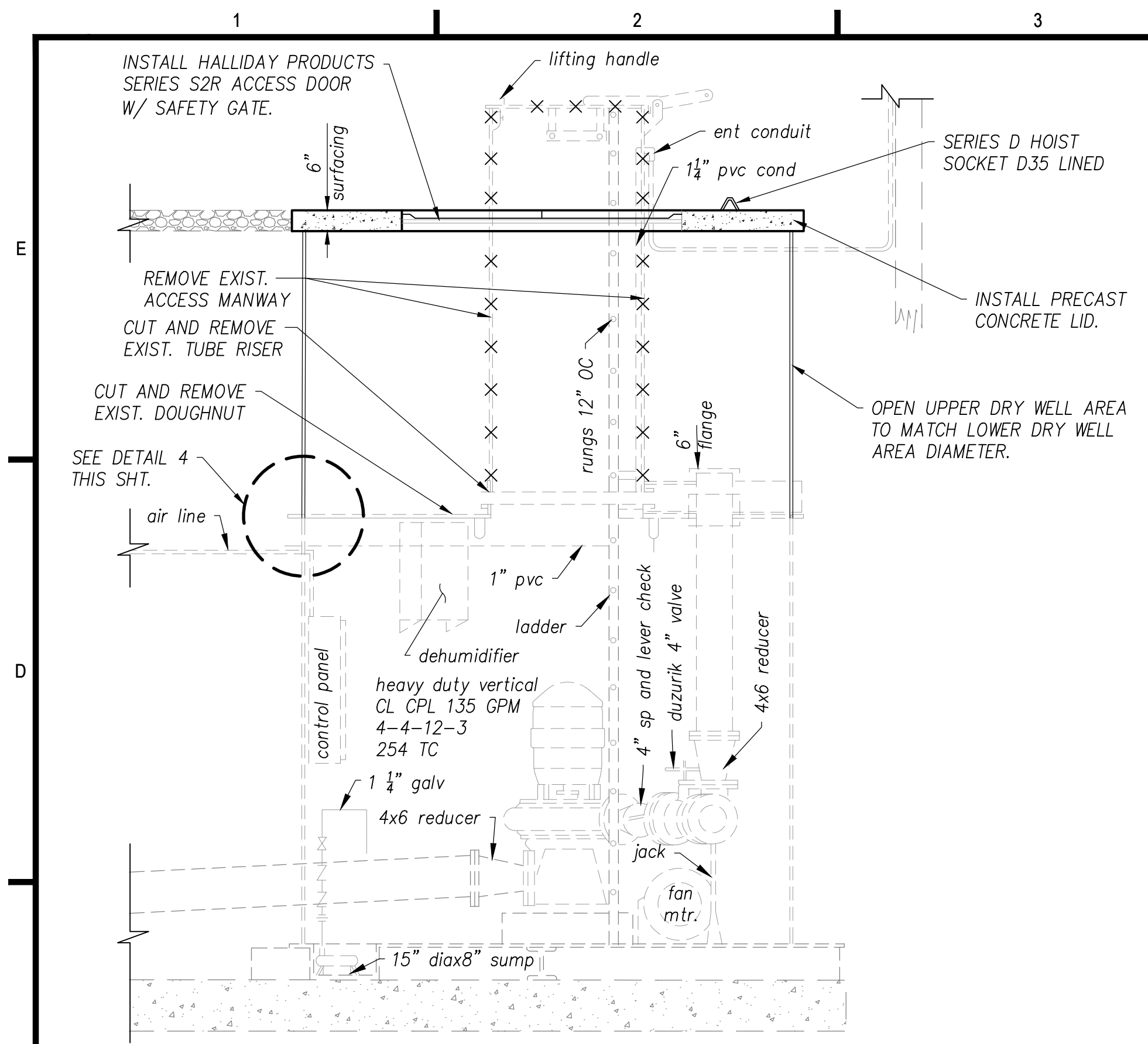
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ENGINEER: XXX  
DRAWING SIZE: ANSI D  
DRAWING SCALE: NTS

