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Highways Department Technical Circular No. 4/2007

Quality Supervision and Assurance for Piling Works

Introduction

1. This circular sets out the detailed requirements for enhancing the site supervision and quality assurance of piling works in Highways Department. This circular supersedes HyDTC No. 2/2004, which is hereby cancelled.

Scope

2. This circular shall be applicable to all in-house contracts and consultant administered contracts of the Highways Department.

Effective date

3. This circular shall take immediate effect.

Supervision by site staff of appropriate ranks

4. To ensure proper supervision of piling works, it is important that site staffs of appropriate ranks are assigned

to supervise different stages of the piling works. The site staff establishment for piling works of each site should be determined by the Office Head on a case-by-case basis according to the scale and complexity of the piling works.

5. The Senior Engineer (or Senior Resident Engineer (SRE) or an equivalent staff from the consultant's office in case there is no SRE for consultant administered contract) responsible for the project shall prepare a site supervision plan which shall include the name and post of each staff appointed to supervise the piling works. Guidelines on the minimum levels of supervisory staff are given in the Appendix A to this circular. If, for any reason, the minimum requirements shown in the Appendix A cannot be met, approval of a D1 officer or above shall be sought.

6. Full records of supervision of the piling works, including, inter alia, names and posts of all staff concerned, periods of supervision and scope of responsibility shall be prepared and duly signed by all the staff concerned and be kept in safe custody for future reference.

#### Identification and security of samples extracted from drilling

7. Section 8 of General Specification for Civil Engineering Works (2006 Edition) specifies the requirements for pre-drilling and proof drilling. The site staff should check and make necessary enquiry to ensure that the drilling contractor is independent of the main contractor and/or the piling contractor. Correct identification and safe keeping of the samples extracted from pre-drilling, proof drilling, or other types of coring are important for the quality control of piling works. Site staff shall ensure that the samples extracted are properly identified, such as by signing immediately on the samples (or containers) when they are extracted, marking on them the levels below the ground from where they are taken, and taking photos of the sample boxes at the close of each drilling day. The samples shall be kept

under lock in the Engineer's site office. The duration of keeping the extracted samples would depend on the circumstances of each contract. Some guidelines on the keeping of extracted samples from ground investigation are given in Chapter 4 of the Project Administration Handbook. Normally, the samples extracted can be discarded after the logging records and photographs have been agreed by all relevant parties and the foundation works have been completed, unless there are disputes raised by the contractor regarding the levels of rock heads.

#### Identification of completed piles

8. All completed piles shall be clearly marked on site with proper reference numbers for identification purpose. A proper plan showing clearly the reference numbers of all piles shall be prepared and provided to all personnel, including laboratory technicians involved in pile testing for their reference.

#### Security arrangement for piles selected for static load test

9. After a completed pile is selected for static load test, the contractor will need to take a number of days or weeks for setting up the testing equipment. It is important to ensure that during this period, the pile will not be tampered with by any parties. Site staff should remain alert to any attempts to increase the load bearing capacity of the pile at this stage, such as re-driving or pre-loading the pile by the contractor. To reduce the risks of the tampering of the selected pile, appropriate measures, such as the following, shall be taken:

- (i) Immediately after a pile is selected for static load test, the top level of the pile shall be measured to the precision specified in the contract and agreed with the contractor.

(ii) A glass plate signed by the site supervisory staff shall be fixed on top of the pile to prevent any parties from tampering with the pile.

10. During the static load test, appropriate measures, such as sealing the removable parts of the dial gauges and load cells by wax seal marked with signatures and taking photos of the set-up, shall be taken to prevent any parties from tampering with the dial gauges and load cells.

Selection of test piles

11. The selection of piles for testing shall be subject to agreement by the Senior Engineer (or Senior Resident Engineer (SRE) or an equivalent staff from the consultant's office in case there is no SRE for consultant administered contract) or above and such agreement shall be properly recorded in the file.

(Original signed)

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Director of Highways