

Pinedale Estates Domestic Water Improvement **District**

Pilot Well Bid Specs and Project Background

Well Project Purpose:

The ultimate purpose of this project is to obtain a well drilled in a method meeting the District needs in the local geologic conditions. Well driller should be experienced in local geology and associated best drilling practices and supported by an experienced licensed professional during the drilling process.

Due to the complexity of the local geology, hydrology, and water quality, a licensed professional shall oversee the drilling process to analyze findings to allow a well design for optimum water quality and quantity.

The well shall be drilled to allow collection of data and information to analyze the local lithology, perform geophysical logging, perform depth specific sampling and hydrologic testing. Following analysis of the collected pilot hole data the final well design can be determined. This allows the exploratory borehole to be reamed to the size of the proposed well and constructed as the final well (casing, annular space, screen type, intervals, pump chamber, borehole size, surface casing size and surface borehole diameter and associated materials selected by the professional) and developed to ensure the highest probability of acceptable water quantity and quality.

Disclaimer

Well drilling Scope of Work & Specification has been provided to allow for an “apples to apples” bid tabulation sheet to aid in contractor/driller comparison. The final well drilling means, methods, exploratory borehole design and ultimate well construction will be based on decisions by a licensed professional and licensed driller during the actual drilling activities. Well drilling and final well design are not an exact science. To achieve optimal results experienced professionals must be available during the drilling process so adjustments can be made based on their observations during the drilling process.

This document is intended to serve as the Bid Spec, as suggested by EWL, however final well specifications shall be approved by professionals overseeing the drilling process (PODP).

PINEDALE ESTATES DWID PROPOSED WELL BID SPECIFICATION

The selected contractor will perform the following drilling activities under the direct supervision of the engineer or other registered and experienced professional. As part of the scope of work, the Contractor shall provide the equipment, fuel, drilling additives, drill bits, tooling, materials, and qualified staff that is capable of performing this work in a safe and efficient manner. The selected Contractor shall provide a list of equipment, downhole tooling and resumes with the bid package.

Refer to the following requirements and activities that should be considered for bidding purposes:

- Required Regulatory Approvals and Permits
- Equipment, Materials and Labor for Drilling
- Removal and Disposal of Temporary Casing, Cuttings, and Drill Fluid
- Preparation of Borehole Logs
- Sample Handling, Containers, Storage, and Testing

GENERAL ADMINISTRATIVE REQUIREMENTS

Perform work according to American Water Works Association (AWWA), Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, Arizona Department of Environmental Quality (ADEQ) Engineering Bulletin Number 10, Arizona Administrative Code (AAC) Title 8, Chapter 15, Article 8 – Well Construction and Licensing of Well Driller, and any local regulations pertinent to the project.

Notify the Owner and the PODP 72-hours prior to any construction activity. The Contractor is responsible for contacting the Arizona Department of Water Resources (ADWR) in accordance with the applicable reporting requirements.

Contractor shall be responsible for 811 Blue Stake compliance.

Contractor shall provide documentation of current insurance and licensing as well as maintain insurance and licensing for the duration of the contract

Store and maintain well materials in a clean, uncontaminated condition throughout the course of the project. Do not allow filter pack material to freeze before installation can occur.

Access to the well site, including any utility clearance, permits, licenses, or other requirements and the payment thereof necessary for the execution of work, is the responsibility of the Contractor. Furnish a copy of all permits, licenses, and other legal requirements necessary for the execution of the work before commencement of the work. Visit the project location to observe any conditions that may hamper transporting equipment or personnel to the site. If clearing or relocation is necessary, the Contractor, the Owner, and the PODP must agree on a suitable clearing, or relocation plan, and the location of any required access road.

Submit a plan as specified by the PODP describing the drilling methods, sampling, construction, and well development prior to beginning drilling operations. The plan must be approved and signed by a qualified professional.

Maintain existing survey monuments and utilities and protect them from damage from equipment and vehicular traffic. Repair any items damaged during this work. Protect wells scheduled for abandonment from damage. Prior to commencement of drilling, obtain written approval from the local utility companies to avoid disturbing buried utilities.

