Painted Desert Demonstration Projects
(d.b.a. PDDP/STAR School)
Request for Proposal (RFP) -001
Architectural and Engineering Services

I. OVERVIEW

The Painted Desert Demonstration Projects, Inc. (PDDP), a.k.a. STAR School, is a K-8 public charter school located 25 miles east of Flagstaff, Arizona, just outside of the southwest boundary of Navajo Nation. Through this RFP, PDDP/STAR School is soliciting proposals from qualified Architect/Engineer (A & E) teams to design and prepare construction documents for the construction of **i**) a Local Food Store, **ii**) a "Maker Space" - a school science laboratory for soil, water, and renewable energy, and **iii**) an off-grid solar photovoltaic (PV) system to power the entire facility.

This project is funded by two Federal grants: 1) USDA's Rural Business Development grant (RBDG), and 2) Department Education's Impact Aid Grant. The USDA RBDG will cover the work to build the Local Food Store. And the Impact Aid Grant will cover the work to build the Maker Space and the Solar System. **Therefore, this RFP will result in two separate contracts. One is for the Local Food Store and the other is for the Maker Space and the Solar System.** And **Davis Bacon rate must be applied for the work performed for the Maker Space and the Solar System development.**

It is PDDP/STAR School's intent to select one A/E team for both contracts. Indian Preference applies to bid evaluation and award.

II. INSTRUCTIONS

Issuance Date: **January 22, 2021**

Pre-submittal Meeting: **February 12, 2021 at 1:30 pm**

Deadline for Questions: **February 19, 2021**

RFP Closing Date/Time: **February 26, 2021, at 5:00 pm, Arizona Time**

Primary Contact:

Dr. Mark Sorensen Email: mark.sorensen@starschool.org Phone: 928-613-5494	Sofia Montes Email: sofia.montes@aatechsolar.com Phone: 520-877-2697

Proposal Submission:

- A complete submittal must include **two pdf files** and should be emailed to: **Dr. Mark Sorensen at mark.sorensen@starschool.org** on or before the RFP Closing Date/Time. One pdf file is the proposal for the Local Food Store design. The other pdf file is the proposal for the Maker Space and the Solar System design.

- Please include **"Response to STAR RFP - 001 – your company name"** in the Subject line.
- Proposals received after the RFP Closing Date/Time will not be considered.

Responses to this RFP in the form of comments, questions, suggestions, and enhancements shall be submitted to the email provided above by the set deadlines specified above**.** Proposals submitted for review should include a **cover page** with company name, company address, main contact information, and a brief description of company services and relevant experience.

IV. STATEMENT OF WORK:

Refer to **Appendix A** for technical scope of work and relevant materials.

V. RESPONSE REQUIREMENT AND FORMAT

1. Offerors Contacts

All questions regarding this Request for Proposal (RFP) must be directed to the Primary Contact indicated on the first page of this document.

Offerors may not contact the employees of PDDP/STAR School or its consultants concerning this RFP while the evaluation process is in progress.

2. Response Format

Please note: two separate proposals are solicited by this RFP. Each proposal pdf file including all the materials of a complete proposal shall be submitted electronically to the email address specified above. The material should be in sequence and relevant to the project. PDDP/STAR School shall not provide any reimbursement for the cost of developing or presenting responses to this RFP. Failure to include the requested information may have a negative impact on the evaluation of the Offeror's response.

3. Evaluation Criteria

Evaluation of the proposals will focus on the following categories:

- Qualifications of the company including previous experience with clients in the performance of similar projects – **15 points**
- Experience of personnel proposed to perform architectural services – **20 points**
- Relevant past projects similar to scope – **20 points**
- Qualifications and experience of sub-consultants most often utilized by proposing firm – **15 points**
- Location of main office and branch office where work will be administered – **10 points**
- Availability - Current and projected workload – **5 points**
- Schedule – **5 points**
- Client reference checks – **5 points**
- Cost – **20 points**
- Native American Preference – **5 points**

Total 120 points

Interviews may be scheduled as needed. Evaluation criteria of the interviews will be shared with the shortlisted A/E teams.

It is PDDP/STAR School's intent to select one A/E team for both contracts.

4. Required Information

In order for a proposal to be considered responsive, the following information must be provided:

- A synopsis of Firm's experience in providing professional architectural services to municipal and/or private entities during the past five (5) years.
- A list of professional staff, and sub consultants, who would be performing the services requested, along with resume briefs for professional personnel (project team).
- An outline of projects completed or under contract, together with a list of client references.
- A statement/position of the Firm's ability to perform architectural services for PDDP/STAR School in context with its current and scheduled workload over the next six months to three years.
- Offeror must list any subcontractor to be used in performance of services herein. For each subcontractor, details on respective qualifications must be included.
- Offeror must provide the schedule of the work.
- Offeror must provide cost proposal following the format outline in Cost Proposal section below.

5. Cost Proposal

Offeror must provide the cost breakdown by task as well as a not-to-exceed total cost. Offeror must provide the number of hours estimated for each task and the hourly rate for each employee working on the project.

Failure to provide the requested information may result in disqualification of the proposal.

APPENDIX A: TECHNICAL SCOPE OF WORK

A. INTRODUCTION

A.1: Project Location

The project to be developed is located at the site belongs to Painted Desert Demonstration Projects Inc. (PDDP), later known as the PDDP/STAR School, which is located 25 miles east of Flagstaff, next to the southwest corner of Navajo Nation. **Figure 1** shows the approximate project location on the state of Arizona map. **Figure 2** is a zoomed in map that shows the parcel of land on which the project is to be developed.

Figure 1: Project location

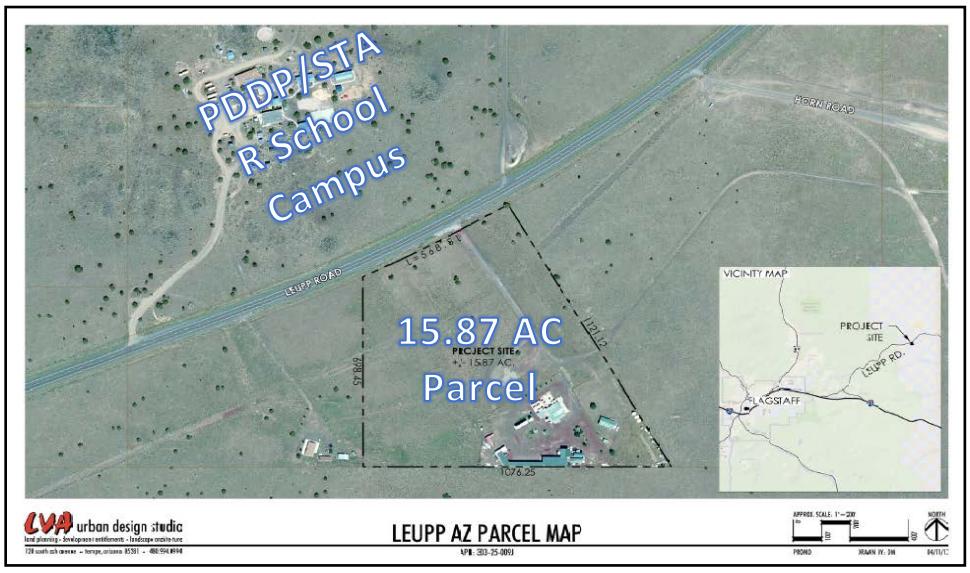


Figure 2: Land parcel of the project location

A.2: Environmental Conditions

In October 2018, PDDP/STAR School obtained Terrane Engineering Corporation through Verde Engineering Group PLLC to conduct a preliminary environmental assessment for the project site. The Preliminary Environmental Site Assessment Report is available upon request. Below is a brief summary of some of the key findings:

Drainage

The site is relatively flat with southwestward drainage across the surface and 8 feet of relief from the north side to the southeast corner of the site. From the Marriam Crater quadrangle, the site is in a basin without an outlet. No dry wells exist on the site.

Geology

The project area is on the southern margin of the Colorado Plateau, which is dominated by San Francisco volcanic field and underlying limestone-capped plateau. The oldest rocks underlying the area are 1.7 to 1.8-billion-year-old Precambrian granites and schists that covered by volcanic and sedimentary rocks.

Groundwater

Based on ADWR records, one recorded well exists in the 1/64 section (10 acres, 660-foot square) the site lies in or in adjoining 1/64 sections. ADWR recodes indicate the well was drilled on September 17, 1987, is 1,394 feet deep, and the water level was 1,065 feet below the surface.

B. EXISTING FACILITIES

B.1: Location Map

The site is a 15.874-acre parcel with improvements in its southeast part on the south side of Leupp Road, about 1,000 feet west of Horn Road, in Coconino County, Arizona, about 16 miles east- northeast of the Flagstaff metro-area. It is a portion of the southeast quarter of Section 11, Township 22 North, Range 10 West of the Gila and Salt River Base and Meridian. Its Coconino County Tax Assessor Parcel Number (APN) is 303-25-009J. **Figure 3** shows the record of survey. And the topographic survey and topography map is available upon request.

B.2: History of the Project Site

Historical aerial photographs from 1997 to 2017 were reviewed on Google Earth. In 1997, ownership changed from La Vaun Harenberg (recorded owner of the well) to Jeffrey and Tammy Lobstein. Site is thought to be used for ranching. There was a ranch house in a graded area in the southeast part of the site with ancillary structures and equipment. Some grading was done. In 2003, William Pierson, dba D&B Enterprises, became the owner. Site is similar and thought to be used for ranching. Agra Technologies, Inc. owned the site from February 6th, 2004 to March 31st, 2006. In 2007, Reliance Land Company, LLC, trustee, became the owner of the site. Reliance Land Company, LLC constructed several structures in the southeast part of the site for its processing operations. 2010 Conditions were similar to 2007. The large, white, storage tanks north of the east end of the building along the south line was moved to east of the ranch house along the property line with other materials and equipment south of the tanks and along the south property line. The graded area between the north and south buildings, west of the ranch house, was surfaced with cinders. 2011 Conditions were similar to 2010. The remainder of the graded area west of the ranch house was surfaced with cinders. More materials and equipment were stored along the east

boundary and west of the south building. 2013 Conditions were similar to 2011. Drives around the ranch house and the well and access area north of the north building are surfaced with cinders. 2015 Mark and Catherine Sorensen became the owners. Conditions are similar to 2013. The tanks along the east side have been moved to west of the north building. 2017 Painted Desert Demonstration Project, Inc. became the owner in December. Conditions were similar to 2015. Materials and equipment had accumulated between the ranch house and south property line.

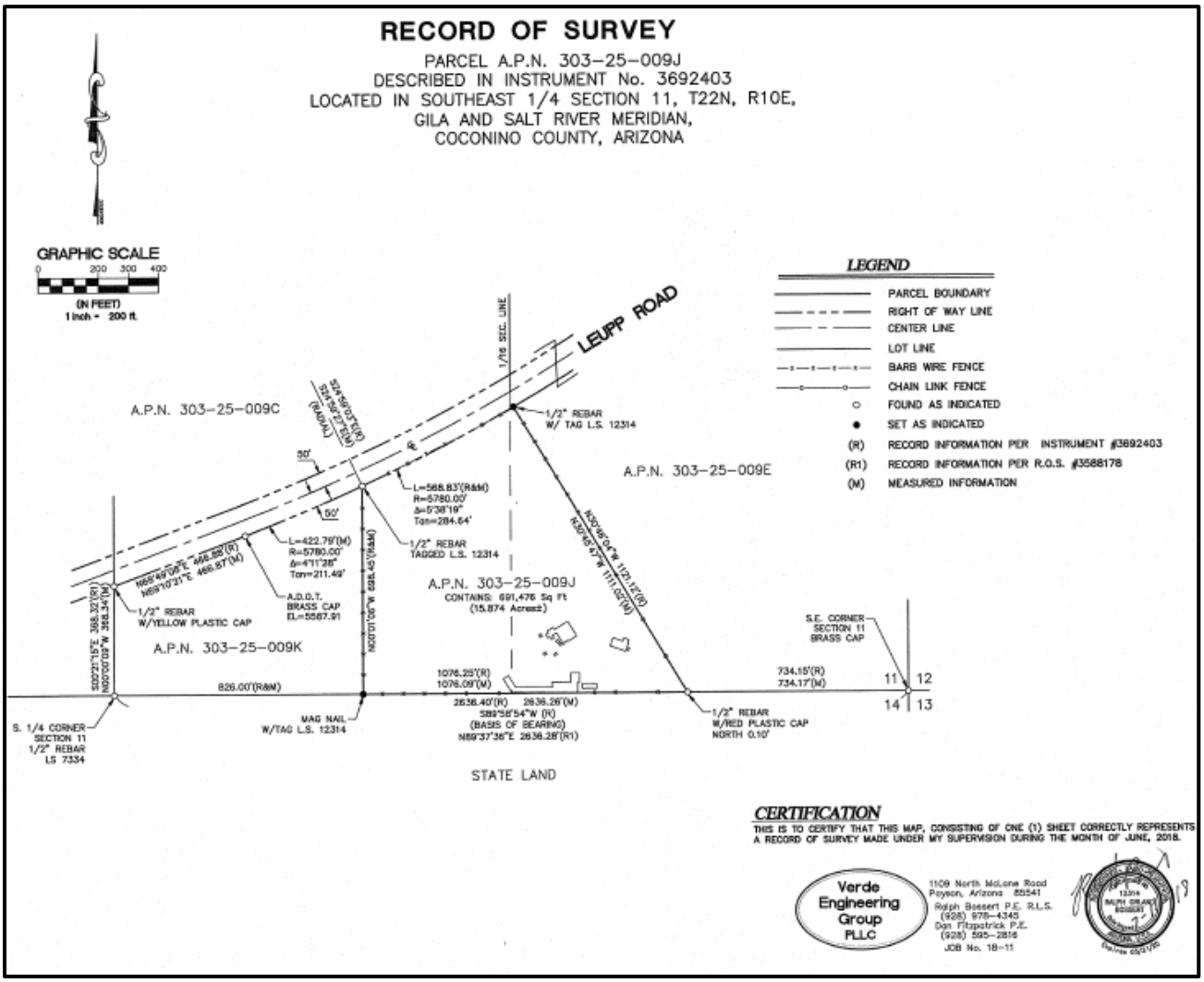


Figure 3: Record of Survey of the Project Site

The long-term plan is to development the property into a regional food hub, as shown by the conceptual site plan in **Figure 4**. The project outlined in the RFP is an important near-term step in the endeavor toward the long-term goal.

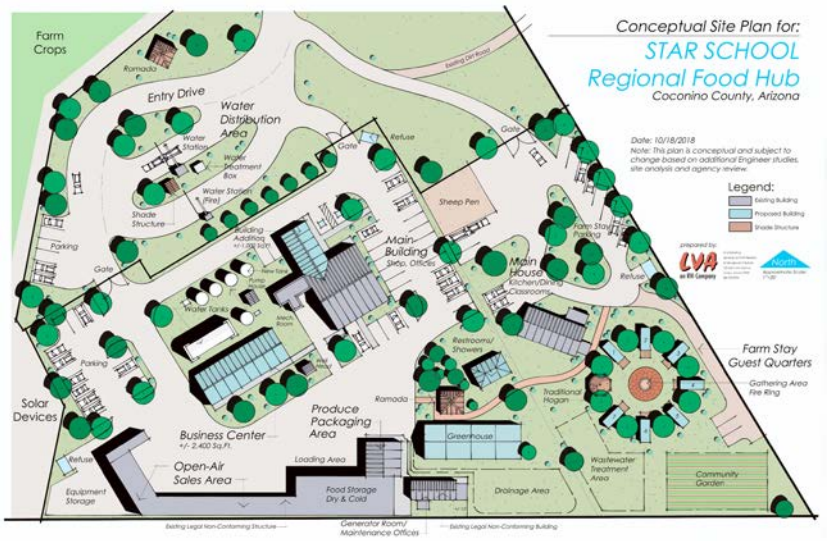


Figure 4: Conceptual Site Plan for PDDP/STAR School (PDDP) Regional Food Hub

B.3: Community Well and Water Facility

The on-site water system is essential to the local community as well as the development of the regional food hub. It has been used by the community as a destination for water hauling since 2017. The existing water system has a groundwater well registered with ADWR. ADWR records are shown in **Figures 5 and 6**. ADWR records indicate the well (ID 58314) drilled on September 17, 1987 is 1,394 feet deep, and the water level was 1,065 feet below the surface. The well has rated capacity of 125 GPM with a drawdown of 40ft. It has been considered as an adequate water source. Currently, the well is equipped with a Grunfos submersible pump (85S400-30) with a 40HP motor manufactured by Franklin Electric, Bluffton, Indiana. The submersible pump is currently set at 1,300 feet below ground level.

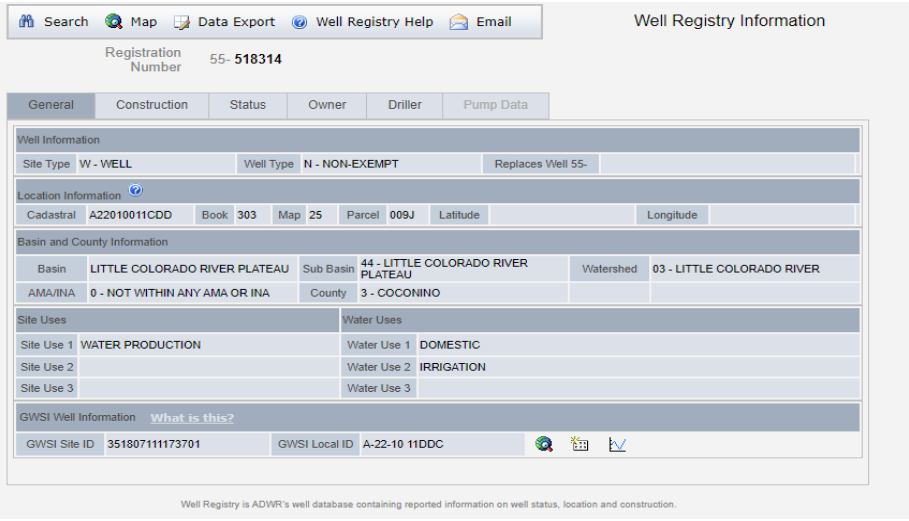
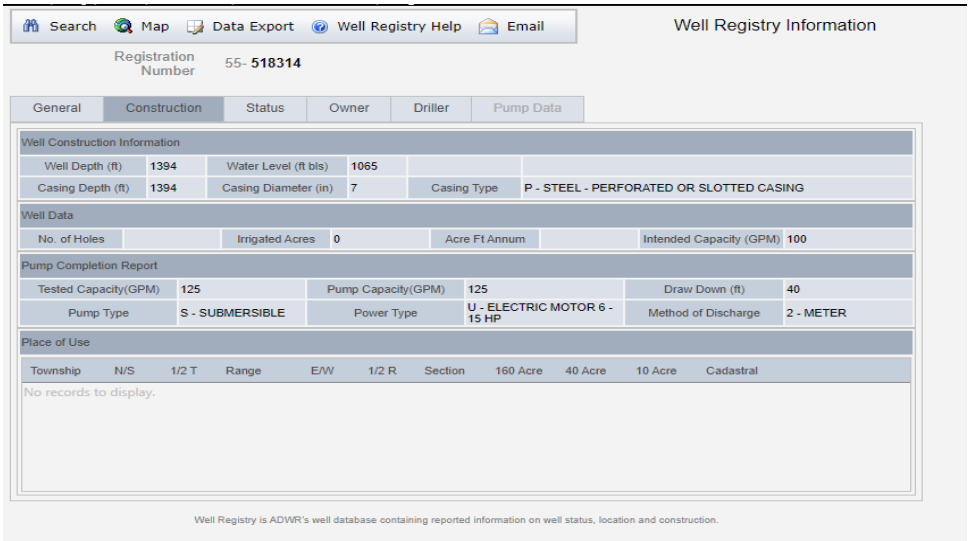


Figure 5: ADWR Registration for Well 55-518314



Search | Map | Data Export | Well Registry Help | Email

Well Registry Information

Registration Number 55- 518314

General | Construction | Status | Owner | Driller | Pump Data

Well Construction Information

Well Depth (ft)	1394	Water Level (ft bls)	1065		
Casing Depth (ft)	1394	Casing Diameter (in)	7	Casing Type	P - STEEL - PERFORATED OR SLOTTED CASING

Well Data

No. of Holes		Irrigated Acres	0	Acre Ft Annum	Intended Capacity (GPM) 100

Pump Completion Report

Tested Capacity(GPM)	125	Pump Capacity(GPM)	125	Draw Down (ft)	40
Pump Type	S - SUBMERSIBLE	Power Type	U - ELECTRIC MOTOR 6 - 15 HP	Method of Discharge	2 - METER

Place of Use

Township	N/S	1/2 T	Range	E/W	1/2 R	Section	160 Acre	40 Acre	10 Acre	Cadastral

No records to display.

Well Registry is ADWR's well database containing reported information on well status, location and construction.

Figure 6: ADWR Construction Date for Well 55-518314

Based on the research conducted, we believe the water storage and the water stand filling station were built between 2007 to 2010 by Reliance Land Company, LLC.

The original water system was in operation since 2017. It was composed of a groundwater well, a pump station with a CMU enclosure, a 35,000-gallon horizontal drinking water storage tank, a 18,000-gallon vertical drinking water tank, three 10,500-gallon (each) fire water storage tanks, and a standpipe for water truck loading. The original water system was registered as non-public water system ID # AZ403385.

