

## DS.129 Edge channel details at the base of carriageway kerbs

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A	Final	D.Farnham	29.04.2013	D.Waters	08.05.2013
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# 1 Introduction

## 1.1 Notes

- a. This standard explains requirements about the use and design of channel details composed of channel stones or other paving modules to the base of kerbs at the edge of carriageways. These are known as edge channels.
- b. See the SSDM webpages at [www.southwark.gov.uk/ssdm](http://www.southwark.gov.uk/ssdm) for a list of frequently asked questions about the design of streets and spaces.

## 1.2 Discussion

- a. Edge channels are linear flat, dished or 'v' profiled strips often found to the edges of carriageways at the base of retaining kerbs. Traditionally they were provided for drainage purposes, the channel forming a conduit for conveying surface water towards gullies located along the carriageway edge (or other appropriate outfalls). They were often composed either of natural stone setts (normally favoured where a dished profile was required) or flat channel stones (e.g. long stone planks similar to a wide kerb stone). In more recent times, the use of channels for drainage purposes has become confined to very flat sites only as the evenness of Highway surfaces and accuracy of levels design has improved with new materials and construction methods.
- b. Channel details are still frequently found in historic streets around the borough and are often valued for their visual qualities. However, for purely drainage purposes their efficiency (particularly those formed of setts) has now been surpassed by other materials and drainage strategies that avoid the need to manufacture complex falls into proposals.
- c. Though no longer necessarily the only or best option for drainage purposes, channels are still often introduced in new streets and spaces for visual amenity or traffic calming purposes. This is often part of a strategy to visually narrow the carriageway (width being known to have a

relationship with vehicle speeds). Whilst this can be beneficial and the features attractive, it needs to be balanced against cost and sustainability – as well as the risk of creating a hazard for pedal cyclists. Increasingly channels may also be required for structural purposes (e.g. to create a tied retaining shoulder to carriageway pavements where these have a rigid concrete base slab).

# 2 Use requirements

## 2.1 Mandatory use situations

### 2.1.1 In Docks and Village SSDM/RP Specification Areas

- a. In Docks and Village SSDM/RP Specification Areas, edge channel details should always be provided owing to local precedence and their potential importance to pedestrian accessibility (see note).

*NOTE: In both areas it is relatively common for both footways and carriageways to use visually similar materials (red blocks in the case of Docks and black asphalt in the case of Village. The combined effect and width of a silver grey granite kerb and edge channel helps provide some visual differentiation between these surfaces for blind and partially sighted people whilst alerting them to the kerb step.*

### 2.1.2 To sections of modular unit surfaced carriageway in any SSDM/RP Specification Area

- a. If modular unit surfacing is refreshed or introduced to a length of carriageway within a project area then - unless a Restricted Parking Zone exists in that location - an edge channel detail should be provided to either limit of this to accommodate yellow line road markings. This requirement is irrespective of whether any such road markings are included in the proposals or required at that time. See section 3.4 for related design requirements.

### 2.1.3 For conservation reasons upon instruction

- a. Approving Officers have discretion to instruct that an edge channel details of any type is introduced where
  - i. this is necessary to tie-in with other nearby historic examples on the same street that are of conservation value, no other logical termination point for these that would be visually acceptable in townscape terms being apparent
  - ii. longitudinal profiles at the carriageway edge are otherwise satisfactory in drainage turns (see section 2.2.1).

### 2.1.4 For structural reasons

- a. Where they can be justified for structural reasons then edge channel details may be introduced on streets in any SSDM/RP designation

*NOTE: This is only likely to be the case where both the carriageway pavement and the non-carriageway pavement have separate rigid concrete base slabs that both require separate tied shoulder details to retain them.*

### 2.1.5 To Isolated Build Outs

- a. Where it is permitted as DS.118 for Build Outs to be isolated from neighbouring footways by an open channel (see note) then that channel must be composed of an edge channel detail.

## 2.2 Situations when use is not permitted

### 2.2.1 For drainage purposes on very flat sites

- a. Edge channels should not be relied upon for drainage purposes where carriageway longitudinal gradients are
  - i. < 1:80 (1.25% grade) for flat surfaced channel stones
  - ii. < 1:90 (1.10% grade) for channel stones with a dished surface profile (though note that these should not normally be used – see section 3.2
  - iii. < 1:40 (2.50% grade) for block work channels where units have cropped

- or mounded upper faces or joint depths between units of  $\geq 4\text{mm}$
- iv. < 1:80 (1.25% grade) for block work channels where units have flat upper faces and joints depths are < 4mm

If carriageways cannot reasonably be (re)profiled to introduce steeper gradients (for instance by introducing false valleys and summits) then linear drainage channels should be introduced instead. This represents reasonable grounds to request departure to omit an edge channel detail when one is otherwise required. Any existing edge channels not meeting these minimum gradients that are encountered within a project area should be removed and replaced with linear drainage channels. Retention requires level 1 departure. It must be demonstrated to the satisfaction of approving officers both that they have conservation heritage value and provide satisfactory conveyance of surface water to gullies none-the-less.

