

CONSTRUCTION SPECIFICATION

VA-772. WATERING FACILITY

1. SCOPE

The work shall consist of constructing or installing troughs or reservoirs and appurtenances at the locations shown on the drawings or as directed by the NRCS or SWCD representative.

2. SITE PREPARATION

The site and immediately surrounding area shall be cleared of all trees, brush, weeds, loose rocks, loose or wet soils and other materials not suitable for the subgrade. All loose surface soil shall be removed to undisturbed material and the area shall be graded and smoothed to permit free drainage of surface water.

3. FOUNDATION PREPARATION

Troughs shall not be placed on fill material unless adequate measures are taken to prevent differential settling.

All loose soil shall be removed to undisturbed material and any low areas shall be backfilled with gravel or materials shown on the plans.

The foundation shall be compacted, if needed. When specified, the bedding materials shall be placed and spread to the thickness shown on the drawings.

Install pipes as shown on the drawing. The trench bottom and backfill material shall be free of rocks or other sharp-edged material that could damage the pipe. Backfill will be placed such that deformation or displacement of the pipes does not occur. The backfill material will be compacted to a density equivalent to the surrounding ground.

4. TYPES OF TROUGHS AND RESERVOIRS

Troughs and reservoirs may be constructed of concrete, steel, plastic, fiberglass, heavy equipment tires, or other approved materials.

The type of trough shall be shown on the drawings.

5. MATERIALS

- 1) The landowner is responsible for determining that heavy equipment tires have not been filled with materials that may cause a health concern for animals using the facility.
- 2) Concrete troughs shall have an inside taper from top to bottom. The largest dimension shall be at the top. The minimum thickness shall be 4 inches at any point on the sides and bottom.
- 3) All site-cast concrete shall be ready-mixed concrete (minimum 28 day compressive strength of 3000 psi), pre-bagged commercially available concrete mix, or site-mixed concrete. Air entrainment admixture shall be used to maintain air entrainment between 4% and 6%. Reinforcing steel, if required, shall be placed as shown on the drawings.

- 3) Troughs and reservoirs shall be approved by the NRCS or SWCD representative prior to installation.
- 4) Bedding materials shall be clean granular materials of the gradation shown on the drawings.
- 5) All materials used in installation of the trough or reservoir will be in good condition and shall meet the applicable ASTM or commercial specifications shown on the drawings.

6. APPURTENANCES

- 1) Piping – Pipes used for filling, operating, draining, and cleaning shall conform to the size and type as shown on the drawings and shall meet the requirements of Construction Specification VA-745 Plastic Pipe; or ASTM A-53 or AWWA C-220 for steel pipe.
- 2) Control devices - Automatic water level control and overflow facilities shall be installed as specified on the drawings.
- 3) Electric Heaters - Heaters shall be protected from disturbance from animals. All electrical supplies shall be equipped with a ground-fault circuit-interrupter (GFCI) located near the waterer for safety.
- 4) Fences - All fencing shall meet the requirements of Virginia Conservation Practice Standard *Fence (Code 382)*.
- 5) Anchor Pads - Anchor pads shall be installed with a level mounting surface for the trough and shall extend a minimum of 18 inches on all sides of the trough.

7. INSTALLATION

- 1) After the foundation as been prepared, and all pipes installed, the foundation shall be inspected by the NRCS or SWCD representative. The placement and installation of the trough shall conform to the manufacturer's recommendations.
- 2) Troughs that require anchoring will be secured as noted on the drawings, or as recommended by the manufacturer.
- 3) After the trough or reservoir has been installed, the earth surface and the gravel surface adjacent to the site shall be graded to convey surface runoff away from the site.
- 4) The water control devices will be adjusted for proper function of the trough.
- 5) Outlets for overflow, reservoir or trough drain, and foundation drain pipes shall be protected.

8. HEAVY USE AREA PROTECTION

Areas adjacent to the trough shall be graveled, paved or otherwise treated to provide firm footing and reduce erosion. The treated area will extend a minimum of 8 feet from all sides of the trough. Treatment will not be required if the native materials will provide firm footing and resist erosion. The treatment method shall be shown on the drawings or as approved by the NRCS or SWCD representative.

Where gravel is required, the minimum thickness will be 4 inches. The gradation of the gravel shall be as specified on the drawings. The gravel shall be placed over a Class I Nonwoven Geotextile as specified in Construction Specification VA-795, Geotextile.

Concrete shall conform to the requirements shown in Section 5. The minimum thickness shall be 5 inches. Concrete shall be placed on a 5" thick subbase of sand or gravel.

9. SEEDING

Areas that have been disturbed during construction and that have not been otherwise treated to prevent erosion, shall be prepared, fertilized, seeded and mulched in accordance with Construction Specification VA-706, Seeding.