

## **Section IV: BMP'S FOR RUNOFF DISPERSION**

### **Contents and Applicability**

#### **Best Management Practices (BMP's):**

- IV.1 Serrated Slopes.** Small steps on a slope face which are useful for providing favorable sites for establishment of vegetation and controlling runoff. This method is limited to soils that have medium to high cohesion properties.
- IV.2 Benched Slopes.** Large steps in a slope face useful for providing favorable sites for establishment of vegetation and controlling runoff. Benches can help stabilize large excessively steep slopes in highly cohesive material. This method is most applicable in newly constructed areas.
- IV.3 Level Spreader.** An outlet constructed, at zero grade, across a slope to help disperse concentrated runoff, allow for water infiltration, and allow sediment to settle out of the water.

## **BMP'S FOR RUNOFF DISPERSION**

### **IV.1 Serrated Slopes**

Serrating slopes involves cutting small (1-2 ft) horizontal steps in a hillside.

**Purpose:** Serration reduces slope lengths, breaks up and loosens soils so that seeds can take hold, and establishes favorable sites for revegetation and water infiltration.

**Specifications:**

**Serration (Scarifying):** These techniques work best on cohesive soils or soft rocks that can be excavated without ripping. Slopes must be gentle, preferably 2:1 or flatter.

1. Serrated slopes can be built with a dozer.
2. Serrations should be horizontal and should follow the contour of the slope.
3. Excavation of a series of serrated benches should be in opposite directions, from the top of the slope to the bottom, so that the build up of loose material at the end of the bench can be minimized.
4. Serrated/scarified ground should be seeded as soon as possible after the excavation work has been completed.

## **BMP'S FOR RUNOFF DISPERSION**

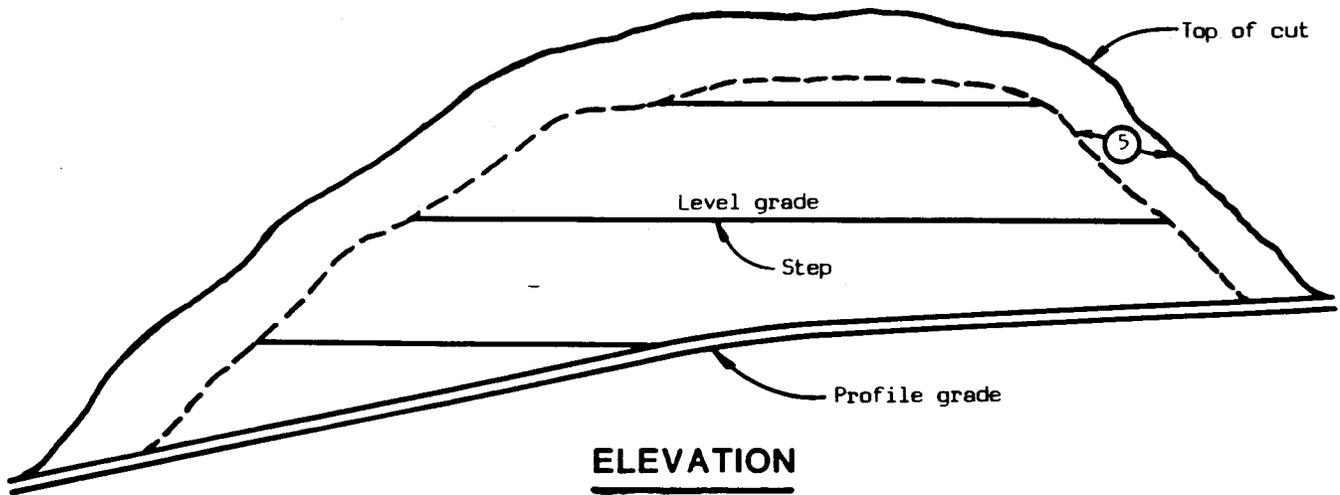
### **IV.2 Benched Slopes**

**Benching slopes involves constructing continuous horizontal benches on a slope to reduce slope lengths, enhance stability, and revegetative efforts.**

**Application:** Slope benching is applicable in new construction on cut slopes in soft rock that can be excavated by ripping. This method does not work well on cut slopes excavated in soft rock where the bedding lies perpendicular to the cut slope.

