

DS.122 Recess frames and tray covers

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1 Introduction

1.1 Notes

- a. This standard explains requirements about the use and design of recess frames and tray covers to chambers in the Highway. It applies both to those owned by the Highway Authority and those that are the property of others (including Statutory Undertakers).
- b. See the SSDM Materials palette for details of materials that are noted in parenthesis, e.g. [C-PQC-C40]. This provides a quick reference look up list for relevant Southwark Highway Specification clauses.

1.2 Discussion

- a. Numerous cables and pipes run beneath highways. These provide connections to buildings for gas, water, sewerage, electricity and telecommunications. Other pipes are provided for collection of surface water from pavement surfaces (or the ground beneath).
- b. The majority of this apparatus is owned by Statutory Undertakers (public utility companies). They have a legal right to dig up streets to introduce new apparatus or to maintain that already there. Only relatively loose conditions exist about how any chamber covers introduced or amended as a result need to be designed. Generally, the Highway Authority only owns and maintains those covers that are associated with drainage of the highway (up to the point of connection to public sewers that are owned by Statutory Undertakers).
- c. For any cable or pipe run, periodic access chambers will be required. These may be anything from small chambers no bigger than half a foot square (to allow surface access for visual inspection, insertion of cleaning apparatus, or control of valves) all the way through to very large man holes that workers can descend into.

- d. Chamber covers can be unsightly intrusions in surfaces, adding considerably to street clutter. In London the relative density of people and premises requiring service connections mean there are often many more of them. Where located in carriageways, covers can also prove a potential safety hazard to road users who may skid or become destabilised should their design or placement be incorrect.
- e. Covers can be concealed by using special recessed frames and tray covers. These allow paving units or flexible surfacing (e.g. black top) to be extended right up to the edge of the cover frame, so avoiding the need for unsightly concrete surrounds. The same paving units or other surface can also be inlaid into the surface of the cover itself. Adjusting the orientation of the cover and frame and replacing circular covers with square ones further helps these special covers blend in with neighbouring surfaces.
- f. Though use of recess frames and tray covers is increasingly common place, they are more expensive than conventional covers and frames. Statutory Undertakers are not obliged to use them when installing new apparatus. Similarly, the Highway Authority cannot replace existing conventional covers owned by Statutory Undertakers without their consent. Because of the additional expense they are only likely to approve replacement with recess frames and tray covers where this is funded by the council or others. Thereafter, unless special agreement is reached, Statutory Undertakers are not obliged to retain any recess frames or tray covers funded by the Highway Authority (or others) over their chambers. Should they need to carry out repair works to the cover or frame then they may choose to replace these with less costly normal frames and covers.

2 Requirements

2.1 Use requirements

General

- a. Where works to the Highway are carried out under sections 38 or 278 of the Highways Act 1980, then the promoter will be responsible for covering any costs advised by Statutory Undertakers for the use of recess frames and tray covers to their apparatus. Where Statutory Undertakers refuse consent to introduce recess frame and tray covers then this may be sited as grounds for a departure not to meet a requirement to provide such measures. However, it will need to be demonstrated that the proponent offered to the Statutory Undertaker to cover the costs associated with this.
- b. It should be noted that, notwithstanding any requirement in this standard to use recess frames and tray covers to any Statutory Undertakers chamber or to provide commuted sums, the Highway Authority will not take responsibility for maintenance or reinstatement of any such chambers or the frames and tray covers used to them. This remains with the Undertaker. Where commuted sums have been obtained in relation to such chambers then, where Undertakers carry out future works to these that require the replacement of frames and covers and they are not willing to replace these like-for-like with recess frames and tray covers, the Highway Authority will pass these commuted sums to them to fund the use of recess frames and tray covers.
- c. Notwithstanding the use requirements of the following sub-sections, where it can be demonstrated that any cover and frame has conservation value then it may be retained by agreement to a level 1 departure.