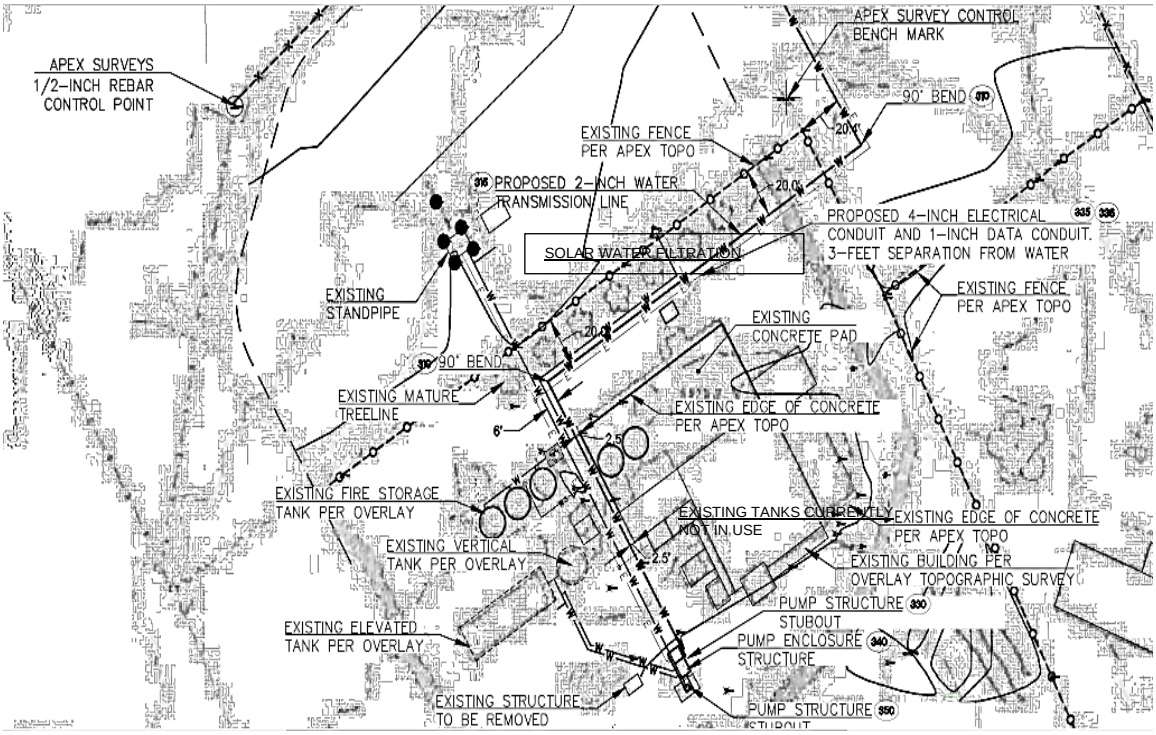


Figure 7: Locations of Water System Major Components

In 2019, a water system expansion/renovation project (**Figure 7**) was completed to include a 20 GPM booster pump located on the well site, inline delivery system from the well to standpipe, an inline booster pump for fire suppression, a connection for existing and future tank systems, and a small jet pump to service existing building structure, as necessary. This project also modified the layout and appurtenances for fire storage tank system and associated fire pump and discharge line previously designed. As built plans can be found in **Attachment A.**

B.4: Existing Building to be Renovated and Expanded

The existing buildings and structures on the project site are shown in the **Figure 8**. **Figure 9** shows the existing building to be renovated into a "Maker Space". A new store front will be added in front of the building where there is currently a concrete pad. **Figure 10** shows the inside of the existing building.

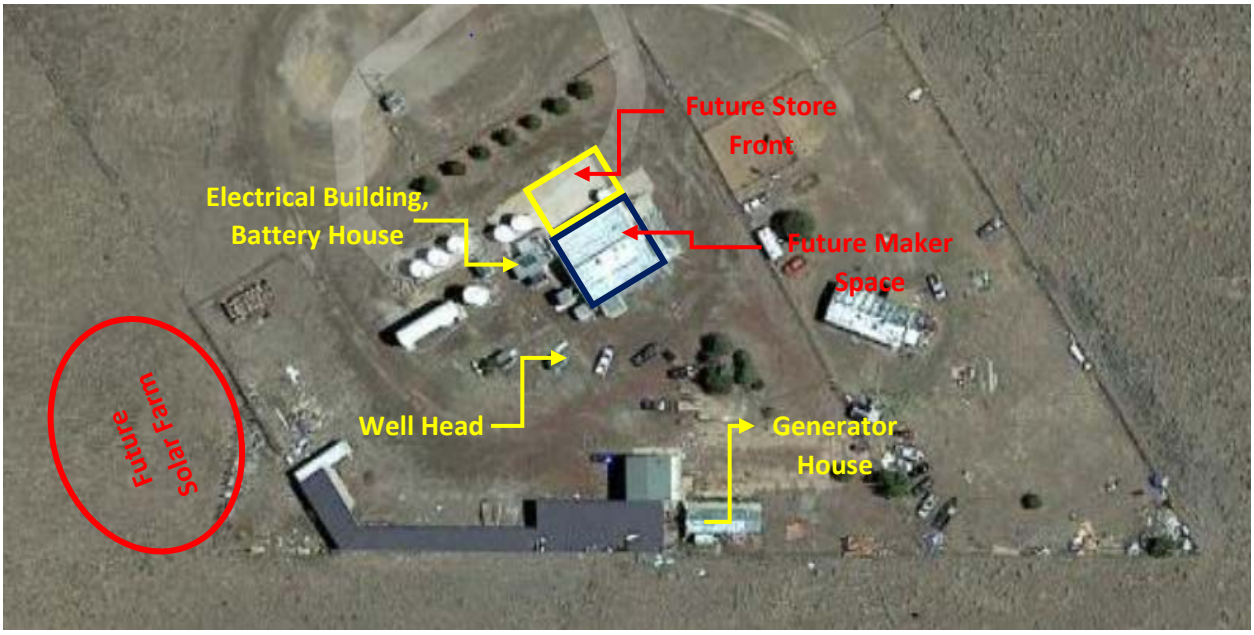


Figure 8: Buildings and Structures on the Project Site

Figure 9: Existing Building to be Renovated

Figure 10: Inside of the Future Maker Space

B.5: Current Power Demand

Power demand of the water pumps are listed in **Table 1**.

Table 1: List of Pumps

Pump	Brand/ Manufacturer	Model Number	Rated Power (HP)	Quantity	Intended Function
Well Submersible	Grunfos	85S400-30	40	1	Fill water tanks (Horizontal 35000 gallons; Vertical 18000 gallons; Fire 41500 gallons)
Fire Suppression Pump	Goulds/Baldor Reliance (motor)	12BF1R5MO/ JMM2333T	15	1	Service fire hydrants
Jet Pump	Dayton	4TB32	0.5	1	Service main house including restrooms
Booster Pump	Goulds	P63FZW-4416	0.75	1	Increase flow rate at the stand pipe
Transfer Pump (not Installed)	Goulds/Baldor Reliance (motor)	52BF1F9D0/ EJMM3550T	1.5	2*	(Future) Primary + Backup water transmission line linking well to PDDP/STAR School across Leupp road

B.6: Existing Power Supply

The entire facility is off-grid and powered by a combination of diesel generators and solar panels.

B.6.1 Existing Diesel Generators for Water System Operation

The well pump - a Grunfos submersible pump (85S400-30) with a 40HP motor manufactured by Franklin

Electric, Bluffton, Indianan is primarily powered by diesel generators. This pump is used to fill the horizontal tank of 35,000 gallons; the vertical tank of 18,000 gallons; and the three fire suppression storage tanks of 10,500 gallons each (or 31,500 gallons total). Depending on the time of the year and water demand by the surrounding communities, the well pump may run up to four days per week, with up to eight hours each day. There are two diesel generators (#1 & #2) located in the Generator Room, and listed in **Table 2**. Generator #3 is located in the electrical room and serves as standby for the existing solar system.

Table 2: List of Generators

Generator	Brand	Fuel Type	Model Number	Rated Power(KW)	Manufacturing Date
1	Perkins	Diesel	NP883311R	71	May-17
2	Mitsubishi	Diesel	LSA46M1	100	Older
3	Newage	Propane	STAMFORD	30	Oct-06

B.6.2 Existing Solar System

Some of the small pumps listed in **Table 1**, such as the jet pump, the booster pump, and the transfer pump are currently powered by an existing roof-top solar array with a capacity of approximately 5KW. The solar array also provides other utilities including lighting, communication and cooling (fans). There is a 48VDC battery bank for power storage. The battery bank is located in the electrical building, together with inverters, breaker panel, and other associated equipment. There also is a 30KW backup generator for the solar system (Generator #3 in **Table 2**). Because there are not many activities at the site, the solar system with battery backup is sufficient in powering current loads and there has rarely been a need to turn on the backup generator.

In this project, PDDP/STAR School is looking for the options of either integrating the current solar system into a larger integrated solar power system (to be designed under RFP); or retiring the existing solar system, whichever makes better economic and/or practical sense. The new integrated solar system should be designed to serve as the primary power source for the entire facility, including the well pumps and other utilities. Whenever possible, the existing solar panels should be reused in the new system.

C. PROJECT SCOPE

Through this RFP, PDDP/STAR School is soliciting proposals from qualified Architect/Engineer (A & E) teams to design and prepare construction documents for the construction of **i**) a Local Food Store, **ii**) a "Maker Space" – a school science laboratory for soil, water, and renewable energy, and **iii**) an off-grid solar photovoltaic (PV) system to power the entire facility. **Figure 8** shows the site layout of these three facilities.

C.1: Maker Space

It is envisioned that the Maker Space will be developed in the existing building, shown in **Figure 8**. The existing building currently has a garage or bus bay, a storage space, and a classroom with men and women bathrooms and a couple of small rooms that can be used as offices and/or storage. The classroom and the bathrooms were fully renovated in 2018, and are being used regularly. No renovation to the classroom is expected except for work necessary to tie in with the renovation of the Maker Space. The garage is fully functional. It currently houses a school bus. Similar to the classroom, minimal interior renovation is expected. The storage is the space to be converted into the Maker Space, which will be a science

laboratory for PDDP/STAR School students to learn soil science, water and renewable energy technologies in culturally sensitive ways. The Maker Space should incorporate multi-use space that can accommodate labs for teaching and demonstration. The lab spaces under consideration include a robotics lab, a water quality test lab, and a soils lab. In addition, PDDP/STAR School expects a renovation of the entire building's exterior (all exterior walls and roofing), and the associated utilities. The renovated building must emphasize Native American culture and blend in the natural environment seamlessly.

C.2: Local Food Store

It is envisioned that an approx. 1,200 sq. ft. store front will be added to the north of the existing main building. Currently this area is paved with concrete, which can be either removed or incorporated into the new building. The Store Front would be used as a local food store selling fresh produce and other healthy food. This local food store is an important component of the regional food hub development.

C.3: Solar Power System

The new solar farm shall be off grid with battery backup. It will be located in the west of the parcel outside the existing fence (**Figure 8**). The solar farm shall be the main power sources for the entire facility. **Table 3** is a power demand estimate, provided for reference only. Some of the items in this table are "must haves" such as those under "MCC Room", while others are considered to be "desired" such as tools and EV changing station. **It is the selected A/E team's responsibility to identify, verify, evaluate the power demand, and size the solar power system.** If the cost is prohibitively high to build a solar power system that satisfies all the power requirement, provisions in the design should be made so that future expansion can be carried out by expanding the solar array and battery bank. The rest of the electrical system should be designed and sized sufficiently to avoid rework. The three existing generators shall be integrated into the overall power system as standby power. The existing solar array shall be either integrated into the overall power system or eliminated. If it is eliminated, the solar panels shall be reused whenever possible.

The overall power system shall also satisfy, as a minimum, International Building Codes, NFPA guidelines, the Coconino County Development Code, and PDDP/STAR School's minimum energy design and insulation values. The system must be streamlined, user friendly, and easy to maintain.

Table 3: Power Demand Estimate

Functions	***Estimated*** **Power Demand by Room (Watts)**						
	Green House	**Generator & Storage Rooms**	**Main Building**	**Store**	**MCC Room**	**Block House**	**Crossover House**
Lighting	100	500	1500	1500	100	100	100
Washer & Dryer							
Irrigation Booster Pump	2400						
Cooler Pump & Fans	6000						
Heater Fans	1200						
Tools		4800	4800	10000			
EV Charging Station (Tesla)		7680					
Refrigerator(s)			2400				
Microwaves & Coffee Machine			2400				
Computers/Audio/Video			2400				

Demonstration Projects			4800				
Heating/Cooling			4800	7200			
Walk-in Cooler(10'x12'x8')				2000			
Reach-in Cooler(s)				2000			
Reach-in Freezer(s)				2000			
Ice Machine(s)				2000			
Security				1000			
Domestic Pump					4800		
Well Pump					30000		
Fire Suppression Pump					10000		
Jet and other servo pumps					2400	1200	
Subtotal (Watts)	9700	12980	23100	27700	47300	1300	100
Total Power (KW)	122.2						

D. TASKS AND ACTIVITIES

The selected A & E team is to coordinate and complete the project tasks described herein. The selected team is to take an active role in the development of the Local Food Store, the Maker Space, and the Solar Power System by generating detailed design plans, specifications, and other documents required for the bid and construction of the buildings and associated utilities and infrastructures. The selected A & E team will be required to establish program schedules/milestones which correspond to the deadlines set by the PDDP/STAR School; provide design alternatives; prepare construction documents; provide construction cost estimates; advise the PDDP/STAR School project team of the most appropriate/cost effective construction techniques; and closely coordinate/communicate with the PDDP/STAR School project team.

The selected A & E team shall develop the detailed design based on the conceptual development plan (the Master Plan) previously developed. The A & E team may make reasonable adjustments and/or enhancements when necessary. The A & E team will be responsible for any site investigations required for the work specified here.

The selected A & E team shall first prepare a Schematic Design and a Schematic Design Report documenting the actions required for the completion of the proposed project. The Schematic Design Report shall include a narrative outlining the proposed development, design concept alternatives, design concept evaluation and selection, construction phasing plan, and other decisions made in order to move forward with construction.

Designs drafted by the A & E team must include lighting, electrical, heating and cooling, ingress/egress, parking lots and other ancillaries and infrastructures for the Local Food Hub Store. Plumbing, Building, Fire, and Electrical Codes must be incorporated into the design presented to PDDP/STAR School. Design consideration shall also satisfy, as a minimum, OSHA requirements, International Building Codes, the County Development Code, ADA Codes, Life-Safety Codes, NFPA guidelines, and PDDP/STAR School's minimum energy design and insulation values.

Design drawings submitted shall be compatible to AutoCAD 2018. Finalized design files shall be submitted to PDDP/STAR School in fully functional AutoCAD files for record keeping purposes.

The selected A & E team shall be responsible for the satisfactory completion of all tasks (detailed below). PDDP/STAR School shall ultimately determine whether a task has been completed and shall give a written authorization prior to the A & E team's continuation with subsequent tasks.

Following tasks will be performed

Task 1: Data Collection and Schematic Design (10%)
Task 2: Preliminary Design (35% Complete)
Task 3: Interim Design (65% Complete)
Task 4: Final Design and Construction Documents (100% Complete)
Task 5: Bid Assistance
Task 6: Engineering Services during Construction

Submittal requirements for various design phases are listed in **Table 4**.

Table 4: Submittal Requirements

No.	Milestones	Schematic Design (10%)	Preliminary Design (35%	Interim Design (65%	Final Design (100%)
1	NTP	X	X	X	X
2	Grade Site- Building Pad				X
3	Foundation	X	X	X	X
4	Under-slab Utilities				X
5	Slab on Grade				X
6	Structural Frame	X	X	X	X
7	Roof Framing - Deck				X
8	Roofing		X	X	X
9	Exterior Walls and Windows			X	X
10	Building Dry-in	X	X	X	X
11	Interior Walls-Framing				X
12	Permanent Power				X
13	Wall Finish			X	X
14	Prime Paint				X
15	Mechanical/Electrical Rough-in		X	X	X
16	Plumbing				X
17	Mechanical/Electrical above Ceiling				X
18	Flooring (VTC/Ceramic)				X
19	Doors-Hardware				X

20	HVAC – Ductwork/Controls			X	X
21	Ceiling Finish				X
22	Finish Paint				X
23	Mechanical/Electrical Systems		X	X	X
24	Site Work – Utilities/Pavement				X
25	Carpet				X
26	QC System Testing - Debugging		X	X	X
27	QA System Testing - Acceptance				X
28	Inspection		X	X	X
29	HVAC Test and Balance			X	X
30	Landscape/Grassing				X

Task 1: Data Collection and Schematic Design

1. The selected A &E team will organize a project kick-off meeting within 1 week after the issuance of the Notice-To-Proceed (NTP).
2. The A & E team will schedule one or more site 'walk-thru' with PDDP/STAR School's staff during or after the kick-off meeting.
3. The A & E team will collect past plans and reports related to the development. Then the A & E team will work with PDDP/STAR School and its project team to identify and develop design options and an implementation program. Community input will be used to determine the short- (5-year) and long-term (10-year) needs of the facility as well as the intended use of space(s) to be developed.
4. Depending on the information gathered and the program developed as a result of Task 1, A &E team will develop a minimum of two (2) building plan alternatives which includes building site plan, building elevations/façade, schematic floor plan, and other plans that are detailed enough for PDDP/STAR School and its project team to evaluate. 3-D rendering of each building plan alternative shall be prepared to facilitate the evaluation and selection. Construction phasing plans shall be proposed as well.
5. Once completed, the two building plan alternatives will be presented to PDDP/STAR School and its project team for review. Floor plans shall be presented on a minimum size 24" x 36" drawings identifying room uses, sizing, and significant building walls (load bearing). Identified within building elevations will be doors, windows, building materials, and other information which the A & E team sees as relevant.
6. The A & E team shall complete a Schematic Design Report documenting the building plan alternatives, evaluation process, and the final building plan. All the comments from PDDP/STAR School and its project team shall be addressed. Five (5) copies of the Schematic Design Report including all the attachments and plans (full-size) shall be provided to PDDP/STAR School and its project team for review and approval. Electronic files (in pdf format) of the reports and the plans shall also be provided.
7. This Task shall be completed within one month after the issuance of the NTP.

Task 2: Preliminary Design (35%)

Upon a written approval of the Schematic Design Report, the A & E team will proceed with the detailed design. This task will require the A & E team to use the selected building plan to develop construction drawings and specifications to the 35% complete stage. Significant cost decisions will be made at this stage.

1. Prepare 35% design submittals according to the submittal requirements in **Table 4**. In addition to the preliminary design plans and specifications outline, the A & E team shall prepare and submit a Preliminary Design Report, including, but is not limited to, building code summary, structural calculations, space calculations, HVAC calculations, electrical load calculations, and major equipment selection, and shop drawings/cut sheets, etc.
2. Design drawings submitted shall be compatible to AutoCAD 2018. Five (5) copies of the Preliminary Design Report including all the attachments and plans (full-size) shall be provided to PDDP/STAR School and its project team for review and approval. Electronic files (in pdf format) of the reports and the plans shall also be provided.
3. The A & E team shall prepare a construction cost estimate based on 35% design.
4. The A & E team shall hold a 35% design review meeting with PDDP/STAR School and its project team. It is the A & E team's responsibility to identify cost saving opportunities. All the comments from PDDP/STAR School and its project team must be addressed before the 35% design plans, specifications, Preliminary Design Report, and the cost estimates are finalized.
5. This task must be completed no later than two months after the issuance of the NTP.

Task 3: Interim Design (65% Complete)

Upon a written approval of the 35% design submittals, the A & E team will proceed with the 65% design. This task will require the A & E team to continue on with a more detailed design and advance the construction drawings and specifications to 65% completion. Construction cost will be estimated at this stage.

1. The A & E team will be responsible for the preparation of 65% design submittals according to the submittal requirements in **Table 4**.
2. Design drawings submitted shall be compatible to AutoCAD 2018. Five (5) copies of the plans (full-size), specifications, and other related documents shall be provided to PDDP/STAR School and its project team for review and approval. Electronic files (in pdf format) of the documents shall also be provided.
3. The A & E team shall prepare a construction cost estimate based on 65% design.
4. The A & E team shall hold a 65% design review meeting with PDDP/STAR School and its project team. It is the A & E team's responsibility to identify cost saving opportunities. All the comments from PDDP/STAR School and its project team must be addressed before the 65% design plans, specifications, and the cost estimates are finalized.
5. This task must be completed no later than three months after the issuance of the NTP.

Task 4: Final Design and Construction Document (100% Complete)

Upon a written approval of the 65% design submittals, the A & E team will proceed with the 100% design. This task will require the A & E to continue on more detailed design and advance the construction drawings and specifications to 100% completion. Construction cost will be estimated at this stage.

1. The A & E team will be responsible for the preparation 100% design submittals according to the submittal requirements in **Table 4**.
2. Design drawings submitted shall be compatible to AutoCAD 2018. Five (5) copies of the plans (full-size), specifications, and other related documents shall be provided to PDDP/STAR School and its project team for review and approval. Electronic files (in pdf format) of the documents shall also be provided.
3. The A & E team shall prepare a construction cost estimate based on 100% design.
4. The A & E team shall hold a 100% design review meeting with PDDP/STAR School and its project team. It is the A & E team's responsibility to identify cost saving opportunities. All the comments from PDDP/STAR School and its project team must be addressed before the 100% design plans, specifications, and the cost estimates are finalized.
5. This task must be completed no later than four months after the issuance of the NTP.

Task 5: Bid Assistance

This phase of the project involves providing normal bidding services to include:

1. Provide reproducible originals of construction drawings and specifications to PDDP/STAR School.
2. Provide a list of potential general contractors eligible to submit a bid for this project.
3. Answer all potential bidders' questions.
4. Assist Purchasing in conducting a pre-bid meeting, prepare addenda, review bids, advise/recommend to PDDP/STAR School a successful bidder, and any other miscellaneous pre-bid/post-bid opening tasks the PDDP/STAR School may require.

PDDP/STAR School shall be responsible for copying and distributing plans and specifications to potential bidders and plan services.

Task 6: Construction Management Services during Construction (Optional)

This work includes providing construction management services required to certify quality assurance during the construction of the project, ensuring that the design details and specifications are constructed in the field in accordance with the approved construction drawings and specifications, and ensuring that construction proceeds to completion on schedule and within budget.

The assigned Project Inspector/Consultant from the selected A/E team shall coordinate, review, and schedule construction management tasks. Elements associated with this phase of the project shall include, but are not limited to, the following:

1. Surveying – coordinate with the Contractor's subcontractor for construction survey services to the extent necessary for the prosecution of construction. The Contractor's contracted survey firm will be scheduled to provide building control staking, routine grade control staking, and any miscellaneous staking required for construction verifications.