DRAWING TITLE:  
**MECHANICAL SECTIONS**

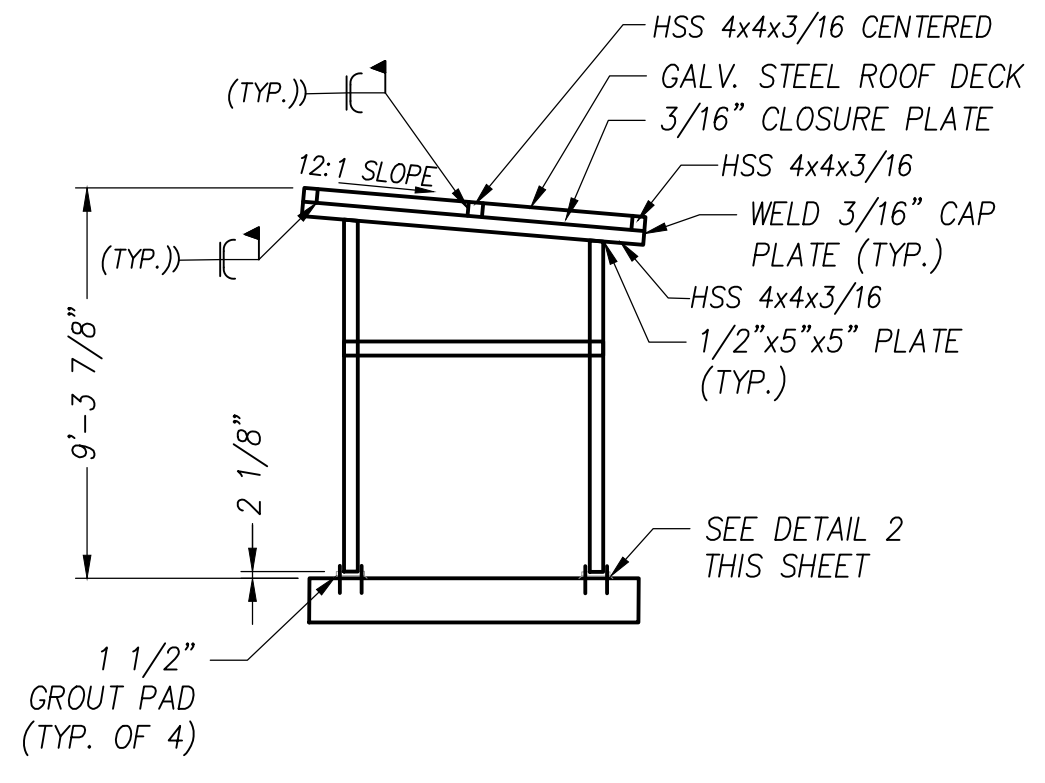
DRAWING NUMBER:  
**M-02**

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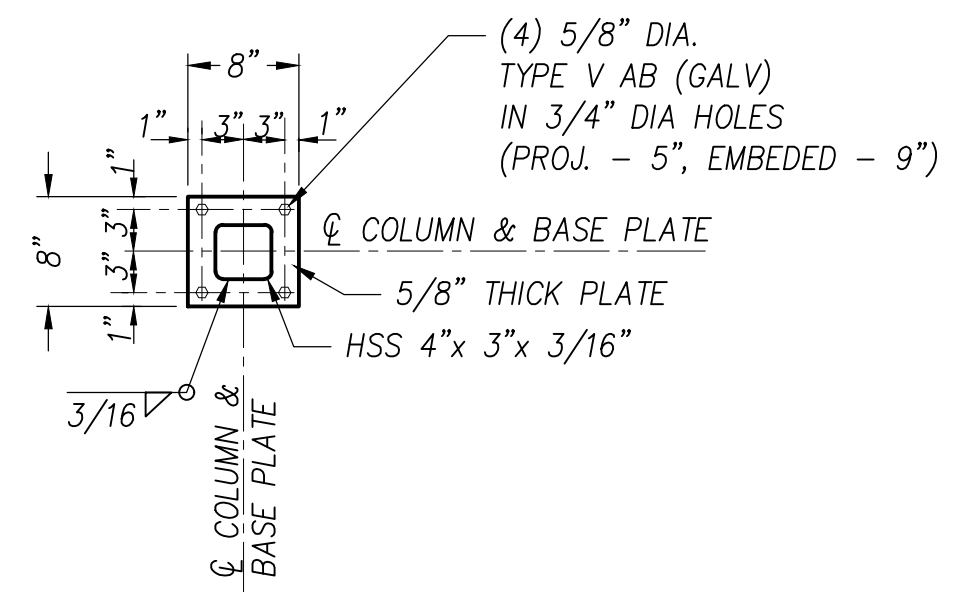




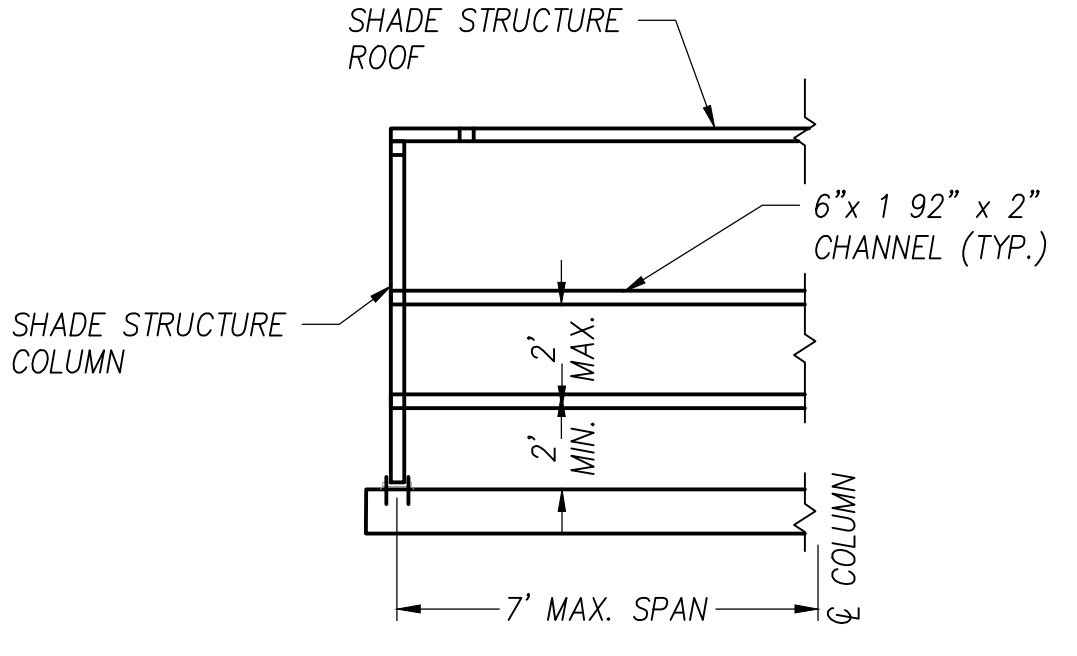
**ELEVATION**  
N.T.S.



