Practice Specification
Livestock Pipeline (Code 516)

1. Scope

The work must consist of furnishing and installing the pipe, fittings and appurtenances as specified.

2. Location

1. The pipeline must be located as shown on the drawings or as staked in the field.
2. Locate any trough installed in conjunction with a new livestock pipeline at least 100 feet away from wells, streams, ponds, or riparian areas to minimize chance of contamination from fecal contamination or surface pollution.

3. Public and Private Utilities

1. Utilities are defined to be overhead and underground power or communication lines, and pipelines. The contractor should conduct their own search and discovery for utilities in order to lessen or avoid potential damages. Other buried infrastructure, such as landowner-installed drainage tile, private water lines, or electrical lines, are the responsibility of the landowner to locate. The owner/operator shall complete TX-ENG-80A, Utilities Inventory, during planning and return it to the NRCS representative.
2. The owner/operator shall also ensure that TX-ENG-80B, Cooperator Confirmation of the Utility Locator Service, is completed and returned to the NRCS representative prior to layout or any ground disturbance.
3. Cooperators, sponsoring organizations, and/or contractors shall be liable for damage to utilities and damage resulting from disruption of service caused by installation activities. The Natural Resources Conservation Service (NRCS) makes no representation on the existence or non-existence of any utilities. Absence of utilities on drawings is not assurance that no utilities are present at the site.

4. Quality Control

Quality control of all materials and construction procedures is the responsibility of the landowner and contractor. NRCS will make periodic review(s) of the work for the benefit of the agency which will include the final construction check.

5. Materials

All materials used in the pipeline installation shall be new and meet the following requirements:

1. Pipe
   a. Steel Pipe must meet the requirements of ASTM specification A-53 or AWWA Specification C-200. Steel pipe and fittings must be zinc coated (galvanized) in accordance with ASTM A-53.
   b. Plastic Pipe must comply with one of the following specifications:

Pipe Material	ASTM
PE	D2239 Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter. D3035 Standard Specification for Polyethylene (PE) Plastic Pipe (DR- PR) Based on Controlled Outside Diameter. D2737 Standard Specification for Polyethylene (PE) Plastic Tubing.
PVC	D1785 Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120. D2241 Standard Specification for Poly Vinyl Chloride (PVC) Pressure Rated Pipe (SDR Series).

c. Plastic pipe must be marked in accordance with the above standards or ASTM Specifications and must include the following:
   i. Nominal pipe size; e.g., 2”.
   ii. Type of plastic pipe material in accordance with Standard Thermo-plastic Pipe Materials Designation.
   iii. Code; e.g., PVC 1120.
   iv. Pressure rating in psi; e.g., 160 psi.
   v. Standard of ASTM designation with which the pipe complies; e.g., ASTM D-2241.
   vi. Manufacturer’s name or trademark.

2. Joints
   Watertight joints having strength equal to that of the pipe must be used. Couplers must be of similar material or completely insulated from galvanic corrosion. Manufacturer’s installation specifications must be followed.

3. Appurtenances
   All valves and appurtenances must be of adequate capacity and suitable quality to withstand the design pressures and must be installed in accordance with the manufacturer’s recommendations.

4. Pressure Relief Valves
   Valves must be no smaller than ¼ inch nominal valve size per inch of the nominal pipeline diameter and must be set at a maximum of 5 psi above the pressure rating of the pipe.

5. Air Vents
   The minimum size of ARV’s must be of 0.1 inch nominal valve size per inch of the nominal pipeline diameter.