2. Submittal and Change Order Review – review and approve submittals for conformance to the design and specifications. Review and provide technical recommendations to PDDP/STAR School for any required field changes.
3. Materials Quality Assurance Testing - need to coordinate with PDDP/STAR School's contracted Materials Testing Laboratory all materials testing to assure construction is in accordance with standard ASTM Specifications, or as specified by the special provisions for this project. The type and number of tests will be conducted as outlined in the special provisions.
4. Field Inspection Surveillance – maintain a daily log of construction activities, attend weekly construction meetings, perform weekly general construction inspection, coordinate with Contractor for special inspections, review and certify inspection results, certify material in compliance with plans and specifications.
5. Prepare record drawings – consolidate field changes and prepare as-built drawings.
6. Maintain records of Consultant directives, change orders, payment requests, approved submittals, as-built drawings, and any other project certifications or records required by PDDP/STAR School or Grantors, and submit with other project final closeout documents when the project is complete and accepted by PDDP/STAR School. As-built drawings shall be submitted to PDDP/STAR School electronically in both AutoCAD and pdf. Other project documents shall be submitted electronically in pdf.

Main Deliverables

Main deliverables to be generated by the selected A & E team include the following:

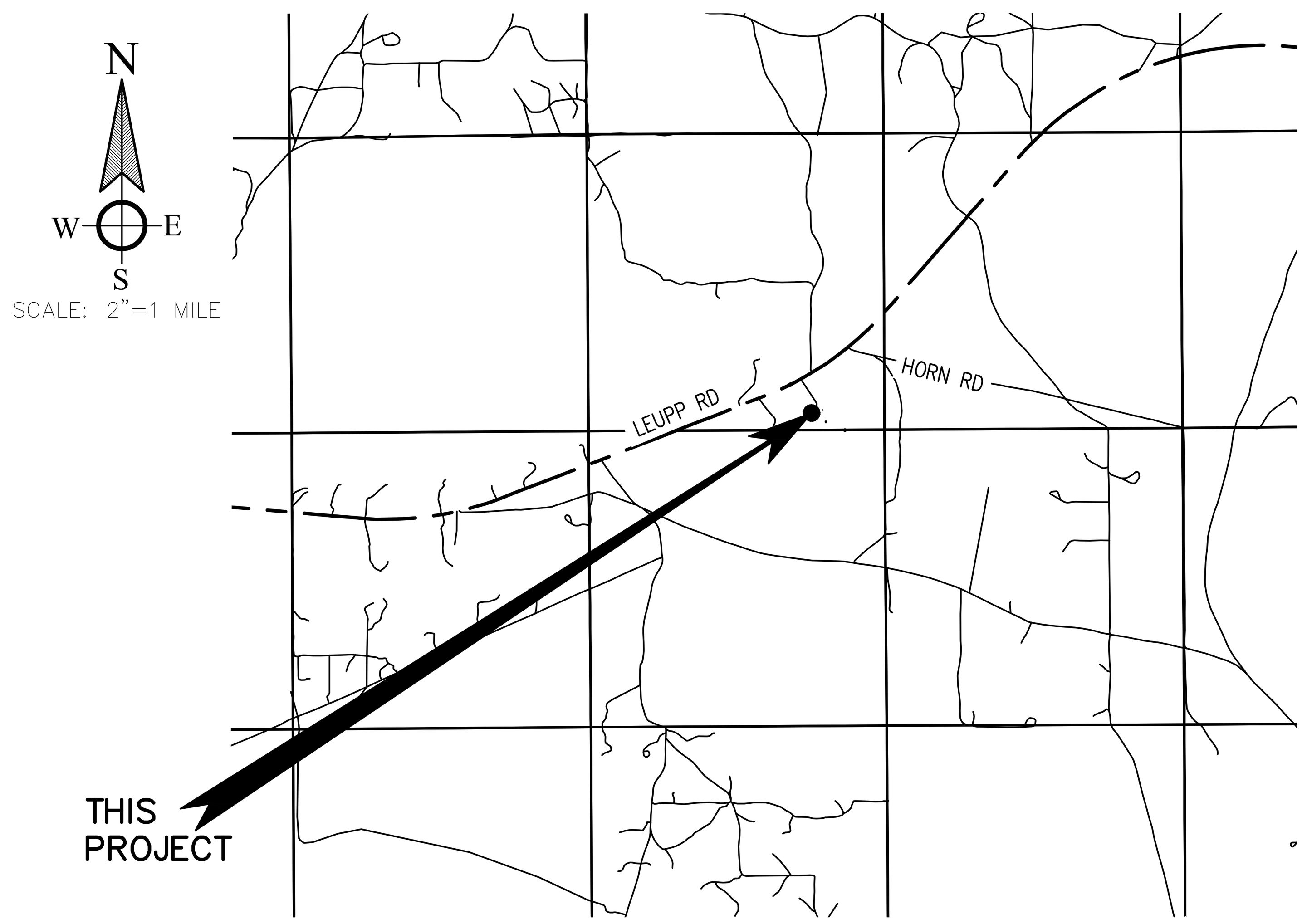
- Schematic Design Plans
- Schematic Design Report
- 35% Design Submittals
- Preliminary Design Report
- 65% Design Submittals
- 100% Design Submittals
- Project and Design Review Meetings
- As-built Drawings
- Construction records and documents

Attachment A

As-built Plans for Water System Expansion Project in 2019

PAINTED DESERT DEMONSTRATION PROJECT -- WATER DEVELOPMENT

NON POTABLE
SYSTEM EXPANSION SET



LOCATION MAP

A PORTION OF SECTION 11 T22N, R10E G&SRM
COCONINO COUNTY, ARIZONA
PARCEL NO. 303-25-009C & 303-25-009J

SHEET INDEX

OWNER/APPLICANT

DR. MARK SORENSEN
PAINTED DESERT DEMONSTRATION PROJECT
145 LEUPP ROAD
FLAGSTAFF, AZ 86004
928 415-4157

APPROVALS:

OWNER/APPLICANT DATE

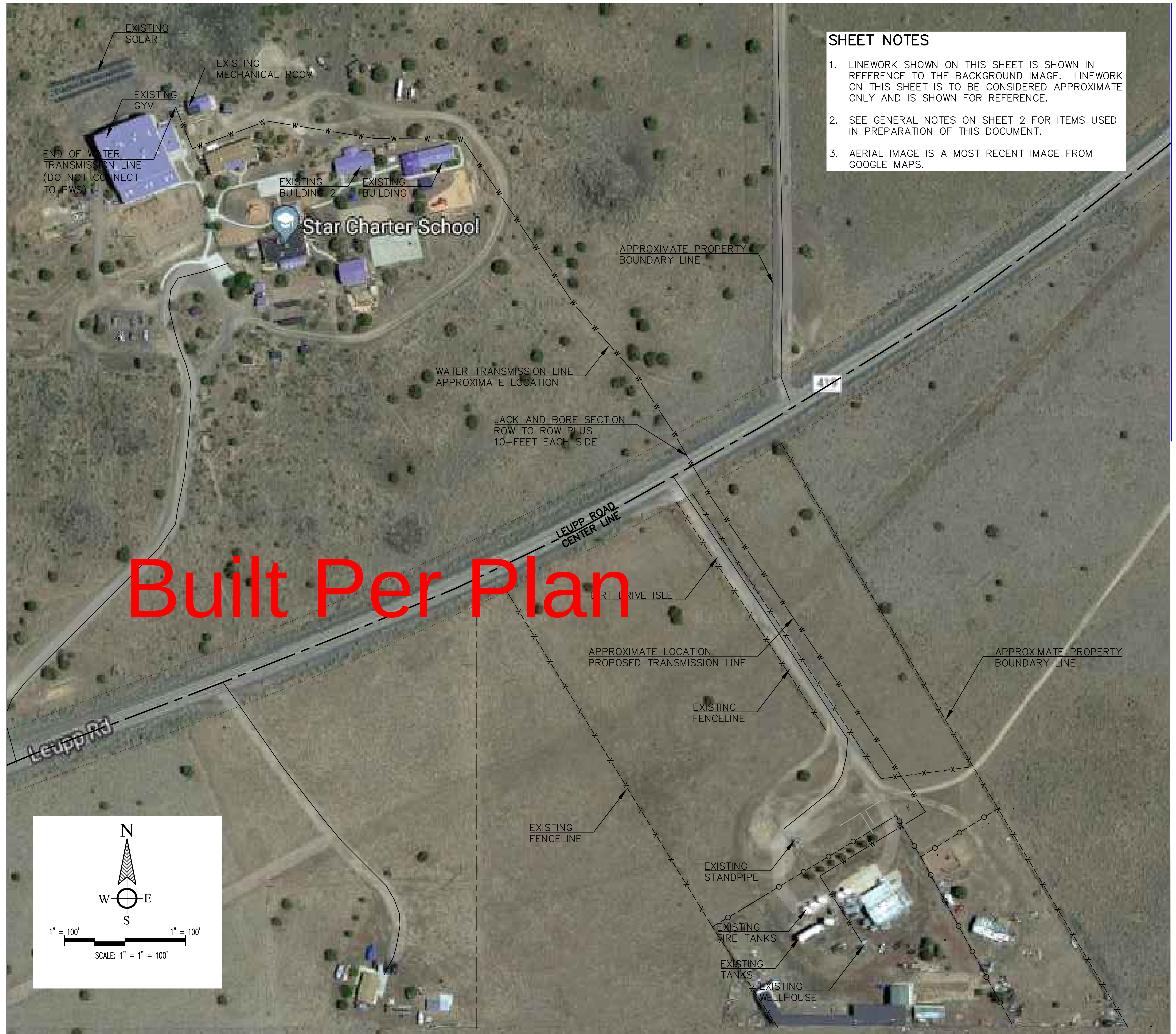
COCONINO COUNTY DATE

MATERIALS LIST

AMOUNT	UNITS	ITEMS	AMOUNT	UNITS	ITEMS
2100	LF	2" SCHEDULE 40 PVC TRANSMISSION	* 35	LF	1" SCHEDULE 40 PVC FILL LINE
4	EA	2" GATE VALVE AND R/C.	* 3	EA	10,500 G WATER TANK (ONSITE)
1	EA	END OF LINE BLOWOFF	* 1	EA	PUMP MDL 12BF1R5M0 (BY OTHERS)
120	LF	8" STEEL CASING (WATER)	* 1	EA	CONCENTRIC REDUCER 3" X 6"
120	LF	2" D.I. CLASS 350 (WATER)	* 1	EA	6" DI FLANGE BY FLANGE 90° BEND
1	EA	PUMP HOUSE/ENLOSURE STRUCTURE	* 1	EA	6" DI TO DR25 ADAPTER
400	LF	4" SCHEDULE 40 PVC SERVICE LINE			
6	EA	4" GATE VALVE AND R/C	2	EA	6" DI MJ X MJ 45° BEND
8	EA	4" BEND OR TEE W/ BLOCKING	** ~~1~~	~~EA~~	~~6" TO 4.5" MALE THREAD ADAPTER~~
			** ~~1~~	~~EA~~	~~4.5" END OF LINE CAP~~
40	LF	1" SCHEDULE 40 PVC SERVICE LINE	2	EA	ADJUSTABLE PIPE SUPPORT
			1	EA	FIRE DEPARTMENT KNOX BOX
1	EA	PUMP 5 GPM @ 90 PSI W/ TANK			
2	EA	PUMP 20 GPM @ 100 FT HEAD	600	SF	TANK PERIMETERWALL
1	EA	PUMP 160 GPM @ 20 FT HEAD	1	SF	PUMP ENCLOSURE ADD
			10	LF	6" DI PIPE
1	EA	VALVING/PIPING PER P/H DETAIL	2	EA	6" GATE VALVE
2400	LF	4" SCHEDULE 40 ELECTRIC CONDUIT	140	LF	6" C900 WATER LINE W/ BENDS
480	LF	8" STEEL CASING (ELEC)	1	EA	FIRE HYDRANT
2400	LF	1" SCHEDULE 40 ELECTRIC CONDUIT	140	LF	3/4" SCHEDULE 40 CONDUIT
120	LF	4" STEEL CASING (ELEC)			

* THESE ITEMS FURNISHED BY OWNER.
** REMOVED FROM DESIGN/SCOPE.
THE ITEMS FURNISHED IN THE MATERIALS LIST ARE INITIAL ESTIMATES. THE CONTRACTOR IS SOLEY RESPONSIBLE FOR ALL REQUIRED MATERIALS.

F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\DELIVERABLES\20190313 PLAN SET.DWG



SHEET NOTES

1. LINEWORK SHOWN ON THIS SHEET IS SHOWN IN REFERENCE TO THE BACKGROUND IMAGE. LINEWORK ON THIS SHEET IS TO BE CONSIDERED APPROXIMATE ONLY AND IS SHOWN FOR REFERENCE.
2. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.
3. AERIAL IMAGE IS A MOST RECENT IMAGE FROM GOOGLE MAPS.

SITE LAYOUT

BASIS OF BEARING

SURVEY CONTROL HAS BEEN PROVIDED BY APEX FOR HORIZONTAL CONTROL POINTS (HCP) AND CAN BE UTILIZED WITH HCP'S GIVEN ON SHEET 2.

ADDITIONAL LOCATIONS OF IMPROVEMENTS HAVE BEEN DIMENSIONED FROM EXISTING STRUCTURES.

BASIS OF ELEVATION

FINAL GRADE ELEVATIONS SHALL BE THE SAME AS EXISTING GROUND ELEVATIONS OVER ALL BURIED PIPE. ITEMS WITH HEIGHT MEASURED FROM GROUND SHALL BE MEASURED FROM FINAL GRADE

APEX CONTROL IS ESTABLISHED AS BASIS OF STRIP TOPO ELEVATION.

Two working days before you dig CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center CALL COLLECT

NO	DATE	BY	REVISION	APP.	DATE

APEX Land Surveys
5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.8635790
APEXLANDSURVEYS@GMAIL.COM
WWW.APEXLANDSURVEYS.COM

Registered Professional Engineer (Civil) CERTIFICATE NO. 57726 DOUGLAS SLOVER JR. DATE SIGNED 03-13-2019 ARIZONA U.S.A.

WATER DEVELOPMENT

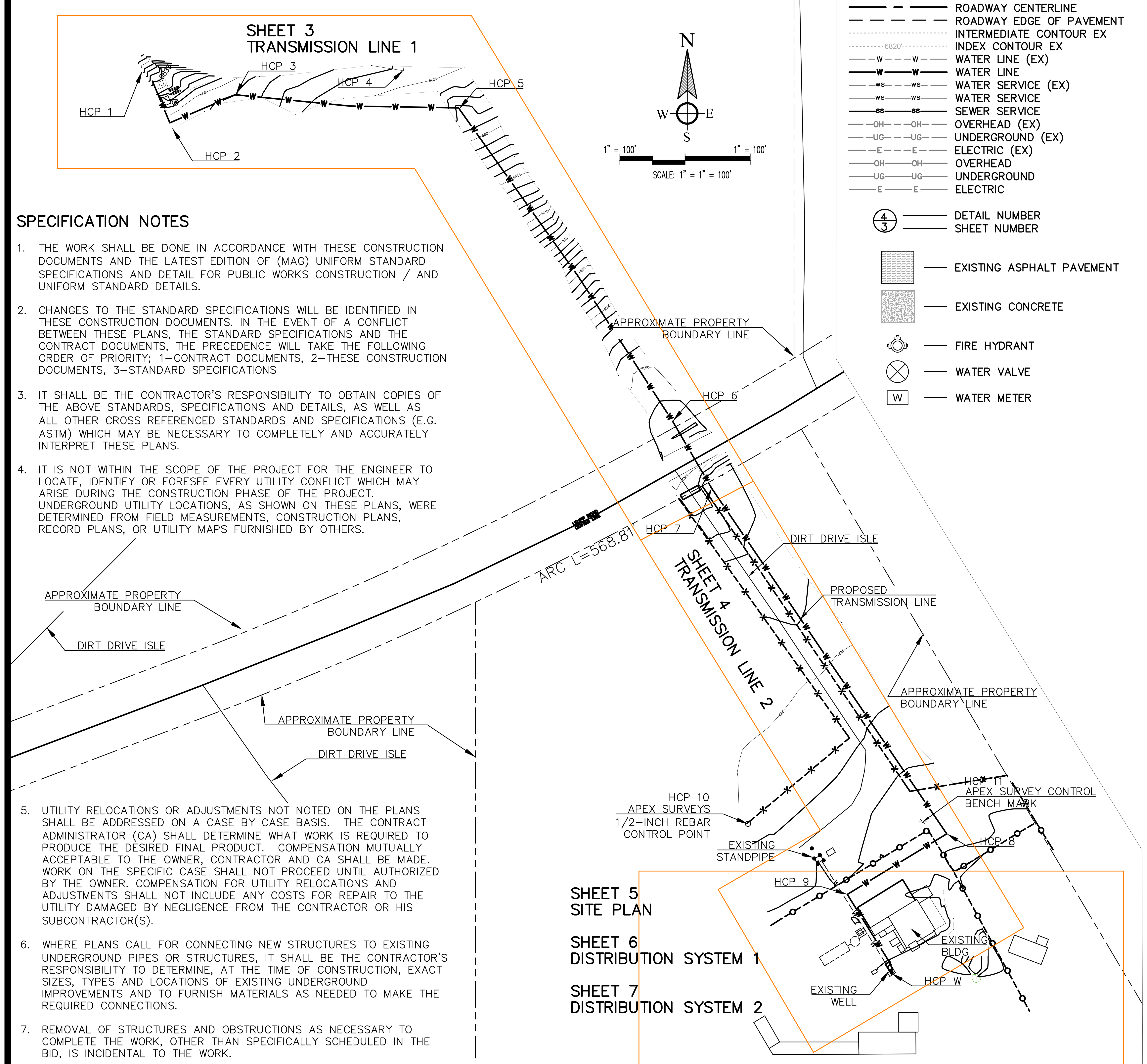
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

COVER

DESIGNED BY: DWS	DRAWN BY: GRG	CHECKED BY: DWS	SHEET 1 OF --
DATE JANUARY 28, 2019	PROJECT NO. 122818	SCALE: HORIZ: 1" = 100' VERT: N/A	

APEX SURVEYING & ENGINEERING DRAWING PATH
F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\Deliverables

NON POTABLE
SYSTEM EXPANSION SET



LEGEND

- FENCE (CHAIN LINK EX)
- FENCE (CHAIN LINK)
- FENCE (BARBED WIRE EX)
- FENCE (BARBED WIRE)
- ROW OR EASEMENT
- PROPERTY BOUNDARY
- ROADWAY CENTERLINE
- ROADWAY EDGE OF PAVEMENT
- INTERMEDIATE CONTOUR EX
- INDEX CONTOUR EX
- WATER LINE (EX)
- WATER LINE
- WATER SERVICE (EX)
- WATER SERVICE
- SEWER SERVICE
- OVERHEAD (EX)
- UNDERGROUND (EX)
- ELECTRIC (EX)
- OVERHEAD
- UNDERGROUND
- ELECTRIC
- DETAIL NUMBER / SHEET NUMBER
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE
- FIRE HYDRANT
- WATER VALVE
- WATER METER

SPECIFICATION NOTES

1. THE WORK SHALL BE DONE IN ACCORDANCE WITH THESE CONSTRUCTION DOCUMENTS AND THE LATEST EDITION OF (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAIL FOR PUBLIC WORKS CONSTRUCTION / AND UNIFORM STANDARD DETAILS.
2. CHANGES TO THE STANDARD SPECIFICATIONS WILL BE IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN THESE PLANS, THE STANDARD SPECIFICATIONS AND THE CONTRACT DOCUMENTS, THE PRECEDENCE WILL TAKE THE FOLLOWING ORDER OF PRIORITY; 1-CONTRACT DOCUMENTS, 2-THESE CONSTRUCTION DOCUMENTS, 3-STANDARD SPECIFICATIONS
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COPIES OF THE ABOVE STANDARDS, SPECIFICATIONS AND DETAILS, AS WELL AS ALL OTHER CROSS REFERENCED STANDARDS AND SPECIFICATIONS (E.G. ASTM) WHICH MAY BE NECESSARY TO COMPLETELY AND ACCURATELY INTERPRET THESE PLANS.
4. IT IS NOT WITHIN THE SCOPE OF THE PROJECT FOR THE ENGINEER TO LOCATE, IDENTIFY OR FORESEE EVERY UTILITY CONFLICT WHICH MAY ARISE DURING THE CONSTRUCTION PHASE OF THE PROJECT. UNDERGROUND UTILITY LOCATIONS, AS SHOWN ON THESE PLANS, WERE DETERMINED FROM FIELD MEASUREMENTS, CONSTRUCTION PLANS, RECORD PLANS, OR UTILITY MAPS FURNISHED BY OTHERS.
5. UTILITY RELOCATIONS OR ADJUSTMENTS NOT NOTED ON THE PLANS SHALL BE ADDRESSED ON A CASE BY CASE BASIS. THE CONTRACT ADMINISTRATOR (CA) SHALL DETERMINE WHAT WORK IS REQUIRED TO PRODUCE THE DESIRED FINAL PRODUCT. COMPENSATION MUTUALLY ACCEPTABLE TO THE OWNER, CONTRACTOR AND CA SHALL BE MADE. WORK ON THE SPECIFIC CASE SHALL NOT PROCEED UNTIL AUTHORIZED BY THE OWNER. COMPENSATION FOR UTILITY RELOCATIONS AND ADJUSTMENTS SHALL NOT INCLUDE ANY COSTS FOR REPAIR TO THE UTILITY DAMAGED BY NEGLIGENCE FROM THE CONTRACTOR OR HIS SUBCONTRACTOR(S).
6. WHERE PLANS CALL FOR CONNECTING NEW STRUCTURES TO EXISTING UNDERGROUND PIPES OR STRUCTURES, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE, AT THE TIME OF CONSTRUCTION, EXACT SIZES, TYPES AND LOCATIONS OF EXISTING UNDERGROUND IMPROVEMENTS AND TO FURNISH MATERIALS AS NEEDED TO MAKE THE REQUIRED CONNECTIONS.
7. REMOVAL OF STRUCTURES AND OBSTRUCTIONS AS NECESSARY TO COMPLETE THE WORK, OTHER THAN SPECIFICALLY SCHEDULED IN THE BID, IS INCIDENTAL TO THE WORK.
8. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING WHAT PERMITS AND EASEMENTS WILL BE REQUIRED FOR THE WORK AND FOR OBTAINING, AT HIS OWN EXPENSE, ALL PERMITS AND EASEMENTS REQUIRED.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING CONSTRUCTION STAKING AT HIS OWN EXPENSE.
10. THE APPROPRIATE UTILITY COMPANIES AND, IF APPLICABLE, THE BLUE STAKE CENTER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. THE BLUE STAKE CENTER PHONE NUMBER IS 1-800-STAKE-IT. CONTRACTOR SHALL ALLOW TWO WORKING DAYS AFTER "BLUE STAKE CENTER" IS NOTIFIED, BEFORE COMMENCING ANY EXCAVATION.