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



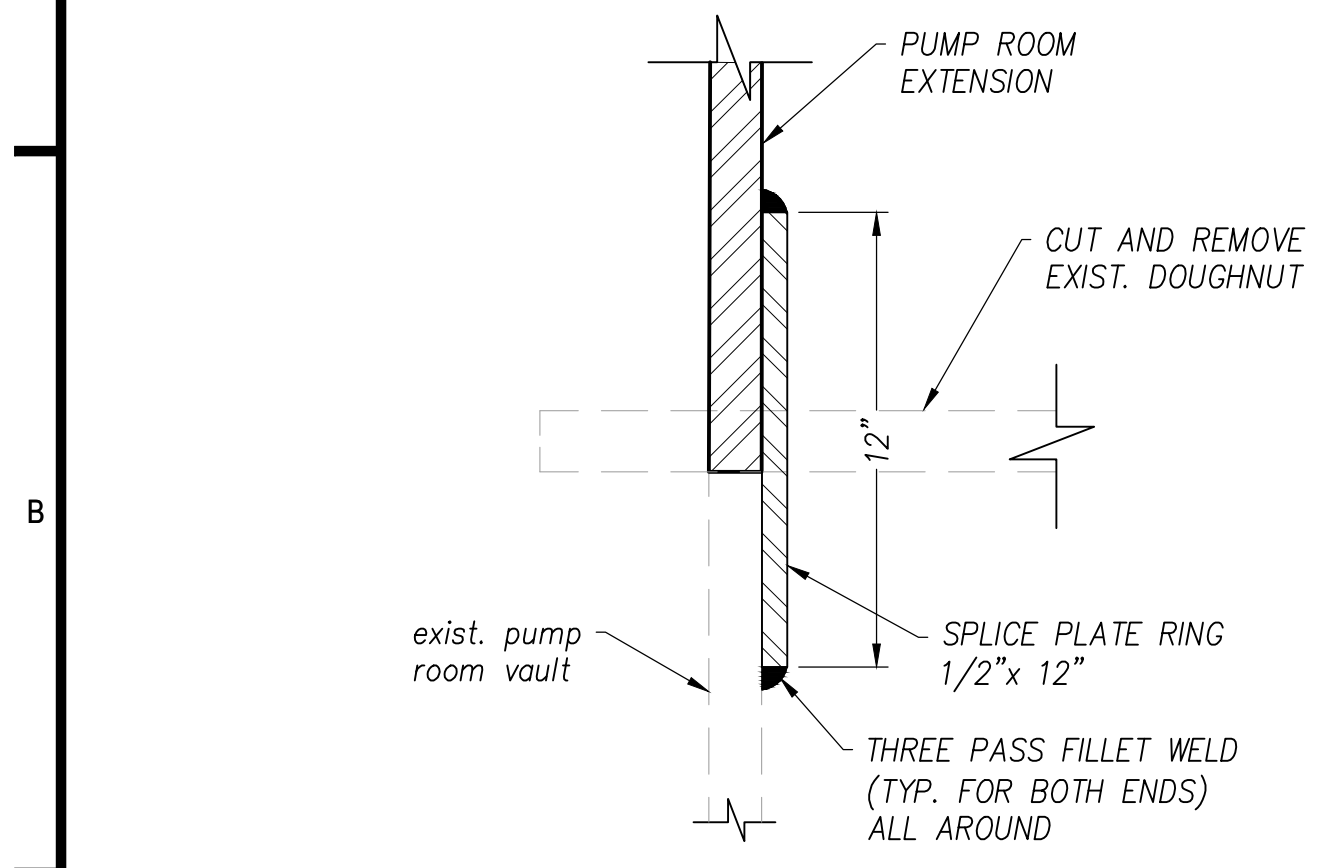
**2 POST BASE DETAIL**  
NTUA STANDARD DETAIL N.T.S.



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

NOTE:  
SHADE STRUCTURE TO SUPPORT ALL CROSS MEMBERS. CROSS MEMBERS SHALL BE INSTALLED AS NEEDED IN ORDER TO MOUNT AND SUPPORT ALL ELECTRICAL PANELS.

54 x 54  
YES  
D3A24E (specify 20 ft. cable)



**4 SPLICE DETAIL**  
FOR VAULT EXTENSION N.T.S.

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

**SERIES DA PORTABLE HOIST**

**STANDARD FEATURES:**

- TYPE-304 STAINLESS STEEL CONSTRUCTION
- 30 FEET (9 METERS) OF 1/4" (7 MM) STAINLESS STEEL CABLE
- SALVANIZED 1 TON HOOK
- DUTTON-LANSON MARINE GRADE BRAKE WINCH
- 3 YEAR GUARANTEE

**OPTIONS:**

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

| QTY. | MODEL NO. | MAX. LOAD (LBS.) | UNIT WT. (LBS.) |
|------|-----------|------------------|-----------------|
|      | D1A24C    | 500 (227)        | 95 (30)         |
|      | D2A24C    | 1000 (454)       | 98 (40)         |
|      | D3A24C    | 1500 (680)       | 103 (48)        |

