AGGREGATE INDUSTRIES

Landscaping

Charcon Radii, crossings, junctions and bends
Installation design

Radii

Highway/Mini Highway:

- To form external radii of 25 metres or less (minimum 6 m), special radius units should be used (see table, right). As these do not cover all individual radius dimensions, some slight gaps are required between units as indicated in Highway radii gap widths table, right.
- For external radii greater than 25 metres, lay straight units with open joints.
- To form internal radii (minimum 6 metres), use 7/6 internal radius units.

Clearway/Safeticurb:

- Where necessary, standard (straight) units may be laid to form radii or bends.
- Safeticurb units: alignment ring within bore acts as a former for infill mortars to seal joint.

Crossings

Highway/Mini Highway:

- Use crossing base units to carry drainage runs under side roads/vehicular crossing points (see Fig 1) Grid units available (see Fig 6).

Safeticurb (DBK unit only):

- To continue linear drainage at road junctions, kerb crossing points (pedestrian/vehicular), use transition units to reduce kerb height to road level. These connect with standard grid or slot units as necessary.

Junctions/sharp bends

Clearway/Safeticurb:

- Use silt box top at outlets or with suitable uPVC pipe fittings (cut to fit) to form junctions or sharp bends (see Figs 16a, 16b).

Highway radii gap widths

Radius (m)	Radius unit reference	Top and base gap
6	7/6	2
7.5	10/8	3
9	10.8	2
10.5	25/11	4
12	25/11	1
15	25/11	2
20	25/11	5
26	Straight	7

Charcon Radii, crossings, junctions and bends
Installation design

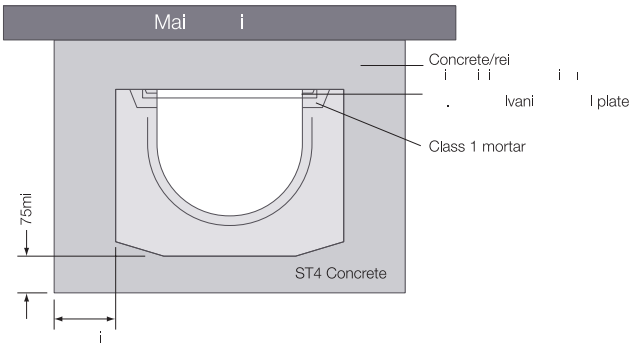

Fig 1. Highway crossing – base unit

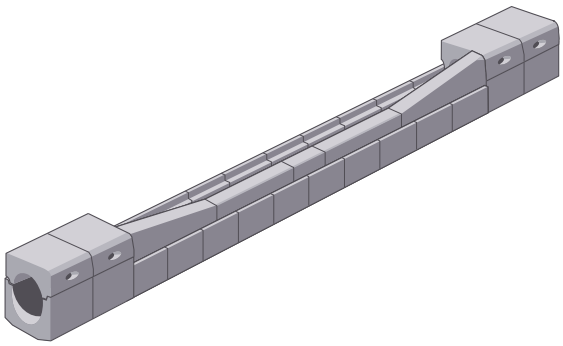

Fig 2. Highway – typical kerb crossing

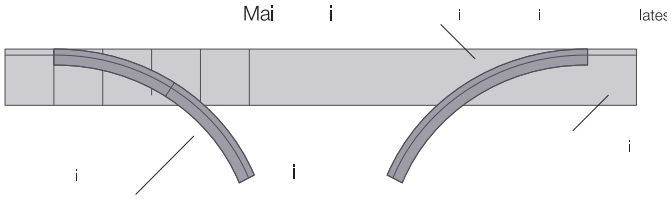

Fig 3. Highway – typical side road (plan view)

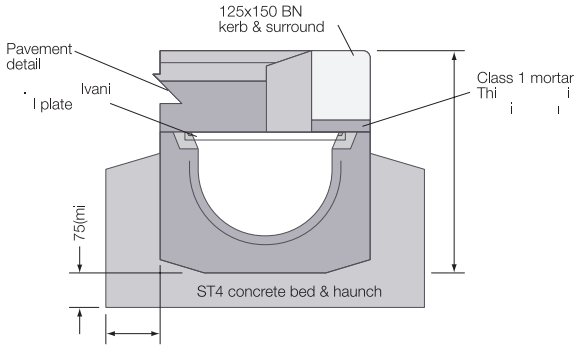

Fig 4. Highway – vehicular crossing

Charcon Radii, crossings, junctions and bends
Installation design

General principles

All units are unreinforced: protect from stresses caused by thermal expansion of cementitious paving materials. Leave 1mm gap between each unit to prevent damage from thermal expansion of the units themselves.

