SECTION 131 – IRISH BRIDGES, CAUSEWAYS, AND FORDS

Irish Bridges

2818. An Irish bridge is a dished paving or causeway, with an accentuated cross rail in its central portion (see Figure 28.11).

Irish bridges can be used to discharge periodic storm water if it is impracticable to build sufficient culverts e.g. on mountain roads. They can be used freely on tracks for pack animals, but for wheeled traffic they should be sited only in re-entrants, as at other points they will introduce undesirable negative camber.

Causeways

2819. In modern usage, a causeway is a road or railway on top of an embankment usually across a broad body of water or wetland.(Wikipedia)

2820. Uses. Causeways may be required:

a. Over unstable ground which is not liable to flooding.
b. Over firm ground which is liable to seasonal flooding.
c. Over soft or swampy ground which is also liable to flooding.
d. Across wide river beds, normally more or less dry, but subject to spates.

2821. Types. There are three distinct types:

a. Buried causeways, of which the top is at ground level.
b. Built-up causeways, resting on firm ground and having openings through them for the passage of water.
c. Causeways with a solid base below the surface of swampy ground, and with a superstructure to carry the road above normal flood level.

2822. Buried causeways. Suitable for unstable ground not liable to flooding, or when traffic delays during spate periods can be accepted. For hasty work it may suffice to tip and consolidate hardcore, or to provide a corduroy mat. Otherwise excavate down to firm subsoil and replace the spoil with hardcore or granular

material (see para 412 to 414). If scour is likely, masonry or concrete must be used (see Figure 28.12).

2823. Built-up causeways. Methods normally used for operational roads are dealt with in RESPB No 3, Section 63

For crossing wide stream beds of flat valleys subject to severe spates, special care is necessary in sitting and construction, to avoid scour and breaching of the structure. Points to remember are:

a. Locate the causeways across a wide, shallow stretch of the stream bed, to reduce the effect of restriction of the waterway.
b. Avoid bends, where secure and erosion are more likely.
c. Set the structure at right angles to the current.
d. Take foundations down to rock if possible, and in any case well below anticipated scour level.
e. Incorporate enough culverts to provide a waterway area sufficient to pass the full volume of flood water except in major spates.
f. Locate the main waterways exactly at true bed level, or silting will cause trouble.
g. Permit no superstructure above the roadway.

An example of hasty construction is shown in Figure 28.12.

Fords

2824. Fordable depths and methods of improving and marking fords are given is RESPB No 3, Section 59.

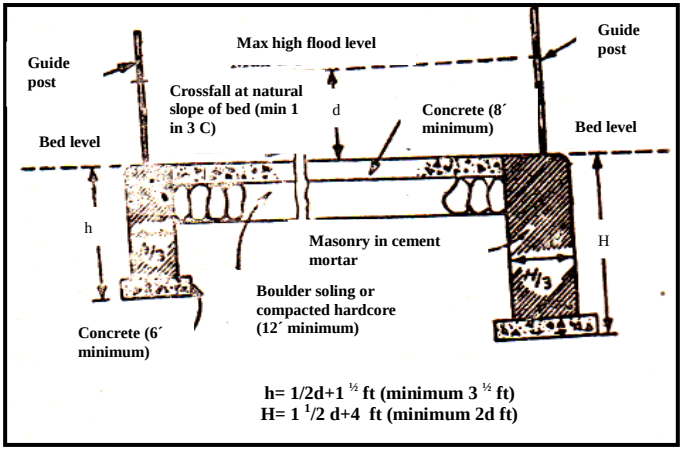

Figure 28-12: Basic design of a Masonry Causeways.

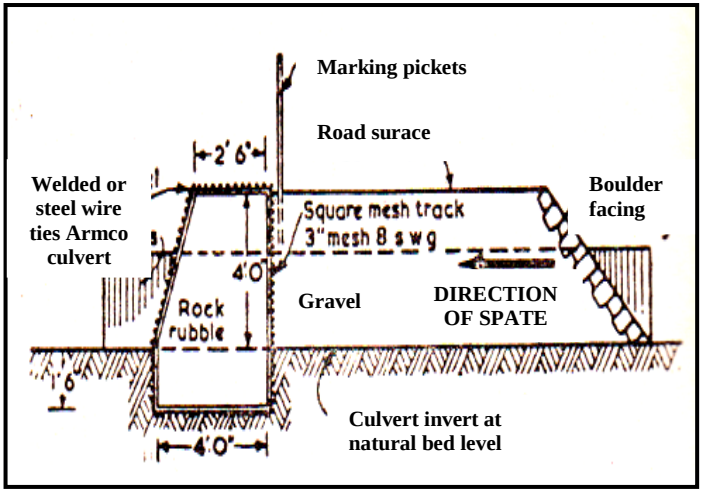

Figure 28-13: Temporary Raised Causeways Across a Flat Valley