Existing streets and spaces

- d. Where new chambers are required then requirements are as Table 1, though see 'g' about shared surfaces.

- e. Where existing chambers are encountered within the scheme area then requirements for replacement of covers and frames with recess frames and tray covers are as Table 2. However, see 'g' about shared surfaces.

New streets and spaces

- f. Requirements are as Table 3, though see 'g' about shared surfaces.

Shared surfaces

- g. Where shared surfaces (see note 1) are proposed then the need to provide recess frames and tray covers to chambers will be considered on a case specific basis (see note 2). Where it is considered appropriate then promoters will be asked to provide commuted sums in relation to any covers to Statutory Undertakers chambers to fund future like-for-like replacement with recess frames and tray covers should works to (or replacement of) these become necessary (see notes 3 and 4)

NOTE 1: For the purposes of this standard, cycle tracks are not considered to be shared surfaces.

NOTE 2: This will depend upon the level of vehicle trafficking, vehicle speeds and the proposed pavement surface materials. Generally it is likely to be appropriate for NRWSA Road Category 4 streets that are 20mph and use modular unit surfacing to pavement. Most shared surface proposals are likely to fit this description.

NOTE 3: Notwithstanding the provision of commuted sums by proponents, the Highway Authority will not take responsibility for the maintenance and replacement of covers to Statutory Undertakers chambers. This remains with the Undertaker. However, where Undertakers carry out future works to such chambers that require the replacement of frames and covers and they are not willing to replace these like-for-like, the Highway Authority will pass these commuted sums to them to fund the use of recess frames and tray covers.

NOTE 4: Whilst there is no requirement to provide such commuted sums, proponents should note that the Highway Authority is unlikely to permit shared surface proposals unless these are volunteered.

SSDM/RP/ Specification Area	Requirements	
	Footways and other non-carriageway areas (including notional footways to shared surfaces)	Carriageways
World centre	Irrespective of whether chambers belong to the Highway Authority, Statutory Undertakers, or any other party, recess frames and tray covers should be used in all instances (see note 1).	Irrespective of whether chambers belong to the Highway Authority, Statutory Undertakers, or any other party, the use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like for like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary). These sums will be determined on a case specific basis. See also note 2.
Town centre		
Heritage		
Docks	For Highway Authority drainage chambers (other than gully pots) and in tactile paving areas, covers and frames should be replaced with recess frames and tray covers unless a level 1 departure is agreed.	However, where the carriageway is to be modular pavement construction, then recess trays and frame covers may be used without obtaining a departure (see note 2).
Village		
General	For Statutory Undertaker chambers (and those of any other party), there is no requirement to replace existing chamber covers and frames with recess frames and tray covers. Any use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like-for-like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary (see note 2). These sums will be determined on a case specific basis.	

NOTES

1) In the case of Statutory Undertakers chambers, this applies to chambers associated with new development works only. Those chambers must be within the scheme area. Where Statutory Undertakers introduce new chambers for their own purposes (and not to serve a development funding any Highway improvement works) then the Highway Authority will not fund recess frames and tray covers, though Undertakers are welcome to provide these where they wish.

2) Use within carriageways is only likely to be appropriate in low trafficked NRSWA Road Category 4 streets that are also 20mph. This will generally only be considered for locations where a Special Placemaking Opportunity has been agreed.

Table 1 - Requirements for covers and frames to new chambers in existing streets and spaces