HCP TABLE

NO.	NORTHING	EASTING
1	1567190.00	884541.46
2	1567126.13	884568.21
3	1567169.38	884669.49
4	1567206.57	884926.53
5	1567147.48	885012.52
6	1566668.19	885340.21

HCP TABLE

NO.	NORTHING	EASTING
7	1566565.12	885400.31
8	1566034.37	885761.29
9	1565941.44	885608.68
10	1566049.66	885456.22
11	1566053.03	885724.73
W	1565821.11	885676.51

GENERAL NOTES

1. TOPOGRAPHY SHOWN ON THIS SHEET IS PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATION AND ELEVATIONS PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.
2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.
3. THE FOLLOWING DOCUMENTS WERE USED IN THE PREPARATION OF THESE PLANS:
   - COCONINO COUNTY GIS PARCEL LAYER FOR PROPERTY BOUNDARY LINES.
   - ARIZONA LAND INFORMATION RESOURCE SYSTEM FOR ROADWAY AND SECTION LINES.
   - TOPOGRAPHIC SURVEY PREPARED BY VERDE ENGINEERING GROUP LLC PROVIDED BY THE OWNER. (USED FOR SHEET 4 EXISTING CONDITIONS NOT SURVEYED BY APEX.)
   - PLAN SET DEMO SHEET PREPARED BY TURNER ENGINEERING PROVIDE BY THE OWNER. (USED FOR SHEET 3 EXISTING CONDITION NOT SURVEYED BY APEX.)
   - PLAN SET PREPARED BY WESTLAND RESOURCES FOR FIR STORAGE TANK AND PUMP SYSTEM.
   - APPROVAL OF CONSTRUCTION DOCUMENTATION PREPARED BY ADEQ FOR THE STAR SCHOOL WATER SYSTEM.
   - TOPOGPAPHY STRIP TOPO PERFOMRED BY APEX LAND SURVEYS DECEMBER 2018.
4. THE PROPERTY IS LOCATED COCONINO COUNTY, AZ. TOWNSHIP 22N, RANGE 10E, SECTION 11. LATITUDE 35° 18' 08.32"N; LONGITUDE 111° 17' 40.69" W.
5. THE FOLLOWING PLAN SET IS FOR A TRANSMISSION PIPELINE FROM THE EXISTING WELL SITE TO THE STAR SCHOOL SITE, LEUPP ROAD CROSSING CASING AND ELECTRICAL CONDUITS, ASSOCIATED 20 GMP BOOSTER PUMP LOCATED ON THE WELL SITE, INLINE DELIVERY SYSTEM FROM WELL TO STANDPIPE, INLINE BOOSTER PUMP FOR INCREASE FLOW, CONNECTION FOR EXISTING AND FUTURE TANK SYSTEMS, AND A 5 GPM JET PUMP TO SERVICE EXISTING STRUCTURES AS NECESSARY. PLAN SET INCLUDES REVISED LAYOUT AND APPURTENANCES FOR THE PARTIALLY CONSTRUCTED FIRE STORAGE TANK SYSTEM AND ASSOCIATED FIRE PUMP AND DISCHARGE LINE, PREVIOUSLY DESIGNED BY OTHERS TO INCLUDE A BOOSTER PUMP AND TANK SYSTEM CAPABLE OF PUMPING 750 GPM WITH A STORAGE VOLUME OF 30,000 GALLONS.
6. AN EXISTING WELL, TANKAGE, STANDPIPE DELIVERY SYSTEM AND ASSOCIATED INLINE PUMP IS CURRENTLY IN OPERATION AT THIS SITE. NON PUBLIC WATER SYSTEM ID # AZ0403385.
7. A FIRE FLOW STORAGE AND BOOSTER SYSTEM WAS PREVIOUSLY DESIGNED FOR THIS SITE HOWEVER CURRENT CONFIGURATION DOES NOT COMPARE TO PRIOR DESIGN. THIS SET WILL UPDATE/MODIFY THE CONFIGURATION OF CURRENT CONDITIONS TO MIMIC PRIOR DESIGN INTENT AND IS NOT INTENDED TO REVISE OR MODIFY PRIOR PUMP SYSTEM DESIGN REQUIREMENTS.
8. ALL CONSTRUCTION SHALL CONFORM TO THE INTERNATIONAL PLUMBING CODES AS ADOPTED BY COCONINO COUNTY, ARIZONA DEPARTMENT OF HEALTH SERVICES BULLETIN 10, AND NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING, READING AND IMPLEMENTING ALL REQUIREMENTS OF THE REGULATORY AGENCIES CONSTRUCTION AUTHORIZATION AS APPLICABLE.
9. THE MINIMUM COVER ON ALL BURIED PIPE IS 36".
10. 2-INCH TRANSMISSION LINE WILL HAVE THRUST BLOCKING AT ALL BENDS, DEFLECTIONS AND APPURTENANCES PER CHAPTER 7 OF BULLETIN 10.
11. ALIGNMENT OF TRANSMISSION LINE IS SHOWN ON SHEETS 3 AND 4 ALTHOUGH APPROXIMATE LOCATION WAS ESTABLISHED BY OTHERS.
12. ALL PUMPS WILL BE HOUSED IN A CLIMATE CONTROLLED / WEATHER PROOF STRUCTURE. MINIMUM SPACING SHALL BE PER THE MANUFACTURER RECOMMENDATIONS.
13. ALL PUMPS SHALL BE AFFIXED TO THE GROUND AS REQUIRED OR RECOMMENDED BY THE PUMP MANUFACTURER. ANY PUMP REQUIRING PERMANENT FOOTING RESTRAINTS FOR OPERATION WILL NOT BE SECURED THROUGH THE STRUCTURE'S FOUNDATION UNLESS SEALED SHOP DRAWINGS ARE PREPARED BY A STRUCTURAL ENGINEER FOR THE SELECTED PUMPS.
14. A CONSTRUCTION SCHEDULE FOR THIS SYSTEM MUST BE PROVIDED TO, AND APPROVED BY, OWNER AND/OR THE CA AT LEAST TWO WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION. INCLUDE AS A MINIMUM:*
   - A) START OF CONSTRUCTION.
   - B) ROAD BORING
   - C) TRANSMISSION LINE CONSTRUCTION
   - D) CONSTRUCTION OF WELL TO STANDPIPE LINE
   - E) PLACEMENT OF STRUCTURES
   - F) FIRE STORAGE TANK OVEREXCAVATION
   - G) FIRE STORAGE TANK SITE FINISH GRADE
   - H) FIRE STORAGE TANK WALL ENCLOSURE
   - I) INSTALLATION OF PUMP HOUSE STRUCTURE(S)
   - J) INSTALLATION UNDERGROUND PIPING.
   - K) INSTALLATION OF FIRE STORAGE TANKS
   - L) CONNECTION TO EXISTING TANKAGE PIPING.
   - M) PUMP SYSTEMS INSTALLATION.

   *SYSTEM NEED NOT BE BUILT IN THIS ORDER

21. INSPECTION BY THE COUNTY AND/OR CA ARE ESSENTIAL FOR FACILITATING THE FINAL APPROVAL OF THIS PROJECT. UN-INSPECTED SYSTEM COMPONENTS AND CONSTRUCTION STEPS CAN BE REJECTED AND MAY REQUIRE EXPOSURE, AND/OR REPLACEMENT.
22. ANY DEVIATIONS FROM THESE PLANS MUST HAVE PRIOR APPROVAL BY THE CA AND COCONINO COUNTY AS APPLICABLE.
23. "RED LINE" DRAWINGS DOCUMENTING ANY PRE-APPROVED CHANGES WILL BE PROVIDED TO THE CA FOR INCORPORATION INTO "RECORD DRAWINGS" AT THE PROJECT'S CONCLUSION.
24. THE NON-POTABLE/NON PUBLIC WATER SYSTEM EXPANSION TO EXISTING SCHOOL SITE IS FOR SUPPLEMENTAL LANDSCAPING WATER ONLY AND NOT TO BE CONNECTED TO THE PUBLIC WATER SYSTEM.

NOTES FOR MODIFICATION OF FIRE SYSTEM

25. REFER TO PRIOR PLAN SET GENERAL NOTES
26. WATER FILL LINE TO BE ALIGNED AS SHOWN ON THIS PLAN SET. ADDITIONAL DRAIN VALVE TO BE INSTALLED PER THIS PLAN SET. SPECIFICATIONS PER PRIOR DOCUMENT.
27. TANK LOCATION TO BE MODIFIED PER THIS PLAN SET. TANK SITE SHALL BE OVER EXCAVATED TO 4 FEET BELOW EXISTING GRADE AND BROUGHT BACK TO TANK BOTTOM GRADE WITH ABC COMPACTED TO 100% MAXIMUM DRY DENSITY. SEE DETAILS.
28. TANK SITE TO BE SURROUNDED BY 4-FOOT WALL ENCLOSURE EXTENDING 2-FOOT BELOW AND 2-FOOT ABOVE EXTERIOR FINISH GRADE. WALL ENCLOSURE TO PROVIDE A MINIMUM OF 3-FOOT SEPARATION FROM AIR IN ANY DIRECTION FROM ANY PIPE.
29. SUCTION PIPE AND FITTINGS BETWEEN TANKS AND BOOSTER PUMP SHALL BE LOCATED WITHIN WALL ENCLOSURE AREA OR BELOW GRADE WHERE EXTERIOR TO WALL ENCLOSURE AND/OR PUMP HOUSING STRUCTURE. ABOVE GRADE PIPE HAS BEEN REMOVED FROM PRIOR DESIGN TO OBTAIN A PASSIVE SUITABLE FREEZE PROTECTION.
30. DISCHARGE PIPE TO INCLUDE ADDITIONAL GATE VALVE AND HIGH PRESSURE SHUTOFF.
31. IN CASE OF A CONFLICT BETWEEN PRIOR DESIGN AND THIS DOCUMENT PRIOR DESIGN SHALL BE FOLLOWED UNLESS ENGINEER OF THIS DOCUMENT PROVIDES A WRITTEN LETTER OF CLARIFICATION.

EROSION CONTROL GENERAL NOTES

32. CONTRACTOR TO PROVIDE EROSION AND SEDIMENT CONTROL DURING ALL ASPECTS OF CONSTRUCTION REGARDLESS OF SWPPP REQUIREMENTS. ALL SEDIMENT CONTROL AND EROSION PREVENTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDED EROSION CONTROL AS SPECIFIED IN THESE PLANS IS SHOWN AS AN ANTICIPATED MINIMUM.
33. CONSTRUCTION ACCESS MAY BE SIZED TO FIT THE SITE, OR A COMBINATION OF OTHER CONTROL MEASURES MAY BE USED TO PREVENT TRACK OUT.
34. ON DOWN STREAM SIDE OF EACH PROPERTY OR DISTURBED AREAS, PERIMETER PROTECTION IS REQUIRED.
35. DURING CONSTRUCTION ACTIVITY, EROSION AND SEDIMENT CONTROL MEASURES MUST FUNCTION AND BE MAINTAINED.
36. STOCKPILES MUST BE LOCATED AWAY FROM STRUCTURES, PROPERTY LINES, PAVED AREAS AND DRAINAGE FACILITIES. ALL STOCKPILES MUST HAVE PERIMETER PROTECTION. DURING WINDY, DRY OR WET SEASONS, ADDITIONAL CONTROL MAY BE REQUIRED.

Two working days before you dig
CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center
CALL COLLECT

UTILITY STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION (PERFORMED BY OTHERS) AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS NECESSARY TO PROTECT ANY UTILITY. **THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.**

NO	DATE	BY	REVISION	APP.	DATE

APEX Land Surveys
5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.8635790
APEXLANDSURVEYS@GMAIL.COM
WWW.APEXLANDSURVEYS.COM

Registered Professional Engineer (Civil) CERTIFICATE NO. 57726 DOUGLAS SLOVER JR. DATE SIGNED 03-13-2019 ARIZONA U.S.A.

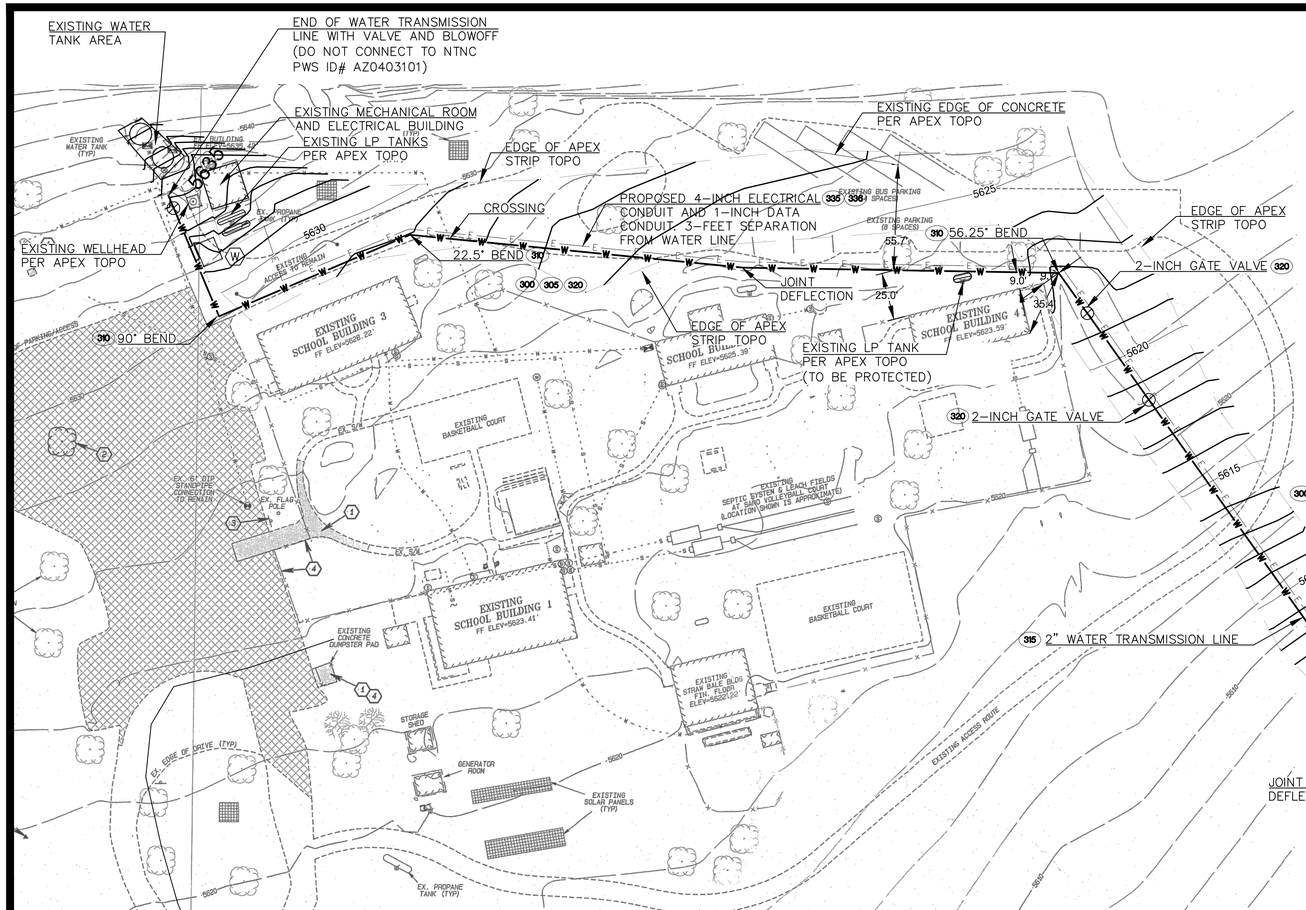
WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

INDEX KEY / NOTES

DESIGNED BY: DWS	DRAWN BY: GRG	CHECKED BY: DWS	SHEET 2 OF --
DATE JANUARY 28, 2019	PROJECT NO. 122818	SCALE: HORIZ: 1" = 100' VERT: N/A	

APEX SURVEYING & ENGINEERING DRAWING PATH
F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\Deliverables

F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\DELIVERABLES\20190313 PLAN SET.DWG



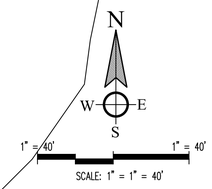
NON POTABLE
SYSTEM EXPANSION SET

SHEET NOTES

1. TOPOGRAPHY SHOWN ON THIS SHEET IS PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATION AND ELEVATIONS PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.
2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.
3. PDF UNDERLAY SHOWN ON THIS SHEET IS THE DEMOLITION PLAN SHEET FROM THE STAR SCHOOL NEW MULTI-PURPOSE FACILITY PREPARED BY TURNER ENGINEERING INC, DATED 7-26-2011.

UTILITY STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION (PERFORMED BY OTHERS) AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS NECESSARY TO PROTECT ANY UTILITY. **THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.**



ROAD/DRIVE PER GIS DATA

CONSTRUCTION NOTES AND SPECIFICATIONS

THE WORK LISTED IN THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT SHALL BE MADE THEREOF UNLESS SPECIFICALLY CALLED OUT ON THE PLANS AND/OR LISTED AS A PAY ITEM.

1. THE CONTRACTOR SHALL MAINTAIN MINIMUM REQUIRED SEPARATION FROM WATER AND OTHER UTILITIES PER REGULATORY REQUIREMENTS. CONCRETE ENCASEMENT MAY BE ALLOWED TO REDUCE SEPARATION REQUIREMENTS.
2. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.
3. WHERE POSSIBLE, WATER TRANSMISSION LINE SHALL HAVE FLAGGING INSTALLED (NON PAY ITEM) AT 500 FOOT INTERVALS. ALL GATE VALVES AND AIR RELEASE VALVES SHALL HAVE POSTS ON BOTH SIDES OF THE APPURTENANCE.
4. MAGNETIC TAPE SHALL BE BURIED ABOVE ALL WATER LINES AND SERVICES 12" TO 24" BELOW FINISHED GRADE.
5. ALL TRENCHES SHALL BE CONSTRUCTED PER TRENCH DETAIL PROVIDE ON DETAIL SHEETS. BACKFILL FOR ALL TRENCHING SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY PROCTOR.
6. ALL RIM ELEVATIONS ASSOCIATED WITH GATE VALVES AND OTHER WATER APPURTENANCES ARE TO BE SET PER MAG 391-1 AND 391-2 AS APPLICABLE.

300 (1 L.S.) *INSTALL END OF LINE BLOW OFF PER CITY OF FLAGSTAFF DETAIL 9-03-053.

* A NTNC PWS HAS BEEN IDENTIFIED ON THIS SITE WITH ID # AZ0403101. TRANSMISSION PIPE IS FROM SITE CONTAINING NON PUBLIC WATER SYSTEM AZ0403385 WITH EXISTING WELL 55-518314. CURRENT FINDINGS LIST THE SOUTHERN WATER SYSTEM AS NON-PUBLIC AND INACTIVE. IN ADDITION EXISTING STANDPIPE ON SAID SITE IS CURRENTLY LABELED AS NON-POTABLE WITH PLACARD ON STANDPIPE STRUCTURE. SEE GENERAL NOTE 24 ON SHEET 2. DO NOT CONNECT AZ0403385 TO NTNC PWS AZ0403101.

305 (1 L.S.) INSTALL AIR RELEASE VALVE (ARV) AT HIGH POINT IN LINE. LOCATION SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL CONSTRUCT AN AIR RELEASE VALVE AT ALL HIGH POINTS IN THE WATER TRANSMISSION LINE AND OUTSIDE OF THE ROADWAY PRISM PER MAG SPECIFICATIONS. FIRE HYDRANTS AT HIGH POINTS CAN SERVE AS AIR RELEASE LOCATIONS.

310 (1 L.S.) INSTALL BEND, ANGLE PER PLAN, WITH THRUST BLOCK PER MAG STANDARD DETAIL 380. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.

315 (2100 L.F.) *CONSTRUCT 2" WATER TRANSMISSION LINE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. BURIAL SHALL HAVE AT LEAST 6 FEET OF COVER AT ANY DRAINAGE CROSSINGS.

320 (6 EA.) INSTALL 2" GATE VALVE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH MAG DETAILS. WATER VALVE INSTALLATION, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. GATE VALVE INSTALLATION TO INCLUDE THRUST BLOCKING PER DETAILS.

325 (1 L.S.) INSTALL 8" STEEL CASING FROM ROW TO ROW. MINIMUM THICKNESS SHALL BE 0.25". CARRIER PIPE THROUGH CASING SHALL BE 2" CLASS 350 DI. END OF DIP IS NOT TO REST ON CASING. PROVIDE AND INSTALL STAINLESS STEEL CASING SPACERS WITH POLYMER RUNNERS. CASING SPACERS SHALL RUN THE LENGTH OF THE DIP. CASING SPACERS TO BE BY ADVANCE PRODUCTS & SYSTEMS, INC OR APPROVED EQUAL. OPEN CUT TRENCH INSTALLATION WILL NOT BE PERMITTED. JACK AN BORE TO BE FROM 10' OUTSIDE OF ROW TO 10' OUTSIDE OF ROW.

330 (1 L.S.) CONNECT WATER TRANSMISSION LINE TO STUB OUT FROM PUMP HOUSE STRUCTURE. SEE DETAIL ON DETAIL SHEET 2.