Pilot Well Site A

- Mobilization & Demobilization: one (1-ea) mobilization and one (1-ea) demobilization from the selected contractor's primary yard.
- Site Preparation: One (1-ea) clear and grub (minor pine tree removal may be required for appropriate layout) as needed and establish a well drilling site. Contractor shall mark site for logging and obtain approval by Owner prior to any felling.
- Conductor Installation: one (1-ea) nominal 12-inch OD conductor surface pipe shall be installed to a minimum depth of 20-ft manufactured with low-carbon steel as determined and approved by the PODP.
- Pilot Well A Drilling: one (1-ea) 6-inch single pass borehole drilled to a depth of 550-ft as approved by the PODP.
 - Lithology Analysis (Cuttings): Driller shall take care to log, and archived well cuttings (chip trays) representative of the material being drilled at 10-ft intervals (10-ft at a minimum, PODP may decide to have 5-ft intervals based on specific findings during drilling) for review and analysis by the PODP
 - Chemical Analysis: Driller shall take care to allow for PODP to obtain water quality samples during the drilling process for field sample measurements.
 - Geophysical Logging: Driller shall have a downhole geophysical log on the borehole to assist the PODP to determine the pay zones (areas of expected water development).
 - Drill Card and Static Water Level: Driller shall complete all necessary log static water levels during the drilling process

- Depth Specific Sampling: Driller shall construct up to 3-ea zones to allow the PODP to obtain representative aquifer samples to allow for water quality testing.
 - 20 to 40-ft per zone. Isolated with bentonite and pea gravel or packers.
 - Minimum 12-h flush time to ensure purging of drilling fluids.
 - Water sampling and hydrologic testing to confirm permeability of zone tested.

Standby: standby for up to 3-weeks to allow for water quality testing/lab samples.

Drill test wells in a manner to protect the subsurface from surface contamination. Properly case, grout, and seal the boring into the aquiclude before the boring is advanced through the aquiclude into the aquifer.

Use the test well to determine the expected flow, optimum depth of flow, water quality, and to identify the strata encountered. Before conducting a capacity test, case the well, and screen in accordance with requirements prescribed by the Owner and/or the POPD.

The test well may be converted to the permanent well. If the well is not used to construct the permanent well, abandon the test well in accordance with the requirements prescribed by the Owner and/or the POPD.

Pilot Well Site B

- Site Preparation: One (1-ea) clear and grub (minor pine tree removal may be required for appropriate layout) as needed and establish a well drilling site. Contractor shall mark site for logging and obtain approval by Owner prior to any felling.
- Conductor Installation: one (1-ea) nominal 12-inch OD conductor surface pipe shall be installed to a minimum depth of 20-ft manufactured with low-carbon steel as determined and approved by the PODP.
- Pilot Well A Drilling: one (1-ea) 6-inch single pass borehole drilled to a depth of 550-ft as approved by the PODP.
 - Lithology Analysis (Cuttings): Driller shall take care to log, and archived well cuttings (chip trays) representative of the material being drilled at 10-ft intervals (10-ft at a minimum, PODP may decide to have 5-ft intervals based on specific findings during drilling) for review and analysis by the PODP
 - Chemical Analysis: Driller shall take care to allow for PODP to obtain water quality samples during the drilling process for field sample measurements.
 - Geophysical Logging: Driller shall have a downhole geophysical log on the borehole to assist the PODP to determine the pay zones (areas of expected water development).
 - Drill Card and Static Water Level: Driller shall complete all necessary log static water levels during the drilling process
- Depth Specific Sampling: Driller shall construct up to 3-ea zones to allow the PODP to obtain representative aquifer samples to allow for water quality testing.
 - 20 to 40-ft per zone. Isolated with bentonite and pea gravel or packers.

- Minimum 12-h flush time to ensure purging of drilling fluids.
- Water sampling and hydrologic testing to confirm permeability of zone tested.

Standby: standby for up to 3-weeks to allow for water quality testing/lab samples.

Drill test wells in a manner to protect the subsurface from surface contamination. Properly case, grout, and seal the boring into the aquiclude before the boring is advanced through the aquiclude into the aquifer.

Use the test well to determine the expected flow, optimum depth of flow, water quality, and to identify the strata encountered. Before conducting a capacity test, case the well, and screen in accordance with requirements prescribed by the Owner and/or the POPD.

At the time of this memo, no additional contingencies are currently in place. Should the secondary location (Site B) fail to produce water with sufficient quality and quantity, reconsideration of the overall project may be necessary.