### 2.2.2 In General SSDM/RP Specification Area

- a. Except where section 2.1.2 - 2.1.4 apply, new edge channels should not be introduced in the General SSDM/RP Specification Area.

## 2.3 Discretionary use situations

- a. Subject to section 2.2.1, in Town Centre, Heritage and World Centre SSDM Specification Areas, edge channel details may (be introduced for visual purposes to the edges of bituminous mixture surfaced carriageways. However, given limited funding (and in the interests of prioritising other more important requirements) this requires level 1 departure. Approving Officers should provide such approval initial In Principle Only. Final Confirmation should be with-held until well into Detailed Design Workstages when there is certainty both that
  - i. other requirements that might place a strain on funding have been met
  - ii. no requests to depart from other SSDM requirements on the basis of insufficient funding will be received.

## 3 Design requirements

### 3.1 Width of detail

- a. The apparent visual width of any edge channel detail should be 300-450mm. However, details should not be wider than
  - i. any receptor gullies located along them. This is in order to avoid surface water in the channel from bypassing them. The outer edge of the channel into the carriageway should ideally be aligned with that of the gully
  - ii. (in the case of block-work gullies) necessary to accommodate a double yellow line detail within the parameters as section 3.4.

### 3.2 Cross-sectional profile

- a. Edge channels should normally have a flat surface profile-section. Use or retention of dished profiles requires level 1 departure. Approving Officers must be satisfied that this will not pose a hazard for pedal cyclists. However, dished profiles must never be introduced through Formal Crossings for pedestrians.

### 3.3 Surfacing

- a. Edge channel details may be composed of either
  - i. small unit modular paving (e.g. precast concrete blocks, natural stone setts or clay pavers). The units to be used should be as directed in the SSDM/SER/Surfacing Materials palette for the SSDM/RP designation(s) at the project location. A minimum of 2 such units should be laid alongside one another in order to achieve the required flat cross-sectional profile.
  - ii. Single piece channel stones. Only LBS Standard Units as per SSDM/TDR drawings LBS1100/01 - 07 should be used.
- b. Whatever the type of surface unit used, they should have a smooth upper face. Cropped or riven faced units should not be used. They are only likely to be permitted where all the following apply.

- i. The location is within a Restricted Parking Zone (since the detail will not need to accommodate yellow lines)
- ii. The longitudinal gradient of the channel significantly exceeds the permitted minimum value as '2.2.1a.iii' and
- iii. It is necessary to tie in with or reinstate/replicate an existing similar instance that is of conservation value

*NOTE: Cropped units are likely to impede drainage and create uneven surfaces for pedal cyclists. Laying yellow lines on them in a neat and durable way also becomes problematic.*

### 3.4 Accommodating yellow line markings

*NOTE: In Southwark, yellow lines are always laid using the 50mm width line variant in primrose yellow. These must be located 150mm from the edge of carriageway. Where double yellow lines are required to indicate 'at anytime' waiting restrictions then these should be 50mm apart.*

- a. See standard DS.002 for requirements.
- b. Marking out of yellow lines using bespoke coloured paving units within a composite channel detail is not supported. These details are difficult to construct and inflexible to future changes in the marked restrictions.

### 3.5 Construction requirements

- a. Edge channel details should be constructed as per Type K details (see note 1 and drawings contained in the Appendix below). If edge details are also required to serve a structural role retaining the carriageway pavement itself then consider the use of bespoke details (see note 2).

*NOTE 1: Where surfacing is to be with small unit modular paving as '3.3a.i' then Typical Details always require these to be mortar bedded and jointed to a concrete or HBM base slab or footing.*

*NOTE 2: This is most likely to required where the carriageway uses a rigid precast concrete*

block, clay paver or natural stone sett surfaced construction (with an underlying pavement quality concrete base slab) and the adjoining footway uses a similarly rigid construction. As the two pavements will move separately, the carriageway pavement will then need its own tied shoulder detail to prevent units long its edge from failing. Normally this can be achieved as a concealed detail beneath an edge channel.

