

Chapter 7

Superficial Deposits

Classification and Distribution

Superficial sediments mostly occur in the low-lying ground and offshore areas, although mass wasting deposits are generally restricted to the higher ground, filling small valleys. Downslope, these deposits may have been reworked by fluvial processes, and the distinction between mass wasting deposits and alluvium is difficult to make. Many of the superficial deposits in the larger valleys have been disturbed by cultivation.

Alluvium

Alluvium covers the main valley floors within the district, and has been extensively cultivated and terraced. It consists of moderately to poorly sorted, yellowish brown gravel to coarse sand and intercalated fine sand and silt. The thickness of the deposits is not certain although on average it is about 8 metres thick in boreholes. Alluvium generally underlies marine mud in offshore boreholes and in those of the Ma On Shan reclamation. Onshore boreholes generally show coarser alluvial detritus than the offshore boreholes, indicating closer proximity to source.

Mass Wasting Deposits

Mass wasting deposits consist chiefly of colluvium and slope debris which have moved downslope during periods of high rainfall. Such deposits commonly form aprons on the middle to lower slopes of the higher ground and may grade into alluvium at the foot of shallow valleys. The colluvium comprises a structureless, silt, clay and sand matrix with embedded subangular fragments of weathered country rock. The colour of the matrix varies from yellowish brown, through brownish grey to pink; white kaolin streaks and spots are common. The rock fragments commonly have a weathered rind.

The main constituents of slope debris in the district are debris flow deposits. Significant thicknesses (up to 80 m) of these deposits have been encountered in boreholes of the Ma On Shan reclamation, where they immediately underlie the alluvial deposits. Elsewhere in the district, Pleistocene and Holocene mass wasting deposits infill the upper reaches of many valleys and blanket the hill slopes.

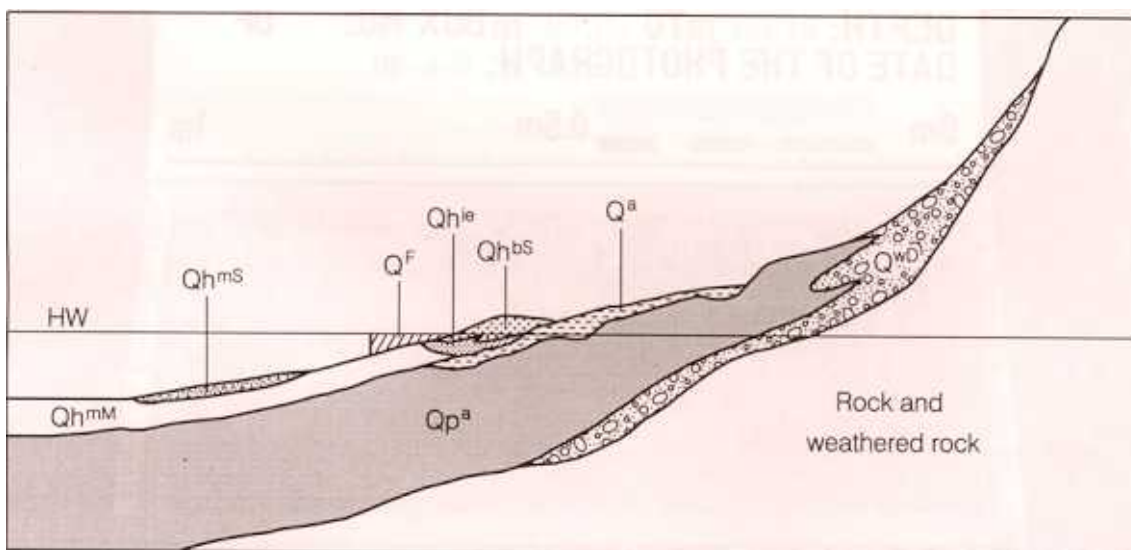


Figure 14 - Schematic Section Showing the Relationship between Superficial Deposits and the Different Environments of Deposition

Qp = Pleistocene; *Qh* = Holocene; *Q* = Quaternary (undivided);

a = alluvial; *b* = beach; *e* = estuarine; *i* = intertidal; *m* = marine, *f* = fill, *w* = waste;

D = debris; *S* = sand; *M* = mud; *HW* = high-water level

The debris flow deposits generally consist of boulder to cobble, yellowish brown, extremely poorly-sorted to unsorted, conglomerates. In many boreholes, however, mudstone and siltstone containing rounded pebbles and cobbles are also classified as debris flow deposits. Coloured debris flow deposits are commonly encountered overlying marble in boreholes on the northern edge of the Ma On Shan reclamation. They consist of reddish brown, purple, and yellow, silt and mud, often containing pebbles and cobbles (Plate 12). Significant thicknesses of debris flow material also occur as cavity infill within the Ma On Shan Formation marble (Plate 6). The debris flow deposits are usually weak to very weak in strength, although in some instances they have been cemented by precipitation of calcite. It is possible that some of the material described as debris flow in some boreholes is in fact weathered rock. Thicknesses of debris flow deposits vary from about 8 m to over 80 m within the fault zone (see Chapter 3).