Expansion joints MUST be installed on each side of drainage runs in concrete pavements or those incorporating a cement bound/lean mix concrete roadbase.

DO NOT place these joints directly adjacent to any trafficked unit as this would allow units to rock under trafficking and may allow water ingress into the base or sub-grade. Recommended position of joints (minimum distances):

- 600 mm from Clearway/Safeticurb units (see Figs 12-14).
- 125 mm from Highway units (see Figs 5-6).

Note: As Highway units are not regularly trafficked, expansion joints could be placed directly against them. However, 125 mm distance is recommended to avoid ingress of water between the unit and carriageway construction.

Base foundations

Recommended typical foundations are:

- for Clearway/Safeticurb: minimum 150 mm depth of ST4 concrete with a 25 mm bed of Class 1 mortar (1:3 cement: sand) to allow easy adjustment of units to line and level.
- for Highway: minimum 75 mm of concrete.

Note: Strength, overall depth and width of the base may need to be increased when laid on low - strength sub-grades.

Haunching

Recommended typical haunches (to within 100 mm of top unit) are:

- For Clearway/Safeticurb: ST4 concrete.
- For Highway: ST1 concrete minimum 125 mm width.

Charcon Radii, crossings, junctions and bends
Installation design

Highway

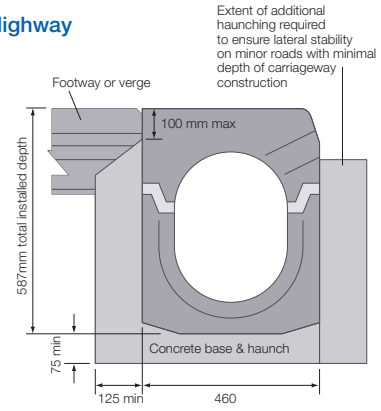

Fig 5. Standard top base unit

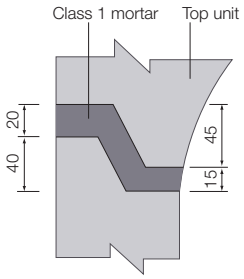

Fig 5a. Highway joint detail

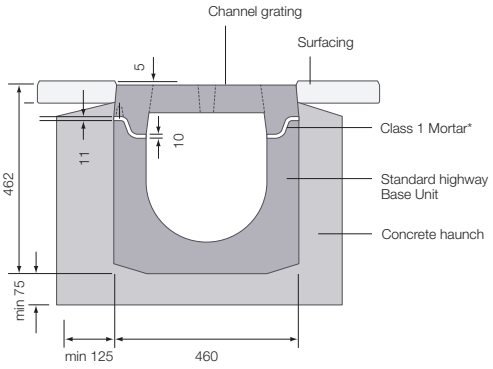

Fig 6. Channel grating/concrete drainage top

Mini Highway/Highway Ultra

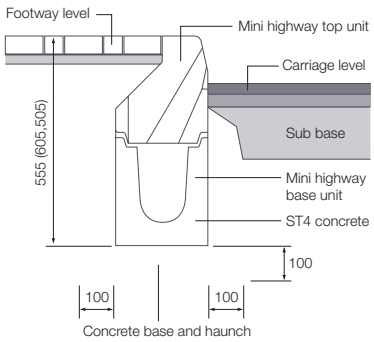

Fig 7. Mini Highway standard installation

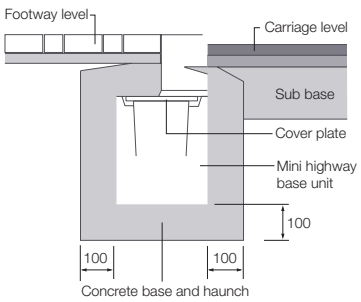

Fig 8. Mini Highway crossing detail

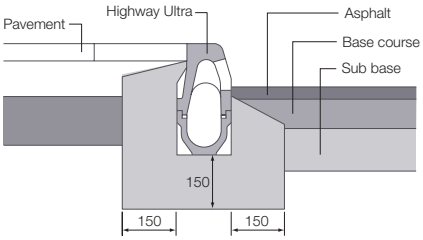

Fig 9. Highway Ultra installation

Charcon Radii, crossings, junctions and bends
Installation design

HydroKerb

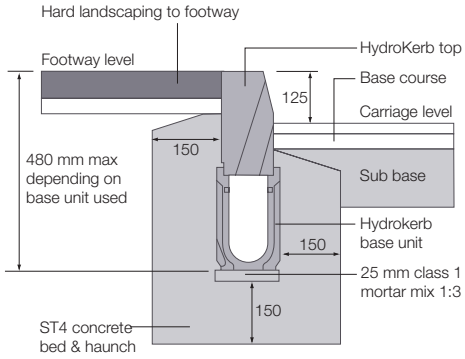

Fig 10. HydroKerb standard installation

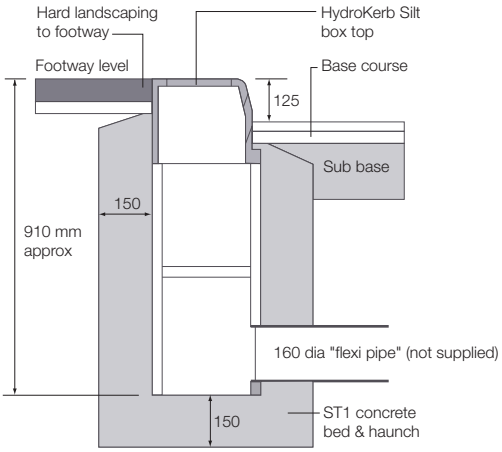

Fig 11. HydroKerb sump unit installation

Clearway/Safeticurb

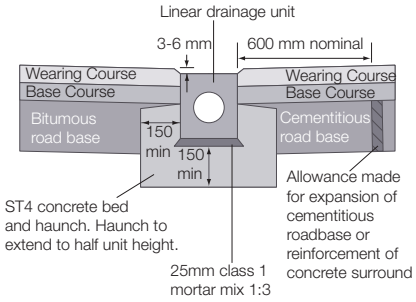