Final Borehole & Well Construction

All casing, screen, and other well materials shall be compatible to prevent galvanic reaction between components of the completed well. Submit catalog data, and name of supplier, for well screens, casing, riser pipe, filter pack material, bentonite, cement, centralizers, surface protective covers, well vaults, locking caps, sampling equipment, pumps and chemical specifications on drill lubricants, tracers, disinfecting agents, and drill fluid additives, if used.

Many specifications of the final production well are dependent upon the hydrogeological conditions observed in the pilot well. As such, the parameters provided herein are not intended to reflect final design of the production well and should be reevaluated once additional data is available.

- Final Borehole Reaming: Contractor shall construct final well borehole by reaming pilot hole out to allow for final casing installation to a depth specified by the PODP.
 - 8-in final casing with minimum of 2.5-in annular space for filter pack if indicated.
 - Caliper log
- Well Casing Installation: The inside diameter of any casing must be sufficient to allow accurate placement of the screen, riser, centralizer(s), filter pack, seal and grout.

Contractor shall install the final well casing down to 550-ft as approved by the PODP.

- 400-ft of 8-in blank steel or SDR 21 PVC
- 150-ft of mill slotted casing
- Well Screens: Well screens must be directly connected to the bottom of the inner casing by an approved method. The length of the screen must be sufficient to provide an intake area capable of passing not less than the minimum yield of the well, at an entrance velocity not exceeding 0.1 feet per second (fps).

The opening, or slot size of the screen, shall be designed based on analysis of the distribution of the grain size of the aquifer materials encountered during drilling and compatible with the material surrounding the screen.

The well screen must be of sufficient size and design to hold back and support the material used in the filter pack envelope and in-situ material surrounding the screen. Seal the bottom section, below the screen, watertight by means of an end cap of the same material as the screen.

Submit well screen details as part of the well installation plan for review and approval by the Owner and/or the PODP.

- Well Complete Construction: construct final well by installing filter pack sand, bentonite seal, cement grout seal, formation stabilizer down to 550-ft as approved by the PODP.

Well Development & Completion Testing

- Drilling Rig Development: The drilling contractor shall allow for swab and surge or other type of rig development as approved by the PODP.

- Rig development to be 10-minutes per foot of perforated interval (~25-hr minimum) however more time may be considered as needed onsite and during the development.

- PODP will be onsite to observe field water quality parameters and direct driller if additional rig development time is recommended to remove the wall cake/skin damage. Contractor shall provide an hourly rate for additional rig development time.

- Aquifer Test Pump Equipment: The drilling contractor shall provide one (1-ea) temporary pump for testing purposes capable of 100-gpm at 600-ft of head (to be confirmed upon final well and static water findings during drilling).

- The test pump must be able to be run via VFD (ramp to different flows, heads, speeds) and include necessary power generation (assume no site power) metering and other appurtenances for testing (include hose bibbs for Rossum stand testing and sampling).

- Pricing shall include testing setup to allow for observation of flow and pressure during aquifer step testing. Valving must be available for changing the flow and the contractor shall allow for water quality sampling (for both Rossum sand testing and also a non-threaded hose bibb for water quality sampling).

- Aquifer Development: The drilling contractor shall allow for up to 48-hours of pump and surge development as determined by field water quality and as approved by the PODP.

- Aquifer Testing: The drilling contractor shall allow for step, constant rate and aquifer recovery development / testing overseen and directed by the PODP.

- The step test will be 4-step, 3-hr per step with 12-hr of recovery time (minimum) between each step. The pumping rates for the steps will be determined during the aquifer development.

- Following the development and step testing a 24-hr constant rate test with 24-hr of recovery time shall be conducted by the contractor. Contractor shall provide all parts, fittings, power, fuel, equipment, and staff to do the testing and record the test findings to the nearest intervals as agreed before testing.

- Well Final Testing: Following the completion of the well the drilling contractor shall have the well final testing as outlined by the PODP to support testing performed by independent 3rd party or the PODP.

At a **minimum**, the Contractor shall provide:

- Well post-construction video logging (camera log of the entire well column).
- Well gyroscopic survey (plumbness and alignment).
- Well new source water quality testing
- Well final disinfection (disinfect to 50-ppm Cl₂ residual, maintaining a minimum of 25-ppm after 24-hr).

