

**Natural Resources Conservation Service
Construction Specification**

**IRRIGATION WATER CONVEYANCE
(Ft.)
CODE 430**

Materials Specifications

Unless specified otherwise on the design, pipe shall be Schedule 40, 80 psi, PVC.

Quality of Plastic Pipe. The compound used in manufacturing the pipe shall meet the requirements of one of the following materials:

1. Polyvinyl chloride (PVC) as specified in ASTM D 1784 for Type I, Grade 1 or Type I, Grade 2 or Type II, Grade 1.
2. Acrylonitrile-butadiene-styrene (ABS) as specified in ASTM D 1788 for Type I, Grade 2 or Type I, Grade 3 or Type II, Grade 1.
3. Polyethylene (PE) as specified in ASTM D 1248 for Grade P14, Class C or Grade P23, Class C or Grade P33, Class C or Grade P34, Class C.

Pipe shall have a maximum standard dimension ratio (SDR) of 51. Iron pipe size (IPS) plastic pipe and I.D. controlled PE pipe meeting one of the following ASTM specifications are acceptable under this Practice Standard.

ASTM SPECIFICATION

- D 1785 Polyvinyl Chloride Plastic Pipe, Schedule 40, 80 and 120
- D 2241 Polyvinyl Chloride Pressure Rated Pipe
- D 2672 Joints for IPS PVC Pipe Using Solvent Cement
- D 2740 Polyvinyl Chloride Plastic Tubing
- D 1527 Acrylonitrile-Butadiene-Styrene Plastic Pipe, Schedules 40 and 80
- D 2282 Acrylonitrile-Butadiene-Styrene Plastic Pipe
- D2104 Polyethylene Plastic Pipe, Schedule 40
- D 2239 Polyethylene Plastic Pipe Based on Controlled Inside Diameter
- D 2447 Polyethylene Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter
- D 2737 Polyethylene Plastic Tubing
- D 3035 Polyethylene Plastic Pipe Based on Controlled Outside Diameter
- F 771 Polyethylene Thermoplastic High-Pressure Irrigation Pipeline Systems

Plastic irrigation pipe (PIP) installed under this specification shall be classified as low-head irrigation pipe meeting the requirements of ASTM D 2241 or of ASTM D 2282 except that:

1. The outside diameters, wall thicknesses and tolerances in ASAE S376.1 "Design Installation and Performance of Underground, Thermoplastic Irrigation Pipe" shall apply.
2. The minimum burst pressure requirements for water at 23 degrees C for PVC 1120 and 1220 plastic pipe, SDR 51 is 260 lb/in² and for ABS plastic pipe SDR 32.5 and SDR 41 is 380 and 300 lb/in².

Plastic pipe shall be marked with nominal pipe size (for example 10 in), applicable material designation code (for example PVC 1120), pressure rating for water at 23 degrees C (50 ft head or 22 psi, 50 psi or 63 psi), specification designation with which the pipe complies and manufacturer's name or trademark.

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

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Certification and Guarantee

The installing contractor shall furnish the NRCS a copy of their certification and guarantee, which will be made a part of the supporting records of the pipeline.

Surge Chambers/Doglegs to accommodate flowmeters

New pumpstands and doglegs will be designed and installed to accommodate the installation of a flowmeter.

Generic Installation:

A section of straight pipe will be installed downstream of the check valve. This section of pipe will be a minimum distance of 8 times the diameter of the pump discharge (D). Downstream of this section the line must rise a minimum of 1 pipe diameter. An air vent will be placed at the top of this rise or higher.

Downstream of this point the line will enter a surge chamber or dogleg (for a dogleg, the line diameter expands at this point to the underground line pipe size) with appropriately positioned pressure relief and air vents. Refer to design of pumpstand/dogleg.

Flowmeter Specific Installation:

The above generic installation may be modified to the specific flowmeter manufacturer's recommendation for installation (copy must be provided to NRCS), e.g. installation with flow straightening vanes.

Doglegs/Z-pipes will be constructed of Schedule 40 PVC or steel.