335 (2200 L.F.) INSTALL SINGLE RUN, 4" SCHEDULE 40, ELECTRICAL CONDUIT AND 1" SCHEDULE 40 DATA CONDUIT. SEPARATION FROM WATER TO BE A MINIMUM OF THREE FEET. WATER AND POWER CONDUIT SHALL NOT BE INSTALLED IN THE SAME TRENCH. CONTRACTOR TO CONTRACT WITH ELECTRICAL DESIGNER TO DETERMINE FINAL ELECTRICAL CONDUIT SIZE BASED ON NEEDS. ROAD CROSSING SHOWN WITH CASING. ACTUAL REQUIREMENTS WILL BE DEPENDENT ON COUNTY REVIEW OF CROSSING.

336 (4 EA.) ELECTRICAL PULL BOXES. CONTRACTOR TO CONTRACT WITH ELECTRICAL DESIGNER TO DETERMINE FINAL PULL BOX SPACING, LOCATION AND SIZE.

337 (4 EA.) 8-INCH ELECTRICAL ROAD CROSSING CONDUIT CASING. CONTRACTOR TO CONTRACT WITH ELECTRICAL DESIGNER TO DETERMINE FINAL ELECTRICAL CONDUIT SIZE BASED ON NEEDS. CONDUIT SIZE WILL DETERMINE CASING DIAMETER. ACTUAL REQUIREMENTS WILL BE DEPENDENT ON COUNTY REVIEW OF CROSSING. CASING LIMITS AND SPACERS PER CONSTRUCTION NOTE 325.

Two working days before you dig CALL FOR THE BLUESTAKES 1-800-782-5348 1-800-STAKE IT Blue Stake, Center CALL COLLECT

NO.	DATE	BY	REVISION	APP.	DATE

5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.8635790
APEXLANDSURVEYS@GMAIL.COM
WWW.APEXLANDSURVEYS.COM

APEX Land Surveys

Professional Engineer — 57726 DOUGLAS SLOVER JR. — Date Signed 03-13-2019 — ARIZONA U.S.A.

WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

TRANSMISSION PIPE 1

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET
DWS	GRG	DWS	3 OF 11
DATE: JANUARY 28, 2019	PROJECT NO: 122618	SCALE: HORIZ.1" = 40' VERT: N/A	

APEX SURVEYING & ENGINEERING DRAWING PATH: APEX SURVEYING & ENGINEERING\DRAWINGS\

F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\DELIVERABLES\20190313 PLAN SET.DWG

NON POTABLE
SYSTEM EXPANSION SET

SHEET NOTES

1. TOPOGRAPHY SHOWN ON THIS SHEET IS PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATION AND ELEVATIONS PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.
2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.
3. PDF UNDERLAY SHOWN ON THIS SHEET IS THE TOPOGRAPHIC SURVEY SHEET FOR THE PAINTED DESERT DEMONSTRATION PROJECT PREPARED BY VERDE ENGINEERING GROUP, DATED 7-08-2018.

UTILITY STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION (PERFORMED BY OTHERS) AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS NECESSARY TO PROTECT ANY UTILITY. **THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.**

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S
1" = 40' 1" = 40'
SCALE: 1" = 1" = 40'

CONSTRUCTION NOTES AND SPECIFICATIONS

THE WORK LISTED IN THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT SHALL BE MADE THEREOF UNLESS SPECIFICALLY CALLED OUT ON THE PLANS AND/OR LISTED AS A PAY ITEM.

1. THE CONTRACTOR SHALL MAINTAIN MINIMUM REQUIRED SEPARATION FROM WATER AND OTHER UTILITIES PER REGULATORY REQUIREMENTS. CONCRETE ENCASEMENT MAY BE ALLOWED TO REDUCE SEPARATION REQUIREMENTS.
2. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.
3. WHERE POSSIBLE, WATER TRANSMISSION LINE SHALL HAVE FLAGGING INSTALLED (NON PAY ITEM) AT 500 FOOT INTERVALS. ALL GATE VALVES AND AIR RELEASE VALVES SHALL HAVE POSTS ON BOTH SIDES OF THE APPURTENANCE.
4. MAGNETIC TAPE SHALL BE BURIED ABOVE ALL WATER LINES AND SERVICES 12" TO 24" BELOW FINISHED GRADE.
5. ALL TRENCHES SHALL BE CONSTRUCTED PER TRENCH DETAIL PROVIDE ON DETAIL SHEETS. BACKFILL FOR ALL TRENCHING SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY PROCTOR.
6. ALL RIM ELEVATIONS ASSOCIATED WITH GATE VALVES AND OTHER WATER APPURTANANCES ARE TO BE SET PER MAG 391-1 AND 391-2 AS APPLICABLE.

(300) (1 L.S.) INSTALL END OF LINE BLOW OFF PER CITY OF FLAGSTAFF DETAIL 9-03-053.

(305) (1 L.S.) INSTALL AIR RELEASE VALVE (ARV) AT HIGH POINT IN LINE. LOCATION SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL CONSTRUCT AN AIR RELEASE VALVE AT ALL HIGH POINTS IN THE WATER TRANSMISSION LINE AND OUTSIDE OF THE ROADWAY PRISM PER MAG SPECIFICATIONS. FIRE HYDRANTS AT HIGH POINTS CAN SERVE AS AIR RELEASE LOCATIONS.

(310) (1 L.S.) INSTALL BEND, ANGLE PER PLAN, WITH THRUST BLOCK PER MAG STANDARD DETAIL 380. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.

(315) (2100 L.F.) CONSTRUCT 2" WATER TRANSMISSION LINE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. BURIAL SHALL HAVE AT LEAST 6 FEET OF COVER AT ANY DRAINAGE CROSSINGS.

(320) (6 EA.) INSTALL 2" GATE VALVE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH MAG DETAILS. WATER VALVE INSTALLATION, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. GATE VALVE INSTALLATION TO INCLUDE THRUST BLOCKING PER DETAILS.

(325) (1 L.S.) INSTALL 8" STEEL CASING FROM ROW TO ROW. MINIMUM THICKNESS SHALL BE 0.25". CARRIER PIPE THROUGH CASING SHALL BE 2" CLASS 350 DI. END OF DIP IS NOT TO REST ON CASING. PROVIDE AND INSTALL STAINLESS STEEL CASING SPACERS WITH POLYMER RUNNERS. CASING SPACERS SHALL RUN THE LENGTH OF THE DIP. CASING SPACERS TO BE BY ADVANCE PRODUCTS & SYSTEMS, INC OR APPROVED EQUAL. OPEN CUT TRENCH INSTALLATION WILL NOT BE PERMITTED. JACK AN BORE TO BE FROM 10' OUTSIDE OF ROW TO 10' OUTSIDE OF ROW.

(330) (1 L.S.) CONNECT WATER TRANSMISSION LINE TO STUB OUT FROM PUMP SYSTEM ENCLOSURE/STRUCTURE. SEE DETAIL ON DETAIL SHEET 2.

(335) (2200 L.F.) INSTALL SINGLE RUN, 4" SCHEDULE 40, ELECTRICAL CONDUIT AND 1" SCHEDULE 40 DATA CONDUIT. SEPARATION FROM WATER TO BE A MINIMUM OF THREE FEET. WATER AND POWER CONDUIT SHALL NOT BE INSTALLED IN THE SAME TRENCH. CONTRACTOR TO CONTRACT WITH ELECTRICAL DESIGNER TO DETERMINE FINAL ELECTRICAL CONDUIT SIZE BASED ON NEEDS. ROAD CROSSING SHOWN WITH CASING. ACTUAL REQUIREMENTS WILL BE DEPENDENT ON COUNTY REVIEW OF CROSSING. CONTRACTOR BID TO BE FOR CONDUIT AS SHOWN RUNNING FROM END OF LINE LOCATION TO PUMP SYSTEM ENCLOSURE STRUCTURE.

(336) (4 EA.) ELECTRICAL PULL BOXES. CONTRACTOR TO CONTRACT WITH ELECTRICAL DESIGNER TO DETERMINE FINAL PULL BOX SPACING, LOCATION AND SIZE.

(340) (1 L.S.) PROPOSED PUMP SYSTEM ENCLOSURE STRUCTURE TO HOUSE PUMPING SYSTEMS INCLUDING TRANSMISSION LINE TRANSFER PUMP. SEE PUMP SYSTEM ENCLOSURE STRUCTURE DETAIL ON SHEET 9 FOR PUMP LAYOUT, SELECTION AND SPECIFICATIONS.

(350) (1 L.S.) NEW WELL HOUSE ENCLOSURE. WELL HOUSE ENCLOSURE TO BE CONSTRUCTED PER GENERAL NOTES ON SHEETS 5-7 AND CONSTRUCTION NOTE 350 ON SHEET 6.

Two working days before you dig CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center CALL COLLECT

NO.	DATE	BY	REVISION	APP.	DATE

5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.863.5790
APEXLANDSURVEYS@GMAIL.COM
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APEX Land Surveys

REGISTERED PROFESSIONAL ENGINEER
57726
DOUGLAS SLOVER JR.
RENEWED 03-13-2019
ARIZONA U.S.A.

WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

TRANSMISSION PIPE 2

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET
DWS	GRG	DWS	4
DATE: JANUARY 28, 2019	PROJECT NO.: 122018	SCALE: HORIZ: 1" = 40' VERT: N/A	OF --

APEX SURVEYING & ENGINEERING DRAWING PATH
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NON POTABLE
SYSTEM EXPANSION SET

SHEET NOTES

1. EXISTING ITEMS SHOWN ON THIS SHEET LABELED "PER APEX TOPO" ARE PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATIONS ARE PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. REMAINING ITEMS ARE SHOWN PER OTHER DATA PROVIDED BY OTHERS. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.

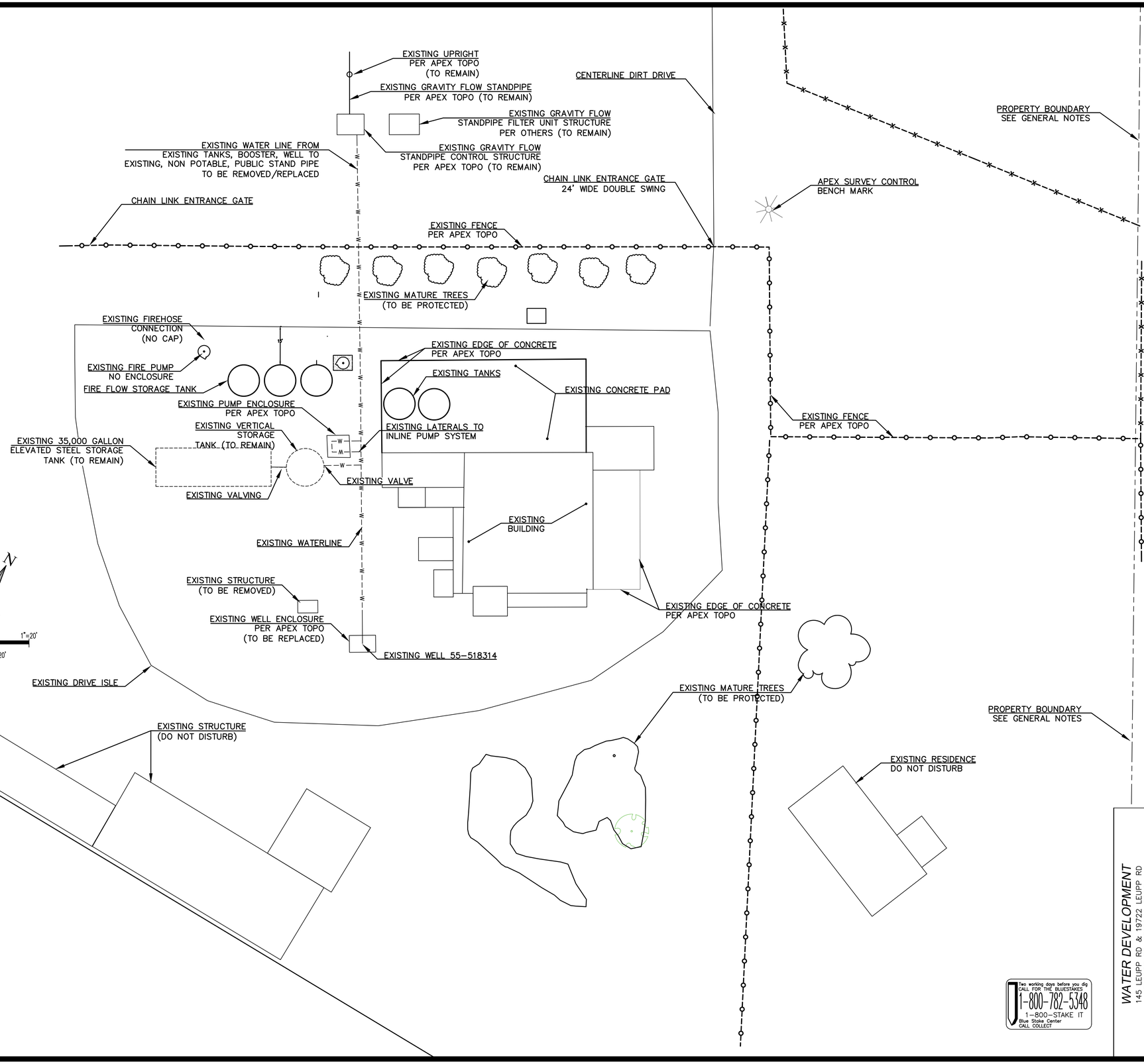
2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.

3. ALL EXISTING SUBSURFACE WATER LINES ARE ASSUMED LOCATIONS BASED ON ABOVE GROUND APPURTENANCES. CONTRACTOR TO POTHOLE ALL EXISTING LINES AT LOCATION OF SAID ABOVE GROUND APPURTENANCES TO DETERMINE DIRECTION OF SUBSURFACE LINES. ALL SUBSURFACE FITTINGS/CONNECTION POINTS TO BE IDENTIFIED PRIOR TO ANY NEW ALIGNMENT TRENCHING.

4. NO SUBSURFACE ELECTRIC LINES HAVE BEEN SHOWN ALTHOUGH MANY ARE KNOWN TO EXIST. CONTRACTOR TO LOCATE ALL ELECTRICAL LINES IN THE AREA OF PROPOSED CONSTRUCTION PRIOR TO SITE EXCAVATION FOR NEW WATERLINE OR ELECTRIC LINE ALIGNMENTS.

5. NO ELECTRICAL DRAWINGS HAVE BEEN PROVIDED. UPON FINAL SELECTION OF REQUIRED PUMPS CONTRACTOR SHALL SUBCONTRACT ELECTRICAL DESIGN TO QUALIFIED ELECTRICAL DESIGNER.

6. ARIZONA WATER SYSTEM ID AZ0403385 HAS BEEN FOUND FOR THIS SITE ANC CONTAINS EXISTING WELL 55-518314. HOWEVER, CURRENT FINDINGS LIST THE SYSTEM AS NON-PUBLIC AND INACTIVE. EXISTING STANDPIPE IS CURRENTLY LABELED AS NON-POTABLE WITH PLACARD ON STANDPIPE STRUCTURE.



UTILITY STATEMENT

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1-800-782-5348
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CALL COLLECT

NO.	DATE	BY	REVISION	APP.	DATE

5634 N JULIANE DRIVE
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APEX Land Surveys

REGISTERED PROFESSIONAL ENGINEER
57726
DOUGLAS
SLOVER JR.
REGISTERED 03-13-2019
ARIZONA U.S.A.

WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

EXISTING WELL SITE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET
DWS	GRG	DWS	5
DATE: JANUARY 28, 2019	PROJECT NO.: 122018	SCALE: HORIZ: 1"=20' VERT: N/A	OF --

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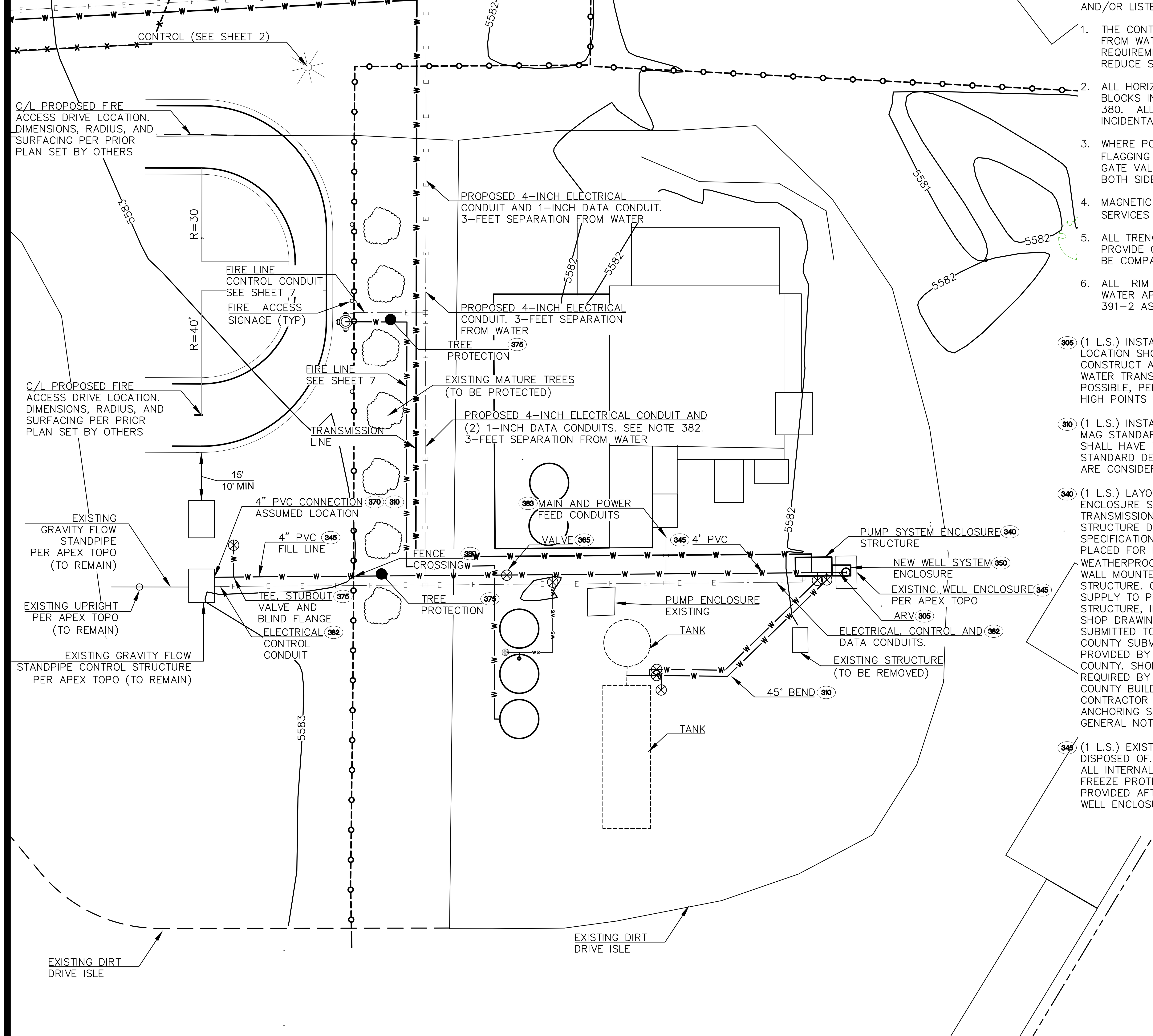
NON POTABLE
SYSTEM EXPANSION SET



CONSTRUCTION NOTES AND SPECIFICATIONS

THE WORK LISTED IN THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT SHALL BE MADE THEREOF UNLESS SPECIFICALLY CALLED OUT ON THE PLANS AND/OR LISTED AS A PAY ITEM.

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2. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.
3. WHERE POSSIBLE, WATER FILL AND DELIVERY LINES SHALL HAVE FLAGGING INSTALLED (NON PAY ITEM) AT 50 FOOT INTERVALS. ALL GATE VALVES AND AIR RELEASE VALVES SHALL HAVE POSTS ON BOTH SIDES OF THE APPURTENANCE.
4. MAGNETIC TAPE SHALL BE BURIED ABOVE ALL WATER LINES AND SERVICES 12" TO 24" BELOW FINISHED GRADE.
5. ALL TRENCHES SHALL BE CONSTRUCTED PER TRENCH DETAIL PROVIDE ON DETAIL SHEETS. BACKFILL FOR ALL TRENCHING SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY PROCTOR.
6. ALL RIM ELEVATIONS ASSOCIATED WITH GATE VALVES AND OTHER WATER APPURTANANCES ARE TO BE SET PER MAG 291-1 AND 391-2 AS APPLICABLE.

(305) (1 L.S.) INSTALL AIR RELEASE VALVE (ARV) AT HIGH POINT IN LINE. LOCATION SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL CONSTRUCT AN AIR RELEASE VALVE AT ALL HIGH POINTS IN THE WATER TRANSMISSION LINE AND OUTSIDE OF THE ROADWAY PRISM, IF POSSIBLE, PER MAG SPECIFICATIONS. FIRE HYDRANTS AND TANKS AT HIGH POINTS CAN SERVE AS AIR RELEASE LOCATIONS.

(310) (1 L.S.) INSTALL BEND, ANGLE PER PLAN, WITH THRUST BLOCK PER MAG STANDARD DETAIL 380. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.

(340) (1 L.S.) LAYOUT, DESIGN, PERMIT AND CONSTRUCT A PUMP SYSTEM ENCLOSURE STRUCTURE TO HOUSE PUMPING SYSTEMS INCLUDING TRANSMISSION LINE TRANSFER PUMP. SEE PUMP SYSTEM ENCLOSURE STRUCTURE DETAIL ON SHEET 9 FOR PUMP LAYOUT, SELECTION AND SPECIFICATIONS. STRUCTURE TO BE EQUIPPED WITH ACCESS LOCATIONS PLACED FOR PUMP SERVICEABILITY. STRUCTURE TO BE INSULATED, WEATHERPROOFED AND HEATED. (SEE GENERAL NOTE 12 ON SHEET 2) WALL MOUNTED PROPANE HEATING SYSTEM TO BE INCLUDED WITHIN STRUCTURE. GAS LAYOUT NOT SHOWN. GAS LAYOUT FROM TANK SUPPLY TO PROVIDED BY CONTRACTOR. GAS LAYOUT WITHIN STRUCTURE, INCLUDING STUB OUT SHALL BE PROVIDED ON STRUCTURE SHOP DRAWING. SHOP DRAWING OF PROPOSED STRUCTURE TO BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO COUNTY SUBMITTAL. SHOP DRAWING TO INCLUDE SINGLE LINE DIAGRAM PROVIDED BY ELECTRICAL DESIGNER AS REQUIRED BY COCONINO COUNTY. SHOP DRAWING TO BE SEALED BY STRUCTURAL ENGINEER AS REQUIRED BY THIS DOCUMENT OR COCONINO COUNTY. COCONINO COUNTY BUILDING PERMIT WILL BE REQUIRED FOR STRUCTURE. CONTRACTOR TO OBTAIN SAID PERMIT. ALL PUMP SUPPORT ANCHORING SHALL BE PER MANUFACTURER SPECIFICATIONS. SEE GENERAL NOTE 13 ON SHEET 2 FOR PUMP SECURING.