In addition to the base bid, the contractor is to provide operating and non-operating hourly rates for additional drill rig time and standby time to be applied with approval from the client, Owner, funding agency or PODP.

Project Location

The Pinedale Estates Domestic Water Improvement District (DWID) is located along Rim Drive, approximately 5-miles south of State Highway 260 near the town of Show Low in Navajo County, Arizona. It is in the portion of the northeast quarter of the northwest quarter of the northeast quarter of Section 20, Township 10 North, Range 20 East of the Gila and Salt River Base and Meridian. Refer to the project vicinity map shown below in **Figure 1**.

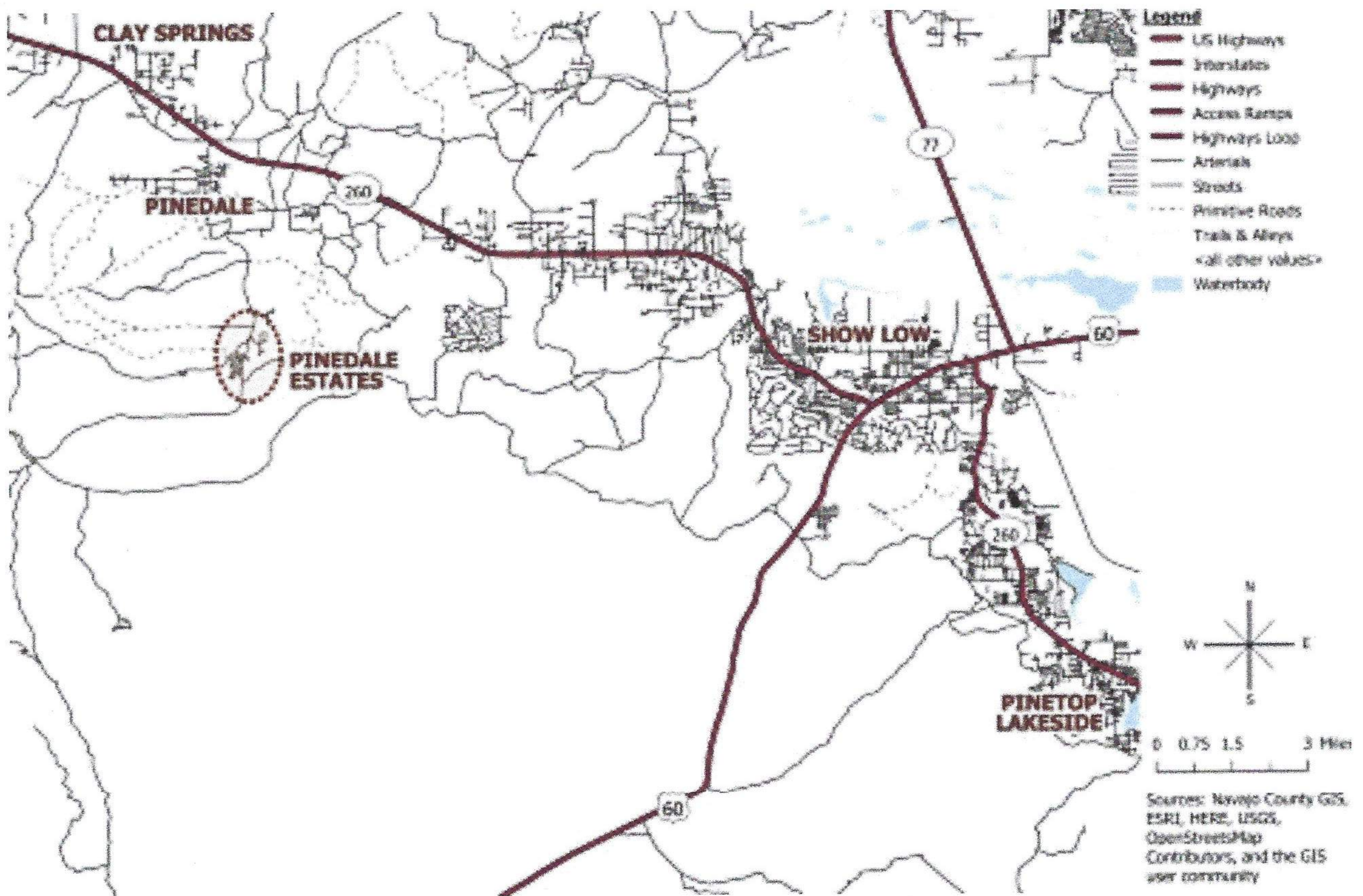


Figure 1: Vicinity Map of the Pinedale Estates in Navajo County, Arizona

Project Background

The existing well at the Pinedale Estates DWID has elevated levels of Selenium (25-ppb), more than two times the maximum contaminant level (Se MCL, 10-ppb) on average. As part of the ongoing effort by the DWID, ADEQ and others to bring the system back into compliance, construction of a new well is proposed.