**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.

24" (610 MM) REACH (STANDARD)  
CABLE 1/4" (7 MM) S.S.T.L.  
1 TON HOOK  
STATIC LOOP  
DAVIT  
MAST  
60" (1524 MM) OVERALL HEIGHT  
49" (1219 MM) LIFTING HEIGHT

HP HOLIDAY PRODUCTS  
www.HolidayProducts.com  
Phone 800-298-1027  
Fax 407-298-4534  
Sales@HolidayProducts.com

**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

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

**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" (619 MM)

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Phone 800-298-1027  
Fax 407-298-4534  
Sales@HolidayProducts.com

**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 (1484 KG. PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM FRAME
- RECESSED LIFTING HANDLE
- LIFETIME GUARANTEE

| 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)            |

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P.O. BOX 170  
Ft. Defiance, AZ, 86504

PROJECT:  
**REFURBISHMENT & UPGRADE OF EXISTING LIFT STATION**  
36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA, 86503

**ROBERT L. OWENS**  
Professional Engineer  
State of Arizona, No. 35254  
Expires 09/30/2021

**REVISIONS:**

| REV | DESCRIPTION | DATE | DFR | CHR |
|-----|-------------|------|-----|-----|
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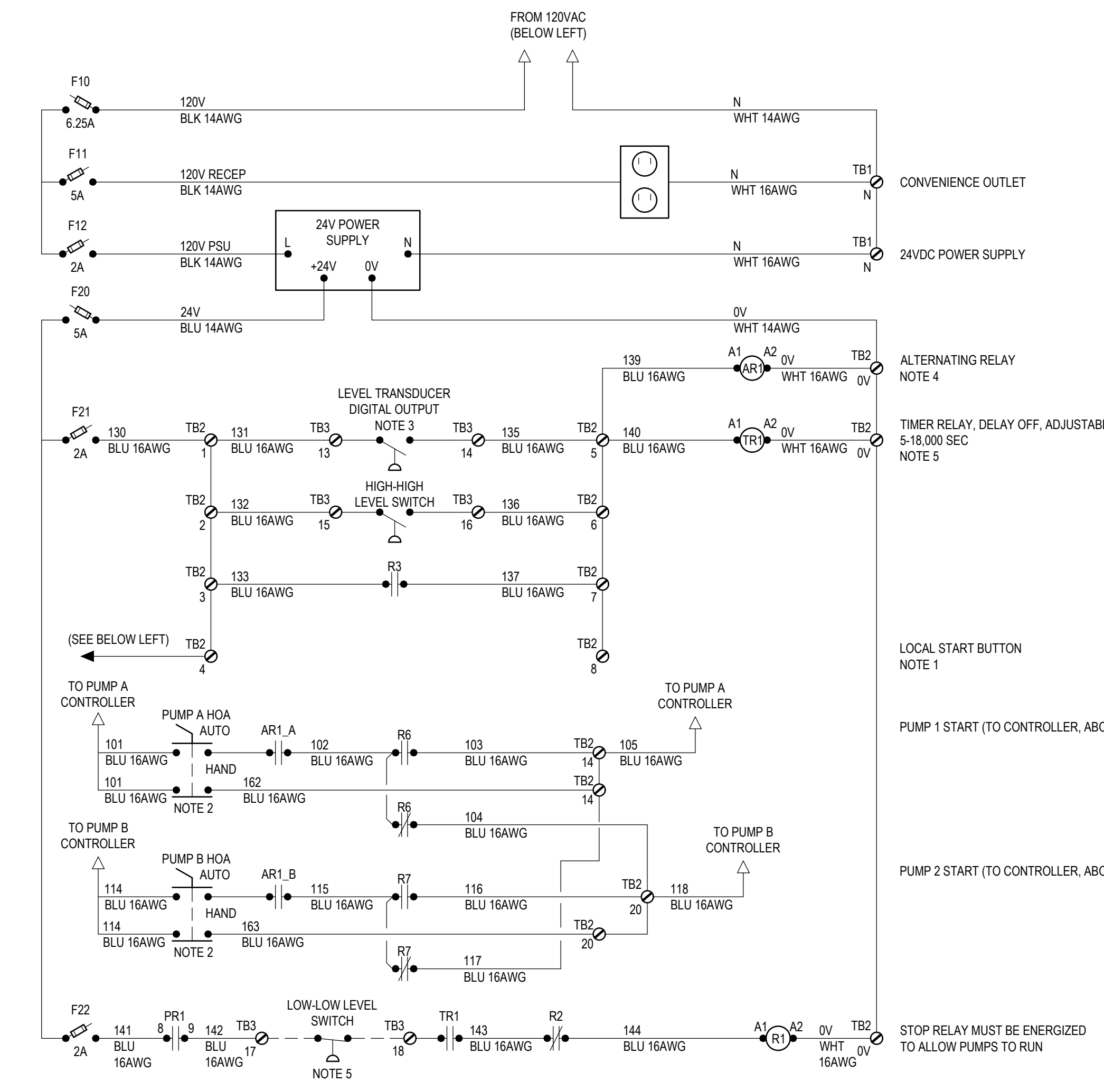
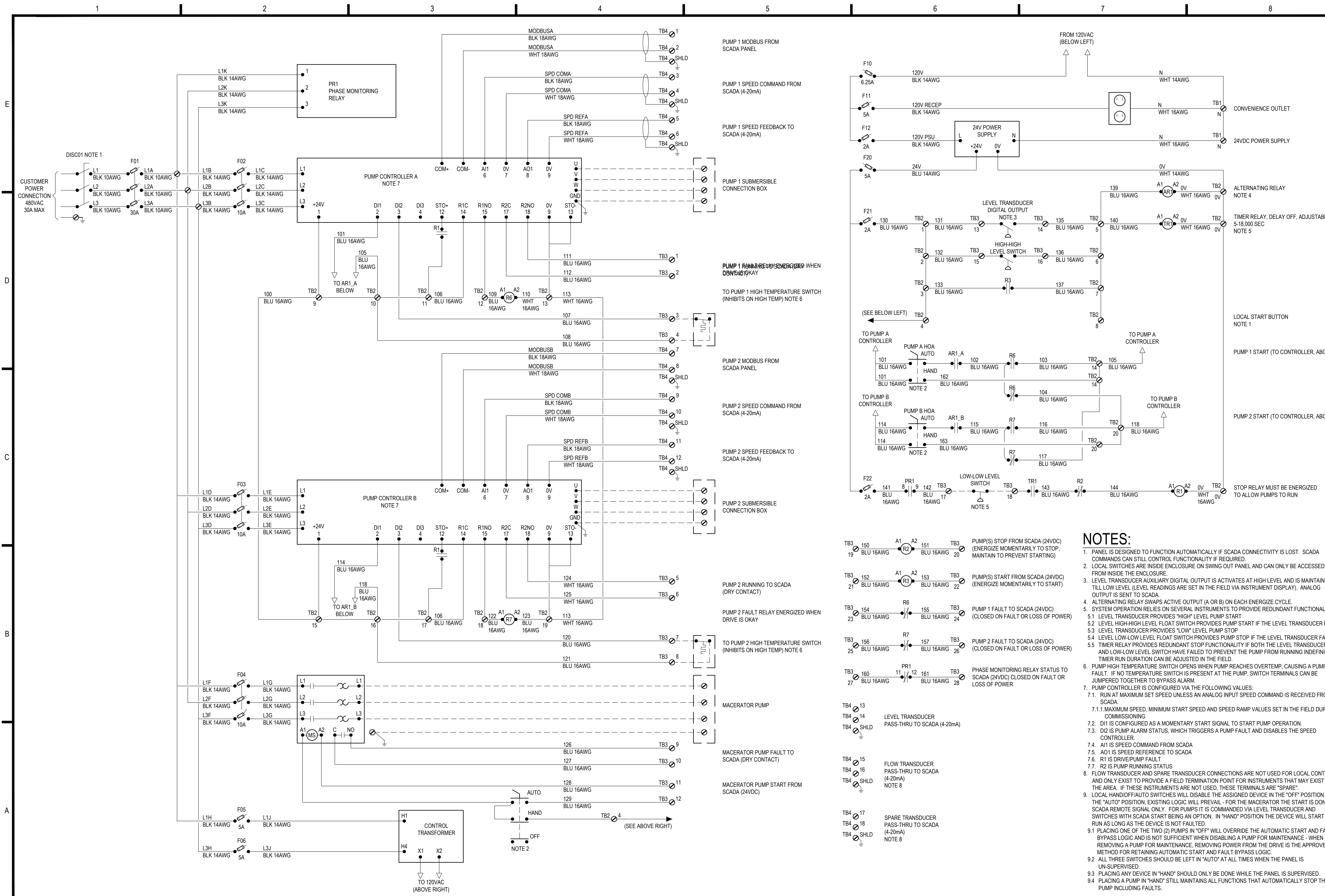
PROJECT NUMBER: 20-050-02  
ENGINEER: XXX  
DRAWING SIZE: ANSI D  
DRAWING SCALE: NTS

