

STATEMENT OF WORK
IRRIGATION SYSTEM, SURFACE AND SUBSURFACE (443)
Arizona (2012)

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

INVESTIGATIONS AND SURVEYS

Deliverables

1. Preliminary site assessment or investigation to determine the field and/or irrigation system layout, and identify crop types, tillage practices, water use (peak consumptive use) and may include:
 - a. Soil or geological investigation to determine soil conditions, including type, texture, intake rate, available water holding capacity (AWC), characteristics (physical and chemical properties), depths, topography, water tables, inhibiting layers, etc. Classification shall be by the Unified Soil Classification System (SM, CL, etc.) and shall include the texture (silty sand, lean clay, etc.).
 - b. Water source (i.e., available flow rate, volume, seasonal variation) and water quality test results (if applicable).
 - c. Verify appropriate state or local laws for permitting and approval requirements and notify landowner of his/her responsibilities.
 - d. Verification or certification of used materials (if any).
2. To adequately plan and layout this practice, a detailed topographic survey is required, that adequately details:
 - a. Site topography, as needed to show the irrigation system position and component layout, irrigation methods, physical features of the site (field boundaries and slope), including existing features/practices, ground elevations, location of any utilities or markers, etc.
 - b. If applicable, a permanent benchmark(s) may be set and described. Preferably, the elevations and coordinates should be based on a local (assumed) or coordinate system (State or grid) and clearly stated on the plan. Datum may be in the form of Northing and Easting coordinates or Longitude and Latitude.

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.
 - a. Practice purpose(s) as identified in the conservation plan
 - b. Completed Irrigation Planning Worksheet and Irrigation System Inventory Worksheet from NEH Part 652 "Irrigation Guide" Chapter 15, "Resource Planning and Evaluation Tools and Worksheets" 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>
 - c. 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. Systems designed by Engineers licensed in other branches of Engineering will also be acceptable provided that the Engineer performing the work furnishes documented evidence that he or she is qualified by education, technical knowledge or experience to perform the irrigation design work per the provisions of Arizona Board of Technical Registration Rules R4-30-301 "Rules of Professional Conduct" and that the work is exempt under Arizona Revised Statute (ARS) §32-143.
 - d. List of required permits to be obtained by the client
 - e. 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. A completed and signed Utility Check Sheet, NRCS-ENG-006 form or equivalent, must be included as part of the case file.
 - f. List of facilitating/component practices
 - g. Practice standard criteria related computations and analyses to develop plans and

specifications including but not limited to:

- i. System Capacity
 - ii. Delivery/application method
 - iii. Depth of Application, Rate, Frequency, and Uniformity
 - iv. Hydraulics analysis and appurtenances design for above ground multi-outlet pipeline.
 - v. Erosion/seepage control
 - vi. Tailwater control
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 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. Engineers licensed in other branches of Engineering will also be acceptable provided that the Engineer performing the work per the provisions of Arizona Board of Technical Registration rules R4-30-301 "Rules of Professional Conduct" and that the work is exempt under Arizona Revised Statute (ARS) §32-143. 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
 - b. The "Call Before You Dig-(Call 811)" Logo or an equivalent.
 - c. System overview and layout
 - d. Plan, profiles and section or detail views of all system components and appurtenances, as required.
 3. Design Report and 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 that includes details for this practice and all applicable system components.
 5. Provide certification that documentation, design, plans and specifications meet 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. 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 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.
 - c. As Built drawings shall meet the requirements as set forth in the NEM Part 512 "Construction", Subpart F "As-Built Drawings" including any Arizona supplement thereof.
 - d. 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.

4. 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

- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard - Irrigation System, Surface and Subsurface, 443
- NRCS National Engineering Manual (NEM).
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook

State Contact: State Conservation Engineer