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For enquiries, please contact:  
Building Engineering Group (#12-01)  
Tel: 1800 342 5222 (1800-DIAL-BCA)  
or use our Online Feedback Form at:  
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To design QPs (circulation via bcc email)

Dear Sir/Madam

**REMINDER FOR DESIGN QUALIFIED PERSONS TO CARRY OUT SITE INVESTIGATIONS IN ACCORDANCE WITH THE BUILDING CONTROL REGULATIONS INCLUDING REGULATION 31**

**Objective**

This circular is to remind Design Qualified Persons (“**QPs**”) to comply with requirements stipulated in the Building Control Regulations (“**BC Regs**”), including the requirements under Regulation 31, EC7 Codes and GeoSS Guide on Ground Investigation, when conducting site investigation (“**SI**”) works for purposes of designing foundations, tunnels, site formation (including excavations) and earthworks.

**Reminder**

2 Under Regulation 31(1) of the BC Regs, the Design QP shall undertake an investigation of the site to establish the type and character of the ground and groundwater conditions on which foundations, tunnels, site formation (including excavations) or earthworks are to be constructed.

**Eurocode and GeoSS Guide**

3 We wish to remind the Design QP that under Regulation 31(2) of the BC Regs, the Design QP shall carry out proper and adequate site investigation in accordance with relevant standards and codes of practice and ensure that all site investigation works must be carried out by an accredited inspection body for Site Investigation approved by the Singapore Accreditation Council. The relevant standards and codes of practice refer to the Eurocode 7 Code (“**the Eurocode**”) and GeoSS Site Investigation Guide - “Guide on ground investigation and geotechnical characteristic values to EC7” (the “**GeoSS Site Investigation Guide**”). On the adequacy of investigation boreholes and other appropriate investigation means, in-situ field tests and laboratory tests, the Design QP shall comply with the GeoSS Site Investigation Guide. For projects with higher complexity, uncertainty or case specific requirements, the Design QP may carry out more extensive site investigation, beyond the requirements and recommendations in the relevant codes and GeoSS Site Investigation Guide, as he assesses to be adequate and appropriate.

### **Pertinent Points to Note**

4 Design QPs are expected to be familiar with code requirements. Nonetheless, there are a few pertinent non-exhaustive points that we wish to highlight in relation to the requirements for site investigations:

(i) Risks – The Design QP shall conduct adequate site investigation in accordance with the Eurocode. Particularly, site investigation shall be planned in such a way as to ensure that information and data shall be provided to cover risks of accidents, delay, and damage [Refer to the Eurocode Clause 2.1.1 (1) and (5)].

(ii) Terrain and extent of site investigation - For structures on or near slopes and steps in the terrain (including excavations), boreholes including those outside the project area shall be carried out so that both the local and overall stability of the slope or cut can be assessed [Refer to the Eurocode Clause 2.4.1.3(2)]. For building works such as retaining wall located within an existing sloping terrain, the Design QP is reminded to carry out overall stability check covering the entire slope profile and other stability checks [Refer to the Eurocode Clause 9.2(1), 11.4, 11.5].

(iii) Desk Study – The Design QP is required to conduct a desk study (e.g. making reference to documents and information such as Singapore Geological Map, walkover surveys, site visits, topographical surveys, historical land use, etc) to determine the site geology before planning and carrying out site investigation. The investigation methods and locating the various investigation points can then be determined to provide adequate and meaningful data, especially on the ground stratification and the ground water level. This will allow the Design QP to identify any potential unfavourable ground condition which he must consider in the design. From the results of the Desk Study, the Design QP should provide investigation points to verify changes in ground stratification at sites (e.g. near watercourses where alluvial deposits may be encountered, near the interface of two geological formations). [Refer to the Eurocode Clause 2.1.1(6)/(8)/(9), Clause 2.2(2), Clause 2.3(1)].

(iv) Number and depth – Clause 2.4.1.3 of the Eurocode and the GeoSS Site Investigation Guide provide guidance on the minimum number of boreholes and depth requirements. Additional boreholes and tests should be carried out where necessary.

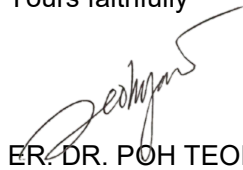
5 It is worth noting that British Standard BS5930:2015 also provides useful information on the requirements for site investigation. In particular, Section 2 Clause 10 states that:

“A robust ground model, which is then interrogated and developed through the whole investigation process, is critical to the success of a ground investigation. By identifying the uncertainties in the knowledge of the ground and groundwater conditions, sensible decisions can be made as to the need for further investigation, including additional intrusive investigation, examination of exposures within the construction or by monitoring of the structure during its construction and operation.”

**For Clarification**

6 We would appreciate if you could bring to the attention of your members the contents of this circular. Should you need clarification on this matter, you may call our hotline at 1800 342 5222, or use our Online Feedback Form at: <https://www.bca.gov.sg/feedbackform/>.

Yours faithfully



ER. DR. POH TEOH YAW  
BUILDING AND CONSTRUCTION AUTHORITY  
for COMMISSIONER OF BUILDING CONTROL