

## **SPECIFICATION SECTION 07250 - BORINGS FOR PILE BEARING CAPACITY**

### **TABLE OF CONTENTS**

1. DESCRIPTION.....	3
2. REFERENCE STANDARDS.....	3
3. SOIL INVESTIGATION BORINGS.....	3
3.1 General.....	3
3.2 Depth of Bores .....	3
3.3 Method of Boring .....	4
3.4 Sampling, Testing and Boring Logs .....	4
4. MEASUREMENT AND PAYMENT .....	5
4.1 Method of Measurement .....	5



## **SPECIFICATION SECTION 07250 - BORINGS FOR PILE BEARING CAPACITY**

### **1. DESCRIPTION**

This Specification Section prescribes the requirements and procedures for soil investigation in locations as may be required by the Engineer for information to confirm pile driving conditions or foundation bearing capacity.

### **2. REFERENCE STANDARDS**

The most recent edition of the following Standards shall be applied to the Works covered by this Specification Section.

Vietnamese Standard:

- |                |   |
|----------------|---|
| 22TCN 259-2000 | Specification for Geological Exploratory Drilling               |
| TCVN4195:2012  | Soil - Methods Laboratory of Determination of Specific Weight   |
| TCVN4202:2012  | Soil - Methods Laboratory of Determination of Volume Weight     |
| TCXD226-1999   | Standard Penetration Test                                       |
| TCVN2683-2012  | Soils - Sampling, Packing, Transportation and Curing of Samples |
| TCXD 205:1998  | Pile Foundation Specifications for Design                       |

International Standard:

- |               |   |
|---------------|---|
| ASTM D2166    | Unconfined Compressive Strength of Cohesive Soil                                      |
| ASTM D2487-06 | Classification of Soils for Engineering Purposes (Unified Soil Classification System) |

### **3. SOIL INVESTIGATION BORINGS**

#### **3.1 General**

The Contractor, upon the instruction of the Engineer, shall carry out drilling and sampling for soil investigations at locations, chosen by the Engineer, to obtain necessary subsurface data, information and/or samples.

The Contractor shall submit, for the approval of the Engineer, a method statement for geological investigation and proposed method for determination of pile bearing capacity in compliance with Vietnamese Standards or AASHTO/ASTM prior to boring for bearing capacity of bored piles.

#### **3.2 Depth of Bores**

Drilling with core recovery shall be taken to the depth required by the Engineer or as necessary to establish the required foundation information in according with Vietnamese Standard TCXD 205:1998. In the case of structural foundations the test drilling shall generally be sufficient to prove continuity of

the bearing strata.

The Engineer will request the Contractor to conduct SPT (Standard Penetration Test) at the pile tip level in a bored pile hole to confirm the bearing capacity of the bored pile on Site.

### **3.3 Method of Boring**

- a) The Contractor shall use rotary drilling as required in the standards referred to above unless otherwise approved by the Engineer.
- b) Rock cores, if required, shall be continuously drilled.

### **3.4 Sampling, Testing and Boring Logs**

#### **3.4.1 Sampling and Testing**

- a) Sampling shall be performed in accordance with the requirements of Vietnamese Standards 22TCN-259-2000 and TCVN 2683-2012. Sample tests shall comply with Vietnamese Standards: TCVN 4195:2012, TCVN 4202:2012 and ASTM D2166.
- b) Standard penetration tests in accordance with Vietnamese Standard TXCD 226-1999 shall be taken at two (2) meter intervals or at each change of strata, whichever is lesser, for all borings unless otherwise directed by the Engineer.
- c) The static ground water level shall be recorded for each hole.
- d) Rock cores shall be taken when and where required by the Engineer, rock tests must conform to the standard ASTM D2938. The full core shall be recovered and stored in core boxes for inspection by the Engineer.
- e) Undisturbed samples shall be taken when and where required by the Engineer. These sample cylinders shall be sealed for transport of the sample from Site to the testing laboratory.

#### **3.4.2 Boring Logs**

- a) The Contractor shall supply drilling logs to the Engineer on the working day following completion of each boring.
- b) The drilling logs shall be compiled by an experienced soils technician or engineer.
- c) All boring logs shall contain but not be limited to, the following information and data:
  - i) Structure name
  - ii) Bore position and code number
  - iii) Reduced level of top of the bore

- iv) Date and time of boring
  - v) Diameter of bore
  - vi) Type of plant used
  - vii) Depth to which bore was cased
  - viii) Depth to base of each stratum from the surface
  - ix) Description of strata
  - x) Depth and results of standard penetration testing tests (if required)
  - xi) Depth of Undisturbed sampling (if required)
  - xii) Static water level
  - xiii) Remarks
- d) All descriptions and classifications of soils shall be in accordance with ASTM D2487 Classification of Soils for Engineering Purpose (Unified Soil Classification System)
- e) The Engineer may require additional testing to that described above for any location should he find that the information obtained by the Contractor is not adequate to confirm the soil parameters used in the design.

#### **4. MEASUREMENT AND PAYMENT**

##### **4.1 Method of Measurement**

- a) Soil investigation drilling shall be measured for payment by the drilled depth of bore holes in meters including SPT regardless of the nature of encountered materials.
- b) Where undisturbed samples and rock samples are taken measurement shall be for the number of samples taken.
- c) Provisional Sums have been included in the Bill of Quantities for check tests including but not limited to; sample preparation, particle size distribution testing, Atterberg Limits, standard penetration tests, other tests as required by the Engineer, which may or may not be expended by the Employer, as a provision for work, the extent of which cannot be defined prior to the letting of the Contract.

<b><u>Pay Item</u></b>	<b><u>Description</u></b>	<b><u>Unit</u></b>
<b>07250</b>	<b>Borings for Pile Bearing Capacity</b>	
07250-01	Soil Investigation Borings	PS
07250-02	Laboratory Tests	PS