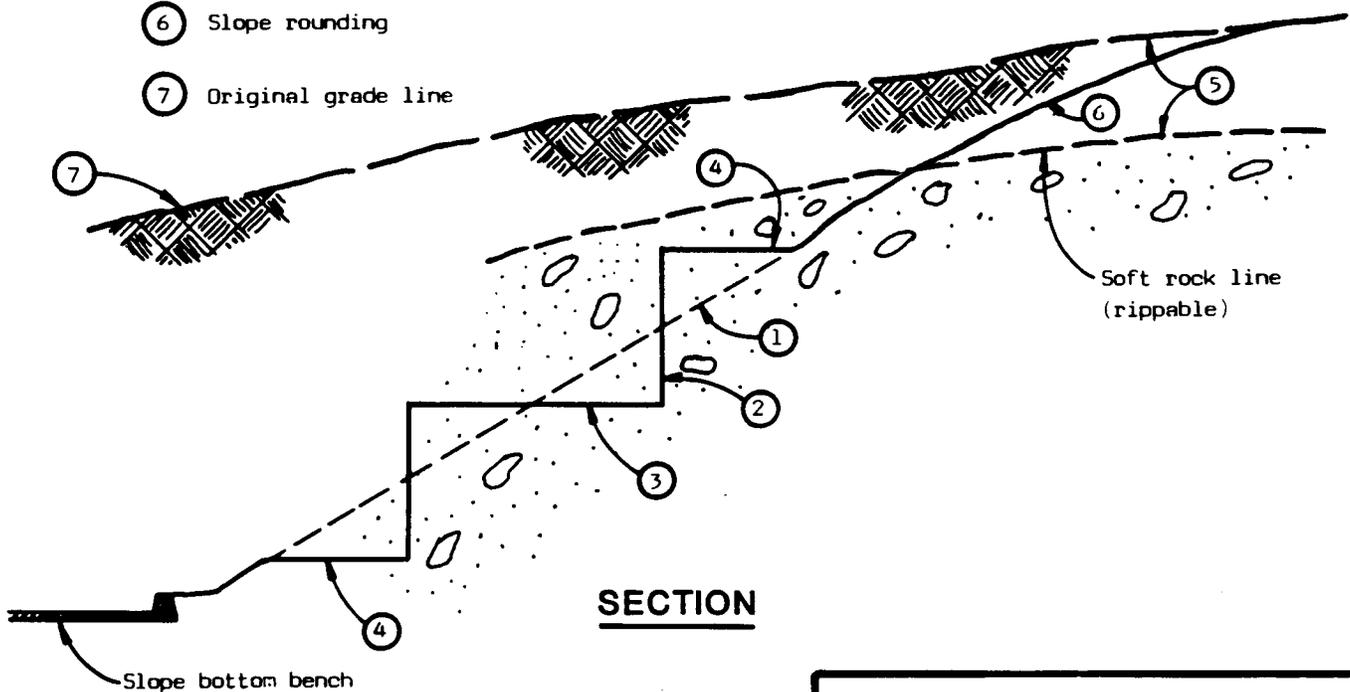
**Specifications:** (See Figure IV-2)

- 1. The vertical cut of the bench should be between two (2) feet and four (4) feet high.**
- 2. The vertical cut of the upper bench or terrace should begin immediately above the horizontal cut of the lower terrace.**
- 3. Benches should be horizontal. They should parallel the roadway or cut slope.**
- 4. Excavation of each bench should be in an opposite direction from the preceding one, from the top of the slope to the bottom, to reduce the build up of unconsolidated material at the end of the bench.**



**ELEVATION**

- ① Staked slope line
- ② Step rise height 2 - 20 feet; in soil 2 - 4 feet, in rock 2 - 20 feet
- ③ Step tread width = Slope ratio X step rise
- ④ Step termini width = 1/2 step tread
- ⑤ Overburden
- ⑥ Slope rounding
- ⑦ Original grade line