Beach Deposits

Beach deposits within the district consist of both well-sorted and poorly-sorted sand and mud-rich deposits. Dunes are conspicuous on the east-facing beaches and provide natural barriers for the ponding of water.

Weathered Rock

Contour lines on the solid geology map show depth to rockhead which, in this report, is defined as the top of weathering Grade I. In general, the subsurface weathering of bedrock is deep but varies depending on the structure of the area and proximity to faults. On the steep hillsides, the rocks are generally weathered to Grade III to IV material

Fill

The Ma On Shan reclamation is formed of mixed granite and volcanic debris, together with other natural earth and waste. The material has been tipped on to the marine deposits and ranges in thickness from 10 to 20 m. .

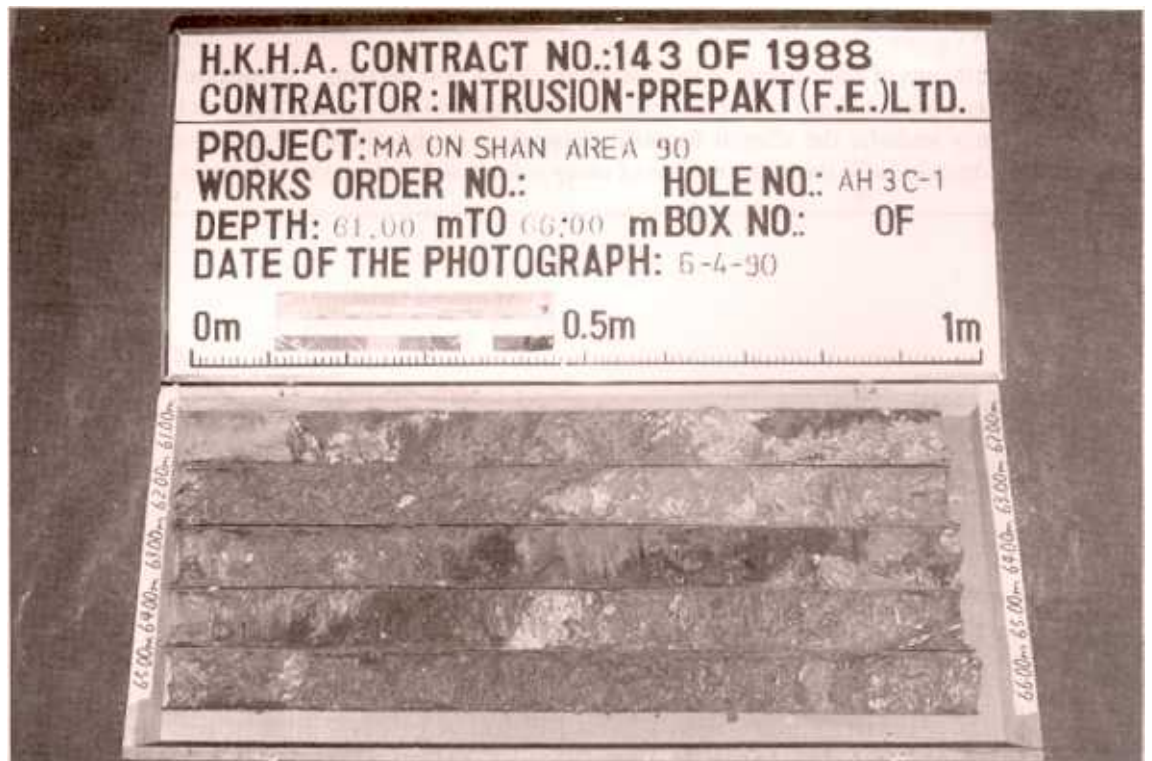


Plate 12 - Highly Decomposed Debris Flow Deposits Overlying Marble in a Borehole from the Ma On Shan Reclamation