Fig 12. Basic unit – flexible/semi-flexible installation

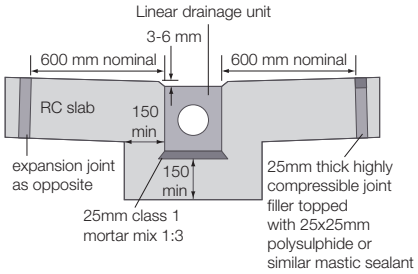

Fig 13. Basic unit – rigid installation

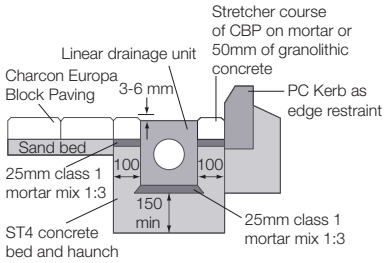

Fig 14. Basic unit – block paved installation

Charcon Radii, crossings, junctions and bends
Installation design

General principles

Details of outlet units an inspection access differ according to which linear drainage system is used.

In any system, silt or detritus should normally be prevented from entering the main drainage sewer. An outfall chamber is required to enable silt collection before onward connection to a sewer.

Types of outfall chamber

- trapped precast concrete, clay or plastic gully pots. Gully pot capacity may be insufficient for some larger linear drainage installations.
- Purpose-built brick or concrete inspection chamber.
- Precast concrete manhole rings.
- Dedicated sump unit.

Select outfall pipe diameter/gradient

Care should be taken to ensure sufficient capacity.

Highway (see Fig 17)

Standard outlet formed using two base outlet units (in place of standard base units) to give full width rectangular outlet 400x275mm. (shallow and deep base outlet units available). Positioning is not critical, but should allow access for suction pipe from gully emptier.

Discharge capacity may be increased by installing more than one pair of Base Outlet units discharging into the same outfall chamber.

For larger schemes, chambers to be detailed in accordance with. The Specification for Highway works, clauses 507 and 508. For larger outfall pipes it may be necessary to incorporate a manhole access at rear of run.

Clearway/Safeticurb (see Fig 18)

Select outfall chamber, pipe dimension and pipe gradient to suit system capacity.

Position a silt box top on two courses of engineering brickwork over the selected outfall chamber/silt trap to give access (via the silt box lid) for silt removal.

HydroKerb sump unit (see Fig 19)

With hinged, removable lid for inspection access, is placed over sump unit in place of standard top units.

Mini Highway sump unit (see Fig 20)

With hinged, removable lid for inspection access, is placed over inflow unit in place of standard top units.

