

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS
STRUCTURE FOR WATER CONTROL

1. Scope

The work shall consist of all construction operations and furnishing all materials as required by the drawings and specifications for the complete installation of the works. All work shall be done in a workmanlike manner.

2. Location

The location of the structure shall be as shown on the drawings or as staked in the field.

3. Site Preparation

The foundation area shall be cleared of all topsoil, trees, logs, stumps, roots, boulders, sod, and rubbish. Channel banks and breaks shall be sloped no steeper than 1 horizontal to 1 vertical.

The foundation area will be thoroughly scarified to a minimum depth of 4 inches before placement of the fill material and moisture added, if necessary, so that the first layer of fill material can be bonded to the foundation.

4. Rock Riprap

The rock shall be dense, sound, and free from cracks, seams, or other defects conducive to accelerated weathering. The rock fragments shall be angular to sub-rounded in shape with the least dimensions not less than 1/3 the greatest dimension of the fragment.

The subgrade surfaces on which the riprap is to be placed shall be cut or filled and graded to the lines and grades shown on the plans. The rock shall be placed to the depths specified. The riprap shall be constructed to the fill course thickness in one operation and in such a manner as to avoid serious displacement of the underlying materials. The rock in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another and with the smaller rocks filling the voids.

Hand placing will be required to the extent necessary to prevent damage to any structure.

Gradation requirements of the rock riprap will be as shown on the plans or as specified in Section 11 of this specification.

5. Inline Water Level Control Structure

Plastic pipe conduits shall be manufactured from either polyvinyl chloride (PVC) materials or polyethylene (PE) materials. The water control structure shall be a pre-fabricated, watertight structure from a company normally engaged in the manufacture of such products.

Unless otherwise specified in Section 11 of this specification or shown on the drawings, the walls and floor of the structure shall have a minimum thickness of ½ inch. Unless otherwise specified in Section 11 of this specification or shown on the drawings, the structure shall have metal reinforced corners and a lockable top with grate.

Unless otherwise specified in Section 11 of this specification or shown on the drawings, the edges and bottom of the structure shall be sealed with waterproof caulking.

All pipe, fittings, gaskets, and prefabricated inline water level control structures shall conform to the requirements as specified in Section 11 of this specification or as shown on the drawings.

The inlet and outlet connectors of the structure shall be joined to the drawdown pipe with flexible sewer couplers. The structure shall be installed with the invert elevation as shown on the drawings or staked in the field.

An inline water level control structure constructed of suitable materials, other than PVC or PE, and providing similar flow characteristics may be substituted with the approval of the Contracting Officer's Representative.

6. Backfill of Drawdown Conduit

The material placed in the fill shall be free of sod, roots, frozen soil, stones over 2 inches in diameter, and other objectionable material.

Unless otherwise specified, initial backfill to 6 inches above the top of the conduit is required. Earth haunching and initial backfill material shall consist of soil material that is free of rocks, stones, or hard clods more than 1 inch in diameter. Coarse backfill material shall be the specified sand, gravel, crushed rock, or drainfill material.

Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6 inches above the top of the pipe.

The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The haunching backfill material shall be placed in layers that have a maximum thickness of about 6 inches and are compacted as specified in Section 11 of this specification or as shown on the drawings. During compaction operations, care shall be taken to ensure that the tamping or vibratory equipment does not come in contact with the pipe and the pipe is not deformed or displaced.

Final backfill shall consist of placing the remaining material required to complete the backfill from the top of the initial backfill to the ground surface, including mounding at the top of the trench. Final backfill material within 2 feet of the top of the pipe shall be free of debris or rocks larger than 3 inches nominal diameter. Coarse backfill material shall be the specified sand, gravel, crushed rock, or drainfill. Final backfill shall be placed in approximately uniform, compacted layers. Final backfill compaction requirements shall be as specified in Section 11 of this specification or as shown on the drawings.

Vehicles or construction equipment shall not be allowed to cross the pipe until the minimum earth cover and required density as specified in Section 11 of this specification has been obtained.

7. Backfill of Inline Water Level Control Structure

The material placed around the structure shall be free of sod, roots, frozen soil, stones over 2 inches in diameter, and other objectionable material.

Selected impervious backfill material shall be placed around the structure in layers not more than 4 inches thick before compaction, and each layer shall be thoroughly compacted by hand tamping, manually directed power tampers, or plate vibrators to the density of the surrounding material. The height of fill shall be increased at approximately the same rate on all sides of the structure. Heavy equipment shall not be operated within 2 feet of the structure.

The completed work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

8. Moisture Control

The moisture content at time of compaction shall be such that, when kneaded in the hand, a ball will form which does not separate readily

9. Compaction

The construction equipment shall be operated over the areas of each lift of earthfill in a way that will result in the required compaction. Special equipment will be used when the required compaction cannot be obtained without it.

10. Vegetation

A protective cover of vegetation shall be established on all exposed earth surfaces. Seedbed preparation, seeding, fertilizing, mulching, or other vegetation shall be as specified in Section 11 of this specification.

11. Construction Details