

BUILDING AND STRUCTURE DRAINAGE

SECTION 180

GENERAL REQUIREMENTS FOR DRAINAGE

Application of standards and codes of practice

- 1** Building and structure drainage (including connection to sewers) shall be designed and constructed in accordance with the recommendations of BS 8005: Part 1 and BS 8301 except where amended or qualified by the following Clauses.

All numbers within the heading margin are the relevant clause numbers within BS 8301.

(180.001)

Use of existing drains or water courses

- 2** No alterations shall be carried out to, or use made of any existing drains or water courses without the written agreement of the Employer's Representative unless shown otherwise on the Contract Drawings.

All statutory notices shall be given by the Contractor to the relevant Authority.

(180.002)

Design requirements 3.1

- 3** Details of the drainage scheme shall be submitted to Railtrack for approval in principle, and a copy of Form A based on the model in Appendix C shall be provided to the Employer's Representative not less than 4 weeks before the drainage work is due to commence. Contract Drawings shall be in accordance with the recommendations in BS 8301, appendix B.

3.2

Details of the position of the building and number of occupants, the structure or the location and extent of paved areas to be drained as applicable are as shown on the Contract Drawings.

Combined drainage and kerb units

The location and gradients of combined drainage and kerb units, position of accesses, silt traps, outfalls and end units together with the position and invert level of the surface water connection shall be as shown on the Contract Drawings.

Combined drainage and kerb units shall be designed by the Contractor. Details of the Contractor's proposals shall be submitted to the Employer's Representative for acceptance. Combined drainage and kerb units shall permit lateral entry of surface water from the channel either continuously or at intervals not exceeding 1000 mm.

3.3.1, 3.3.2

Where not shown on the Contract Drawings or detailed elsewhere in the Contract, the information listed in BS 8301, clauses 3.3.1 and 3.3.2 shall be determined by the Contractor.

3.4

A copy of the information and plans in accordance with BS 8301, clause 3.4 shall be provided to the Employer's Representative for acceptance prior to submission to the drainage authority.

3.7, 3.8

All notices in accordance with BS 8301, clauses 3.7 and 3.8 shall be submitted by the Contractor.

(180.003)

Records

- 4** On completion of the Works detailed records as specified in the Contract showing the building or structure drainage system shall be provided to the Employer's Representative.

Such records shall be in accordance with BS 8301, appendix B and shall included:

- (i) the scheme drawing including locations of manholes,
- (ii) details of materials and forms of construction used,
- (iii) fall to pipes, and invert levels at inspection chambers and manholes,
- (iv) details of connections to existing drainage systems,
- (v) details of all tests and results.

(180.004)

SECTION 181

MATERIALS

Concrete
5.2, 5.3.1,
5.4.1, 5.4.2

- 5** For in-situ concrete for bedding, haunching and surrounds to pipes and bases to manholes, delete BS 8301, clauses 5.2, 5.3.1 and 5.4 and the following shall apply.

Concrete and its constituents used in drainage work shall comply with the requirements of Section 85: Concrete for Ancillary Purposes.

13.4.3.3

In BS 8301, clause 4.3.3, delete 'should be in accordance this standard', and insert 'shall be in accordance with Section 80: Structural Concrete.'

(181.001)

Pipes, joints and fittings
5.6

- 6** Further to BS 8301, clauses 5.6.2 and 5.6.3, the following shall apply.

Pipes and associated fittings for drainage systems shall be selected from, and shall comply with the British Standards and particular requirements specified in Table 181/1.

The hydraulic flow capacity of the selected pipe(s) shall be demonstrated to the Employer's Representative to be sufficient for the location and design of the drainage system.

UPVC pipes shall not be subject to deterioration due to exposure to sunlight between manufacture and installation in the ground, and shall be handled, stored and transported and installed in accordance with BS 5955: Part 6.

Table 181/1

Material	Standard	Particular Requirements
Cast iron	BS 437	
Unplasticised polyvinyl-chloride (UPVC)	BS 4660 or BS 5481	
Vitrified clay	BS 65	Normal grade
Concrete	BS 5911: Part 100	Reinforced or unreinforced
	BS 5911: Part 103	Prestressed
Glass reinforced plastics (GRP)	BS 5480	Rated as non pressure pipes
Ductile iron	BS EN 598	

(181.002)

Inspection covers, manhole covers, frames and road gully gratings
5.7.1.1, 5.7.2.6

- 7** In BS 8301, clauses 5.7.1.1 and 5.7.2.6 delete 'BS 497: Part 1' and insert 'BS EN 124'.

(181.003)

Precast concrete inspection chambers, manhole chambers, and covers
5.7.1.2, 13.4.3.4, 13.4.7

- 8** In BS 8301, clauses 5.7.1.2, 13.4.3.4, and 13.4.7, delete 'BS 5911: Parts 1 and 2', and insert 'BS 5911: Parts 2 and 200'.

(181.004)

Precast concrete road gullies

- 9** Delete BS 8301, clause 5.7.2.4.

Precast concrete road gullies shall comply with BS 5911: Part 230.

(181.005)

Channel drains

- 10** Channel drains shall be as shown on the Contract Drawings and shall be installed in accordance with the manufacturers' recommendations.

Gratings for channel drains shall be as shown on the Contract Drawings. Slots in gratings shall be 10 mm wide. Gratings shall be secured to the channel by means of the manufacturer's proprietary system. All fittings, outlets etc. shall be compatible with the drainage system and shall be in accordance with the manufacturer's recommendations.

(181.006)