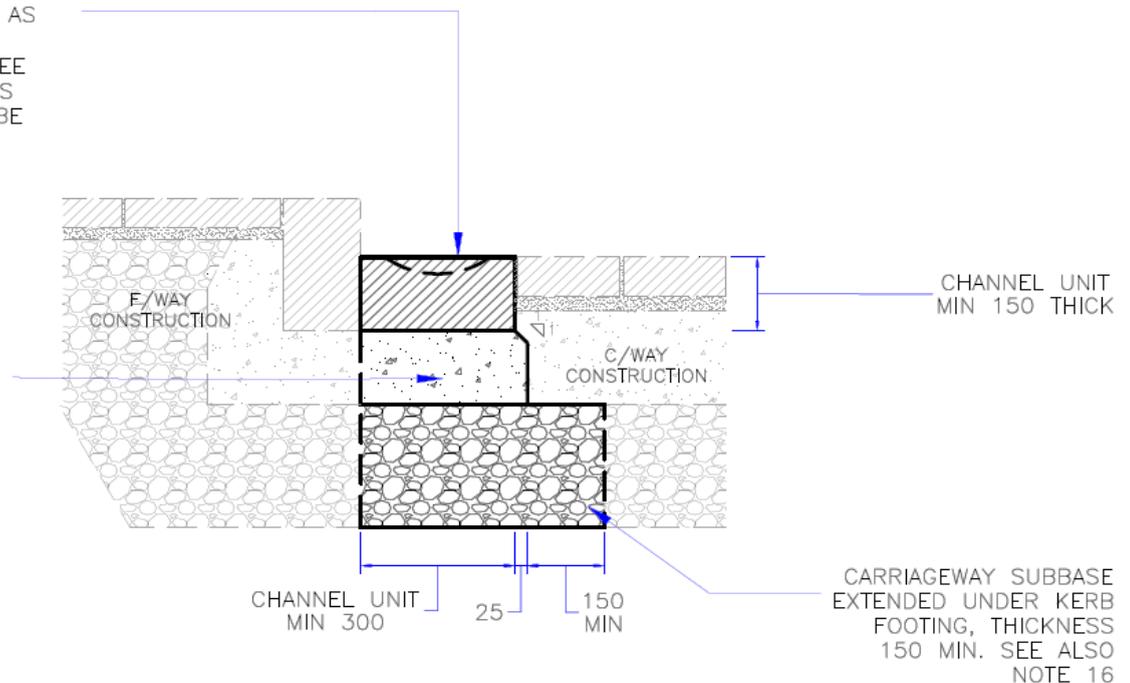
### 3.6 Configuration at junctions

- a. At carriageway junctions where the intersecting arms include edge channel details, the channels should follow the kerb alignment. Those to the major road/s should not continue across the edge of the minor road unless level 1 departure is agreed.

## Appendix – Type K Carriageway Edge channel details

KERB UNITS TO HAVE TYPE 0 (FLAT) OR TYPE 4 (DISHED) PROFILE AS SSDM/DSR DS.202. LENGTH 300–600. SEE ALSO NOTE 7. JOINTS BETWEEN UNITS TO BE AS NOTE 8

150 MIN THICK CONCRETE FOOTING AS NOTES 11–15

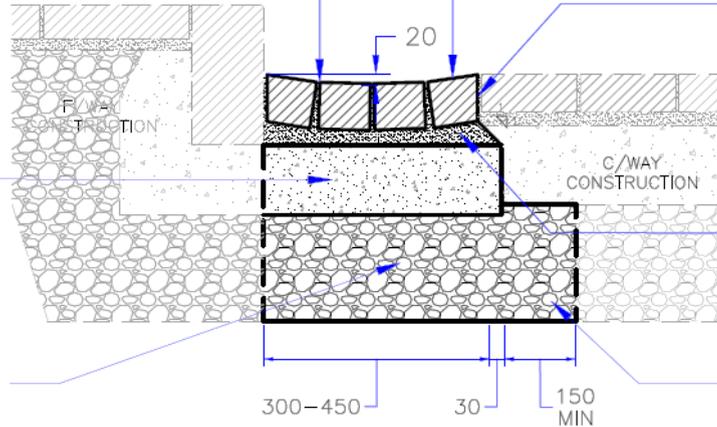


K1 – CHANNEL STONE LAID DIRECTLY ONTO FRESH CONCRETE RACE (FLAT OR DISHED PROFILE)

MODULAR UNITS 5-8  
JOINTED WITH  
J-MH2 OR J-MHX  
MORTAR AS  
CL.1115AR

3-6 ROWS OF MODULAR  
UNITS AS NOTES 9-10,  
LAID IN LONGITUDINAL  
STRETCHER BOND

150 MIN THICK  
CONCRETE FOOTING  
AS NOTES x-x



IF NECESSARY TO  
ACHIEVE REQUIRED  
JOINT WIDTHS, MODULAR  
UNITS WITHIN THE FIRST  
AND LAST LONGITUDINAL  
ROW SHALL BE TAPER  
CUT TO ONE SIDE

