SERIES 1100
KERBS, FOOTWAYS AND PAVED AREAS

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# denotes a Clause or Sample Appendix which has a substitute National Clause or Sample Appendix for one or more of the Overseeing Organisations of Scotland, Wales or Northern Ireland.

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KERBS, FOOTWAYS AND PAVED AREAS

#1101 Precast Concrete Kerbs, Channels, Edgings and Quadrants

1 (11/04) Except where otherwise specified in this Clause, precast concrete kerbs, channels, edgings and quadrants shall conform to BS EN 1340 and their dimensions, type designations and performances and classes shall be as described in this Clause and Appendix 11/1. They shall be laid and bedded in accordance with BS 7533-6 on a mortar bed on a concrete pavement slab, a roadbase or a C6/8 or ST1 in accordance with BS 8500-2 concrete foundation. The mortar bed may be omitted if units are bedded onto a concrete slab or foundation that is still plastic. All precast units laid on a mortar bed or bedded onto plastic concrete shall be backed with a strength class C6/8 or ST1 concrete in accordance with BS 8500-2.

2 (11/04) Precast concrete kerbs, which are to be bonded to the pavement surface, shall conform to BS EN 1340. The bonding materials and methods of bonding shall be to the manufacturer's recommendations for this specific application. Bonded kerbs shall not be less than 100 mm in width at the base, their height shall not exceed their width and they shall be bonded over their full width. Kerbs shall be precast to the dimensions described in Appendix 11/1. The clear distance between unsupported pavement edge and back of kerb shall be not less than 100 mm. The bending strength of units shall be established by testing in accordance with BS EN 1340 and shall not be less than class 2 in Table 2 of BS EN 1340. Units shall be installed in accordance with the manufacturer's instructions. They shall be bonded to the pavement surface with a resilient adhesive compatible with the pavement materials and be capable of withstanding a static push-off load of 10 kN/m applied parallel to the pavement surface at right angles to the kerb.

3 Joints shall be provided in kerbs, channels, edgings and backing, which are laid on or adjacent to a concrete pavement to coincide with the pavement transverse contraction, warping and expansion joints. The joints shall be the same width as the joint sealing grooves of the pavement and shall be caulked and sealed as described in Clauses 1016 and 1017. Concrete foundations to kerbs, channels and edgings laid adjacent to a concrete pavement shall be provided with joint filler board complying with Clause 1015 placed vertically through the full extent of the concrete foundation at positions coinciding with the pavement joints. At expansion joints in bridge decks, the kerb joints shall be as described in Appendix 11/1. Where the details of bridge expansion joints are proposed by the Contractor, such details shall include the intended treatment at kerbs and footways.

4 (11/04) For curves of radius 12 m or less, kerbs of appropriate radius shall be used as per BS EN 1340.

5 The surface level of units of kerb, channel, edging and quadrant shall not deviate from the design level ± 6 mm, nor shall the longitudinal surface regularity deviate more than 3 mm in 3 m when checked with a 3 m straight edge. Horizontal alignment shall comply with Clause 702.

1102 (11/04) In-Situ Asphalt Kerbs

1 (11/04) The materials for, and making and placing of in-situ asphalt kerbs shall comply with the recommendations of BS 5931. In addition, a tack coat shall be used and they shall be laid by a machine capable of producing a dense, smooth-surfaced kerb to true line and level.

2 Kerbs shall be constructed to the dimensions described in Appendix 11/1.

3 Vertical expansion and contraction joints shall be formed in kerbs laid on unreinforced concrete slabs and jointed reinforced concrete slabs to coincide with the pavement transverse expansion and contraction joints. All joints shall be sealed in compliance with Clauses 1016 and 1017.

1103 (11/04) Freestanding In-Situ Concrete Kerbs, Channels and Edge Details

1 (11/04) Freestanding in-situ concrete kerbs, channels and edge details shall comply with the recommendations of BS 5931 except where otherwise specified in this Clause. They shall be laid by a machine capable of forming dense kerbs or surface water channels or edge details with regular sides, arrises and chamfers, finished to a fine surface free from blow holes and dragging and constructed to the dimensions described in Appendix 11/1.

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For kerbs, channels and edge details:

(i) Constructed before the adjacent road pavement surface, the surface level adjacent to the future road surface shall not deviate from the design level by more than ±5 mm.

(ii) Constructed after the adjacent road pavement surface, the surface level shall not deviate from the finished level of the adjacent pavement surface by more than +0-10 mm.

The longitudinal surface regularity shall not deviate by more than 5 mm in 3 m when measured with a 3 m straight edge.

2 (11/04) The concrete shall be a strength class C28/35 to BS 8500-2 and air-entrained in accordance with BS 5931. Coarse aggregate used in kerbs and channels shall be partially crushed or crushed materials.