A potential site for the new well has been selected by the DWID following EWL's well siting analysis based on feasibility, cost, and proximity to the existing well site. The proposed well site,

selected by the District, is to be located on the southwest corner of a residential lot (APN #409-01-007A) with tentative approval from the property owners.

The coordinate location of the proposed well site is as follows: 34.2579° N 110.2368° W

Legal description of property is as follows:

A PARCEL OF LAND WITHIN LOT A OF RECORD OF SURVEY BOOK 45, PAGE 93, LOCATED IN SECTION 17, TOWNSHIP 10 NORTH, RANGE 20 EAST, GILA AND SALT RIVER MERIDIAN, NAVAJO COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 17, MONUMENTED BY A UNITED STATES GOVERNMENT LAND OFFICE BRASS CAP, FROM WHICH THE EAST SIXTEENTH CORNER OF SAID SECTIONS 17 AND 20, MONUMENTED BY A U.S.D.A. ALUMINUM CAP STAMPED RLS 11758, 1986, BEARS SOUTH 89°46'46" WEST, A DISTANCE OF 1323.55 FEET: THENCE, ALONG THE EASTERLY LINE OF SAID SECTION 20, SOUTH 00°22'03" EAST, A DISTANCE OF 22.45 FEET TO THE SOUTHEASTERLY CORNER OF SAID LOT A, MONUMENTED BY A 1/2" REBAR WITH A LS 15340 PLASTIC CAP; THENCE, ALONG THE SOUTHERLY PROPERTY LINE OF SAID LOT A, NORTH 82°06'57" WEST, A DISTANCE OF 640.25 FEET TO A POINT; THENCE, CONTINUING ALONG SAID SOUTHERLY LINE, NORTH 58°59'10" WEST, A DISTANCE OF 534.29 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUING ALONG SAID SOUTHERLY LINE, NORTH 58°59'10" WEST, A DISTANCE OF 75.35 FEET TO THE EASTERLY RIGHT OF WAY OF RIM DRIVE AND THE SOUTHWESTERLY CORNER OF SAID LOT A, MONUMENTED BY A 1/2" REBAR WITH NO A TAG; THENCE, ALONG SAID EASTERLY RIGHT OF WAY, NORTH 10°00'56" EAST, A DISTANCE OF 325.00 FEET TO A POINT; THENCE SOUTH 61°38'35" EAST, A DISTANCE OF 260.00 FEET TO A POINT; THENCE SOUTH 36°29'57" WEST, A DISTANCE OF 210.00 FEET TO A POINT; THENCE SOUTH 76°53'57" WEST, A DISTANCE OF 75.00 FEET TO A POINT; THENCE SOUTH 24°41'24" WEST, A DISTANCE OF 54.56 FEET TO THE POINT OF BEGINNING. SAID PARCEL CONTAINS 1.25 ACRES, MORE OR LESS.

Refer to **Figure 2** below for the location of the proposed well site with respect to the existing well.