**SECTION**

## **BMP'S FOR RUNOFF DISPERSION**

### **IV.3 Level Spreaders**

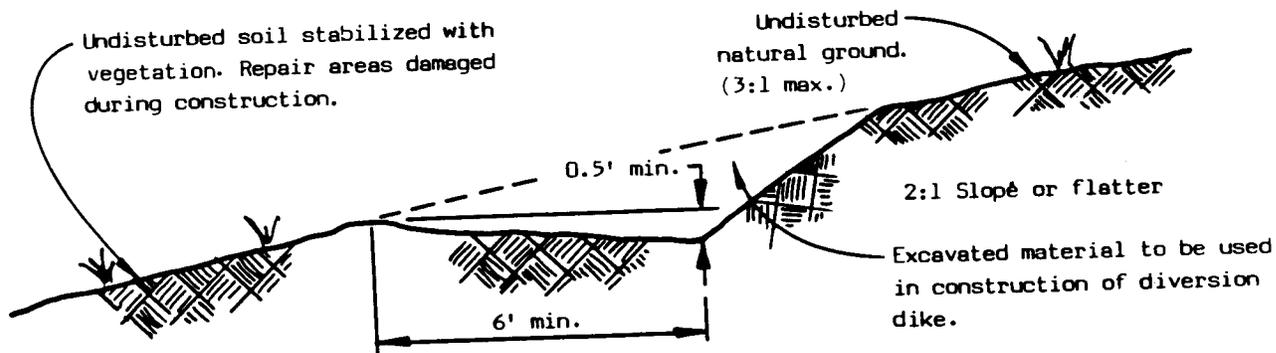
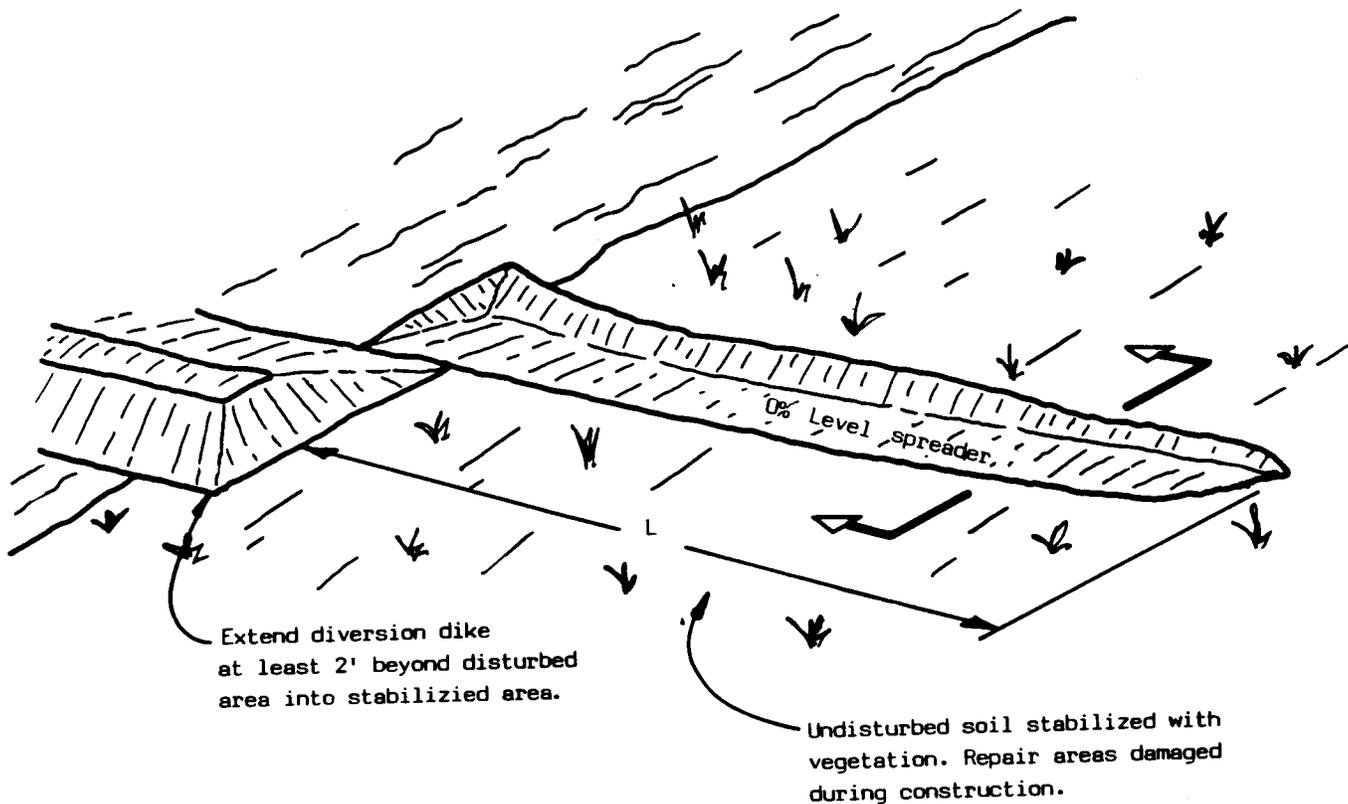
**Level spreaders are designed to disperse surface runoff over a wide, relatively flat area.**

**Purpose:** Runoff velocities can be reduced by using level spreaders. Reduced velocities lessen erosion, allow sediment to settle out of runoff water and enhance infiltration.

**Application:** Level spreaders can be used in locations where concentrated runoff from unvegetated ground needs to be controlled, the water velocities dissipated, and the water dispersed over a broad surface area.

**Specifications:** (See Figure IV-3)

1. Level spreaders should be constructed in undisturbed soil.
2. Length - The level spreader should be at least fifteen (15) feet long for every .10 cfs (cubic foot per second) discharge of water.
3. Width - A minimum of six (6) feet from the centerline to the outside edge of the level spreader.
4. Level spreaders should not be built on slopes steeper than 3:1 (approximately 33%).



**SECTION**