RC-03 RUNOFF CONVEYANCE MEASURES

1.0 Runoff Conveyance Measures

1.1 Description

Diversion dikes and berms (ridges of compacted soil) and diversion swales (excavated depressions) are used to divert upslope runoff from crossing areas where there is a high risk of erosion. Runoff conveyance structures may be used as temporary clean water diversions, temporary sediment laden diversions, or permanent clean water diversions. Runoff control measures can be either temporary or permanent storm water control structures.

Runoff conveyance measures are generally built around the perimeter of a construction site before any major disturbing activity takes place. When constructed along the upslope perimeter of a disturbed or high-risk area (though not necessarily all the way around it), clean water diversions prevent clear water runoff from flowing over unprotected down slope areas. Sediment laden diversions located on the downslope side of a disturbed or high-risk area will prevent sediment-laden runoff from leaving the site before sediment is properly removed. For short slopes, runoff control measures at the top of the slope reduce the amount of runoff reaching the disturbed area. For longer slopes, several dikes or swales are placed across the slope at intervals. This practice reduces the amount of runoff that accumulates on the face of the slope and carries the runoff safely down the slope. In all cases, runoff is guided to sediment trapping area or a stabilized outfall before release.

1.2 Design

Runoff conveyance measures are used in areas of overland flow. Runoff channeled by diversion dikes or swales should be directed to an adequate sediment trapping structure or stabilized outfall. Care should be taken to provide enough channel slope for drainage but not too much slope to cause erosion due to high runoff flow velocities. Temporary runoff control measures may remain in place as long as 12 to 18 months (with proper stabilization). Diversion dikes or swales should remain in place until the area they were built to protect is permanently stabilized.

Permanent controls should be designed to handle runoff after construction is complete; should be permanently stabilized; and should be inspected and maintained on a regular basis.

1.3 Components

- 1.3.1 Diversion Dike and Berm Design Criteria
 - Top Width- 2 foot minimum.
 - Height of Dike or Berm- 1.5 foot minimum measured from upslope toe.
 - Side Slopes- 2H:1V or flatter.
 - Grade- Limited to grades between 0.5 percent and 1.0 percent.
 - Spacing

Percent Slope	< 5%	5% - 10%	10% - 40%
Horizontal Spacing (ft)	300	200	100

- Stabilization- Slopes shall be stabilized immediately using vegetation, sod, and erosion control blankets or turf reinforcement mats to prevent erosion.
- Outlet- The upslope side of the dike should provide positive drainage so no erosion occurs at the outlet. Provide energy dissipation measures as necessary. Sediment-laden runoff must be released through a sediment trapping facility.
- Other- Minimize construction traffic over diversion dikes and berms.
- 1.3.2 Diversion Swale Design Criteria
 - Bottom Width- 2 foot minimum, with a level bottom.
 - Depth- 1.5 foot minimum.
 - Side Slope- 2H:1V or flatter.
 - Grade- Maximum 5 percent, with positive drainage to a suitable outlet.
 - Stabilization- Stabilize with erosion control blankets or turf reinforcement mats immediately.
 - Spacing

Percent Slope	< 5%	5% - 10%	10% - 40%
Horizontal Spacing (ft)	300	200	100

- Outlet- Level spreader or riprap to stabilize outlet/sedimentation pond.
- Construction De-watering

Construction de-watering involves removing storm water or ground water from bore pits, trenches and other excavations on the construction site. Usually this removal involves the pumping of this water to an appropriate receiving area. Direct pumping to lakes, rivers, and streams is illegal and must be avoided.

1.4 Inspection and Maintenance

Inspect runoff control measures once every seven (7) calendar days and make all repairs as necessary. Damage caused by construction traffic or other activity must be repaired before the end of each working day.