MGroupServices
Telecom Division

Telecom Division
Operational Reinstatement Quality Plan

Purpose

The purpose of this Reinstatement Quality Plan (RQP) is to provide Operatives, Managers, Clients and Highway Authorities the minimum expectations in relation to our Street Works reinstatement requirements. And ensure the highest standard of workmanship is achieved safely, first time, and in accordance with the Specification for the Reinstatement of Openings in the Highway (SROH), with minimum impact to the traveling public. Materials used in conjunction with the reinstatement process will comply with the relevant SHW, BS EN standards including where required kitemarked or SROH A9 trial approved. All equipment will be maintained to the manufacture's requirements. A minimum of one site operative will be in possession of a valid Street Works qualification.

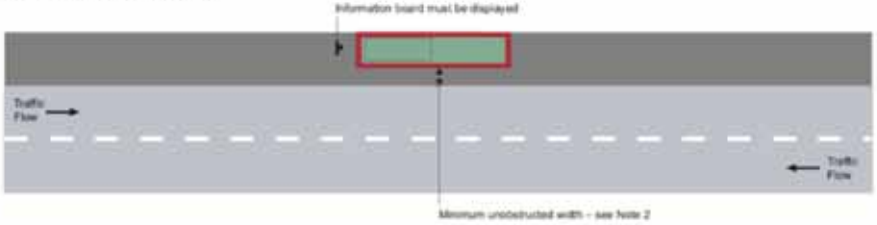
This RQP does not relieve anyone from the requirement to comply with any Street Works code of practises, and where possible it is our intention to exceed the minimum standards required.

1.0 Setting up site

Ref. Safety at Street Works and Road Works Code of Practice (CoP).

- Ask yourself this question: "Will someone coming along the road or footway from any direction understand exactly what is happening and what is expected of them?"
- Remember that Permit Schemes require an absolute minimum walkway width of 1.2mtrs.

Works entirely on the footway



Notes

1 Advance signs are not required when the works, signing, lighting and guarding are entirely on the footway.

2 1.5 m preferred minimum unobstructed width, 1.0 m absolute minimum.

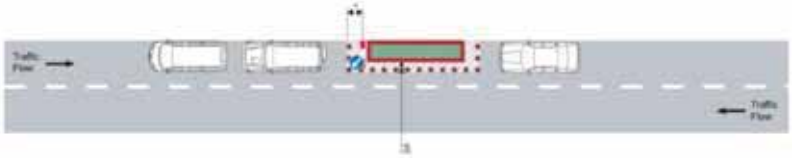
Permit Board must:

- Be prominent
- Be easily read and legible
- Display the Permit number
- Not to be placed such that it obstructs vehicular or pedestrian traffic

Ref. Safety at Street Works and Road Works Code of Practice (CoP).

Caution: If you are working from the back of a vehicle, try to park it so that its back is facing the works.

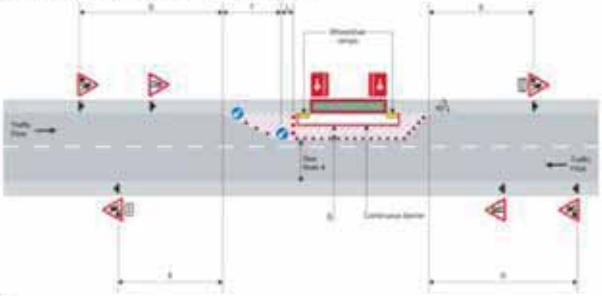
Works between parked vehicles with a speed limit of 30 mph or less



Notes

1 No advance signing, lead-in taper or exit taper required provided that the whole works, including the safety zone, do not extend beyond the line of vehicles.
2 An information board (omitted here for clarity) must be displayed.
3 If parked vehicles move away, tapers and advance signing should be provided.

Works on footway with pedestrian diversion into carriageway



Notes

1 For numbers and minimum size of cones, and dimensions D, T, L, S and E, see table inside back cover.
2 An information board (omitted here for clarity) must be displayed.
3 Wheelchair ramps must be provided at the transition from footway to carriageway.
4 See page 52 for guidance on unobstructed width past the works.
5 Additional pedestrian barriers may be provided parallel or at right angles to the kerb, as site conditions require, to guide pedestrians past the works.

Permit Board must:

- Be prominent
- Be easily read and legible
- Display the Notice/Permit number
- Not to be placed such that it obstructs vehicular or pedestrian traffic

2.0 Recording pre-existing damage

- Prior to excavating, pre-site photos should be taken to highlight any pre-existing damage (I.e. Broken/Chipped slabs etc).
- Images can be referred to should the need arise.

Further examples; Images capturing Pre-existing damage.

3.0 Breaking the Surface

- Always ensure prior to you excavating; that you have scanned the area for buried apparatus and marked with crayon. This should be done using a Cable locator.

- Care must be taken when cutting the Surface layers to avoid undue damage to the running surface, cutting by machine using water as dust suppression e.g. Road Saw is preferred, the following Personal Protective Equipment must be worn.
    - Helmet
    - FFP3 Dust Mask
    - Googles
    - Gloves
    - Safety boots

4.0 Excavation

- When excavating in a modular construction, the existing modules shall be lifted carefully, and stored for re-use.

  This ensures prompt reinstatement, minimising delays Caused by sourcing matching materials and customer Complaints.

- Excavated materials that are to be re-used should be protected from excessive drying or wetting during storage.

  Recycling in accordance with the WRAP quality Protocol

5.0 Compacting unbound material

- Is the moisture content of the GSB1 correct?
- Has the appropriate compaction plant been identified?
- Identify the correct layer thickness and correct number of passes been identified?
- Using a 50kg Vibrotamper the Minimum Passes/Lift for compacted lift thickness up to 100mm thick = 4 passes and 150mm thick = 8 Passes.

