

**NATURAL RESOURCES CONSERVATION SERVICE
STATEMENT OF WORK
ARIZONA**

WATER WELL

(No.)

CODE 642

These deliverables apply to this individual practice. For other planned practice deliverables refer to those specific Statements of Work.

INVESTIGATIONS AND SURVEYS

Deliverables

1. *Site investigation, inventory and evaluation shall include:*
 - a. *Preliminary site assessment, investigation or reconnaissance of geological data/reports or other wells reports to estimate well depth and yield estimates.*
 - b. *Identify the location (northing/easting, latitude/longitude) and elevation of the well.*
 - c. *Verify appropriate state or local laws for permitting and approval requirements and notify landowner of his/her responsibilities.*
 - d. *Location of any existing buildings, underground or overhead utilities or markers, buried pipelines, ditches, etc.;*
2. *Engineering surveys are not normally required, unless the surface elevation of well is required by the permitting agency.*

DESIGN

Deliverables

1. Design documentation that will demonstrate that the criteria in the NRCS practice standard have been met and are compatible with other planned and applied practices.
 - a. Practice purpose(s) as identified in the conservation plan.
 - b. List of required permits to be obtained by the client.
 - c. Impacts on adjacent properties and structures.
 - d. Compliance with *Federal, State, Tribal and local utility safety laws and NRCS policy found in the NEM Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities 503.00 through 503.06, and Supplement, §AZ503.02, Subpart A.*
 - e. *Subsidiary and applicable components shall be designed in accordance with applicable construction practice standards*
 - f. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
 - i. Hydrogeology
 - ii. Soil type
 - iii. Wellhead Location and Protection. *Include pertinent details of the well head protection (size, thickness).*
 - iv. Materials (Manufacturers dimensions and certification). *Determine the appropriate well casing material, diameter, and rating.*
 - v. Environmental Considerations (e.g. water quality). *Artesian well protection requirements, if applicable.*
 - vi. *The required capacity of the well shall be determined based on the planned use and purpose.*
2. Written plans and specifications including sketches and drawings shall be provided to the client that adequately describes the requirements to install the practice and obtain necessary permits. *The drawings*

shall meet all the graphic and content requirements as set forth in the National Engineering Manual (NEM) Part 541 “Drafting” Subpart A “Drawings” and shall include, but are not limited to:

- a. Project location map, including section, township and range, North arrow, cooperator acknowledgement and certification signature blocks, engineering job class (cover sheet);
 - b. References that the owner/cooperator are responsible for all permits, rights-of-way, easements and the contact, coordination and location determination of any existing utilities or clearance (The “Call Before You Dig-(Call 811)” Logo or an equivalent);
 - c. Landowner/operator acknowledgement and certification signature blocks;
 - d. A map showing the location of the practice(s) or system in reference to a known or established benchmark or reference point with the location, description and elevation clearly shown. Topographical features and/or controls shall be shown, showing tie in with existing or other planned practices;
 - e. Field surveys and notes, soil investigations or geologic soil boring locations and soil classifications, earthwork or material estimates/quantities (compute quantity of materials and all appurtenances when used as basis of payment), verification or certification of used materials (if any);
 - f. System overview and layout showing the location of the well; well diameter and capacity; types, sizes and dimensions of casing and screens; details and requirements for the surface seal and well head protection; details of how the site will be stabilized after construction; vegetative, fence and signage requirements, if required; construction/installation criteria, State and Federal [OSHA] safety requirements, etc.;
 - g. Plan, profiles and section or detail views of all system components and appurtenances, as required;
 - h. Construction notes, details or specifications to clarify a component and furnish directions or site specific requirement, i.e. quantities of sealing or fill materials (grout, bentonite, gravel packs, etc.).
 - i. Use Arizona Construction and Material Specifications for each item of work and material, as applicable and available. Additional specifications may need to be written to provide full material and installation instructions. Fill in blanks and add or delete items from the specifications to make them fit the job as needed.
3. Design Report and/or Inspection Plan as appropriate (NEM Part 511, Subpart B Documentation, 511.11 and Part 512, Subpart D Quality Assurance Activities, 512.30 through 512.32).
 4. Operation and Maintenance Plan
 5. *For designs completed by non-NRCS personnel, provide certification that documentation, design, plans and specifications meets all applicable NRCS criteria, practice standards, and applicable laws and regulations (NEM Subpart A, 505.03 (a) (3)). Certification shall be made by a licensed professional as governed by the AZ State Technical Board of Registration, and as stated in NEM, §AZ505.01 (b).*
 6. Design modifications during installation as required.

INSTALLATION

Deliverables

1. *Review the plans and specifications with the landowner and contractor prior to the start of construction.*
2. *Ensure the landowner/contractor thoroughly understand their responsibilities including obtaining all permits, easements, etc. and/or verification that the client has obtained required permits.*
3. Staking and layout according to plans and specifications.
4. Installation inspection (according to inspection plan as appropriate). *Adequate site visits and checks shall be made during construction to verify that the plans and specifications are followed.*
 - a. Actual materials used.
 - b. Inspection records
5. Facilitate and implement required design modifications with client and original designer. *Any changes in the design must be reviewed and concurred by the landowner and shall be approved by the designer and individual with appropriate engineering design job approval authority.*

6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation.

CHECK OUT

Deliverables

1. *Wells must be permitted and installed by licensed well drillers. Construction check out during installation is not necessary except to verify the water well is installed at the planned location. Documentation shall include the following information from the well driller.*
 - a. *Depth of well, casing and screen or well casing perforations;*
 - b. *Depth and quality of gravel pack, if applicable;*
 - c. *Type and gage/thickness/schedule of well casing material;*
 - d. *Well completion reports (i.e. well driller's log);*
 - e. *Depth and method of surface seal (the dimensions of the water well head protection slab or casing head above the ground shall be measured);*
2. *The pumping capacity of the well, in gallons per minute or suitable alternative units, and drawdown shall be measured at the pump after continuous operation for at least twelve hours. For an artesian well, the pumping capacity and drawdown shall be measured as the natural flow at the land surface, averaged over four (4) hours.*
3. As-Built documentation – drawings shall meet the requirements as set forth in the NEM Part 512 “Construction”, Subpart F “As-Built Drawings” including any Arizona supplement thereof.
 - a. Extent of practice units applied
 - b. Drawings. Each sheet of the drawing shall have an “As-Built” stamp and date on them. Any changes or modification, addition or deletions to the approved drawings shall be clearly identified with red ink in the as-built drawings.
4. Certification that the installation meets NRCS standards and specifications and is in compliance with permits (NEM Subpart A, 505.03(c) (1)). *If the practice meets NRCS standards and specifications, then the statement “This practice meets NRCS practice standards and specifications” shall be placed on the check out documentation and shall be signed and dated by the responsible individuals.*
5. *After is has been determined and documented that the practice meets NRCS plans and specifications, it can be reported and certified* (progress reporting).
6. Any additional feature, item, or appurtenance not specifically mentioned or addressed that is critical to the proper installation and operation of the practice.

Additional Information:

REFERENCES

- Arizona Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard 642 – Water Well
- NRCS National Engineering Manual (NEM)
- National Engineering Handbook, Part 631, Geology, Chapter 33
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook

State Contact: State Conservation Engineer