

**SECTION 68-CATCHWATER AND CUT-OF DRAINS**

1412. Intercepting, or catch water, ditches must be sited to cut off the high level drainages area from the road formation. Ditches should be an absolute minimum of 15 ft (preferably 60 ft) from the top edge of the bank of any cutting and should spill into natural watercourses or be led to relief points at culverts. General arrangement is shown in Figure 14.3.

1413. Longitudinal gradient should lie between 1 in 100 and 1 in 50; if steeper grades are unavoidable cascade drainage should be employed (see Figure 14.1) or check dams should be provided.

1414. In most types of ground the trapezoidal cross section has been found the best practical shape. In some types of soil the disturbance of vegetation may lead to instability and admit water to the subsoil: in such cases banks should be formed to divert water instead of cutting ditches.

**Excavation**

1415. Especially in mountain road construction, catch water drainage must keep well ahead of excavation of the formation.

1416. Hand excavation is often necessary as the work may be inaccessible to plant, and some hand labour is usually required for trimming and adjustment of levels. Blasting equipment should always be available to deal with rock outcrops.

1417. The most suitable machines, in order of preference, are:

- a. Ditching plough (medium crawler tractor)
- b. Dragline.
- c. Back acter.
- d. Bucket trencher.
- e. Face shovel (in emergency only).

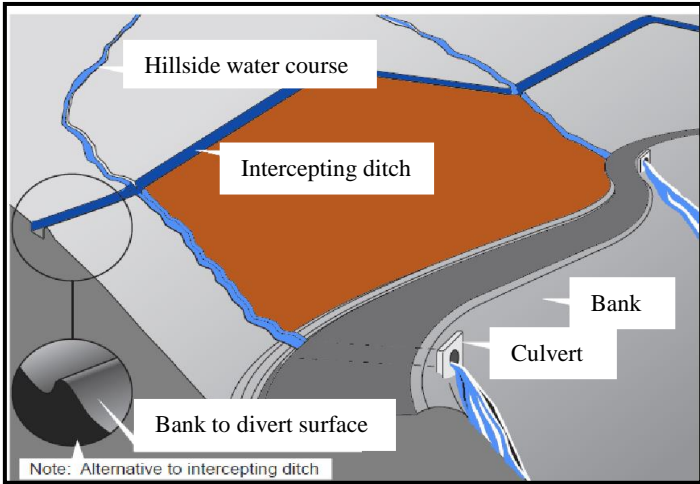


Figure 14-3: Intercepting Ditches

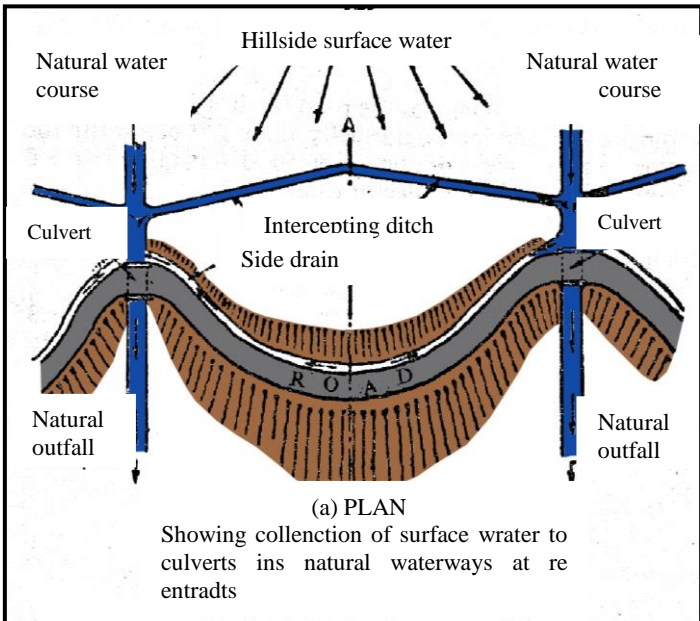


Figure 14-3 (a): Intercepting Ditches

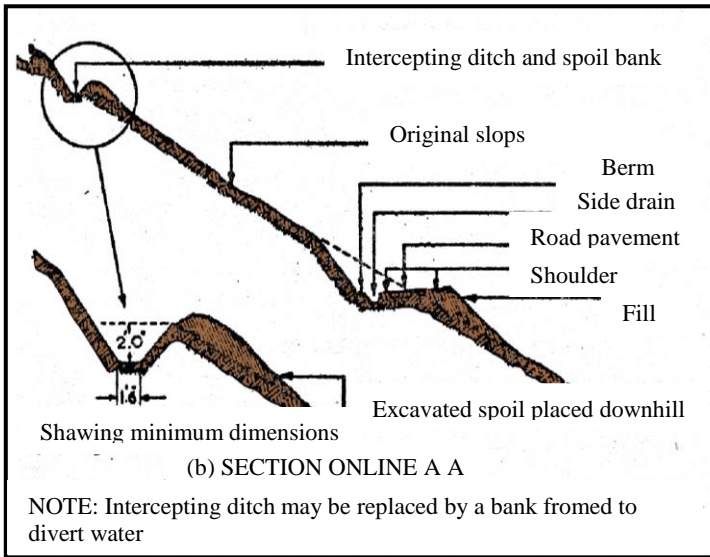


Figure 14-3 (b): Intercepting Ditches