DRAWING TITLE:  
**STRUCTURAL SECTIONS**


DRAWING NUMBER:  
**S-01**

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- 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 END 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.
    - 1.1. 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 UNSUPERVISED.
  - 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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FT. DEFIANCIE, AZ 86504

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REVISIONS:

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

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PROJECT NUMBER: 2034  
ENGINEER: GMC  
DRAWING SCALE: NTS  
DRAWING SIZE: ANSI D

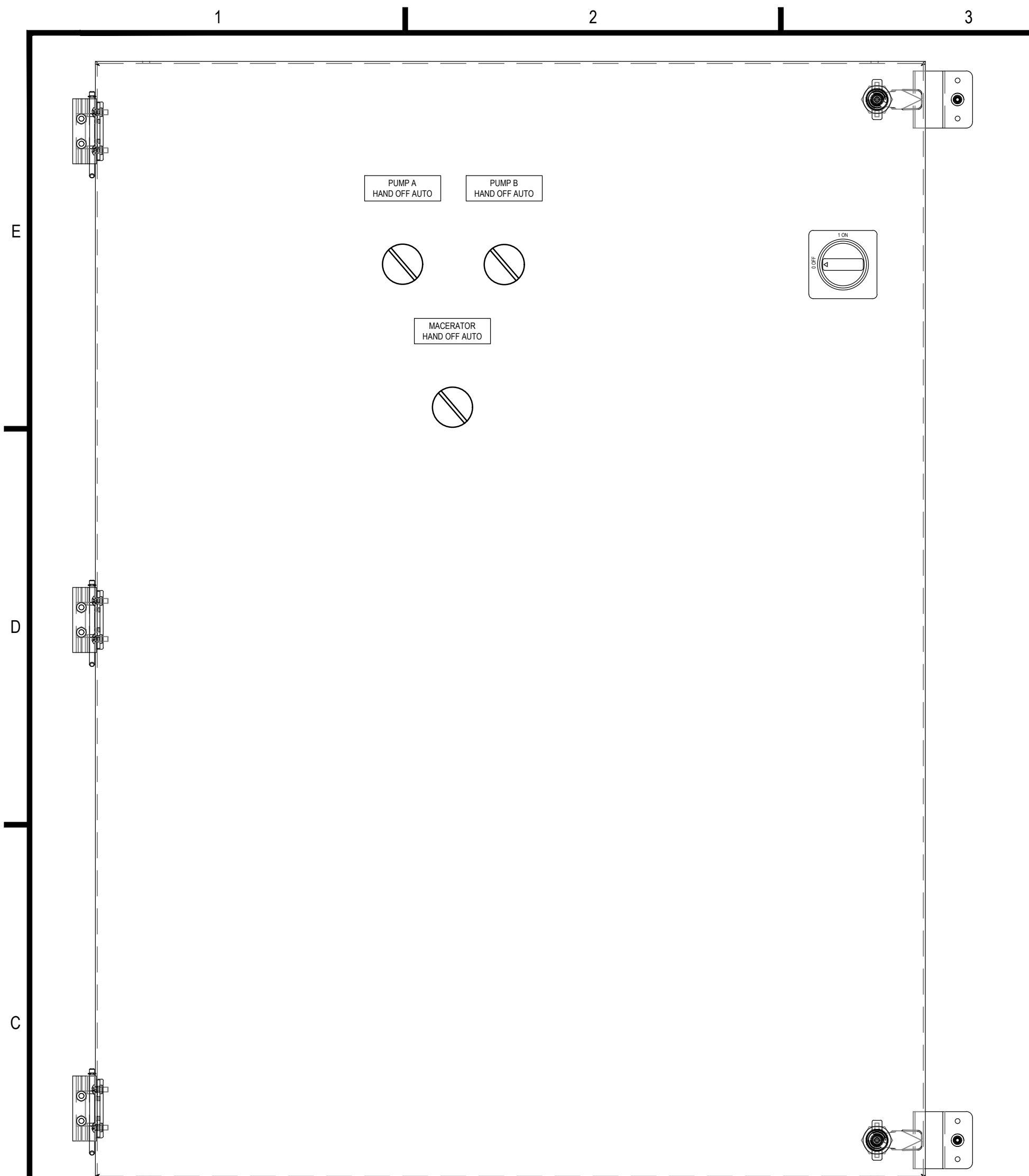
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DRAWING TITLE:  
**CHINLE SITE PUMP PANEL 480V ONE-LINE DIAGRAM**