SSDM/RP/ Specification Area	Requirements	
	Footways and other non-carriageway areas (including notional footways to shared surfaces)	Carriageways
World centre	<p>All chamber covers and associated frames within the scheme area for that zone of the street meeting the following criteria should be replaced with recess frames and tray covers:</p> <ul style="list-style-type: none"> • Where cover is square or rectangular - Size of cover is $\geq 270\text{mm} \times 270\text{mm}$. • Where cover is circular - diameter is $\geq 270\text{mm}$. 	<p>There is no requirement to replace any type of existing chamber cover and frame with recess frames and tray covers.</p> <p>Irrespective of whether chambers belong to the Highway Authority, Statutory Undertakers, or any other party, the use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like-for-like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary. These sums will be determined on a case specific basis. See also note 2.</p> <p>However, where the carriageway is to be modular pavement construction, then recess trays and frame covers may be used without obtaining a departure (see note 2).</p>
Town centre		
Heritage		
Dock	<p>For Highway Authority drainage chambers (other than gully pots) and in tactile paving areas, covers and frames should be replaced with recess frames and tray covers unless a level 1 departure is agreed.</p>	
Village		
General	<p>For Statutory Undertaker chambers (and those of any other party), there is no requirement to replace existing chamber covers and frames with recess frames and tray covers. Any use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like-for-like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary. These sums will be determined on a case specific basis.</p>	

NOTES

1) For the purposes of determining the number of covers within a 100m length of street then:
(a) in the case of footways (and other non-carriageway areas), that to each side of the carriageway should be considered separately (unless there is no carriageway present in which case the area should be considered as a whole);
(b) in the case of carriageways, the entire width should be considered as a whole.

2) Use within carriageways is only likely to be appropriate in low trafficked NRSWA Road Category 4 streets that are also 20mph. This will generally only be considered for locations where a Special Placemaking Opportunity has been agreed.

Table 2 - Requirements for covers and frames to existing chambers in existing streets and spaces.

SSDM/RP/ Specification Area	Requirements	
	Footways and other non-carriageway areas (including notional footways to shared surfaces)	Carriageways
World centre	Recess frames and tray covers should be used to all chambers (other than gully pots) irrespective of whether they belong to the Highway Authority, Statutory Undertakers, or any other party.	Irrespective of whether chambers belong to the Highway Authority, Statutory Undertakers, or any other party the use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like-for-like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary. These sums will be determined on a case specific basis. See also note.
Town centre		
Heritage		
Docks	For Highway Authority drainage chambers (other than gully pots) and in tactile paving areas, recess frames and tray covers should be used in all instances.	
Village		
General	For Statutory Undertaker chambers (and those of any other party) use of recess frames and tray covers will require agreement to a level 1 departure and provision of commuted sums to fund future like-for-like reinstatement by Statutory Undertakers should works to (or replacement of) these become necessary. These sums will be determined on a case specific basis.	However, where the carriageway is to be modular pavement construction, then recess trays and frame covers may be used without obtaining a departure.
<p>NOTE Use within carriageways is only likely to be appropriate in low trafficked NRSWA Road Category 4 streets that are also 20mph. This will generally only be considered for locations where a Special Placemaking Opportunity has been agreed.</p>		

Table 3 - Requirements for covers and frames to chambers in new streets and spaces.

2.2 Design requirements

Locations requirements

- a. No chamber (irrespective of the frame and cover type) should be located within a ramped section of carriageway pavement or pavement to any other part of the street likely to receive vehicle trafficking (see note). Where developing proposals, designers will need to configure these to avoid such conflicts by locating chambers and/or ramped features appropriately.

NOTE: Examples include ramps to raised tables within the carriageway and vehicles crossings.

Loading class

- b. Load classes for recess frames and tray covers should be as Table 4.

Cover weight

- c. No individual cover unit should weigh more than 30kg (including the inlayed surface). Covers should be subdivided where necessary to stay within these limits.

Frame and cover shape

- d. All recess frames and tray covers should be square or rectangular. Circular frames and covers should not be used.

NOTE: Where existing standard circular covers and frames are encountered and it is necessary to replace these with recess frames and tray covers then these must be square/rectangular.

Pavement type	Assumed level of vehicle overrun – see note 1	Minimum Loading class	
		BS EN 124	FACTA
Carriageways, parking bays and shared surfaces – see note 2	N/A	D400	D
Footways and other non-carriageway areas	Heavy overrun (including vehicle crossings)	C250	C
	Light overrun	B125	B

NOTES

- 1) See section 2.4 of standard DS.601 for information about minimum overrun assumptions for footways and other non-carriageway pavements.
- 2) Where carriageways are to be used by pedal cyclists only then, subject to confirmation of access proposals for waste and recycling collection vehicles and emergency response vehicles, use of C250/C load class cover may be permitted by agreement to a level 1 departure.