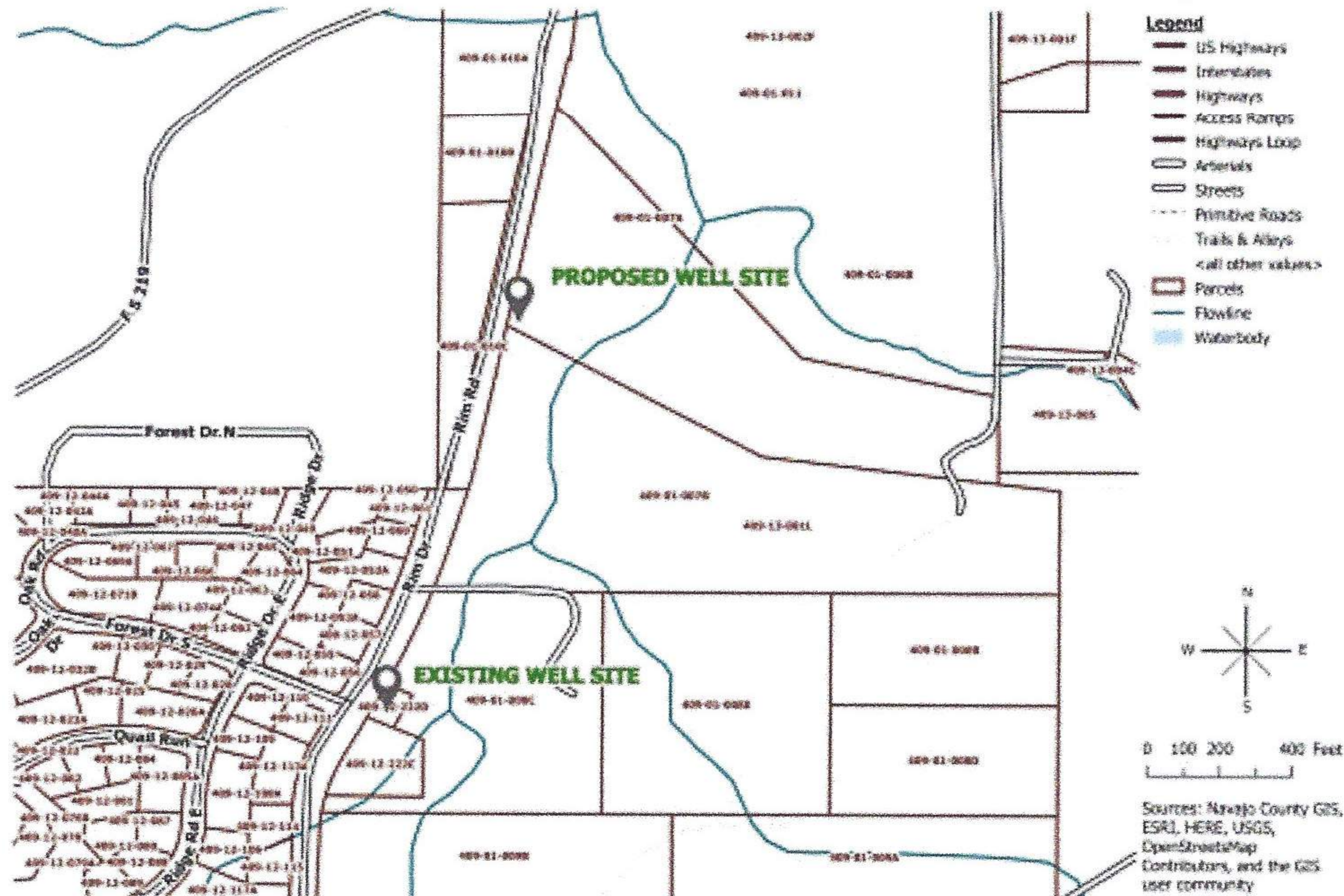


Figure 2: Site Map of Existing and Proposed Well Sites at Pinedale Estates

The proposed site, selected by the Owner was mapped by EWL via sUAS drone mapping in November of 2020. Based on the site survey and initial site investigation, the southwest corner of the property is the highest in elevation. Given that the large portion of the site is considered a floodplain, the Southwest corner may be best suited to construct a new well. The final pilot well location is to be determined and staked by the Owner.

See **Figure 3** below and **Figure 4** on the following page for the aerial orthomosaic of the anticipated location for pilot well.