6. Placement

1. Pipe must be laid to the line and grade shown on the drawings or as staked in the field. Abrupt changes in grade must be avoided to prevent rupture of the pipe. Pipe must be placed in a “snake-like” position or as recommended by the manufacture.
2. Protect valves, controls, risers and pipe from damage by livestock, wildlife, freezing, and ice.
3. Trenches for plastic pipelines must be free of rocks and other sharp-edged materials or be bedded with material free of rock.
4. Pipe must be installed at sufficient depth below the ground surface to provide protection from hazards imposed by traffic crossings, farming operations, freezing temperatures, or soil cracking. The minimum depth of cover for pipe susceptible to any of these hazards must be:

Pipe Diameter (In.)	Depth of Cover (In.)
1 through 2-2/3	18
3 through 5	24
6 or more	30

   In areas where the pipe will not be susceptible to freezing and vehicular or cultivation hazards and the soils do not crack appreciably when dry, the minimum depth of cover may be reduced to:

Pipe Diameter (In.)	Depth of Cover (In.)
1 through 3	12
More than 3	18

5. In isolated locations where special circumstances prevent normal trenching without specialized equipment such as rock saws or use of explosives, the minimum depth of cover can be waived by a NRCS field engineer when other suitable pipe protection can be provided during the installation

of the pipe. Suitable pipeline protection for a surface or above ground pipe installation shall be one of the following:

a. Install 160 psi polyethylene (PE) and mound earthfill over the pipe to provide a minimum of 2-6 inches protective cover over the pipe. The PE pipe shall be installed in steel encasement pipe or equivalent at all vehicle crossings.

b. Install a minimum of 200 psi polyethylene (PE) pipe with no cover requirement. The maximum allowable working pressure for the pipe shall not exceed 50 percent of the pressure rating of the pipe. The PE pipe shall be installed in steel encasement pipe or equivalent at vehicle crossings. The pipeline shall be installed in a “snake-like” manner to allow for thermal expansion and contraction.

c. Install steel pipe.

7. Pressure-Testing

Pipelines must be pressure tested using the following method. Before backfilling, the pipe must be filled with water and tested at design working head or a minimum head of 10 feet, whichever is greater. All leaks must be repaired and the test repeated before backfilling starts.

8. Backfilling

1. Backfilling must be completed before the line is placed in service. For plastic pipe, the initial backfill must be of selected material, free from rocks or other sharp-edged material that would damage the pipe. This initial fill should he compacted around the pipe to a density at least equal to the natural density of the trench sidewalls. Deformation or displacement of the pipe must not occur during backfilling.
2. Backfill of plastic pipe should be done after the pipe reaches the same temperature as the water or soil. This may be done by filling the pipeline with water or by leaving the trench open overnight before backfilling.
3. Installation and backfilling must be done in a workmanlike manner. Provisions must be made for stabilizing disturbed areas and controlling erosion, as necessary.

9. Certification and Guarantee

1. The installing contractor must certify to the purchaser that the materials and installation comply with the requirements of these specifications. The contractor must furnish the purchaser a written guarantee against defective workmanship and materials to cover a period of not less than one year and must record on the guarantee the manufacturer’s name and markings of the plastic pipe used.
2. If steel pipe is used, the contractor must include with the guarantee a certificate or tag from the pipe vendor stating that the pipe and treatment meet the above steel pipe specifications.
3. The installing contractor must furnish the Natural Resources Conservation Service a copy of the certification and guarantee, which will be made a part of the supporting records of the pipeline. Owners who install their own pipeline must furnish for NRCS records manufacturer’s name and markings of plastic pipe or the vendor’s certificate referred to above for steel pipe.

10. Construction Details

1. Pipeline Length: _____ feet
2. Pipe Size: _____ inches
3. Pipe Material: _____
4. Pipeline Installation Method: _____
5. Pipeline Depth of Cover: _____
6. Type of Pipeline Joints: _____
7. ARV Locations/Stations: _____
8. Other Appurtenances: _____

11. Attachments

1. TX-ENG-80B, Cooperator Confirmation of the Utility Locator Service
2. Responsibilities for Conservation Systems Constructed with NRCS Technical Assistance .
3. Layout Map with Pipeline ID and Stations.
4. O&M Plan
5. Specific Site Requirements on the Following Page

The above practice specifications, attached specific site requirements, and the requirement for completion of a TX-ENG-80A and a TX-ENG-80B have been reviewed with me, and a copy of each was provided. I agree to install this practice in accordance with the above referenced documents.	
Owner/Operator Signature	Date

12. Specific Site Requirements

Reset