(345) (1 L.S.) EXISTING WELL ENCLOSURE STRUCTURE TO BE REMOVED AND DISPOSED OF. CARE SHOULD BE TAKEN TO SUPPORT AND PROTECT ALL INTERNAL PIPING AND WIRING DURING REMOVAL OF STRUCTURE. FREEZE PROTECTION OF ALL ABOVE GROUND PIPING SHALL BE PROVIDED AFTER STRUCTURE REMOVAL AND UNTIL SAID TIME THAT NEW WELL ENCLOSURE IS CONSTRUCTED.

(350) (1 L.S.) INSTALL OUR CONSTRUCTED NEW WELL HOUSE ENCLOSURE. NEW WELL HOUSE ENCLOSURE TO HOUSE ALL WELLHEAD APPURTENANCES DESIGN BY OTHERS. MEKCO FIBERGLASS 534 CLAMSHELL WITH BASE DIMENSIONS OF 72-INCH BY 41-INCH SHOWN. MODEL MS5318 534R7 CLAMSHELL INSULATED ENCLOSURE TO BE PROVIDED IN CONTRACTORS BASE BID. NEW WELL HOUSE ENCLOSURE OF EQUIVALENT PERFORMANCE MAY BE SUBSTITUTED WITH SHOP DRAWING PROVIDE TO THE OWNER FOR REVIEW. NEW ENCLOSURE TO BE CONSTRUCTED AROUND EXISTING WELL HEAD. WELL SURFACE PAD TO BE ENLARGED TO DIMENSIONS OF ENCLOSURE. ENCLOSURE TO HAVE WEATHER PROOF WALLS AND REMOVABLE WEATHERPROOF TOP FOR WELL MAINTENANCE. CONTRACTOR IS RESPONSIBLE TO DETERMINE IF STRUCTURE WILL REQUIRE BUILDING PERMIT PER COCONINO COUNTY AND OBTAIN ANY REQUIRED PERMITS.

(360) (100 L.F.) CONSTRUCT 4" WATER DELIVERY LINE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. BURIAL SHALL HAVE AT LEAST 6 FEET OF COVER AT ANY DRAINAGE CROSSINGS.

(365) (6 EA.) INSTALL 4" GATE VALVE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH MAG DETAILS. WATER VALVE INSTALLATION, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE.

(370) (1 L.S.) CONNECT NEW 4" WATER DELIVERY LINE TO EXISTING STUBOUT FROM STANDPIPE STRUCTURE. ANY BENDS REQUIRED SHALL BE LOCATED 3-7 FEET FROM THE STRUCTURE.

(375) (1 L.S.) PROTECT EXISTING TREE ROOT SYSTEM IN THIS AREA. CONTACT LOCAL ARBORIST FOR ASSISTANCE IN ROOT TREATMENT TO PRESERVE LIFE OF TREE.

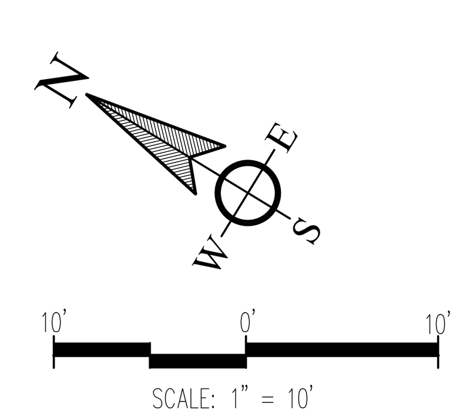
(380) (1 L.S.) PROTECT EXISTING FENCE IN PLACE. FENCE MAY BE REMOVED AT CONTRACTOR'S DISCRETION FOR CONSTRUCTION IN THE AREA HOWEVER CONTRACTOR WILL BE REQUIRED TO PROVIDE NIGHTLY SECURITY FENCE UNTIL REMOVED PORTION IS RECONSTRUCTED. CONTRACTOR WILL REINSTALL REMOVED FENCE AND REPLACE ANY DAMAGED SECTION IN KIND. ANY FENCE POST RELOCATION FOR PROPOSED ALIGNMENT OF WATER LINE SHALL BE INCIDENTAL TO THE WORK. POST SPACING FOR RELOCATED POSTS SHALL BE APPROVED BY THE OWNER.

(382) (200 L.F) INSTALL ELECTRICAL CONDUIT FROM PUMP HOUSE STRUCTURE TO EXISTING STANDPIPE TO HOUSE WIRING FOR CONTROL OF INLINE BOOSTER PUMP. BID TO BE FOR 1-INCH DIAMETER, SOLVENT WELD, SCHEDULE 80 PVC AND RUN FROM PUMP ENCLOSURE STRUCTURE STUBOUT TO SOUTH SIDE OF EXISTING STANDPIPE STRUCTURE. ELECTRICAL CONTROL CONDUIT MAY RUN PARALLEL, UNSTACKED, IN THE SAME TRENCH WITH OTHER ELECTRICAL FEED CONDUIT.

(383) INSTALL MAIN POWER FEED FROM ELECTRICAL ROOM TO PUMP HOUSE STRUCTURE. INSTALL MAIN POWER FEED TO FIRE PUMP. INSTALL DATA CONDUIT AS NECESSARY FROM FIRE DEPARTMENT ACCESS BOX TO ELECTRICAL CONTROL ROOM FOR REMOTE GENERATOR START. ALL CONDUIT TO BE BID AS SHOWN. FINAL SIZING TO BE PER ELECTRICAL DESIGN.

UTILITY STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION (PERFORMED BY OTHERS) AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS NECESSARY TO PROTECT ANY UTILITY. **THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.**



GENERAL NOTES

1. TOPOGRAPHY SHOWN ON THIS SHEET IS PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATION AND ELEVATIONS PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.
2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.

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Registered Professional Engineer (Civil) CERTIFICATE NO. 57726 DOUGLAS SLOVER JR. DATE SIGNED 03-13-2019 ARIZONA U.S.A.

WATER DEVELOPMENT
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FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

DISTRIBUTION SYSTEM 1

DESIGNED BY: DWS	DRAWN BY: GRG	CHECKED BY: DWS	SHEET 6 OF --
DATE JANUARY 28, 2019	PROJECT NO. 122818	SCALE: HORIZ:###### VERT: N/A	

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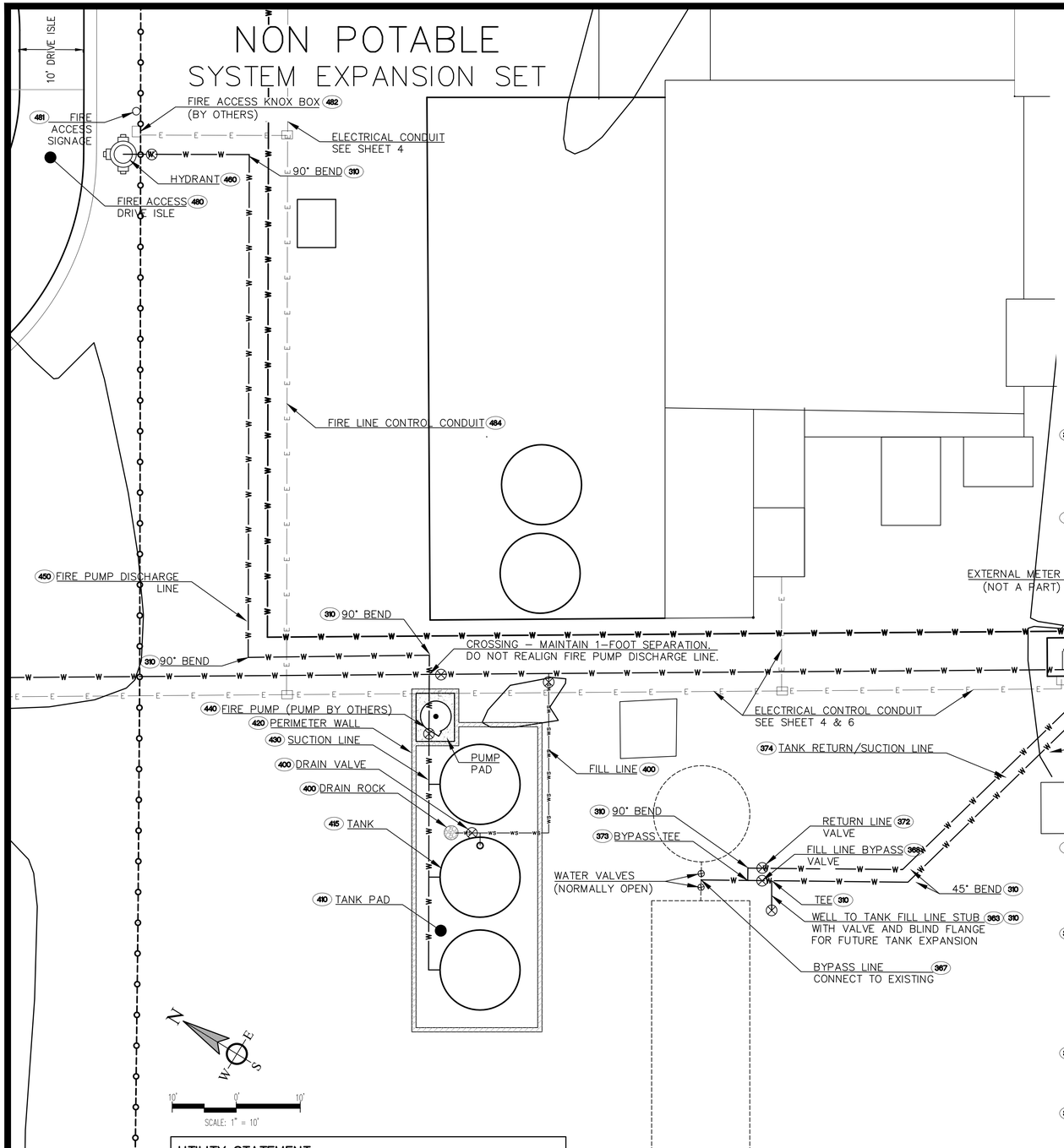
NON POTABLE
SYSTEM EXPANSION SET



UTILITY STATEMENT

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GENERAL NOTES

1. TOPOGRAPHY SHOWN ON THIS SHEET IS PER STRIP TOPOGRAPHY PROVIDED BY APEX LAND SURVEYS. LOCATION AND ELEVATIONS PER GIS DATA COLLECTION AND IS NOT/HAS NOT BEEN TIED TO ANY PROPERTY BOUNDARY MONUMENTATION. SEE PLAN SHEETS FOR IDENTIFICATION OF EXISTING ITEMS AND REFERENCE TO WHERE PARTICULAR INFORMATION WAS OBTAINED.

2. PROPERTY BOUNDARY LINES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND WERE NOT SURVEYED AS PART OF THIS PROJECT. SEE GENERAL NOTES ON SHEET 2 FOR ITEMS USED IN PREPARATION OF THIS DOCUMENT.

CONSTRUCTION NOTES AND SPECIFICATIONS

THE WORK LISTED IN THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT SHALL BE MADE THEREOF UNLESS SPECIFICALLY CALLED OUT ON THE PLANS AND/OR LISTED AS A PAY ITEM.

1. THE CONTRACTOR SHALL MAINTAIN MINIMUM REQUIRED SEPARATION FROM WATER AND OTHER UTILITIES PER REGULATORY REQUIREMENTS. CONCRETE ENCASEMENT MAY BE ALLOWED TO REDUCE SEPARATION REQUIREMENTS.

2. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.

3. WHERE POSSIBLE, WATER FILL AND DELIVERY LINES SHALL HAVE FLAGGING INSTALLED (NON PAY ITEM) AT 50 FOOT INTERVALS. ALL GATE VALVES AND AIR RELEASE VALVES SHALL HAVE POSTS ON BOTH SIDES OF THE APPURTENANCE.

4. MAGNETIC TAPE SHALL BE BURIED ABOVE ALL WATER LINES AND SERVICES 12" TO 24" BELOW FINISHED GRADE.

5. ALL TRENCHES SHALL BE CONSTRUCTED PER TRENCH DETAIL PROVIDE ON DETAIL SHEETS. BACKFILL FOR ALL TRENCHING SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY PROCTOR.

6. ALL RIM ELEVATIONS ASSOCIATED WITH GATE VALVES AND OTHER WATER APPURTANANCES ARE TO BE SET PER MAG 291–1 AND 391–2 AS APPLICABLE.

305 (1 L.S.) INSTALL AIR RELEASE VALVE (ARV) AT HIGH POINT IN LINE. LOCATION SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL CONSTRUCT AN AIR RELEASE VALVE AT ALL HIGH POINTS IN THE WATER TRANSMISSION LINE AND OUTSIDE OF THE ROADWAY PRISM, IF POSSIBLE, PER MAG SPECIFICATIONS. FIRE HYDRANTS AND TANKS AT HIGH POINTS CAN SERVE AS AIR RELEASE LOCATIONS.

310 (1 L.S.) INSTALL BEND, ANGLE PER PLAN, WITH THRUST BLOCK PER MAG STANDARD DETAIL 380. ALL HORIZONTAL AND VERTICAL BENDS SHALL HAVE THRUST BLOCKS INSTALLED IN ACCORDANCE WITH MAG STANDARD DETAIL 380. ALL FITTINGS AND THEIR THRUSTS BLOCKS ARE CONSIDERED INCIDENTAL TO THE WORK.

361 (60 L.F.) CONSTRUCT 4" TANK FILL WATER LINE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. BURIAL SHALL HAVE AT LEAST 6 FEET OF COVER AT ANY DRAINAGE CROSSINGS.

363 (1 L.S..) CONSTRUCT 4" FILL LINE STUBOUT WITH GATE VALVE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. GATE VALVE TO BE INSTALLED IN ACCORDANCE WITH MAG DETAILS AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES. INSTALL BLIND FLANGE ON DOWNSTREAM SIDE OF VALVE.

365 (6 EA.) INSTALL 4" GATE VALVE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH MAG DETAILS. WATER VALVE INSTALLATION, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE.

367 (20 L.F.) INSTALL 4" PVC TANK FILL AND RETURN/SUCTION BYPASS LINE. CONNECT TO EXISTING TANKAGE PIPING AT LOCATION SHOWN. ABOVE GROUND CONNECTION TO BE INSULATED. LINE SHALL BE BURIED AT LEAST 36" DEEP.

368 (1 EA.) INSTALL FILL LINE BYPASS VALVE. INSTALL PER CONSTRUCTION NOTE 365

372 (1 EA.) INSTALL RETURN LINE VALVE. INSTALL PER CONSTRUCTION NOTE 365

373 (1 EA.) INSTALL 4" BYPASS CONNECTION TEE. FUTURE TANK EXPANSION WILL REMOVE THIS BYPASS TO AND CHANGE VALVE OPEN/CLOSING TO FORCE FLOW THROUGH TANKAGE.

374 (100 L.F.) CONSTRUCT 4" TANK RETURN/SUCTION WATER LINE AT LOCATIONS SHOWN ON PLANS IN ACCORDANCE WITH GENERAL NOTES FOR WATER SERVICE, AND PER THE INCIDENTAL WORK AND GENERAL NOTES FOR THE CONSTRUCTION OF THE WATER LINES LISTED ABOVE. THE WATERLINE SHALL BE BURIED AT LEAST 36" DEEP. BURIAL SHALL HAVE AT LEAST 6 FEET OF COVER AT ANY DRAINAGE CROSSINGS.

390 (1. L.S.) INSTALL 1" SERVICE LINE WITH FLOW METER AND BACKFLOW PREVENTION ASSEMBLY. SERVICE LINE TO HAVE 36" COVER. METER SHALL BE PER THAT SHOWN ON SHEET 8. BACKFLOW PREVENTION ASSEMBLY SHALL BE PER INSTALLED PER DETAIL PROVIDED ON SHEET 9 AND BE LOCATED DOWNSTREAM OF METER. SERVICE LINE MAY BE PVC ON YARD SIDE.

400 (1. L.S.) CONSTRUCT UNMETERED FIRE STORAGE TANK FILL LINE PER EXISTING PLANS ON FILE WITH MODIFICATIONS SHOWN ON DETAIL PROVIDE ON SHEET 10 AND AT REVISED LOCATION. FILL LINE TO MAINTAIN AIR GAP SEPARATION IN LIEU OF BACKFLOW PREVENTION ASSEMBLY. PROVIDE FILL LINE DRAIN VALVE AND DRAIN ROCK PER LOCATIONS SHOWN ON PLAN.

410 (1000 S.F) CONSTRUCT TANK PAD PER NOTE 26 ON SHEET 2. TANK PAD TO BE BE LEVEL WITH A MAXIMUM DEVIATION BENEATH TANK OF 1/8". PROVIDE A MINIMUM OF 1" AND MAXIMUM 2" FALL FROM TANK EDGE TO ADJACENT PERIMETER WALL.

415 (1 L.S.) REINSTALL TANKS PER NOTE 26 ON SHEET 2. TANK BOTTOM ELEVATION WILL BE 2 FEET BELOW EXISTING GRADE ON NEW PAD CONSTRUCTED PER NOTE 410. TANK DISCHARGE LINE TO PUMP WILL BE WITHIN THE PROVIDED PERIMETER WALL. SEE NOTE 420. TANK DISCHARGE LINE MAY BE RIGID CONNECTION IF PERMITTED BY TANK MANUFACTURER. DISCHARGE VALVES WILL BE NORMALLY OPEN.

420 (600 S.F) CONSTRUCT 4–FOOT WALL WITH TOP OF WALL 2–FOOT ABOVE EXISTING GRADE (FINISH GRADE EXTERIOR) AND BOTTOM OF WALL 2–FEET BELOW EXISTING GRADE. INTERIOR GRADE AND BOTTOM OF TANK TO BE AT 2 FEET BELOW EXTERIOR FINISH GRADE. WALL REQUIRED TO WITHSTAND 2 FEET OF UNBALANCED FILL FROM EITHER SIDE. AREA BETWEEN WALL AND TANKS TO BE ROOFED OR BACKFILLED PER TANK MANUFACTURER ALLOWANCE. IF BACKFILLED, ALL VALVE TO HAVE ABOVE GRADE ACCESS BY USE OF B/C.

430 (40 L.F) INSTALL 4" FIRE PUMP SUCTION LINE AT LOCATION SHOWN. SUCTION LINE TO BE FULLY RESTRAINED, SUPPORTED AND SECURED.

440 (1 L.S.) INSTALL FIRE PUMP AT LOCATION SHOWN. FIRE PUMP SHALL BE INSTALLED ON CONCRETE PAD LOCATED 2–FEET BELOW EXISTING GRADE IN PERIMETER WALL BUMPOUT AREA. PUMP AREA TO BE FULLY ENCLOSED. MAINTENANCE ACCESS TO BE PROVIDE PER MANUFACTURER SPACING REQUIREMENTS. PUMP AREA TO HAVE PROPANE PIPING FOR INTERIOR HEATING UNIT. ABOVE GRADE ENCLOSURE TO ALLOW FOR FULL UPRIGHT ACCESS AND MAINTENANCE.

450 (140 L.F.) * INSTALL 6" FIRE PUMP DISCHARGE LINE. PUMP DISCHARGE LINE SHALL BE VERTICALLY LOCATED TO EXIT PERIMETER WALL AS 36" BELOW EXTERIOR FINISH GRADE. LINE TO BE FULLY RESTRAINED.

460 (1 EA.) INSTALL FIRE HYDRANT PER MAG DETAILS AND AT LOCATION SHOWN. HYDRANT SHALL INCLUDE GATE VALVE INSTALLATION WITH VALVE BEING LOCATED INSIDE OF FENCED AREA AND NORMALLY OPEN.

480 (1 L.S.) COMPACT AND DELINEATE AREA AS SHOWN ON SHEET 6 FOR FIRE DEPARTMENT FIRE HYDRANT ACCESS. FIRE DEPARTMENT TRAVEL PATH TO BE TESTED BY GEOTECHNICAL ENGINEER AND CERTIFIED THAT TEST LOCATIONS WILL SUPPORT AN 80,000 GVW FIRE APPARATUS.

481 (3 EA.) INSTALL BOLLARD WITH SIGN PER DETAIL ON SHEET 8. SEE SHEET 6 FOR ADDITIONAL SIGNAGE LOCATION.

482 (1 L.S.) INSTALL, AT LOCATION SHOWN, A FIRE DEPARTMENT ACCESSIBLE CONTROL BOX WITH FIRE PUMP CONTROL SYSTEM. LOCATION SHALL BE PER THIS PLAN SET. CONTROL SWITCHING TO BE PER PRIOR FIRE SUPPRESSION SYSTEM PLAN. ELECTRICAL TO BE PER ELECTRICAL DESIGNER. CONDUIT TO BE PER NOTE 484.

484 (100 L.F) INSTALL 1–INCH, SCHEDULE 40 PVC, ELECTRICAL CONDUIT FROM FIRE PUMP SYSTEM TO FIRE DEPARTMENT ACCESSIBLE CONTROL BOX. BID TO BE FOR 1–INCH DIAMETER, SOLVENT WELD, SCHEDULE 80 PVC. ELECTRICAL CONTROL CONDUIT MAY RUN PARALLEL, UNSTACKED, IN THE SAME TRENCH WITH OTHER ELECTRICAL FEED CONDUIT. SINGLE FEED LINE SHOWN FOR MULTIPLE ELECTRICAL CONDUITS. ELECTRICAL LAYOUT FOR COMBINATION OF FEEDS WITHIN SHARED CONDUITS IS TO BE PER ELECTRICAL DESIGN. CONTRACTOR BID TO BE FOR LINES AS SPECIFIED.

