

TEMPORARY EROSION CONTROL -

Section 204

In accordance with Specification Subsection 107.14, the contractor shall protect the project and adjoining properties from soil erosion and siltation by effective and continuous erosion control methods. The area of bare soil exposed by construction operations shall be kept to a minimum. The contractor is also required to adhere to the requirements of Specification Subsection 107.15 for all projects.

The contractor shall install and maintain temporary erosion control to prevent sediment from escaping from the right-of-way. Erosion control features shall be in accordance with the Storm Water Pollution Control Plan in the plans as modified by the engineer to adapt to field conditions, as needed, and as otherwise directed by the engineer. **The intent of erosion control is to prevent sediment pollution of streams, lakes, tidal waters, reservoirs, canals, and other impoundments as a result of construction operations.**

EQUIPMENT

Equipment used to construct or install temporary erosion control measures shall be appropriate for the activity for which it is being used and shall be approved by the engineer prior to use. Equipment used for erosion control activities shall not be detrimental to any area of the project.

TEMPORARY SEEDING

Temporary seeding shall be performed in accordance with Specification Section 717, except that complete bed preparation may not be needed. It is to be noted that only rye grass is approved for winter cover. However, since even rye grass will not germinate at temperatures below 35°F (1.6°C), temporary grass must be planted early enough in the year to ensure germination and grass cover. . Rye will not grow below 55°F (13°C). Rye should be planted from September to November. Seeding for temporary grass cover should be completed prior to November. To ensure good cover, it is necessary to have adequate root structure and vegetative growth. From November to April, it is too late to plant grass to protect slopes from wintertime erosion. The recommended application rate for rye grass for temporary cover is 30-40 pounds per acre. It is possible to interseed other grasses with rye to provide continuous cover in late spring and summer when rye dies. When other grasses are interseeded with rye, it will be necessary to mow the rye grass in mid-spring to ensure the germination of other seeds. The use of perennial rye grass is not recommended, because it will regerminate each year and become a maintenance problem. Fertilizer is needed to ensure grass growth. Water must be adequate to ensure germination and growth. If rye or other grass is used as a nurse crop for permanent cover, complete bed preparation in accordance with Specification Section 717 will be required before the rye is planted. When temporary grass is to function as an erosion control measure for an extended time period, top dressing with an appropriate fertilizer will be required to maintain growth.

When temporary seeding is used as an erosion control measure late in the year, alternate measures should also be used to ensure that erosion control is in place, in the event the grass fails to develop adequate cover.

TEMPORARY MULCHING

Construction details for temporary mulching are published in Specification Section 716. Materials specifications for mulch and tacking agents are published in Specification Subsection 1018.19 and Section 1002 for emulsified asphalt. It is critical that the mulch be kept dry prior to application. If the mulch becomes wet, it cannot be applied properly. It is to be kept covered and stored in accordance with Specification Section 106.09. Mulch is used to slow the velocity of water flow, reduce the impact force of raindrops, and to provide moisture retention in seeded areas.

SANDBAGGING

Sandbags are to be stacked. Sandbags restrict the flow of water; therefore, they are to be used to direct the flow of water or to stop water flow. The length of time that sandbags will be effective as erosion control depends on the time it takes the bag itself to deteriorate or the area upstream of the bag to fill with soil.

BALED STRAW OR HAY

Baled straw or hay acts as a dam to water. When baled straw/hay is not properly installed, water will flow around or underneath the bales; therefore, it is necessary to bury straw/hay bales approximately four-six inches (100 - 150 mm). Water velocity can move unstaked straw/hay bales out of place. To ensure that they will remain in place, they must be firmly anchored with stakes in accordance with Specification Subsection 204.07. When sediment build-up occurs in front of the straw/hay bales, additional bales are not to be placed on top of the existing bales. A new row of straw/hay bales is to be constructed in front of the existing one, burying the new bales in the sediment build up. It is important to observe the effectiveness of straw/hay bales and to add additional bales prior to anticipated failure. Straw/hay bale barriers are to be used in minor swales or ditches; they are not to be used in live streams.