Table 4 - Loading requirements for recess frames and tray covers.

Tray cover inlays

- e. Where tray covers are used then these should be inlayed with the same materials as used to the immediately neighbouring pavement surfaces. Where a level 1 departure is agreed then shallower versions of modular surface units (compared to those used to adjoining surfaces) may be used to reduce the weight of the tray unit to stay within manual handling limits (see 'b').

- f. Where modular surface inlays are used to tray covers then the bonding pattern used to neighbouring pavement surfaces should be continued uninterrupted across the cover (though see note). An exception to this is in General Specification Areas. There, where it is possible to fill the entire cover with a single modular unit without any jointing, then the bonding pattern used to neighbouring surfaces need not be extended across the cover. No in-board cutting may be employed within covers without prior agreement to a level 1 departure (see note).

NOTE: Whilst normally the creation of substandard sized cut units (e.g. darts) would constitute failures, these are acceptable within tray covers since in board cutting techniques would defeat the purpose of these features by making them more noticeable.

- g. Bonding materials to secure surface inlays into tray cover should be as follows:

i. For modular unit inlays

- For flag and slab surfaces - high performance laying course and jointing mortars should be used as section 4 of standard DS.601 (see notes 1 and 2).
- For precast concrete block, clay paver and natural stone sett surfaces - high performance laying course and jointing mortars should be used as section 6 of standard DS.601 (see notes 1 and 2).

ii. For bituminous mixture surfaces

A tack coat or bond coat meeting BS 594987:2007 requirements should be used.

NOTE 1: Notwithstanding any departure that may be permitted as per that standard, only High performance mortars should be used (e.g. [J-MH1] or [L-MH2]. Ordinary M6 or M2 weak mortars should not be used under any circumstance (e.g. [J-MWK6] or [L-MWK12]).

NOTE 2: Proprietary epoxy resin mortars may be permitted by agreement to a level 1 departure where recommended by manufacturers or where necessary to reduce the depth of the laying course. Use of these and any other alternative fixing mortar may also be instructed by approving officers at their discretion.

Frame borders

- h. Decorative borders composed of modular units should not be provided around the edges of frames (see note). The surface of the pavement neighbouring the frame (and where this is composed of modular units, the bond of this) must extend all the way to the frame edge.

NOTE: This would defeat the point of using recess frames and tray covers as it would draw attention to the cover rather than concealing it.

Alignment of frames

- i. In new streets and spaces, frames should be aligned so that two opposing sides are parallel to the dominant bond in the pavement.

NOTE: Assuming the use of a stretcher bond laid perpendicular to the carriageway edge when this would be parallel to the transverse bond rows.

- j. In existing streets and spaces, the following frame alignment requirements should be observed:

i. Footways (and other non-carriageway areas)

Frames should be aligned so that, wherever possible, two opposing sides are parallel to the dominant bond in the pavement. However, this may not always be possible. As such, this requirement may be omitted by agreement to a level 1 departure where it can be demonstrated that the existing manhole chamber and crown unit alignment would not allow this (see note).

ii. Carriageways

Frames should be aligned so that, wherever possible, two opposing sides are parallel to the dominant bond in the pavement. However, there is no requirement to adjust existing cover slabs to achieve this. The structural integrity of the chamber, crown unit and frame should instead be prioritised.

NOTE: Even where chambers are not suitably aligned to the bond, it is often possible to skew crown units by around 10-15 degrees to improve the alignment whilst maintaining a full seal on the chamber (though this will depend up the units used). Frames and underlying regulating masonry can then normally be skewed by a further 10-15 degrees in order to achieve an overall skew of up to 30 degrees.