

**Performance Review -
Item 6(g)(ii) in Column B, Section 17(1) of the Buildings Ordinance**

Background

There is an inherent difficulty in forecasting the precise subsurface conditions from site investigation conducted before the carrying out of geotechnical works. Regular review and verification of the design assumptions are generally required for geotechnical works. In certain areas where the geology and the subsurface conditions are complex, it will be necessary to further require the submission of a properly documented performance review to ensure that the conditions encountered during and after works are not materially different from those assumed in the design. Also, in recent years, unconventional engineering schemes have become more common in private developments. These unprecedented designs need to be closely supervised and monitored during construction. Therefore, there is a need for a review to be carried out during the course of the construction to verify the geotechnical design assumption and to monitor the performance of the completed works for certain cases. Against this background, item 6(g) in Column B of Section 17(1) of the Buildings Ordinance (BO) requires a performance review in respect of certain works outside the scheduled areas.

Implementation

2. The BA may impose, as a condition of giving approval or consent to the commencement of building works, for specific sites the requirement for a performance review. Examples of sites where the requirement may be imposed are given in paragraph 3 below. Where a performance review is required, there should be sufficient demonstration that the building works have been adequately inspected and monitored in the course of construction and that the geotechnical design assumptions upon which the building works have been based are valid. It should also include a review of the ground conditions revealed during the course of construction, and contain evidence to demonstrate that any consequential changes in the design have been undertaken and plans suitably amended and approved. The performance review should be submitted to the satisfaction of the BA prior to application for an occupation permit or a temporary occupation permit, otherwise the application may be refused under section 21(6) (f) of the BO.

3. Sites where requirements for performance review will likely be imposed, in addition to sites in Area Numbers 1, 2, and 4 of the Scheduled Areas, are grouped in the following three categories:

(i) **Geological conditions need to be verified during construction**

This applies to developments on or adjacent to slopes which have a history of significant continuous ground movements either prior to or during the site formation stage. This also applies to sites where abnormal geological weakness (such as unfavourably oriented persistent layer of weak and relatively impermeable kaolinitic clay in altered or weathered rocks) has been identified.

(ii) **Groundwater regime will be adversely affected**

This applies to developments on sloping ground in which the groundwater regime is susceptible to damming effects of congested foundations below the groundwater level or cutoff by bored pile walls or diaphragm walls. Examples are developments downslope of Scheduled Area No.1 (the Mid-levels scheduled area), and developments in the hilly terrain of Hong Kong Island and the foothills of Kowloon.

(iii) **Unconventional design**

Examples include:

- Sites with retaining walls of retained height exceeding 15m or excavations in reclaimed land.
- Sites which rely on horizontal drains to achieve large drawdown of groundwater table in order to improve hillside stability or sites which rely on the installation of a permanent underground drainage system to effect groundwater drawdown to prevent buoyancy of a deep basement.
- Sites involving works the design of which has adopted technologies that have been developed locally or overseas and not tried in Hong Kong before. These works need to be carefully assessed and monitored to check if the performance is acceptable under local conditions.

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Index under : Performance Review