SERIES 900

CORING AND TRENCHLESS CONSTRUCTION

Contents

901 Coring

General

1 The Contractor shall have due regard for the following prior to undertaking any coring operations:-

(i) Structural stability of excavations or fore-holes (or launch pits) as necessary;

(ii) Under no circumstances shall foundations be undermined;

(iii) Dust pollution (internal and external);

(iv) Noise pollution (internal and external)

(v) Working at heights;

(vi) Protection of the premises from ingress of fluids or gas both during and after the construction process;

(vii) Access for plant and tools both internally and externally;

(viii) The safety requirements of the building when in use by the owner or the public;

(ix) Ensuring that fire escapes remain unblocked during and after the construction process;

(x) Testing for asphyxiating and explosive gases in chambers and in confined spaces (refer Clause 112 of the Specification).

(xi) Any existing finishes that may be affected by the Works should be carefully removed and reinstated on completion.

(xii) The testing for existing live services, particularly where cores are to be drilled from within chambers, basements, or behind retaining walls and the like.

2 Detailed coring operations shall be agreed with the Engineer in advance of coring operations and shall take into consideration the type of material being cored. In this respect, Structural drawings should be consulted where these are available, and where no detail of reinforcing bar layout is available, a cover meter survey carried out to establish the reinforcing bar pattern.

Installation

3 Coring operations shall be undertaken in accordance with the good practice procedures operated by members of the Drilling and Sawing Association.

4 The Contractor shall use a drilling machine that has the capacity to drill the required hole sizes through the specified material, in the locations as directed by the Engineer.

5 The Contractor shall check out to confirm the exact nature of the material being drilled and the presence of any services, prior to commencing any coring operations. Steel reinforcement or structural steelwork shall not be cored through without the prior approval of the Engineer. The Contractor shall determine whether local water, gas, communication and electricity lines near the work should be turned off, prior to and during coring operations.

6 Where drilling takes place through walls, the Contractor shall ensure that the rear side is checked prior to coring operations. For coring through floors, the Contractor shall provide suitable protection below the drilling area.

7 The Contractor shall determine the best method of fixing, in order to hold the coring rig down securely. This can be by vacuum pad, bracing column, anchor or weights

8 The Contractor shall elect whether drilling is to be carried out wet or dry, and shall select appropriate drill bits, most suitable for whichever method is selected. In the case of dry drilling, there must be adequate dust extraction facilities.

9 When drilling into hollow components, the Contractor shall check the means of dispersing the cooling water, in order to avoid water damage. A sealed water chamber shall be fitted around the drill hole which allows passage of the drill bit. This chamber shall contain the water and positively drain it away from the coring location.

Operating Procedures

10 The coring machine shall have fitted an isolating on/off switch. Drills not fitted with such a built-in switch, shall ensure that the supply cable is be fitted with an in-line switch.

11 The water supply should be turned on and adjusted for volume ie. the water should flow continually around the core bit circumference without splashing.

12 When dry drilling, the drill hole should be cleaned out regularly, to clear dust and debris.

Coring into Chambers

13 The requirements of sub-Clauses 1 to 12 inclusive of this Clause shall be considered in undertaking coring operations into/out of chambers.

14 During the coring of duct entries into existing chambers, or during the demolition and re-building of jointing chambers, the Contractor shall take such measures as the Engineer may direct to protect cables and associated equipment.

15 All cables shall be protected at duct entries by shielding as necessary against mechanical damage.

902 Installation of Cable Duct using “No Dig” Techniques

General

1 The Contractor shall provide with his tender, a detailed Method Statement for any ‘no dig’ techniques he proposes to use.

2 Boring equipment must be capable of being guided in both vertical and horizontal directions.

3 Tolerance for ‘no dig’ techniques shall be +/- 150 mm in any direction.

4 Training of supervisors and operatives in the use of equipment in accordance with Clause 104A of the Specification.

5 The Contractor shall be responsible for proving the route in accordance with Series 200 of the Specification.

6 The Contractor shall be responsible for the protection of existing services in accordance with Clause 108A of the Specification.

7 All excavation works shall be carried out in accordance with Series 300 of the Specification and the NRSWA 1991.

8 Depth of cover shall be in accordance with Clause 311 (and Table 3/2) of the Specification.

9 Separation from other plant shall be in accordance with Clause 403 of the Specification.

10 Any defects which may occur along the route of the cable duct installation which are outside the tolerances indicated in the Specification covered in the NRSWA 1991 shall be reinstated by the Contractor at the Contractor's expense.

11 Ducts installed by 'No Dig' techniques shall, after completion, be proved by passing through the duct an approved duct testing device, in accordance with Clause 411 of the Specification.

12 Where required the Contractor shall arrange for the provision of an adequate supply of water for the mixing of drilling muds e.g. Bentonite.

13 Where required the Contractor shall arrange for the disposal of drilling muds in accordance with all regulations and consents of the relevant regulatory bodies.

14 When as part of the drilling operation 'pipe pull back' is used, it shall be carried out smoothly and completed in one operation. The stress imposed on the ducting shall not exceed 80% of the manufacturers specified yield stress.

15 The Contractor shall provide record drawings in accordance with Clause 121A of the Specification.

16 Pipework for no dig techniques shall be green, unless expressly agreed otherwise with the Engineer.

Institution of Gas Engineers Safety Recommendations

16 In addition to the general requirements of sub-Clauses 1 to 15 inclusive of this Clause, the Contractor shall follow the recommendations provided under document No. IGE/SR/26 – Safety Recommendations for Horizontal Directional Drilling and Impact Moling, published by the Institution of Gas Engineers. A copy of this document is retained by the Engineer, and can be provided on request by the Contractor.