

**NATURAL RESOURCES CONSERVATION SERVICE**  
**CONSERVATION PRACTICE SPECIFICATION**

**DIKE (CLASS II & CLASS III)**  
**(feet)**  
**CODE 356**

### **SCOPE**

This specification covers the construction of Class II and Class III dikes. Construction shall be in accordance with the construction plans and these specifications.

### **INSTALLATION**

#### **Foundation Preparation**

The foundation area shall be cleared of all trees, stumps, roots, brush, boulders, sod, and debris. All channel banks and sharp breaks shall be sloped no steeper than 1:1. Topsoil which is high in organic matter shall be removed. The surface of the foundation area shall be thoroughly scarified before placement of the embankment material.

#### **Cutoff Trench**

The cutoff trench, when specified, shall be excavated to lines and grades as shown on the plans or as staked in the field. Backfill shall not be placed in the trench until the trench has been inspected and approved. It shall be backfilled with suitable material in a manner as specified for earth embankment. The necessary degree of compaction shall be obtained by using equipment adapted to site conditions. The trench shall be kept free of standing water during backfill operations. The material from the cutoff trench may be placed within the dike section.

#### **Conduit Installation**

The trench shall conform to lines and grades shown in the drawings. Trench excavation for installation of a conduit shall be made in original ground. Excavation in compacted fill may be allowed provided the bottom of the trench is at or near undisturbed foundation. Selected backfill material shall be placed in layers around the conduits and their component parts, and each successive layer shall be thoroughly compacted.

### **EMBANKMENT**

The embankment shall be constructed to the lines, grades, and cross sections shown on the drawings and/or as staked in the field.

#### **Material**

The sites of the borrow area shall be stripped to sufficient depth to remove all vegetation, roots, brush, sod and other objectionable material.

All fill material shall be only suitable material obtained from selected borrow areas. Fill materials shall contain no sod, brush, roots, or other perishable or unsuitable material. Cobbles and rock

fragments over six inches in diameter shall be removed from the material prior to compaction. The suitability of fill material shall be as determined by the Engineer.

### **Placement**

Placing and spreading of fill shall begin on the lowest point of the foundation. The fill shall be brought up approximately horizontal layers of approximate uniform thickness, preferably 6 inches thick.

Where the borrow yields materials of varying texture and gradation, the more impervious material shall be placed toward the water side of the dike. The construction equipment shall be operated over the area of each layer in a manner to break up large clods and obtain adequate compaction.

The distribution and gradation of materials throughout the fill shall have no lenses, pockets, streaks or layers of material differing substantially in texture or gradation from the surrounding material. The surface of the finished dike shall be graded smooth.

### **Moisture**

The moisture content of the fill material shall be adequate to obtain the required degree of compaction with the equipment used.

The proper moisture content will be determined by inspection during the placement operation. The soil should contain sufficient moisture so that the soil will maintain a ball shape when squeezed in the hand. Material that is too wet for proper compaction shall either be removed or allowed to dry prior to compaction.

Supplemental water, when required, may be applied by sprinkling the materials in the fill. Uniform distribution of the moisture shall be obtained by disking, blading, or other approved methods prior to compaction.

Dumped fill, where used, shall be placed in layers or deposited in a manner suitable to the equipment used and the material excavated. Shaping shall be done so as to break up lumps and clods of earth. Excessively wet material shall be placed to permit free drainage and shaped after it has drained. When the fill slumps due to wetness, the dike shall be constructed in stages.

### **Compaction**

Compaction shall meet the requirements of one of the methods described below.

Sheepsfoot roller - The maximum layer thickness shall be eight inches before compaction. The roller shall have staggered, uniformly spaced tamper feet and be equipped with suitable cleaners. The weight of the roller shall not be less than 2,500 pounds per foot of width. The maximum speed of the compaction equipment shall be three miles per hour. The entire surface of each layer placed should receive six passes of this equipment to obtain the necessary compaction. Adjustment in the number of passes may be necessary during construction.

Pneumatic tired equipment - The maximum layer thickness before compaction shall be six inches. A loaded carryall may be considered a pneumatic roller. The wheels of this equipment must pass over 90 percent of the surface of each lift before a new lift is placed.

Track laying equipment - (bulldozer) - The maximum layer thickness before compaction shall be four inches. The tracks of the equipment must pass over 90 percent of the surface of each lift before a new lift is placed.

Heavy compaction equipment shall not be operated within two feet of any structure. Hand directed tampers or compactors shall be used on areas not accessible to heavy compaction equipment, and within two feet of any structure. Fills compacted in this manner shall be placed in layer not greater than four inches in thickness before compaction, and shall meet the same density requirements as adjacent areas.

Compliance with compaction requirements will be determined by observation of performance. Fill not meeting the specified requirements shall be reworked or removed and replaced with acceptable fill.

### **BASIS OF ACCEPTANCE**

The acceptability of this practice shall be determined by inspections to insure compliance with all the provisions of this specification and to the drawings.

### **WORKMANSHIP**

All construction shall be performed in a workmanlike manner, and the job site shall have a neat appearance when finished.

All disturbed areas not graveled or paved will be vegetated to control erosion.

### **CONSTRUCTION OPERATIONS**

Construction operations shall be carried out in such a manner and sequence that erosion and air and water pollution are minimized and held within legal limits.

The owner, operator, contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

### **SAFETY**

Landowners or operators, sponsoring organizations, and contractors shall be liable for damage to utilities and damage resulting from disruption of service caused by construction activities. The Natural Resources Conservation Service makes no representation on the existence or non-existence of any utilities. Absence of utilities on the drawings is not assurance that no utilities are present at the site.

It is the responsibility of the landowner or operator to determine if there are buried or overhead utilities in the vicinity of the proposed work. They should take proper procedures to insure that the utilities shall not be jeopardized and that equipment operators and others will not be injured during construction operations.