3 The concrete shall be cured by one of the methods specified in Clause 1027 unless otherwise described in Appendix 11/1.

4 (11/04) Kerbs, channels and edge details shall be firmly secured to the surface on which they are laid. Vertical expansion and contraction joints shall be formed in kerbs, channels and edge details laid on, integral with or adjacent to unreinforced concrete slabs and jointed reinforced concrete slabs to coincide with the pavement transverse expansion, warping and contraction joints. Joints may be omitted from channels cast integral with a CRCP concrete pavement. Vertical expansion joints at 40 m spacings and intermediate contraction joints at 5 m spacings shall be formed in kerbs, channels and edge details laid on or adjacent to other types of concrete and flexible pavement. Expansion joints may be replaced by contraction joints and installed in accordance with the manufacturer's instructions during the summer period from 1 April until 31 October. All joints in kerbs, channels and edge details shall be sealed in compliance with Clauses 1016 and 1017.

1104 (05/01) Footways and Paved Areas (Precast Concrete Flags and Natural Stone Slabs)

1 (11/04) Precast concrete flags shall conform to BS EN 1339. Natural stone slabs shall conform to BS EN 1341. Type designations, thicknesses and performances and classes shall be as described in Appendix 11/1.

2 (11/04) Precast concrete flags and natural stone slabs shall be laid in accordance with BS 7533-4, to the required cross falls with a bond as described in Appendix 11/1 and with joints at right angles to the kerb. Flags and natural stone slabs shall be bedded on a layer of mortar not less than 10 mm and not more than 40 mm thick. Where permitted in Appendix 11/1, flags and natural stone slabs 450 mm x 450 mm and smaller may be laid on a layer of sand comforming to BS EN 12620 designation 0/4 mm, 25 mm ± 5 mm thick. Joints to be filled with sand conforming to BS EN 12620 designation 0/2.

3 (05/01) On circular work where the radius is 12 m or less all flags and natural stone slabs shall be radially cut on both edges to the required line.

4 (11/04) The laying course shall be laid on subbase composed of one of the materials complying with Clause 803, 804, 805, 806, 821, 822 or 823, laid and compacted to Clause 802 or 813 as appropriate and to the thickness described in Appendix 11/1.

1105 (11/04) Footways and Paved Areas (Flexible Surfacing)

1 (11/04) Flexible surfacing for footways and paved areas shall be made and laid in compliance with BS 594-1, BS 594-2, BS 4987-1, BS 4987-2, BS 1446 or BS 1447 for the material described in Appendix 11/1.

2 Surfacing shall be laid to true levels and crossfalls, and be of the thickness described in Appendix 11/1.

3 (11/04) Surfacing shall be laid on subbase composed of one of the materials conforming to Clause 803, 804, 805, 806, 821, 822 or 823, laid and compacted to Clause 802 or 813 as appropriate and to the thickness described in Appendix 11/1.

1106 (11/04) Footways and Paved Areas (In-Situ Concrete)

1 (11/04) In-situ concrete for footways and paved areas shall be made, laid and cured as described in Appendix 11/1. The grade of concrete and surface finish shall be as described in Appendix 11/1.

2 (11/04) In-situ concrete shall be laid to true levels and crossfalls, and be of the thickness described in Appendix 11/1.

3 (11/04) In-situ concrete shall be laid on a subbase composed of one of the materials conforming to Clause 803, 804, 805, 806, 821, 822 or 823, laid and compacted in compliance with Clause 802 or 813 as appropriate, and to the thickness described in Appendix 11/1.

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1107 Footways and Paved Areas (Concrete Block Paving)

1 (11/04) Precast concrete paving blocks shall be chamfered and shall comform to BS EN 1338 and the shapes, dimensions, colours and performances and classess described in Appendix 11/1.

2 (11/04) Precast paving blocks shall be laid in accordance with BS 7533-3, except that the subbase shall be one of the materials permitted in sub-Clause 1104.4.

3 The layout of blocks and details at edges, chamber covers, gullies and other openings shall be as described in Appendix 11/1.

1108 Footways and Paved Areas (Clay Pavers)

1 (11/04) Clay pavers shall conform to BS EN 1344 with chamfers. The shapes, dimensions, colours and performances and other required classes of clay pavers shall be as described in Appendix 11/1.

2 (11/04) Clay pavers shall be laid in accordance with BS 7533-3, except that the subbase shall be one of the materials permitted in subClause 1104.4.

3 The layout of pavers and details at edges, chamber covers, gullies and other openings shall be as described in Appendix 11/1.

1109 (11/04) Grass Concrete Paving

1 (11/04) Grass concrete paving shall consist of a reinforced perforated in-situ concrete slab or a precast panel system as specified in Appendix 11/1 and in the locations shown on the Drawings.