* PUMP DISCHARGE LENGTH EXTENDED TO 140–FEET. DYNAMIC HEAD CHANGES BY 4 TO 6–FEET WITH EXTENSION OF THE 6–INCH FIRE LINE BY 140 TO 180–FEET, INCLUDING EQUIVALENT LENGTH MINOR LOSSES, AT A FLOW RATE OF 750 GPM AS PREVIOUSLY DESIGNED.

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WWW.APEXLANDSURVEYS.COM

APEX Land Surveys

REGISTERED PROFESSIONAL ENGINEER
57726
DOUGLAS
SLOVER JR.
Expires 03-13-2019
ARIZONA, U.S.A.

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A.P.N. 303-25-009C & 303-25-009J

DISTRIBUTION SYSTEM 2

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DATE	PROJECT NO.	SCALE:	OF
JANUARY 28, 2019	122618	HORIZ:1"=10' VERT: N/A	--

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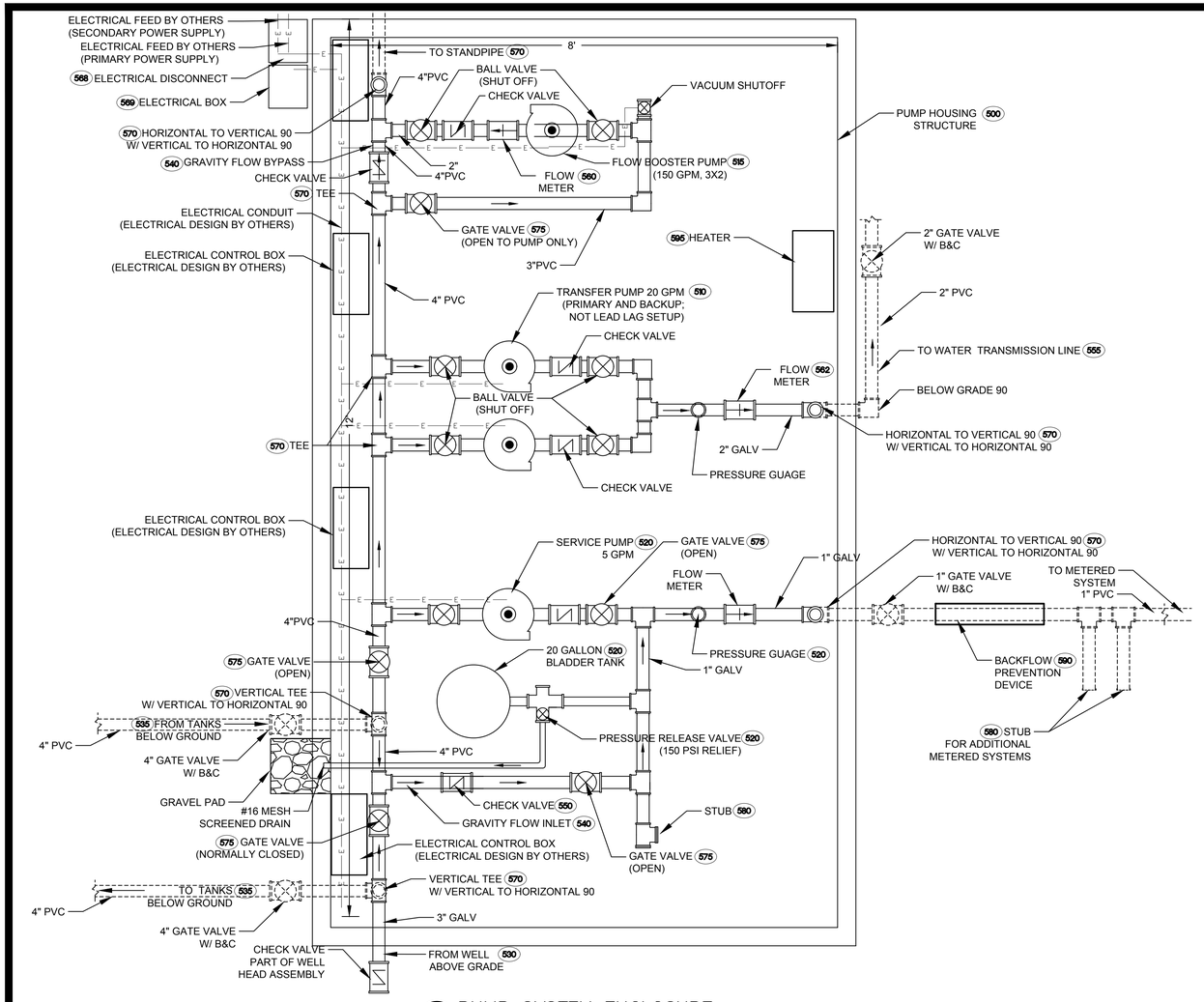


1/8 PUMP SYSTEM ENCLOSURE
N.T.S.

PUMPING SYSTEM NOTES

500 (1. L.S.) INSTALL PROPOSED STRUCTURE TO HOUSE PUMPING SYSTEMS, VALVES, CONTROLS ETC, AS SHOWN. CONTRACTOR TO PROVIDE FINAL DRAWINGS FOR PUMP SYSTEM STRUCTURE. SEE CONSTRUCTION NOTE 340 ON SHEET 6. PUMP SYSTEM STRUCTURE DIMENSIONS ARE BASED ON PUMP LAYOUT AS SHOWN AND ARE TO BE CONSIDERED APPROXIMATE. FINAL DIMENSION WILL BE BASED ON CONTRACTOR PROVIDED COMPONENTS. ANY ITEM NOTED WITHIN THIS DETAIL SUCH AS VALVES, CHECK VALVES, PRESSURE RELEASE VALVE, LOW PRESSURE CUTOFFS, FLOW METERS, PRESSURE TANK ETC., MUST BE INCLUDED IN FINAL LAYOUT UNLESS SPECIFICALLY STATED OTHERWISE IN THIS DOCUMENT. ELECTRICAL DESIGN AND LAYOUT BY OTHERS. SEE CONSTRUCTION NOTE 340 ON SHEET 6.

510 (2 EA.) INSTALL 2 GOULD MODEL 2BF21512, SINGLE PHASE, 115/230 VOLT, 1.5 HP, PUMPS CAPABLE OF PUMPING 20 GPM AT 100 FEET OF HEAD WITH AN EFFICIENCY OF 50% OR GREATER. PUMP ELECTRICAL FEED SHALL BE AS SHOWN ON PROPOSED STRUCTURE ELECTRICAL LAYOUT PROVIDED AS PART OF STRUCTURE SHOP DRAWINGS. SEE CONSTRUCTION NOTE 340 ON SHEET 6. PUMPS SHALL BE INSTALLED AS A SINGLE PUMP SYSTEM WITH AUXILIARY BACKUP LINE. PUMPS SHALL NOT BE CONFIGURED AS LEAD LAG OR TO OPERATE SIMULTANEOUSLY.

515 (1 EA.) IN LINE, FLOW BOOSTER PUMP TO BE INSTALLED AS SHOWN. PUMP SHALL BE A GOULDS SERIES A–C 2000 SINGLE STAGE END SUCTION CLOSE COUPLED PUMP, MODEL 600. PUMP SHALL BE CAPABLE OF PUMPING 150 GPM AT 20 FEET OF HEAD WITH AN EFFICIENCY OF > 65%. HEAD VALUES, BOTH STATIC AND DYNAMIC, ARE ASSUMED VALUES BASED ON CLIENT PROVIDED INFORMATION. STANDPIPE ELEVATION WAS ASSUMED TO BE 15–FEET ABOVE PUMP ELEVATION. LINE LENGTH OF 200–FEET WITH 125–FEET OF FITTING EQUIVALENT LENGTH ASSUMED FOR LAYOUT ITEMS AND UNKNOWN COMPONENTS BETWEEN PROPOSED CONNECTION AND EXISTING DISCHARGE POINT AT STANDPIPE. UPON EVALUATION AND POTHOLING OF CONNECTION CONTRACTOR TO SUBMIT TO OWNER REVISED HEAD CALCULATIONS FOR REVIEW BY CA ALONG WITH SELECTED PUMP SUBMITTAL DOCUMENTS INCLUDING PUMP CURVE FOR SELECTED PUMP. PUMP INSTALLATION SHALL BE EQUIPPED WITH LOW PRESSURE SHUTOFF SWITCH LOCATED AS SHOWN. LOW PRESSURE CUTOFF TO DISABLE PUMP IN THE EVENT OF LOSS OF WATER SUPPLY TO THE PUMP SYSTEM. A HIGH PRESSURE SHUTOFF OR PRESSURE RELEASE VALVE HAS NOT BEEN SHOWN.

520 (1 EA.) PRESSURE PUMP WITH BLADDER TANK, AND PRESSURE RELEASE VALVE. CONTRACTOR TO PROVIDE A PUMP CAPABLE OF PUMPING 5 GPM AT 60 PSI. PRESSURE RELEASE VALVE TO DISCHARGE TO EXTERIOR OF STRUCTURE AS SHOWN.

530 (1 L.S.) CONNECT TO EXISTING WELL DISCHARGE.

535 (1 L.S.) INSTALL STORAGE FILL AND STORAGE SUPPLY TO DISCHARGE LINES AND FITTINGS AS SHOWN.

540 (1 L.S.) SYSTEM TO ALLOW GRAVITY FLOW TO STANDPIPE AND ONSITE CONNECTIONS FROM THE ONSITE STORAGE TANK SYSTEM.

550 (6 EA.) INSTALL CHECK VALVES WITH SIZING PER THAT OF PIPE SPECIFIED. CHECK VALVES AS SHOWN ARE TO PROVIDE ABILITY FOR USE OF FLOW BOOSTER PUMPS IN THE GRAVITY FLOW TANK TO STANDPIPE SYSTEM AND FOR USE OF PRESSURE PUMP WITH GRAVITY FLOW TANK TO ONSITE USE SYSTEM.

555 (1 L.S.) PROVIDE STUBOUT FROM STRUCTURE FOR CONNECTION OF TRANSMISSION PIPE AS SHOWN ON SHEET 4 AND SHEET 7.

560 (1 EA.) FURNISH AND INSTALL A 2–INCH FLOW METER ON DISCHARGE SIDE OF FLOW BOOSTER PUMP. CONTRACTOR TO ENSURE FLOW METER MINIMUM STRAIGHT PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF METER, AS SPECIFIED BY MANUFACTURER IN ORDER TO ATTAIN A FULLY DEVELOPED DESIRABLE FLOW PROFILE, ARE MET.

562 (1 EA.) FURNISH AND INSTALL 5/8–INCH FLOW METER DOWNSTREAM OF PUMP FOR ONSITE DISCHARGES. CONTRACTOR TO ENSURE FLOW METER MINIMUM STRAIGHT PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF METER, AS SPECIFIED BY MANUFACTURER IN ORDER TO ATTAIN A FULLY DEVELOPED DESIRABLE FLOW PROFILE, ARE MET

568 (1 EA.) EXTERIOR RATED WEATHERPROOF ELECTRICAL DISCONNECT ENCLOSURE TO BE MOUNTED ON EXTERIOR OF PUMP HOUSE ENCLOSURE STRUCTURE. SIZING OF SAID ENCLOSURE TO BE PER ELECTRICAL DESIGN FOR STRUCTURE.

569 (1 EA.) MOUNT EXTERIOR RATED WEATHERPROOF ELECTRICAL ENCLOSURE AS NEEDED TO FOR CONTROL FEED AND RETURN LINES. SIZING OF SAID ENCLOSURE TO BE PER ELECTRICAL DESIGN AND CONTROL SYSTEM DESIGN.

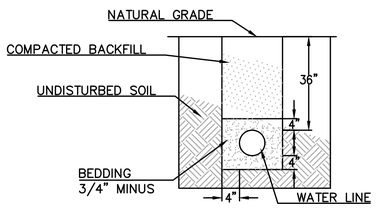
570 PROVIDE REQUIRED APPURTENANCES AND FITTING NECESSARY TO INSTALL PUMP SYSTEMS

575 (8 EA.) INSTALL BALL VALVE OR GATE VALVE AS SPECIFIED.

580 (1 L.S.) ALL INTERIOR CONNECTIONS AND STUBOUT FOR FUTURE EXPANSION CAPABILITY TO INCLUDE BLIND FLANGE, CAP, OR PLUG AS NECESSARY. EXTERIOR STUBOUTS FOR POTENTIAL FUTURE EXPANSIONS TO BE CAPPED

590 (1 EA.) BACKFLOW PREVENTION TO BE INSTALLED ON THE UPSTREAM SIDE OF EXTERIOR ONSITE FEED BRANCH CONNECTION. SEE BACKFLOW PREVENTION DEVISE THIS SHEET.

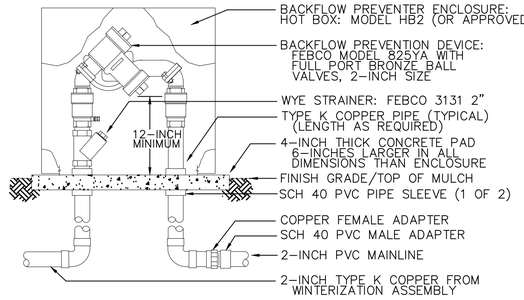
595 (1 L.S.) PROVIDE AND INSTALL VENTLESS INTERIOR PROPANE HEATER RATED FOR FINAL STRUCTURE SQUARE FOOTAGE. HEATER FUEL FEED HAS NOT BEEN SHOWN. SEPARATION FROM COMBUSTIBLES MUST BE PROVIDED WITH LOCATION OF HEATING UNIT.



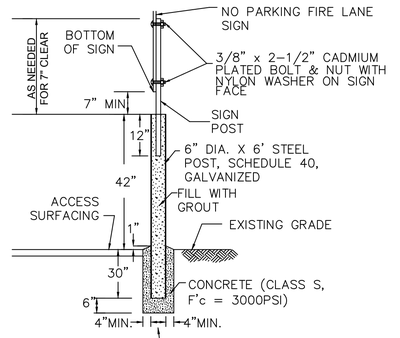
TRENCH NOTES:

1. BEDDING, HAUNCHING AND INITIAL BACKFILL MATERIAL MAY CONSIST OF CINDER SAND CONFORMING TO MAG SECTION 701. COMPACTION SHALL BE A MINIMUM OF 90% STANDARD PROCTOR DENSITY.
2. FINAL BACKFILL MAY BE NATIVE MATERIAL MEETING THE REQUIREMENTS OF MAG SECTION 601.4.3.
3. TOTAL COVER SHALL BE 3' MINIMUM.

2/8 TYPICAL TRENCH
N.T.S.



3/8 BACKFLOW DEVICE
N.T.S.



SIGN POSTS SHALL BE GALVANIZED FLANGED STEEL (3 POUNDS PER FOOT) "U–CHANNEL" POSTS.

4/8 BOLLARD WITH SIGN
N.T.S.

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REGISTERED PROFESSIONAL LAND SURVEYOR
57726
DOUGLAS SLOVER JR.
CERTIFICATE NO.
RENEWAL 03-13-2019
ARIZONA U.S.A.

WATER DEVELOPMENT
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A.P.N. 303-25-009C & 303-25-009J

DETAILS SHEET 1

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET
DWS	GRG	DWS	8 OF 11
DATE: JANUARY 28, 2019	PROJECT NO. 122818	SCALE:	HORIZ:######## VERT: N/A

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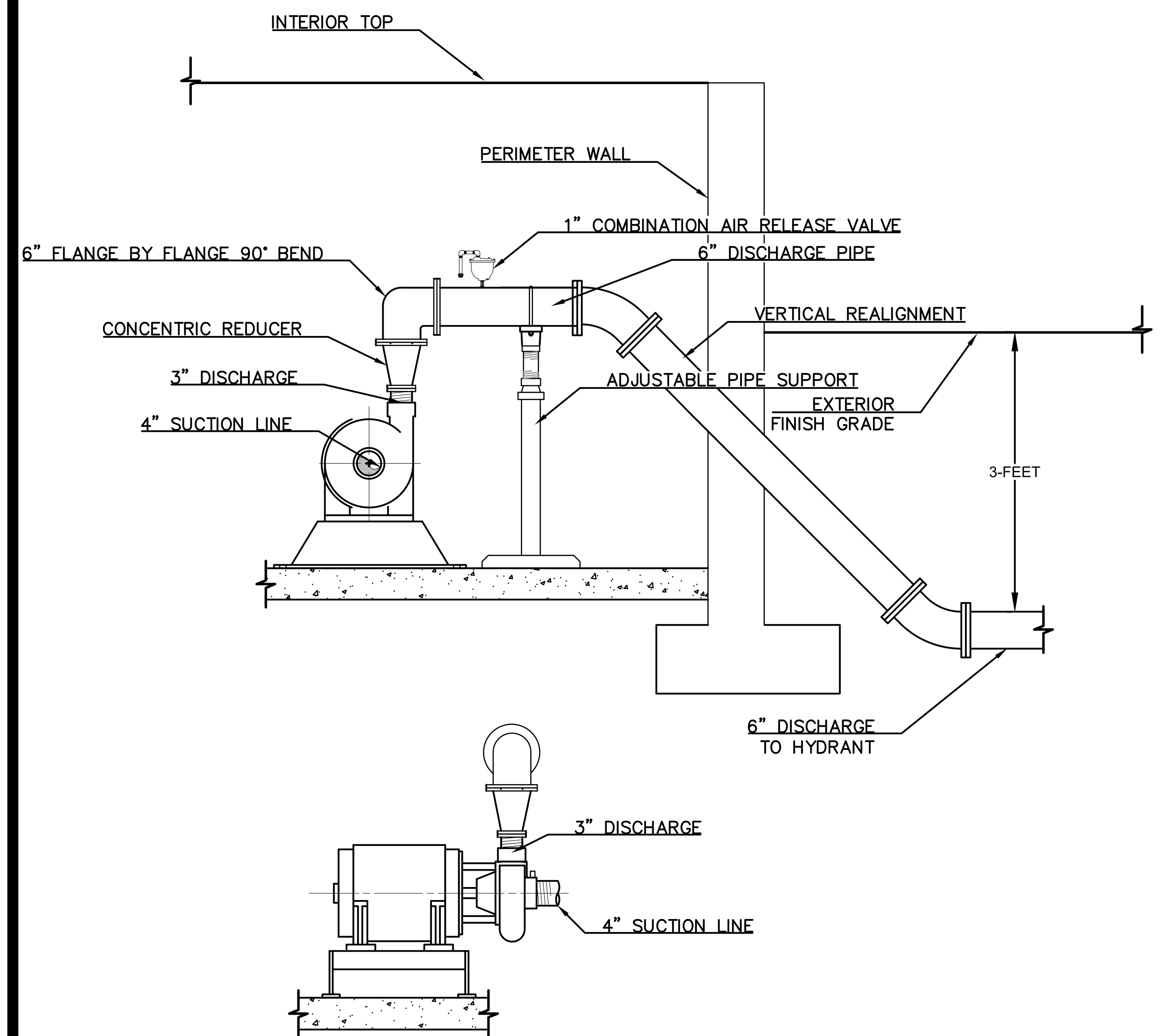
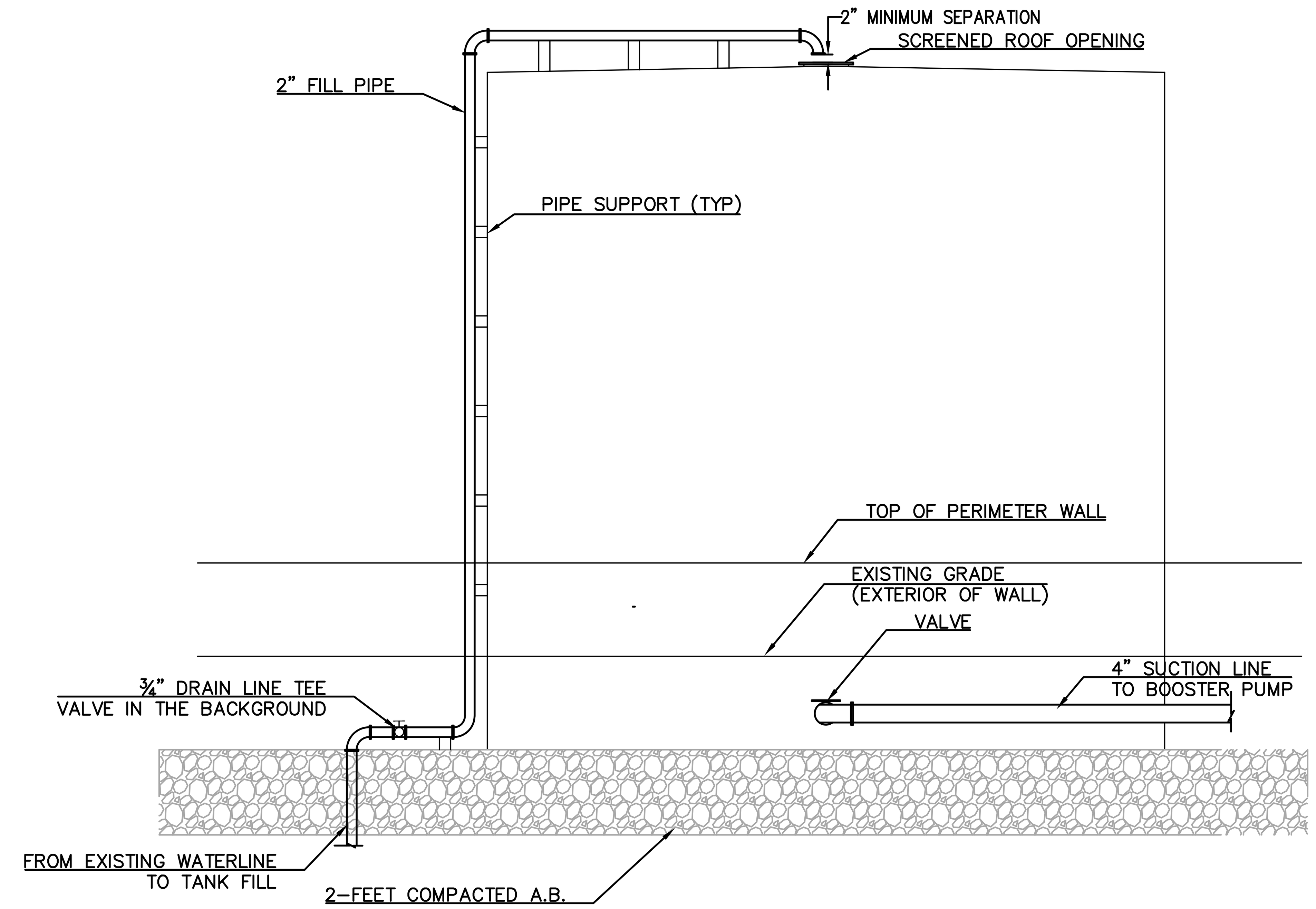


PUMP NOTES:

1. PUMP SHALL BE GOULDS 3656 M&L BRONZE FITTED END SUCTION CAST IRON PUMP MODEL 12BF1R5M0, CAPABLE OF PUMPING 750 GPM AT 140 FEET OF HEAD.
2. INLET PIPING SHALL BE 4" SCHEDULE 40 PVC, INSULATED FROM FREEZING.
3. DISCHARGE FROM THE PUMP IS 3". DISCHARGE PIPING TO BE INCREASED IN DIAMETER TO 6" WITH CONCENTRIC REDUCER AS SHOWN IN DETAIL.
4. ACCEPTANCE OF PUMP WILL BE BASED ON TEST DATA TAKEN AT DISCHARGE FROM STAND PIPE.
5. ALL PUMP ELECTRICAL CONNECTIONS, SWITCHING, AND POWER SUPPLY GENERATOR TO BE DESIGNED BY OTHERS.