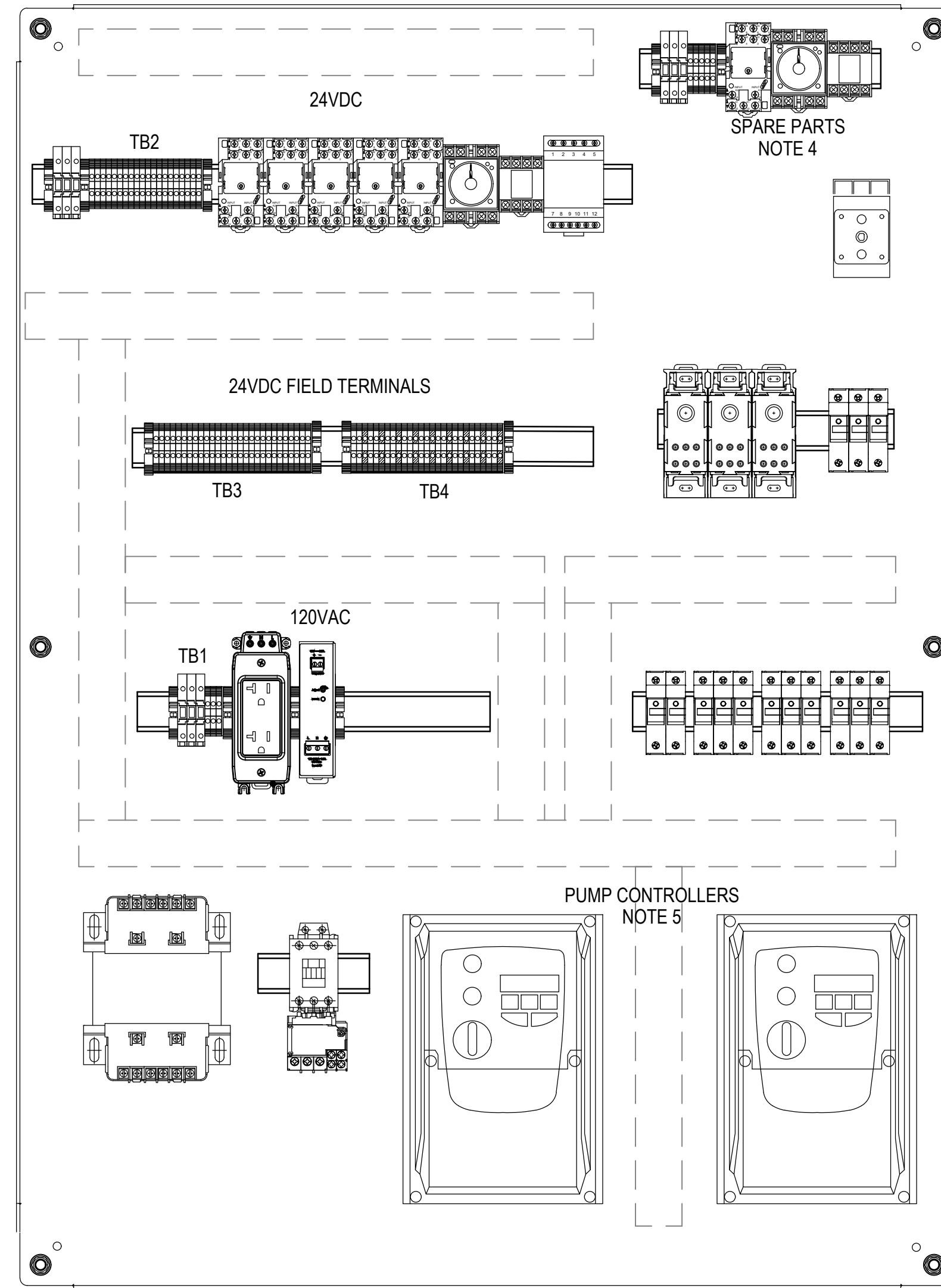
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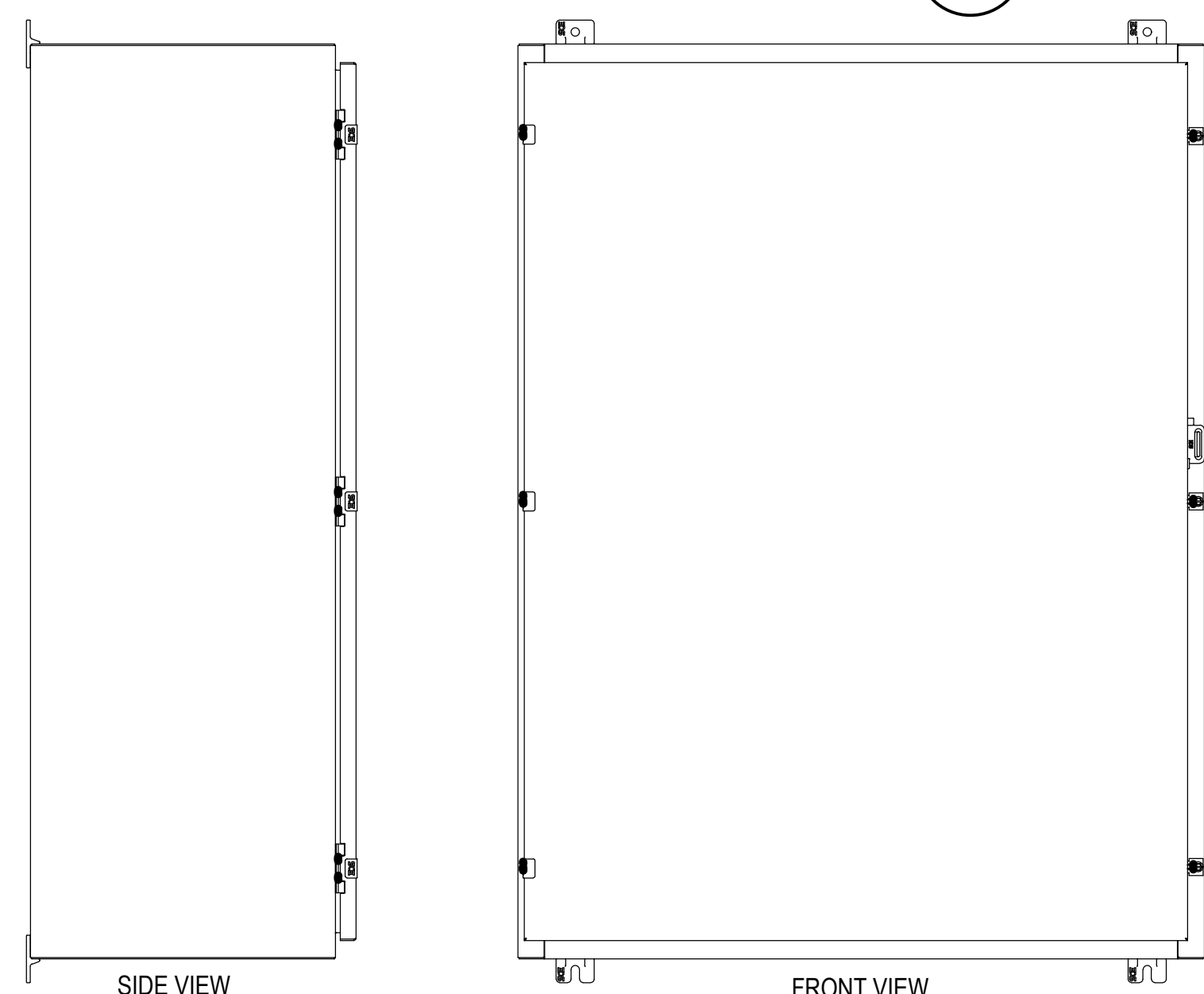