2 (11/04) In-situ grass concrete paving shall be cast and cured as described in Appendix 11/1. The strength class of concrete and surface finish shall be as described in Appendix 11/1.

3 (11/04) Perforations shall be formed in in-situ grass concrete paving as described in Appendix 11/1.

4 Concrete panels shall conform to the shape, dimensions and colour described in Appendix 11/1.

5 (11/04) Concrete used shall have compressive strength class of 28/35 and panels when tested in accordance with BS EN 1339, the characteristic bending strength shall be class 3 to Table 5 of BS EN 1339. The water absorption when tested in accordance with BS EN 1339 shall be class 2 of Table 4.1.

6 The layout of panels and details at edges, chamber covers, gullies and other openings shall be as described in Appendix 11/1.

7 (11/04) Grass concrete paving shall be laid to true levels and crossfalls, and be of the thickness described in Appendix 11/1.

8 (11/04) Grass concrete paving shall be laid on a bed of Type 1 unbound mixtures conforming to Clause 803 laid and compacted in accordance with Clause 802 and to the thickness described in Appendix 11/1. In addition panels shall be bedded on a layer of sand conforming to BS EN 12620 to the thickness specified in Appendix 11/1.

9 Perforations shall be filled with friable soil free from deleterious matter or with other material as described in Appendix 11/1, levelled off 30 mm below the top surface, sown with grass seed as described in Appendix 11/1, covered with a layer of fine soil and levelled. The seed shall be sown while soil is still loose after filling.

1110 (05/01) Access Steps

1 Steps provided for access to maintain the road infrastructure shall be constructed to the specification and requirements given in Appendix 11/2.

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NATIONAL ALTERATIONS OF THE OVERSEEING ORGANISATION OF NORTHERN IRELAND

1101NI Precast Concrete Kerbs, Channels, Edgings and Quadrants

1 (11/04) Except where otherwise specified in this Clause, precast concrete kerbs, channels, edgings and quadrants shall conform to BS EN 1340 and their dimensions, type designations and performances and classes shall be as described in this Clause and Appendix 11/1. They shall be laid and bedded in accordance with BS 7533-6 on a mortar bed on a concrete pavement slab, a roadbase or a strength class C6/8 or ST1 in accordance with BS 8500-2 concrete foundation. The mortar bed may be omitted if units are bedded onto a concrete slab or foundation that is still plastic. All precast units laid on a mortar bed or bedded onto plastic concrete shall be backed with a strength class C6/8 or ST1 concrete in accordance with BS 8500-2.

2 (11/04) Precast concrete kerbs which are to be bonded to the pavement surface shall conform to BS EN 1340. The bonding materials and methods of bonding shall be to the manufacturer's recommendations for this specific application. Bonded kerbs shall not be less than 100 mm in width at the base, their height shall not exceed their width and they shall be bonded over their full width. Kerbs shall be precast to the dimensions described in Appendix 11/1. The clear distance between unsupported pavement edge and back of kerb shall be not less than 100 mm. The bending strength of units shall be established by testing in accordance with BS EN 1340 and shall not be less than class 2 in Table 2 of BS EN 1340. Units shall be installed in accordance with the manufacturer's instructions. They shall be bonded to the pavement surface with a resilient adhesive compatible with the pavement materials and be capable of withstanding a static push-off load of 10 kN/m applied parallel to the pavement surface at right angles to the kerb.

3 Joints shall be provided in kerbs, channels, edgings and backing, which are laid on or adjacent to a concrete pavement to coincide with the pavement transverse contraction, warping and expansion joints. The joints shall be the same width as the joint sealing grooves of the pavement and shall be caulked and sealed as described in Clauses 1016 and 1017. Concrete foundations to kerbs, channels and edgings laid adjacent to a concrete pavement shall be provided with joint filler board complying with Clause 1015 placed vertically through the full extent of the concrete foundation at positions coinciding with the pavement joints. At expansion joints in bridge decks, the kerb joints shall be as described in Appendix 11/1. Where the details of bridge expansion joints are proposed by the Contractor, such details shall include the intended treatment at kerbs and footways.

4 (11/04) For radii of 12 m or less kerbs of appropriate radius shall be usedas per BS EN 1340. Where radii kerbs are not available, straight kerbs shall be used. For radii of 3 m to 12 m, kerbs with a maximum length of 450 mm shall be used and for radii less than 3 m, kerbs with a maximum length of 300 mm shall be used. The ends of straight kerbs shall be splayed where necessary to form the required radius.

5 The surface level of units of kerb, channel, edging and quadrant shall not deviate from the design level ± 6 mm, nor shall the longitudinal surface regularity deviate more than 3 mm in 3 m when checked with a 3 m straight edge. Horizontal alignment shall comply with Clause 702.

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