SLOPE DRAINS

Slope drains are used to channel water off the project to a proper discharge area. Slope drains direct the water down slope through a protected sluice, a ditch or channel that has been lined to protect the bottom from erosion. The most commonly used lining material is plastic sheeting; however, other materials may be used, including paving the sluice with concrete. Baffles are sometimes used in the sluice to slow the velocity of the water; the discharge area at the end of the drain must be protected from erosion. Slope drains are usually used in conjunction with an earth berm to collect water from the project and direct it into the slope drain.

SEDIMENT BASINS

A sediment basin is an artificially created pool that decreases the velocity of running water, allowing sediment to settle to the bottom of the pool. Sediment basins are often used in conjunction with check dams or silt fences. They are often dug at naturally occurring low places to ensure the collection of sediment. Sediment basins must be large enough to accommodate anticipated runoff from the drainage area. It may be necessary to use multiple basins, especially if the sediment basin is used alone. **Regular maintenance is the key to the proper functioning of a sediment basin.** Sediment must be removed from the basin before it reaches a height at which heavy or prolonged rain will cause the basin to overflow, carrying silt outside the basin. When maintaining a sediment basin, the contractor is to consider the accessibility of the surrounding terrain to equipment after rain. When heavy or prolonged rains occur, the surrounding area can often become too wet for cleaning equipment to maneuver. Therefore, the basin is to be cleaned prior to becoming too full under circumstances where cleaning is not practical.

SEDIMENT CHECK DAMS

Sediment check dams are usually constructed of hay/straw bales, sandbags or stone. They may be used in conjunction with a sediment basin. Check dams of hay/straw bales or sandbags are used to slow the velocity of a concentrated flow. Storm water will be held behind the check dam and sediment will be trapped. Check dams can also be constructed of brush and logs and encircled with a fence to keep the brush from being moved out of place by water flow. Such check dams will allow water to flow through while catching some sediment.

SILT FENCING

Silt fencing materials shall conform to Specification Subsection 204.03. Posts shall be installed a minimum of two feet into the ground. It is good practice to incline the posts slightly toward the direction of water flow to ensure that the force of water and sediment build-up forces the posts upright, not backward. It may be necessary to add additional posts and bracing to prevent the fence from being moved out of place. The bottom of the fencing should be buried about four inches (100 mm) to prevent sediment from washing under the fence. Silt fences often require a sediment basin in front to catch and slow water velocity before it reaches the fence. It is critical to the effectiveness of a silt fence that it be maintained properly. Holes in the fencing must be immediately repaired. The sediment basin must be cleaned at regular intervals and fence support checked and braced to ensure that runoff does not undermine or wash out the fence. The contour of the land must be taken into account when aligning a silt fence. The fence should be strung across the path of drainage to entirely block runoff. Wings can be constructed at each end to direct water and to prevent sediment from flowing around the ends of the fence. Silt fencing is not to be used in live streams.

BERMS

Earth berms can be used independently as check dams or to direct water off the project. They are often used in conjunction with slope drains. To protect the berm from eroding, it should be compacted to adequate density (85%) and be built of soils that do not erode easily. Sediment deposits adjacent to the berm must be checked and cleared regularly to prevent the water from flowing over the top of the berm.

TEMPORARY CONSTRUCTION ENTRANCE

Temporary construction entrances are used to reduce dust or mud generated by construction traffic as it enters or leaves construction sites. They are constructed of specified aggregate over geotextile fabric. The contractor must routinely maintain them due to the construction stresses to which they are subjected. Mud tracked on adjacent roadways is not to be allowed. A wash rack may be required to remove mud from tires before leaving the construction entrance.

QUALITY ASSURANCE

Erosion control is a very sensitive environmental issue involving the contractor, the department, the public, and a variety of other governmental agencies. Occasionally, the news media is involved.

Due to the nature of this construction activity, it is important to keep a complete and accurate record of all actions taken, all permits, all correspondence, and all agreements in a permanent file continuously available to authorized personnel.

Each requirement specified in the plans, contract, specifications, *Materials Sampling Manual*, Quality Control Plan, and agreements with other agencies shall be closely adhered to and carefully documented. The contractor and project engineer are to work in close unity in conforming to the quality intended in the performance of these construction activities.

The daily routine of checking erosion control devices shall be done promptly with any necessary corrections completed immediately. When severe weather threatens an extensive inventory of erosion control will be taken to ensure that any damage is minimized. When severe weather causes extensive damage to erosion control devices, the contractor will take immediate steps to correct damage and return the project to its initial state.