INTERIOR DEAD PANEL LAYOUT



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          | 3   |                   |               | MIDGET FUSE, 30A  |
| 13          | 3   |                   |               | MIDGET FUSE, 10A  |
| 14          | 2   |                   |               | MIDGET FUSE, 5A   |
| 15          | 2   |                   |               | 5 X 20MM FUSE, 6.25A                                      |
| 16          | 2   |                   |               | 5 X 20MM FUSE, 5A   |
| 17          | 2   |                   |               | 5 X 20MM FUSE, 2A   |

**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) FIVE HORSEPOWER 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 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        | DDS2-330-DHMRY     | DISCONNECT, 32A, 3 POLE NON-FUSED                                       |
| 5    | 4   | EDISON             | EHM3DU             | 3 POLE FUSE HOLDER, 30A MAX, MIDGET FUSES                               |
| 6    | 2   | EDISON             | EHM1DU             | 1 POLE FUSE HOLDER, 30A MAX, MIDGET FUSES                               |
| 7    | 3   | 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   | HAMMOND MFG        | PH750MQMJ          | 480V TO 120V TRANSFORMER, 750VA   |
| 12   | 1   | RHINO              | PSB24-060S         | 24VDC POWER SUPPLY, 60W   |
| 13   | 2   | (BY VENDOR) NOTE 5 | (BY VENDOR) NOTE 5 | 5HP PUMP CONTROLLER, VFD, INCLUDING RELAY CARD AND MODBUS COMMUNICATION |
| 14   | 1   | FUJI ELECTRIC      | SC-E03G-24VDC      | IEC CONTACTOR, 24VDC COIL, 12A FRAME                                    |
| 15   | 1   | FUJI ELECTRIC      | TK26E-007          | THERMAL OVERLOAD RELAY, ADJUSTABLE, 7-10.5A                             |
| 16   | 1   | AUTOMATION DIRECT  | FA-REC2            | DIN RAIL MOUNT RECEPTACLE   |
| 17   | 5   | AUTOMATION DIRECT  | 783-3C-24D         | ICE CUBE RELAY, 24VDC, 3PDT, 15A  |
| 18   | 5   | AUTOMATION DIRECT  | 783-3C-SKT         | RELAY BASE, 3PDT  |
| 19   | 1   | FUJI ELECTRIC      | MS4SM-CE-ADC       | TIMER RELAY, 24VDC, DPDT, ADJUSTABLE                                    |
| 20   | 1   | FUJI ELECTRIC      | TP411X             | TIMER RELAY BASE FOR MS4SM SERIES                                       |
| 21   | 1   | LITTELFUSE         | ALT024-S-SW        | ALTERNATING RELAY, 24VDC, INCLUDES MANUAL OVERRIDE SWITCH               |
| 22   | 1   | LITTELFUSE         | OT08PC             | RELAY SOCKET, 10A   |
| 23   | 3   | FUJI ELECTRIC      | AR30PR-311BZC      | 30MM SWITCH, 3POS, MAINTAINED, 1NO/1NC                                  |
| 24   | 69  | AUTOMATION DIRECT  | KN-T12GRY          | TERMINAL BLOCK, GREY, SINGLE TIER, 0.20 WIDE                            |
| 25   | 4   | AUTOMATION DIRECT  | KN-ECT6GRY-25      | TERMINAL BLOCK BARRIER, GREY  |
| 26   | 11  | AUTOMATION DIRECT  | KN-EB4-10          | TERMINAL BLOCK END BRACKET, GREY  |
| 27   | 9   | AUTOMATION DIRECT  | KN-G12SP-10        | GROUND BLOCK, GREEN_YEL, SINGLE TIER                                    |
| 28   | 3   |                    |                    | MIDGET FUSE, 30A  |
| 29   | 9   |                    |                    | MIDGET FUSE, 10A  |
| 30   | 2   |                    |                    | MIDGET FUSE, 5A   |
| 31   | 1   |                    |                    | 5 X 20MM FUSE, 6.25A  |
| 32   | 2   |                    |                    | 5 X 20MM FUSE, 5A   |
| 33   | 3   |                    |                    | 5 X 20MM FUSE, 2A   |
| 34   | 1   | EATON              | D65VMLS480C        | PHASE MONITORING RELAY  |



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



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CLIENT:  
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AUTHORITY  
P.O. BOX 170  
FT. DEFIANCANCE, AZ 86504

PROJECT:  
REFURBISHMENT & UPGRADE OF  
EXISTING LIFT STATION  
36°09'34.23"N, 109°34'27.52"W  
CHINLE, ARIZONA 86503

| REVISIONS: |                 |            |      |      |  |
|------------|-----------------|------------|------|------|--|
| REV        | DESCRIPTION     | DATE       | DFTR | CHKR |  |
| 0          | 100% SUBMISSION | 2020-10-06 | SBV  | GMC  |  |
| 1          |                 |            |      |      |  |
| 2          |                 |            |      |      |  |
| 3          |                 |            |      |      |  |
| 4          |                 |            |      |      |  |
| 5          |                 |            |      |      |  |
| 6          |                 |            |      |      |  |
| 7          |                 |            |      |      |  |
| 8          |                 |            |      |      |  |
| 9          |                 |            |      |      |  |

DRAWING TITLE:  
CHINLE SITE PUMP PANEL 480V  
FABRICATION DIAGRAM

DRAWING NUMBER:  
E1703