

**STATEMENT OF WORK
IRRIGATION SYSTEM, MICROIRRIGATION (441)
Arizona (1/07/10)**

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

DESIGN

Deliverables:

1. Design documentation that will demonstrate that the criteria in NRCS practice standard have been met and are compatible with other planned and applied practices.

Practice purpose(s) as identified in the conservation plan. Completed Irrigation Planning Worksheet and Irrigation System Inventory Worksheet from NEH Part 652 "Irrigation Guide" must be included in the Conservation Plan. These worksheets can be downloaded from the NRCS website at: <http://policy.nrcs.usda.gov/RollupViewer.aspx?hid=17092>

 - a. To comply with the Arizona Supplement §AZ501.05 to the NEM Part 501, Subpart A, a design report or narrative showing the functional requirement of the job, design procedures, and assumptions must accompany the engineering drawings and specifications submitted for review and approval. Such report must be prepared either by or under the direct supervision of an AZ licensed Civil or Agricultural Engineer with proficiency in Irrigation system design.
 - b. List of required permits to be obtained by the client.
 - c. Compliance with NRCS national and state utility safety policy (NEM Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities 503.00 through 503.06) including Arizona Supplement §AZ503.02 to the NEM Part 503, Subpart A. A completed and signed Utility Check Sheet form NRCS-ENG-006 must be included in the job file.
 - d. List of facilitating/component practices
 - e. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
 - i. System Capacity
 - ii. Depth of Application, Rate, Frequency, Pressure and Uniformity
 - iii. Hydraulics
 - iv. Filters and chemical injection
 - v. Water Quality Test Report per ASABE Standard EP405.1.
 - vi. Irrigation Water Management (IWM) Plan that must include (a) Micro Irrigation System Detailed Evaluation Worksheet and (b) Pumping Plant Detailed Evaluation Worksheet. These worksheets can be downloaded from the NRCS website at: <http://policy.nrcs.usda.gov/RollupViewer.aspx?hid=17092>
2. Construction Drawing showing the following required system components:
 - a. Water Source/Water structure
 - b. Pump and backflow prevention system
 - c. Filter System with the necessary valves and pressure gauges
 - d. Chemical injection systems and backflow prevention mechanism
 - e. Flowmeters for proper flow control.
 - f. Layout with size, type, etc. of mainline, submain, Header manifold, laterals and drip tapes, flush lines etc.
 - g. Zone valves
 - h. Air and vacuum release valves.
 - i. Type of control system planned (automatic, semi-automatic or manual)
 - j. The cover sheet of the construction drawing must contain the NRCS Utility Statement as prescribed in the AZ Supplement §AZ503.02 to the NEM Part 503, Subpart A.
 - k. The cover sheet must also show the project location/vicinity map including Bench Mark information and source of Bench Mark information. The cover sheet must also contain Standard NRCS Notes. Non-NRCS designers must obtain these notes from the NRCS.

3. 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 plans and specifications must be prepared either by or under the direct supervision of an AZ licensed Civil or Agricultural Engineer with proficiency in irrigation system design.
4. Operation and Maintenance Plan
5. Certification that the design meets practice standard criteria and comply with applicable laws and regulations (NEM Subpart A, 505.03 (a) (3)).
6. Design modifications during installation as required.

INSTALLATION

Deliverables

1. Pre Installation conference with client and contractor.
2. Verification that client has obtained required permits.
3. Staking and layout according to plans and specifications including applicable layout notes.
4. Installation inspection (according to inspection plan as appropriate).
 - a. Actual materials used (Part 512, Subpart D Quality Assurance Activities, 512.33)
 - b. Inspection records
5. Facilitate and implement required design modifications with client and original designer
6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation.
7. Certification that the installation process and materials meets design and permit requirements.

CHECK OUT

Deliverables

1. As-Built documentation.
 - a. Extent of practice units applied
 - b. Drawings, Each sheet of the drawing shall have a "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.
 - c. Final quantities
2. Certification that the installation meets NRCS standards and specifications and is in compliance with permits (NEM Subpart A, 505.03 (c) (1)).
3. Progress reporting.

REFERENCES

- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard - Irrigation System, Microirrigation, 441
- NRCS National Engineering Manual (NEM).
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook

State Contact: Water Management Engineer