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MODEL CLAUSES FOR CIVIL ENGINEERING WORKS

SECTION 124 TEMPORARY WORKS TUNNELS CONSTRUCTED USING A SHIELD

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SECTION 124

TEMPORARY WORKS TUNNELS CONSTRUCTED USING A SHIELD

Method statement to be submitted with the Tender

124.001

Further to NR/SP/CPR/008, an outline method statement for the tunnelling works shall be submitted with the Tender. The outline method statement shall include the following:

- (i) the proposed method of tunnel driving, including procedures for jacking, steering, tunnel ventilation and starting and stopping the drive,
- (ii) details of the specialist Contractor proposed to carry out the tunnelling work, including details of relevant experience and successful usage of the proposed tunnelling system,
- (iii) the proposed shield, and method of shield installation and removal,
- (iv) the proposed tunnel linings and tunnel section,
- (v) all substantial Temporary Works required for the tunnelling works,
- (vi) details of the organisations proposed to be used to carry out the design and design check,
- (vii) proposals for maintaining the required line and level of the tunnel,
- (viii) prediction of track movement and settlement within the limits specified in Appendix 124/1 and percentage face loss,
- (ix) proposed methods of grouting, grout pattern and grout types for pre-grouting; proposed method of face grouting and grouting of the annular ring between the tunnel lining and existing ground,
- (x) proposals for inspection and maintenance of the track and monitoring track settlement, including proposals for the actions to be taken to limit the track settlement within the specified values. Contractor to comply with NR/BS/LI/045 and have contingency plans to protect rail traffic in case such limits are exceeded during tunnelling operations,

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- (xi) the proposed method of lining removal for the bridge installation.

Detailed method statement 124.002

Further to Clause 124.001, a detailed method statement for the tunnelling works shall be submitted to the Employer's Representative for acceptance not less than six weeks before the programmed start of the relevant work. The detailed method statement shall include, but not be limited to, further details of the information submitted in accordance with Clause 124.001 as necessary, and the following additional information:

- (i) calculations, drawings and design and design check certification in accordance with NR/SP/CIV/003 for the Temporary Works associated with the tunnelling works,
- (ii) proposed detailed programme for the tunnelling works indicating planned shield positions relative to the tracks,
- (iii) proposals for dealing with unexpectedly hard or soft ground,
- (iv) prediction of the quantity of grout required and the proposed method of monitoring the quantity and quality of grout used,
- (v) the method of excavation and backfilling of the drive and reception pits, and backfilling of the tunnel void following bridge installation.
- (vi) proof of the competency of the Contractor's personnel proposed to carry out track inspections and maintenance,
- (vii) proof of the competency of the tunnellers.

Tunnelling work shall not commence until the detailed method statement has been accepted by the Employer's Representative.

Pre-grouting of embankment 124.003

Pre-grouting of the embankment along the line of the proposed tunnel shall be carried out as specified in Appendix 124/2.

Tunnel drive and reception pits 124.004

All necessary sheeting, boarding, and strutting to form the tunnel drive and reception pits shall be designed, installed, maintained, and removed by the Contractor.