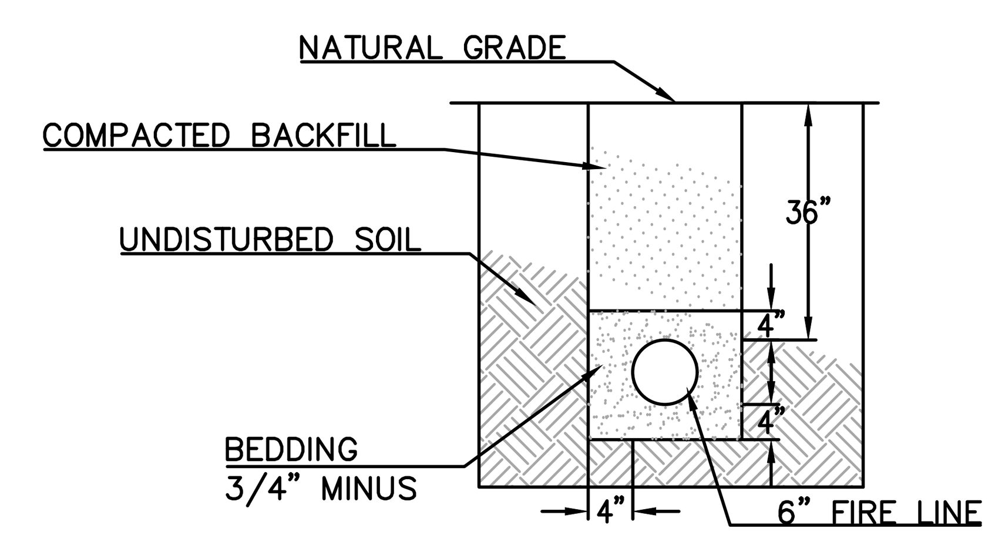
1/9 END SUCTION BOOSTER PUMP
N.T.S.



3/9 STORAGE TANK
N.T.S.

TANK NOTES:

1. THE STORAGE TANKS ARE THREE EXISTING 10,500 GALLON TANKS PLACED IN PARALLEL AS SHOWN ON SITE PLAN.
2. TANKS SHALL BE LEAK TESTED INDEPENDENTLY IN PLACE.
3. OVERHEAD FILL PIPING SHALL BE LOCATED ON WEST TANK ONLY. FILL PIPING SHALL BE SEPARATED FROM MAXIMUM POSSIBLE WATER ELEVATION BY A DISTANCE OF 2 INCHES. FILL PIPING TO BE SCREENED TO PROTECT AGAINST ENTRY OF BIRDS, ANIMALS, AND INSECTS. SCREENING SHALL BE STAINLESS STEEL OR OTHER TYPE OF CORROSION-RESISTANT MATERIAL.
4. OUTLET PIPING SHALL BE THROUGH 4" DISCHARGE PORT. OUTLET SHALL BE FITTED WITH 4" BALL VALVE UPSTREAM OF ANY OTHER FITTINGS.
5. ROOF OPENINGS SHALL BE SCREENED TO PROTECT AGAINST ENTRY OF BIRDS, ANIMALS, AND INSECTS. SCREENING SHALL BE STAINLESS STEEL OR OTHER TYPE OF CORROSION-RESISTANT MATERIAL.
6. DRAIN TAP TO BE UTILIZED TO DRAIN NON-INSULATED, ABOVE GRADE PIPE. DRAIN TAP TO BE SMOOTH (NON THREADED) ON DISCHARGE SIDE.
7. ALL PIPE WITHIN 3 FT OF GROUND LEVEL TO BE INSULATED. ABOVE GROUND PIPE NOT INSULATED TO BE UV RESISTANT.
8. SEE GENERAL NOTE AND CONSTRUCTION NOTES ON SHEET 7.
9. SCARIFY AND RECOMPACT EXISTING SOIL AT BASE OF AB LAYER TO A DEPTH OF 8-INCHES. COMPACTION TO BE TO 100% OF MAXIMUM DRY DENSITY.
10. FINISH GRADE INTERIOR AND EXTERIOR HAVE BEEN SHOWN TO HELP ILLUSTRATE THAT MODIFIED TANK BOTTOM ELEVATION IS 2-FEET BELOW EXISTING GRADE AND TOP OF PROPOSED PERIMETER WALL IS 2-FOOT ABOVE EXTERIOR FINISH GRADE FOR A TOTAL WALL HEIGHT OF 4-FEET WITH NO MORE THAN 2-FEET OF UNBALANCED FILL.



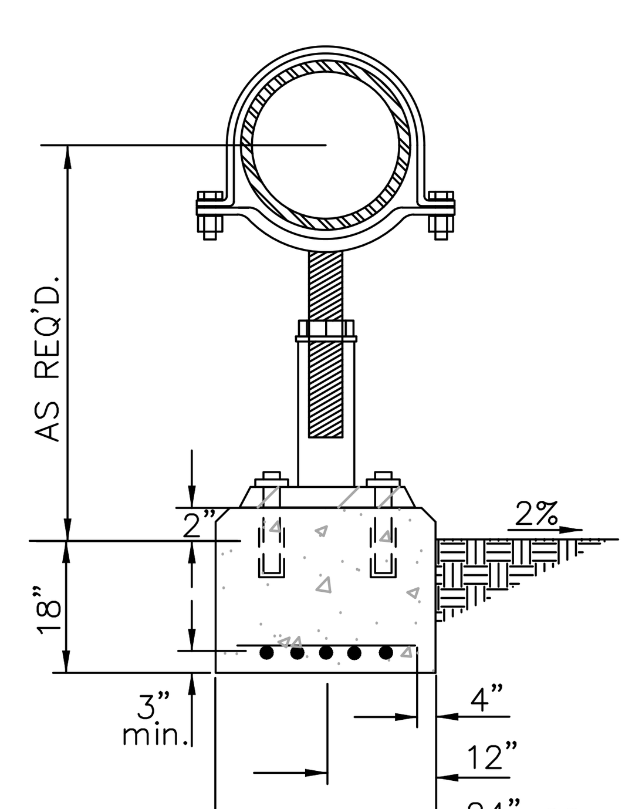
1/3 FIRE LINE TRENCH
N.T.S.

TRENCH NOTES:

1. BEDDING, HAUNCHING AND INITIAL BACKFILL MATERIAL MAY CONSIST OF CINDER SAND CONFORMING TO MAG SECTION 701. COMPACTION SHALL BE A MINIMUM OF 90% STANDARD PROCTOR DENSITY.
2. FINAL BACKFILL MAY BE NATIVE MATERIAL MEETING THE REQUIREMENTS OF MAG SECTION 601.4.3.
3. TOTAL COVER SHALL BE 3' MINIMUM.

PIPE SUPPORT NOTES:

1. ADJUSTABLE PIPE SADDLE SUPPORT BY "ANVIL". (FIG. 259 OR EQUAL)
2. VERTICAL ADJUSTMENT IS OBTAINED BY TURNING LOCK NUT NIPPLE.
3. HORIZONTAL CONCRETE SURFACES SHALL BE FORMED WITH 1" CHAMFER.



2/9 ADJUSTABLE PIPE SUPPORT
N.T.S.

Two working days before you dig CALL FOR THE BLUESTAKES
1-800-782-5348
1-800-STAKE IT
Blue Stake Center
CALL COLLECT

NO.	DATE	BY	REVISION	APP.	DATE

5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.8635790
APEXLANDSURVEYS@GMAIL.COM
WWW.APEXLANDSURVEYS.COM

APEX Land Surveys

Registered Professional Engineer, Certificate No. 57726, DOUGLAS SLOVER JR., Date Signed 03-13-2019, ARIZONA U.S.A.

WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

DETAILS SHEET 2

DESIGNED BY: DWS
DRAWN BY: GRG
CHECKED BY: DWS
SHEET 9 OF --
DATE JANUARY 28, 2019
PROJECT NO. 122818
SCALE: HORIZ: ######## VERT: N/A
APEX SURVEYING & ENGINEERING DRAWING PATH F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\Deliverables

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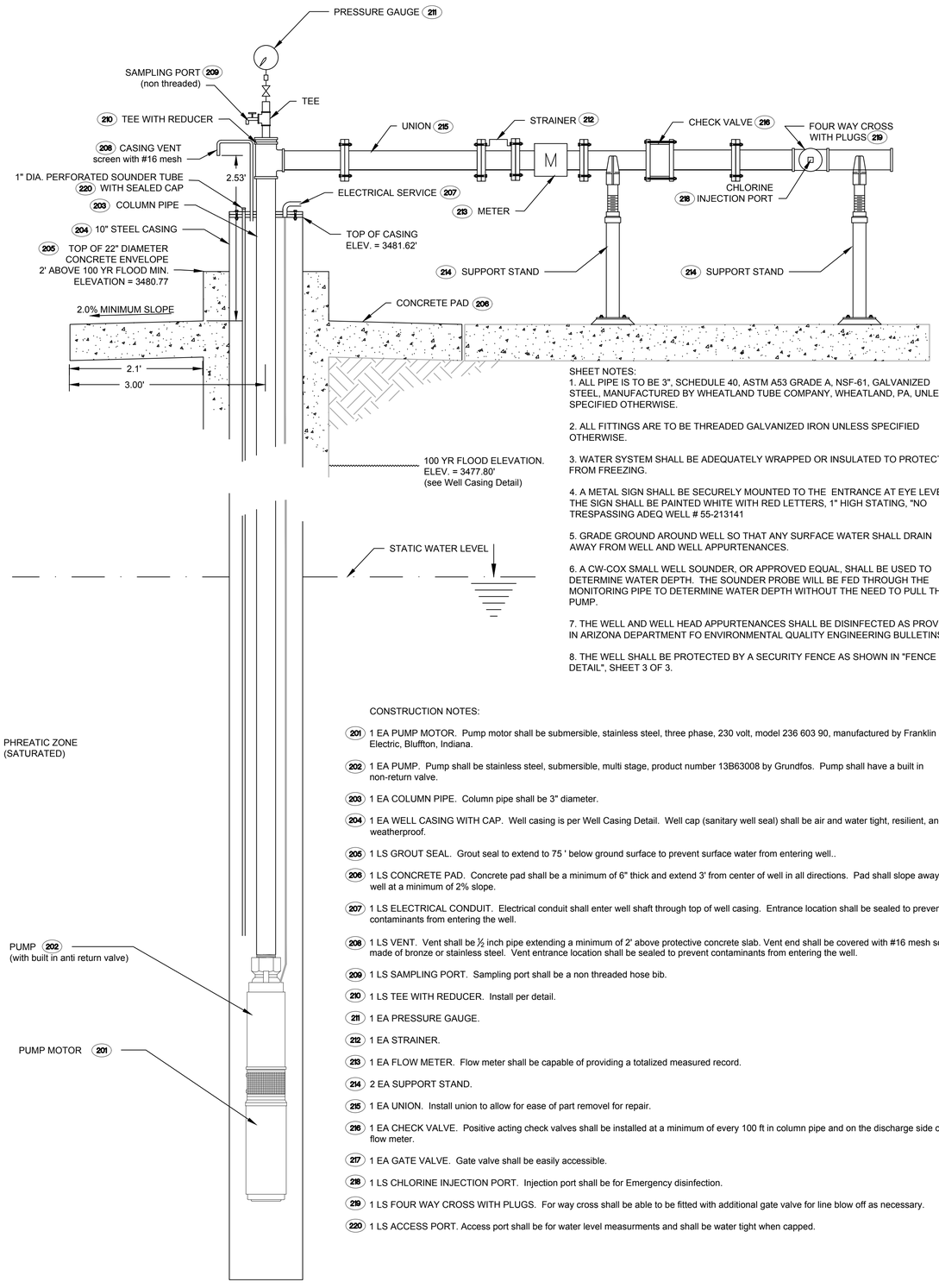

SHEET NOTES:
1. ALL PIPE IS TO BE 3", SCHEDULE 40, ASTM A53 GRADE A, NSF-61, GALVANIZED STEEL, MANUFACTURED BY WHEATLAND TUBE COMPANY, WHEATLAND, PA, UNLESS SPECIFIED OTHERWISE.

2. ALL FITTINGS ARE TO BE THREADED GALVANIZED IRON UNLESS SPECIFIED OTHERWISE.

3. WATER SYSTEM SHALL BE ADEQUATELY WRAPPED OR INSULATED TO PROTECT FROM FREEZING.

4. A METAL SIGN SHALL BE SECURELY MOUNTED TO THE ENTRANCE AT EYE LEVEL. THE SIGN SHALL BE PAINTED WHITE WITH RED LETTERS, 1" HIGH STATING, "NO TRESPASSING ADEQ WELL # 55-213141

5. GRADE GROUND AROUND WELL SO THAT ANY SURFACE WATER SHALL DRAIN AWAY FROM WELL AND WELL APPURTENANCES.

6. A CW-COX SMALL WELL SOUNDER, OR APPROVED EQUAL, SHALL BE USED TO DETERMINE WATER DEPTH. THE SOUNDER PROBE WILL BE FED THROUGH THE MONITORING PIPE TO DETERMINE WATER DEPTH WITHOUT THE NEED TO PULL THE PUMP.

7. THE WELL AND WELL HEAD APPURTENANCES SHALL BE DISINFECTED AS PROVIDED IN ARIZONA DEPARTMENT FO ENVIRONMENTAL QUALITY ENGINEERING BULLETINS.

8. THE WELL SHALL BE PROTECTED BY A SECURITY FENCE AS SHOWN IN "FENCE DETAIL", SHEET 3 OF 3.

CONSTRUCTION NOTES:

201 1 EA PUMP MOTOR. Pump motor shall be submersible, stainless steel, three phase, 230 volt, model 236 603 90, manufactured by Franklin Electric, Bluffton, Indiana.

202 1 EA PUMP. Pump shall be stainless steel, submersible, multi stage, product number 13B63008 by Grundfos. Pump shall have a built in non-return valve.

203 1 EA COLUMN PIPE. Column pipe shall be 3" diameter.

204 1 EA WELL CASING WITH CAP. Well casing is per Well Casing Detail. Well cap (sanitary well seal) shall be air and water tight, resilient, and weatherproof.

205 1 LS GROUT SEAL. Grout seal to extend to 75 ' below ground surface to prevent surface water from entering well..

206 1 LS CONCRETE PAD. Concrete pad shall be a minimum of 6" thick and extend 3' from center of well in all directions. Pad shall slope away from well at a minimum of 2% slope.

207 1 LS ELECTRICAL CONDUIT. Electrical conduit shall enter well shaft through top of well casing. Entrance location shall be sealed to prevent contaminants from entering the well.

208 1 LS VENT. Vent shall be ½ inch pipe extending a minimum of 2' above protective concrete slab. Vent end shall be covered with #16 mesh screen made of bronze or stainless steel. Vent entrance location shall be sealed to prevent contaminants from entering the well.

209 1 LS SAMPLING PORT. Sampling port shall be a non threaded hose bib.

210 1 LS TEE WITH REDUCER. Install per detail.

211 1 EA PRESSURE GAUGE.

212 1 EA STRAINER.

213 1 EA FLOW METER. Flow meter shall be capable of providing a totalized measured record.

214 2 EA SUPPORT STAND.

215 1 EA UNION. Install union to allow for ease of part removel for repair.

216 1 EA CHECK VALVE. Positive acting check valves shall be installed at a minimum of every 100 ft in column pipe and on the discharge side of the flow meter.

217 1 EA GATE VALVE. Gate valve shall be easily accessible.

218 1 LS CHLORINE INJECTION PORT. Injection port shall be for Emergency disinfection.

219 1 LS FOUR WAY CROSS WITH PLUGS. For way cross shall be able to be fitted with additional gate valve for line blow off as necessary.

220 1 LS ACCESS PORT. Access port shall be for water level measurments and shall be water tight when capped.

1/10 SAMPLE WELLHEAD DETAILNOT A PART OF THIS PROJECT
N.T.S.

GENERAL NOTES

1. THE SAMPLE WELLHEAD DETAIL, PROVIDED ON THIS SHEET, IS NOT TO BE USED FOR CONSTRUCTION OF A NEW WELLHEAD DISCHARGE SYSTEM.

2. THIS DETAIL HAS BEEN PROVIDED ONLY AS A SAMPLE FOR REFERENCE, AT THE REQUEST OF THE OWNER, TO ILLUSTRATE THE POTENTIAL SIZING NEEDS FOR PROPOSED WELLHEAD HOUSING STRUCTURE.

3. THIS DETAIL SHOULD NOT BE CONSTRUED TO DEPICT EXISTING OR PROPOSED CONDITION OF THE ONSITE WELL HEAD FOR WELL 55-518314 BELONGING TO THE NON-POTABLE WATER SYSTEM WITH ID AZ0403385.

NO.	DATE	BY	REVISION	APP.	DATE

5634 N JULIANE DRIVE
WILLIAMS, AZ 86046
928.8635790
APEXLANDSURVEYS@GMAIL.COM
WWW.APEXLANDSURVEYS.COM

APEX Land Surveys

PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING
DATE: 2019-01-29

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WATER DEVELOPMENT
145 LEUPP RD & 19722 LEUPP RD
FLAGSTAFF, ARIZONA 86004
A.P.N. 303-25-009C & 303-25-009J

DETAILS SHEET 3

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SHEET
DWS	GRG	DWS	10
DATE: JANUARY 28, 2019	PROJECT NO: 122018	SCALE:	OF --
			HORIZ ########
			VERT: N/A

F:\PROJECTS\APEX\STAR SCHOOL\CAD\ENG\DELIVERABLES\20190313 PLAN SET.DWG

Attachment B

Conceptual Site Plan

PRELIMINARY DEVELOPMENT PLAN

PAINTED DESERT REGIONAL FOOD HUB

(NORTH PORTION)

A.P.N. 303-25-009C

LEUPP ROAD

EXIST. CATTLE GUARD

L=568.83'
R=5780.00'
Δ=5°38'19"
Tan=284.64'

N30°45'47"W 1111.02'

TEST CROPS

NAVAJO TEA CROP
FESTIVAL GROUNDS

26'

MATCH LINE
SEE SOUTH PORTION

EXISTING LEGEND

ASPHALT PAVEMENT

— x — x — x — BARB WIRE FENCE

PROPOSED LEGEND

COMPACTED AGGREGATE

GRAPHIC SCALE

0 50 75 100

(IN FEET)
1 inch = 50 ft.

Verde Engineering Group PLLC

1109 North McLane Road
Payson, Arizona 85541

Ralph Bossert P.E. R.L.S.
(928) 978-4345
Dan Fitzpatrick P.E.
(928) 595-2816

JOB No. 18-11

NORTH PORTION
SHEET 1 OF 2

PRELIMINARY DEVELOPMENT PLAN
PAINTED DESERT REGIONAL FOOD HUB
(SOUTH PORTION)

GRAPHIC SCALE
0 50 75 100
(IN FEET)
1 inch = 50 ft.

MATCH LINE SEE NORTH PORTION

5580
5579 EXIST. DIRT ROAD
N30°45'47"W 1111.02'
5578
5579
S89°58'54"W 1076.09'
EQUIPMENT STORAGE
GATE

EXISTING LEGEND

- BARB WIRE FENCE
- CHAIN LINK FENCE
- TREE
- A WATER STATION
- B FIRE TANKS
- C WATER STORAGE TANK
- D PROPANE STORAGE TANK
- E RESTROOM
- F WELL HEAD
- G GARAGE
- H CLASSROOM
- I SEPTIC TANK
- J MAIN HOUSE
- K GENERATOR ROOM
- L MAIN BUILDING
- M SALES AREA
- N PRODUCE PACKAGING
- O PUMP HOUSE

PROPOSED LEGEND

- COMPACTED AGGREGATE
- COMPACTED D.G. SIDEWALK
- 1 BUSINESS CENTER
- 2 BUILDING ADDITION
- 3 FIRE STATION
- 4 FIRE TANK
- 67 PARKING SPACES
- HANDICAP SPACE (2)
- TREE (59)
- 5 SHADE STRUCTURE
- 6 WATER TREATMENT BOX
- 7 RAMADA (2)
- 8 GREENHOUSE
- 9 RESTROOM / SHOWER
- 10 FIRE RING
- 11 HOGAN
- 12 GUEST QUARTERS (7)
- 13 SHEEP PEN
- 14 DETENTION BASIN
- 15 WASTEWATER TREATMENT AND DISPOSAL
- 16 COMMUNITY GARDEN
- 17 REFUSE DUMPSTER (3)

Verde Engineering Group PLLC

SOUTH PORTION
SHEET 2 OF 2