

CONSTRUCTION SPECIFICATIONS

MI-181. WATER AND SEDIMENT CONTROL BASIN

1. SCOPE

The work shall consist of constructing water and sediment control basins as shown on the drawings and/or at locations as directed by the NRCS inspector.

2. MATERIAL

- a. The earth material used in constructing the basin shall be obtained from the basin channel, designated borrow areas or other excavation.
- b. Fill material shall contain no frozen particles, rock particles greater than 6 inches (150 mm) in diameter, sod, brush or other objectionable material.
- c. The fill material shall have a moisture content sufficient to secure compaction. When kneaded in the hand, it will form a ball which does not readily separate when struck sharply with a pencil and will not extrude out of the hand when squeezed tightly.

3. FOUNDATION PREPARATION

The base area of the embankment sections shall be stripped of unsuitable material and scarified prior to placing fill. Available topsoil shall be salvaged and stockpiled for later spreading.

4. PLACEMENT AND COMPACTION

- a. Fill material shall not be placed on frozen soil.
- b. The distribution of materials throughout the fill shall be such that there will be no lenses, pockets, streaks or layers of materials differing substantially in texture or gradation from surrounding materials.
- c. The methods of compaction listed below are intended to achieve at least 90 percent of the maximum density as determined by the Standard Proctor Test, ASTM D 698. All fill materials shall be placed and spread in layers not over 9 inches thick before compaction. Fill materials adjacent to structures shall be placed and spread in layers not over 4 inches (100 mm) thick before compaction. Each layer shall be compacted by traversing the entire surface using one of the following methods:
 - 1) Tamping (Sheepsfoot) Roller - Minimum of 4 passes with contact pressure of at least 100 pounds per square inch (70 kPa), towed at speeds not exceeding 5 miles per hour (8 km/h).
 - 2) Pneumatic (Rubber Tire) Roller - Minimum of 4 passes with a wheel load of at least 18,000 pounds and a tire pressure of 80 psi (560 kPa), towed at speeds not exceeding 5 mph (8 km/h).
 - 3) Loaded Earth Moving Equipment - Minimum of 4 passes with a wheel load of at least 10 psi (70 kPa), towed at speeds not exceeding 5 mph (8 km/h). The following limitations apply to this method:
 - (1) Fill height shall be less than 6 feet (1.8 m).
 - (2) Fill shall not have permanent water stored against it.
 - 4) Wheel Type Tractor (Farm Tractor) - Minimum of 4 passes with a wheel type tractor (minimum 100 horsepower (75 kW) exerting a pressure of not less than 10 psi (70 kPa). Tractor speeds shall not exceed 5 mph (8 km/h) during compaction process. The following limitations apply to this method:

- (1) Fill height shall be less than 6 feet (1.8 m).
- (2) Fill shall not have permanent water stored against it.

- 5) Track Type Tractor (Crawler, Bulldozer) - Minimum of 4 passes with a track type tractor exerting a pressure of not less than 8 psi (56 kPa). Tractor speeds shall not exceed 5 mph (8 km/h) during compaction process. The following limitations apply to this method:

- (1) Maximum loose lift thickness of 6 inches (150 mm). Stones larger than 3 inches (75 mm) in diameter shall be removed prior to compaction.
- (2) Fill height shall be less than 6 feet (1.8 m).
- (3) Fill shall not have permanent water stored against it.

5. EXCAVATION

Excavation shall be to the lines and grades shown on the drawings. All surplus or unsuitable excavated materials shall be disposed of at the locations shown on the drawings or approved by the NRCS inspector.

6. OUTLETS

The type of outlet to be installed will be described on the drawings and/or specifications. Grassed waterway outlets shall be constructed as described in Specification MI-108, Grassed Waterway, and/or the drawings. Underground outlets shall be constructed as described by Specification MI-114, Subsurface Drainage Systems, and/or the drawings.

Trench excavation for installation of outlets under the basin embankment shall be done as described on the drawings or as follows:

Method A - For outlets installed at the same time as the basin embankment, the trench side slopes shall be a minimum of 1:1 and the bottom width shall be a minimum of 2 times the conduit diameter. The backfill under the basin embankment shall be hand tamped in successive layers of not more than 6 inches (150 mm) after compaction. Manually compact the fill up to the level of the original ground above the conduit or as specified on the drawings.

Method B - For outlets installed one year or more prior to the embankment construction, the trench will be excavated and backfilled in accordance with Specification MI-114, Subsurface Drainage Systems.

7. TOPSOIL SPREADING

Stockpiled topsoil shall be spread on the embankment slopes to a depth of not less than 4 inches (100 mm), unless otherwise approved by the NRCS inspector.

Spreading shall not be done when the ground or topsoil is frozen, excessively wet or otherwise in a condition detrimental to the work. After placement is complete, the topsoil shall be finished to a smooth surface.

8. SEEDING

Where required, the basin shall be prepared, fertilized, seeded and mulched in accordance with Specification MI-166, Seeding.