MODULAR UNITS BEDDED  
ON 30 OF L-MH2 OR  
L-MHX FINE BEDDING  
CONCRETE AS  
CL.1115AR

CARRIAGEWAY SUBBASE  
EXTENDED UNDER KERB  
FOOTING, THICKNESS  
150 MIN. SEE ALSO  
NOTE 16

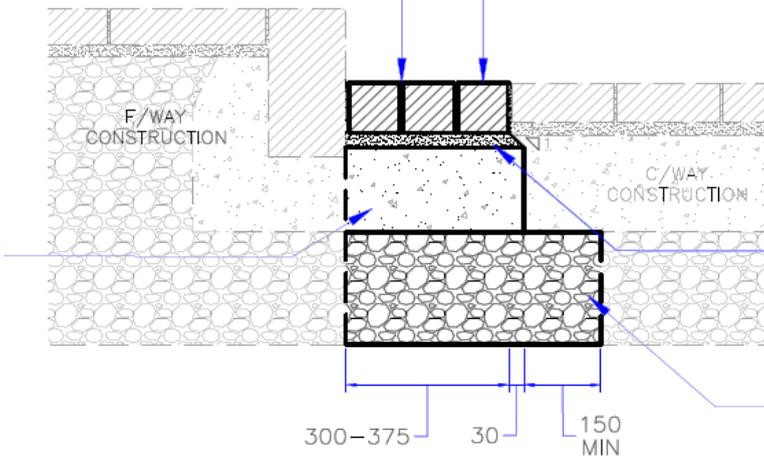
CARRIAGEWAY SUBBASE  
EXTENDED UNDER KERB  
FOOTING, THICKNESS  
150 MIN. SEE ALSO  
NOTE 16

### K2 – DISHED PROFILE BLOCK WORK CHANNEL

MODULAR UNITS  
JOINTED WITH  
J-MH2 OR J-MHX  
MORTAR AS  
CL.1115AR

2-6 ROWS OF  
MODULAR UNITS AS  
NOTES 9-10, LAID IN  
LONGITUDINAL  
STRETCHER BOND

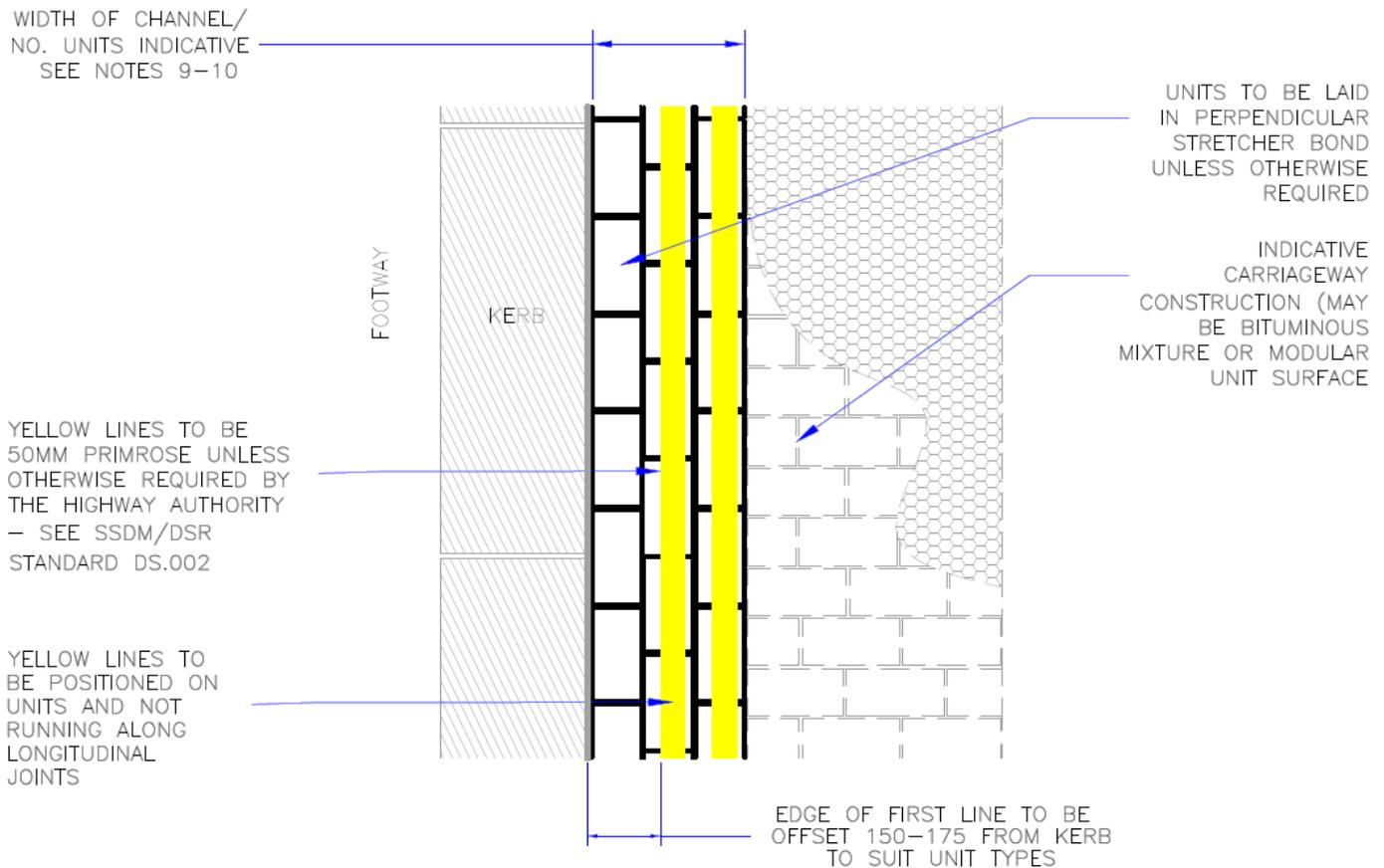
150 MIN THICK  
CONCRETE FOOTING  
AS NOTES 11-15



