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MODEL CLAUSES FOR CIVIL ENGINEERING WORKS

SECTION 201

SUBGRADE AND FORMATION WORKS

NOTES TO SPECIFIER:

These notes do not form part of the Specification.

Frost protection 201.1

In nearly all situations pavement materials within 450 mm of the finished road surface should be non-frost susceptible as required by Specification for Highway Works series 700 clauses. This requirement need not apply for footways.

Pavement design - foundations 201.2

The pavement foundation should be designed for construction traffic loading using the advice contained in the Highways Agency Design Manual for Roads and Bridges (DMRB) Volume 7, Section 2, Part 2. Failure to provide adequate foundations can lead to early pavement failure.

Weak areas of formation should be replaced by sub-base or capping, designed in accordance with DMRB Volume 7, Section 2, Part 2.

A weak subgrade can be improved and protected by placing a capping layer of relatively cheap material between it and sub-base. A capping layer with a laboratory CBR value of at least 15% should provide an adequate platform for constructing the sub-base although the Specification for Highway Works does not require a minimum CBR for the capping or sub-formation.

Capping is detailed in Section 201: Subgrade and Formation Works which, in turn, refers to the Specification for Highway Works Series 600 clauses. Two materials for capping are specified: 6F1 - a fine graded material and 6F2 - a coarser graded material. 6F2 is relatively free-draining and is thus more suitable for sites where there is a shallow water table.

When a sub-grade has a CBR below 2% it is unsuitable as a pavement foundation. In such cases the material, or as a minimum the top layer down to a level of between half to one metre, should be removed and replaced by more suitable material; but if the soil is cohesive, lime treatment might be an economic option. In either case, the Highways Agency requires that the improved subgrade is overlain by 600 mm of capping.

Another method for improving the upper layers of a reasonably permeable subgrade is to install a deeper than normal drainage system.

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