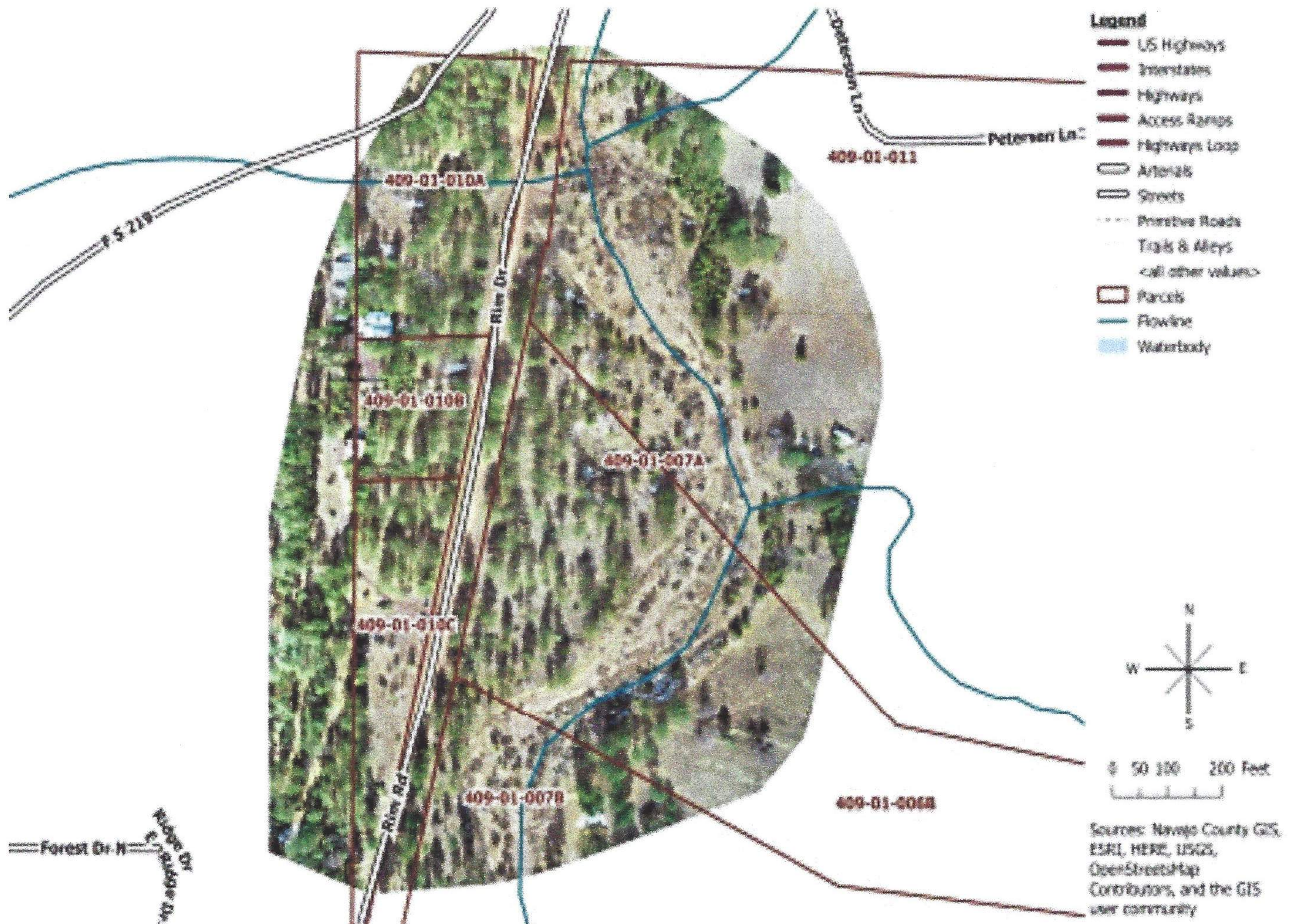


Figure 3: Site Aerial Photography, 12 November 2020, Proposed Well Site at Pinedale Estates DWID



Figure 4: Site Aerial Photography, 12 November 2020, Proposed Well Site at Pinedale Estates DWID

Once the water quantity and quality at the proposed location is determined to be adequate, the final well design will be completed so a production well can be constructed. Conversely, alternative solutions will need to be considered if water the pilot well quality and quantity do not meet the Districts needs.

**Water Infrastructure Finance Authority of Arizona
Clean Water Revolving Fund
Drinking Water Revolving Fund**

CONTRACT PACKET for Governmental Borrowers

This packet lists required contract conditions that apply to all Clean Water and Drinking Water Revolving Fund projects and contains forms that must be used in the procurement process. Please review this packet prior to bidding.

