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SECTION 53 GROUTING AND LIME STABILISATION OF EMBANKMENTS

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SECTION 53

GROUTING AND LIME STABILISATION OF EMBANKMENTS

Materials for grouting

53.001 Cement shall be Portland cement to BS EN 197-1 or to BS 4027 as appropriate.

Details of the source of supply of the cement shall be provided to the Employer's Representative before placing any order. The source of supply shall not be varied without the consent of the Employer's Representative.

PFA for grouting shall comply with BS 3892-2 Grade A. For PFA, the grading and the name of the power station shall be submitted to the Employer's Representative for acceptance. A certificate shall be provided to the Employer's Representative showing that the material complies with the requirements of BS 3892-2.

Clean pea gravel, 10 mm single size, complying with BS EN 12620 shall be injected into each grout hole concurrently with the grout material.

Sand for inclusion in pumped grout

53.002 Sand, graded medium to fine in accordance with BS EN 12620, with a uniformity coefficient greater than 2, and with at least 90 per cent of material passing a No. 25 BS sieve, shall be included in the pumped grout.

Facilities shall be provided for the Employer's Representative to take samples of deliveries of sand to the Site.

Water for use in the grouting mixture

53.003 Water for use in the grout shall be clean and free from harmful matter and, where possible, shall be obtained from a water supply company.

Should the Contractor wish to use any other source of water, the Employer's Representative shall be advised of the proposed source, and the water shall be tested in accordance with BS EN 1008 at a frequency agreed with the Employer's Representative.

Such water shall not be incorporated in the Works without the agreement of the Employer's Representative.

Water with a pH value of less than 4, the water shall not be used for making the grout.

Storage of cement

53.004 Cement shall be stored in clearly marked bags in dry weatherproof sheds with raised floors, and each consignment shall be kept separate and distinct, and used in the order of delivery.

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Any cement that has become affected by damp or other cause or has been stored for longer than three months shall not be used in the Works but shall be removed from the Site immediately.

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| Grout | 53.005 | <p>Details of the proposed grout mixes shall be provided for the acceptance of the Employer's Representative.</p> <p>The grout mixture shall have a strength as detailed in Appendix 53/1.</p> <p>The grout shall use the minimum quantity of water required to provide the fluidity necessary to enable the grout to be pumped.</p> <p>Where statistical evidence of achievement of grout strength is not available a trial mix of the grout shall be produced and tests carried out to confirm the grout strength.</p> |
| Mixing of grout | 53.006 | <p>The mixer shall be located, together with any agitator tank and any other equipment or materials etc., in a position agreed by the Employer's Representative, and at least 3 metres from the nearest rail on which trains may pass.</p> <p>Grouting at each position shall be carried out from a central mixing plant and so constructed or installed as to avoid spillage in or on to existing drains, roadways, ballast and cesses.</p> <p>The method of mixing the grout shall be demonstrated to the Employer's Representative to confirm that the grout can consistently achieve the specified workability.</p> <p>Daily checks of consistency shall be carried out using a grout meter, and copies of results provided to the Employer's Representative.</p> |
| Pumping of grout and provision of and driving of pipework | 53.007 | <p>The pump shall be a continuous flow (not reciprocal) type and shall be capable of maintaining delivery of the quantity of grout at the pressures specified on the Contract Drawing, through a pipe having a bore of not less than 20 mm diameter.</p> <p>The maximum working pressure shall be 7 kgf/cm² (approximately 100 psi).</p> <p>All pipework and fittings including unions, annular plugs, cocks and hoses shall be provided by the Contractor.</p> <p>The ingress of material within the bore during the driving of grout pipes shall be prevented.</p> <p>Grout pipes shall be driven either vertical, or at an angle of up to 25 degrees to the vertical in which case a 'driving gauge' shall be used.</p> |