

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION**

**POND
CODE 378**

EMBANKMENT POND SPECIFICATIONS

FOUNDATION PREPARATION

The foundation area of the embankment shall be cleared and grubbed of trees, logs, stumps, roots, brush, boulders, sod, and rubbish. If needed to establish vegetation, the topsoil and sod shall be stockpiled and spread on the completed dam and spillways. Foundation surfaces shall be sloped no steeper than 1 horizontal to 1 vertical. If necessary, the foundation area shall be roughly shaped and compacted before the placement of the fill material. The contact surface shall be thoroughly scarified and moisture added as needed so that the first layer of fill material will be properly bonded to the foundation when compacted.

The cutoff trench and any other required excavations shall be dug to the lines and grades shown on the drawings or as staked in the field. If they are suitable, excavated materials shall be used in the permanent fill.

Existing stream channels in the foundation area shall be sloped no steeper than 1:1 and deepened and widened as necessary to remove all stones, gravel, sand, stumps, roots, and other objectionable material and to accommodate compaction equipment.

Foundation areas shall be kept free of standing water when fill is being placed on them.

FILL PLACEMENT

The material placed in the fill shall be free of sod, roots, frozen soil, stones more than 6 inches in diameter (except for rock fills), and other objectionable material.

Drain fill shall be kept from being contaminated by adjacent soil materials during placement by either placing it in a cleanly excavated trench or by keeping the top of the drain fill at least one foot in elevation above the adjacent earth fill.

Selected backfill material shall be placed around structures, pipe conduits, and anti-seep collars at about the same rate on all sides to prevent damage from unequal loading.

The placing and spreading of fill material shall be started at the lowest point of the foundation and the fill brought up in layers of such thickness that the required compaction can be obtained. The fill shall be constructed in continuous horizontal layers except where openings or sectionalized fills are required. In those cases, the slope of the bonding surfaces between the embankment shall not be steeper than 3 horizontal to 1 vertical. The bonding surface shall be treated the same as that specified for the foundation so as to insure a good bond with the new fill.

The distribution and gradation of materials shall be such that no lenses, pockets, streaks, or layers of material differ substantially in texture or gradation from the surrounding material. When materials of varying texture and gradation are used, the more impervious materials shall be placed in the center and upstream parts of the fill. If zoned fills are specified, the zones shall be placed according to lines and grades shown on the drawings. The completed work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

MOISTURE CONTENT

The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and be mixed until the requirement is met. It is generally preferred to use material slightly wetter than optimum than drier than optimum.

COMPACTION

Construction equipment shall be operated over all areas of each layer of fill to insure that the required compaction is obtained. Special equipment shall be used if needed to obtain the required compaction.

If a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain the density. It is recommended that a sheepsfoot (tamping) roller be used when the backfill has a high clay content.

Fill adjacent to structures, pipe conduits, drain fill or anti-seep collars, shall be carefully compacted to a

density equivalent that of the surrounding fill by handtamping, manually directed power tampers or plate vibrators. Over compaction that may raise the pipe conduit or make the fill brittle can be just as harmful as under compaction. It is especially important to have adequate moisture in the soil surrounding the pipe conduit when compaction takes place. Fill adjacent to concrete shall not be compacted until the concrete is strong enough to support the load, normally three days.

PROTECTION

A protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, and borrow area if soil conditions permit. If soil conditions at the time the dam is completed preclude the use of vegetation and protection is needed, nonvegetative means, such as mulches or gravel, should be used. In some places, temporary vegetation may be used until conditions permit establishment of permanent vegetation. The embankment and spillway shall be fenced if necessary to protect the vegetation.

Vegetation shall be established in compliance with Practice Code 342 – Critical Area Planting.

PRINCIPAL SPILLWAY

Pipe materials shall conform to specifications suitable for the intended purpose. Anti-seep collars, when used, shall be of materials compatible with that of the pipe and shall be installed so that they are watertight. The pipe shall be installed according to the manufacturer's instructions. The pipe shall be firmly and uniformly bedded throughout its length and shall

be installed to the lines and grades shown on the drawings.

CONCRETE

The mix design and testing of concrete shall be consistent with the size and requirements of the job. Mix requirements or necessary strength shall be specified. The type of cement, air entrainment, slump, aggregate, or other properties shall be specified if necessary. All concrete is to consist of a workable mix that can be placed and finished in an acceptable manner. Necessary curing shall be specified. Reinforcing steel shall be placed as indicated on the plans and shall be

held securely in place during placement. Subgrades and forms shall be installed to the lines and grades shown on the drawings, and the forms shall be mortar tight and unyielding as the concrete is placed.

FOUNDATION, EMBANKMENT DRAINS AND DRAINAGE DIAPHRAGMS

Foundation drains, embankment drains, and drainage diaphragms, if required, shall be placed to the lines and grades shown on the drawings. Detailed requirements for drain material and any required pipe shall be shown on the drawings.