PLEASE NOTE

- **This packet, in its entirety, must be physically included in all bidding, solicitation and contract documents.**
- Use of American Iron and Steel (AIS) applies to this project.:
 - AIS includes the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.
- Federal Davis-Bacon prevailing wages apply to this project.
 - Payment of the wages, fringe benefits and overtime rates is required.
 - The appropriate Federal (Davis-Bacon) Prevailing Wage Decision must be physically incorporated into the bidding and contract documents.
 - The construction category of Heavy (excluding dam construction) should typically be applied to all projects funded by WIFA. If you believe that a different category of wages, such as Building, should be applied to your project or portions of your project, please contact WIFA in advance.
 - Weekly certified payroll submittal is required under the Federal Davis-Bacon laws.
- Compliance with the Civil Rights Act and Equal Employment Opportunity is required.
- Promotion of Small, Minority and Women-owned Businesses and participation in EPA's Disadvantaged Business Enterprise (DBE) Program is required.
- Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment.

Water Infrastructure Finance Authority of Arizona
Clean Water Revolving Fund
Drinking Water Revolving Fund

Required Contract Conditions

This project is being financed in whole or in part by the Water Infrastructure Finance Authority of Arizona through the Clean Water or Drinking Water Revolving Fund. The loan recipient is required to comply with the following federal and state laws, rules and regulations and must ensure that their contractor(s) also comply(ies) with these regulations, laws and rules.

1. (i) Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352, 42 U.S.C. Sec. 2000d), (ii) the Rehabilitation Act of 1973 (Pub. L. 93-1123, 87 Stat. 355, 29 U.S.C. Sec. 794), (iii) the Age Discrimination Act of 1975 (Pub. L. 94-135 Sec. 303, 89 Stat. 713, 728, 42 U.S.C. Sec. 6102), (iv) Section 13 of the Federal Water Pollution Control Act (Pub. L. 92-500, 33 U.S.C. Sec. 1251), and subsequent regulations, ensures access to facilities or programs regardless of race, color, national origin, sex, age or handicap.
2. Equal Employment Opportunity (Executive Order 11246, as amended by Executive Orders 11375 and 12086 and subsequent regulations). Prohibits employment discrimination on the basis of race, color, religion, sex or national origin. Inclusion of the seven clauses in Section 202 of Executive Order 11246 as amended by Executive Orders 11375 and 12086 are required in all project related contracts and subcontracts over \$10,000.
3. (i) Promoting the use of Small, Minority, and Women-owned Businesses (Executive Orders 11625, 12138 and 12432), (ii) Small Businesses Reauthorization & Amendment Act of 1988 (Section 129 of Pub. L. 100-590), (iii) Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1993 (Pub. L. 102-389, 42 U.S.C. Sec. 437d), and (iv) Title X of the Clean Air Acts Amendments of 1990 (Pub. L. 101-549, 42 U.S.C. Sec. 7601 note) (“EPA’s 10% statute”). Encourages recipients to award construction, supply and professional service contracts to minority and women’s business enterprises (MBE/WBE) and small businesses and requires recipients to utilize affirmative steps in procurement.
4. Participation by Disadvantaged Business Enterprises in Procurement under Environmental Protection Agency (EPA) Financial Assistance Agreements (40 C.F.R. Part 33).
5. Debarment and Suspension (Executive Order 12549). Prohibits entering into contracts or sub-contracts with individuals or businesses who are debarred or suspended. Borrowers are required to check the status of all contractors (construction and professional services) and must require contractors to check the status of subcontractors for contracts expected to be equal to or over \$25,000 via this Internet address: <https://www.sam.gov/SAM/>.

6. E-Verify (A.R.S. § 41-4401). A governmental entity shall not award a contract to any contractor or subcontractor that fails to comply with A.R.S. § 23-214(A). Every government entity shall (i) ensure that every government entity contractor and subcontractor complies with the federal immigration laws and regulations that relate to their employees and A.R.S. § 23-214(A); (ii) require that every government entity contract include the required provisions listed under A.R.S. § 41-4401(A); and (iii) establish procedures to conduct random verification of the employment records of government entity contractors and subcontractors.

**Water Infrastructure Finance Authority of Arizona
Clean Water Revolving Fund
Drinking Water Revolving Fund**

Use of American Iron and Steel

Public Law 113-76, enacted January 17, 2014

SEC. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the “Administrator”) finds that—

- (1) applying subsection (a) would be inconsistent with the public interest;
- (2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
- (3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds (CWSRF and DWSRF) for carrying out the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency’s capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.