Charcon Radii, crossings, junctions and bends
Installation design

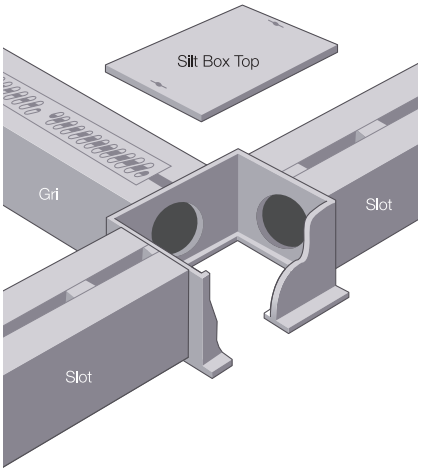

Fig 15. Clearway/Safeticurb outlet/junction

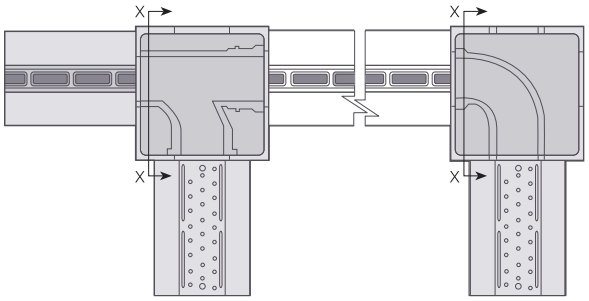

Fig 16a. Clearway/Safeticurb junction bends

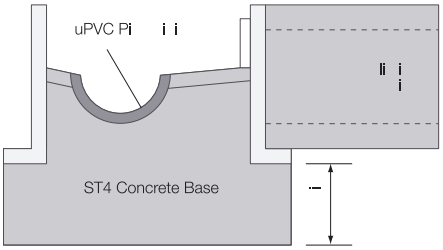

Fig 16b. x-x section (from Fig 16a.)

Charcon Radii, crossings, junctions and bends
Installation design

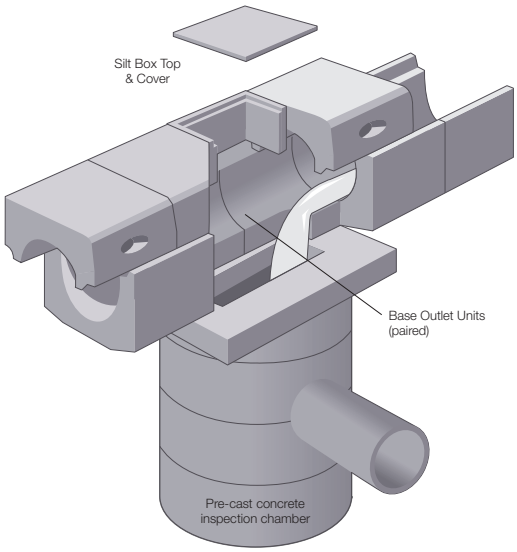

Fig 17. Highway outlet construction

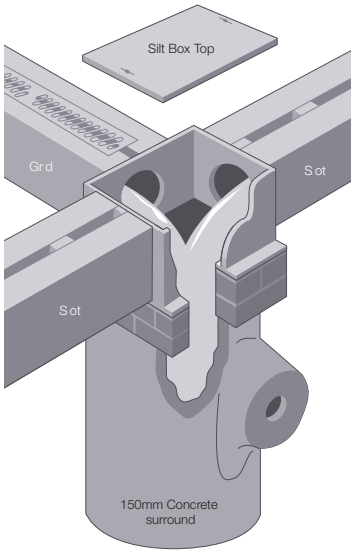

Fig 18. Clearway/Safeticurb outlet construction

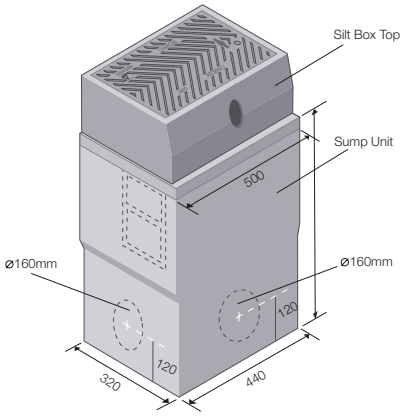

Fig 19. HydroKerb sump unit

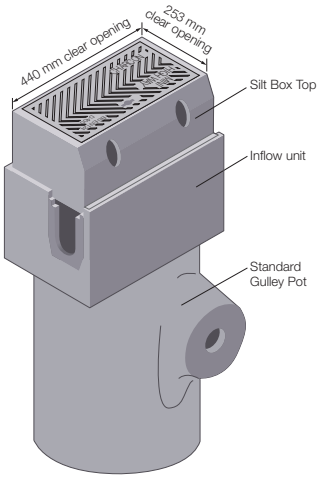

Fig 20. Mini Highway sump unit

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