

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSTRUCTION SPECIFICATION**

**IRRIGATION SYSTEM, MICROIRRIGATION**

(No. And Acre)

CODE 441

**SCOPE**

The microirrigation system shall be located as shown on the drawings or as staked in the field. The designer of the microirrigation system (consulting engineer, equipment vendor, or others) shall furnish the owner with a complete plan and design covering all components of the system. The plan and design shall contain sufficient detail to allow it to be installed by someone unfamiliar with the job and the installation to be checked for conformance with this standard. The plan shall specify type, grades, quality, size, and construction materials of all equipment and appurtenances included in the system design.

All permits, licenses, easement and other requirements required by law shall be obtained before construction begins.

Construction shall be to the lines and grades specified by the design and shown on the drawings or as staked in the field. Equipment and materials shall be of type, size, and quantities specified in the plans and specifications.

**MATERIALS**

**Applicators.** Applicators shall be installed as recommended by the manufacturer. The contractor (vendor) shall provide the manufacturer's performance specifications of the applicator installed in the system to the owner prior to installation. They shall be manufactured from materials resistant to the normal effects of water, weather, sun, and commonly injected agricultural chemicals used for cleaning, chemigation and water amendments. Applicators placed beneath the ground surface will be placed deep enough to protect them from normal farming operations. Spray type emitters will be installed in such a manner that the wetted area ( $P_w$ ) used in the design can be obtained.

**Pumps, Power Units and Filters.** Pumps, power units, and filters shall be set on a firm base, be

placed in proper alignment, and shall meet the power, capacity, and pressure requirements specified. All pertinent safety codes and manufacturer's recommendations shall be met for the type of equipment installed.

**Pipe.** The manufacturer's performance data will be provided by contractor (vendor) for pipe (tubing) used as laterals in the system and all other pipe not included in the standard for irrigation pipelines (430). The manufacturer's data must include the maximum allowable operating pressure and inside diameter. This pipe and tubing shall be installed as recommended by the manufacturer. A copy of the manufacturer's data shall be provided to responsible NRCS technician as requested prior to installation.

**Joints and Connections.** All joints and connections involved in installation of laterals to the manifold lines shall be made in accordance with the pipe manufacturer's recommendations and shall be constructed to withstand the maximum design working pressure for the pipelines without leakage. Connections of applicators to the lateral lines shall be in accordance with the manufacturer's recommendations.

**Valves.** All valves which must pass the design discharge should be equal to the size of pipe, but shall not be smaller than the size recommended by the manufacturer. The manufacturer's performance data and specifications for valves shall be provided to the responsible NRCS technician by the contractor (vendor) when requested. The valves shall be type and of the material specified. Valves shall be installed according to manufacturer's recommendations to withstand the maximum design working pressure without damage, or leakage.

**Injectors (Chemical, Fertilizer or Pesticides) and Automatic Operating Equipment (Timer).**

Where automatic equipment or injectors (chemical, fertilizer, pesticide) has been planned for the system, it shall be located adjacent to the pump and power unit and placed in accordance with manufacturer's recommendation. Back-flow prevention devices shall be provided, as required by state law, when chemicals are injected.

**POLLUTION CONTROL**

There may be potential for soil erosion during construction. Construction operations shall be carried out so that erosion and air and water pollution are minimized and held within legal limits.

**TESTING THE SYSTEM**

The system shall be thoroughly and completely tested at the design pressure for strength, proper functioning, and leakage. Any leaks shall be repaired and the system retested.

During the initial start up after the system has been installed, the manifold and lateral lines shall be flushed for a sufficient time to remove any sediment or foreign material from each line prior to the placement of end plugs.

The system shall be tested to ensure that it functions properly at design capacity, and that the variation in pressure or discharge rate is within the allowable range specified. There shall be no objectionable flow conditions at or below design capacity and all appurtenances shall perform properly.