MODULAR UNITS  
BEDDED ON 30 OF  
L-MH2 OR L-MHX  
FINE BEDDING  
CONCRETE AS  
CL.1115AR

CARRIAGEWAY SUBBASE  
EXTENDED UNDER KERB  
FOOTING, THICKNESS  
150 MIN. SEE ALSO  
NOTE 16

### K3 – FLAT PROFILE BLOCK WORK CHANNEL



PLAN VIEW OF BLOCK WORK CHANNEL  
WITH YELLOW LINE DETAIL -  
APPLICABLE TO ALL SUB-TYPE DETAILS

Notes

1. All dimensions are in millimeters unless otherwise stated.
2. Do not scale from this drawing. Use only written dimensions.
3. All references to Clauses are references to those from the Southwark Highway Specification unless otherwise stated.
4. Refer to SSDM/DSR standard DS.129 for information about when edge channel details may or must be used.
5. Channels and footings shall be laid as Clause 1101SR and 1112AR. In the event of any conflict between the drawings and these Clauses, then the Clauses shall prevail.
6. During installation, all necessary steps shall be taken to provide temporary drainage outlets to prevent ponding of surface water on lower carriageway layers until the completion of the pavement and its drainage layer.
7. Unless otherwise agreed with the Highway Authority in writing in advance, channel stones shall be as per drawing LBS/C/005
8. Channel stones shall be 6-12mm jointed using J-MWK6 mortar as Clause 1115AR.
9. Modular units for block work channels should be as specified in the SSDM/SER Surfacing Materials palette for the relevant SSDM/RP designation/s.
10. The number of rows of modular units should not be greater than that necessary to accommodate 50mm wide double yellow lines as shown in the indicative detail on this sheet.
11. Footings/beams/backing shall be either concrete as Clause 1001, ancillary concrete as Clause 2602 or a CBGM as series 800 Clauses. In any instance the minimum compressive strength class shall be C16/20. Formwork and shuttering shall be used in all instances to make efficient use of these materials.
12. Movement joints shall be provided through footings/beams/backing as Clause 1101SR.
13. Where kerbs and footings/beams/backing cannot be laid in a single operation (else where reinforcement of backing is required in details that do not include this) then details shall be adapted as shown in Sheet 1.
14. In all instances, the depth of footings/beams shall be sufficient to allow them to be placed directly on top of the subbase.
15. Wherever possible, footing beams for channels shall be laid at the same time and as a direct continuation of either the edge of carriageway kerb beam or - if the carriageway pavement has a rigid concrete or hydraulically bound material base course - the carriageway base course,
16. Material for subbase beneath footings shall be unbound granular mixtures as Clauses 803MA, 804MA, 805SR or 882AR unless otherwise agreed.
17. Unless otherwise stated, edge arrises to the upper faces of channel stones (or other modular units used as surfacing to channels) shall be flush with the with neighbouring pavement surfaces at their interfaces with these.