Compacting small excavations and narrow trenches less than 200mm width

- Using a Vibrotamper (25Kg minimum) or a Percussive Rammer (10Kg minimum) a minimum of 6 compaction passes and a Maximum of 100mm compacted lift thickness is required.
- Ensure the correct surcharge of each lift has been applied:

Surcharge	Compacted lift thickness					
	40mm	50mm	60mm	100mm	150mm	200mm
25%	10mm	12.5mm	15mm	25mm	37.5mm	50mm

Vibrotamper
50Kg minimum

Percussive
Rammer

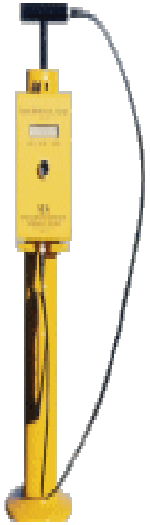
Narrow trench
Vibrotamper
25Kg minimum

6.0 In-Situ testing (Clegg testing)

- Should Clegg hammer testing be undertaken, they will be operated by trained supervisors and the values achieved on each layer recorded.

Reinstatement Level	Fourth Drop Impact Value		
	Target Value	Typical Range	Highest Likely
Trench Bed	7	7 – 8	30
Top of Fine Fill	10	10 – 17	-
Top of Back Fill	18	**17*** - 27	-
Top of Sub Base	22	24 - 27	-
Top of Road Base	30	32 - 34	38

* = Minimum Impact value for Imported material



7.0 Recording reinstatement details

- When recording reinstatement details, ensure that all the construction details/sizes are recorded for footway and carriageway works and the full address is confirmed:

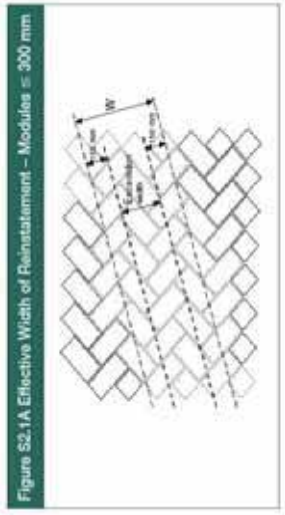
1. Bituminous material surface type i.e. Hot rolled asphalt, 10mm SMA, AC 10mm Close graded surface course, AC 6mm Surface course remember to include the size and any additional damage caused by your works.

2. Modular surface: Colour of paving, size of paving, and bedding material also remember to include the size and any additional damage caused by your works.

3. Any material found directly below either the paving or bituminous layers should be given for example concrete including reinforcement, CBM (dry lean) or bedding mortar must be replaced.

8.0 Reinstating modular materials

- Do you have all necessary materials to undertake the reinstatement? Remember any damaged modules will need to be replaced.
- Permanent reinstatement of modules shall include all modules, which are situated within or extend beyond the effective width of the reinstatement (W) described in Section S2.1.4 and shall also include any other modules which are disturbed in the course of carrying out the excavation or reinstatement.
- Bedding materials and layer thickness should match existing.
- Ensure the layout of modules match the existing pattern.
- When using mortar/sand bedding, place and level in order to accept slabs etc. to the required tolerance.
- All Modules (cobbles, setts, pavers, flags and slabs) placed on the bedding sand will require re-compaction. To limit any anticipated damage, the vibrating plate must be fitted with a neoprene cover.
- Kiln Dried Sand Must Be Used when vibrating in the modules.

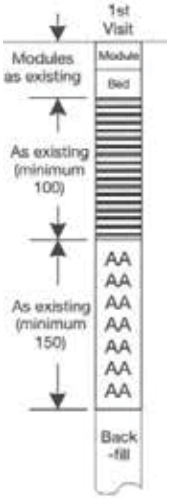


Vibrating Plate Compactor fitted with a Neoprene Pad

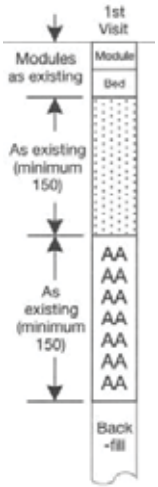
Carriageway
Modular Base/Sub-Base Construction

Footway
Modular Sub-Base Construction

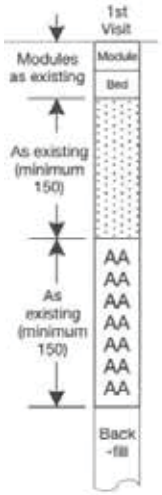
Key to materials



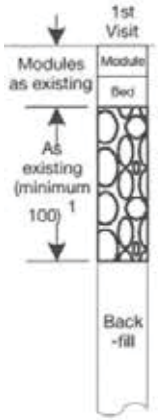
Bituminous base

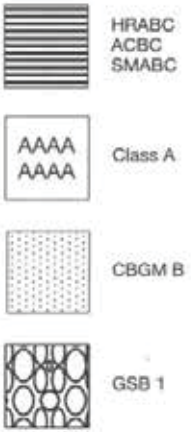


Granular base



Composite base





9.0 In-fills in modular reinstatements

- Gaps greater than 5mm between the nearest module and the immediately adjacent fixed feature (such as edgings, channel blocks, drainage features, surface boxes, ironware) or boundary feature (such as walls, fences and the like), which are caused as a direct result of any works by the Undertaker, should be filled to the full depth of the adjacent paving module, as follows:

  (a) for smaller gaps, or in-fills - a 1:4 cement-sand mortar should be used;

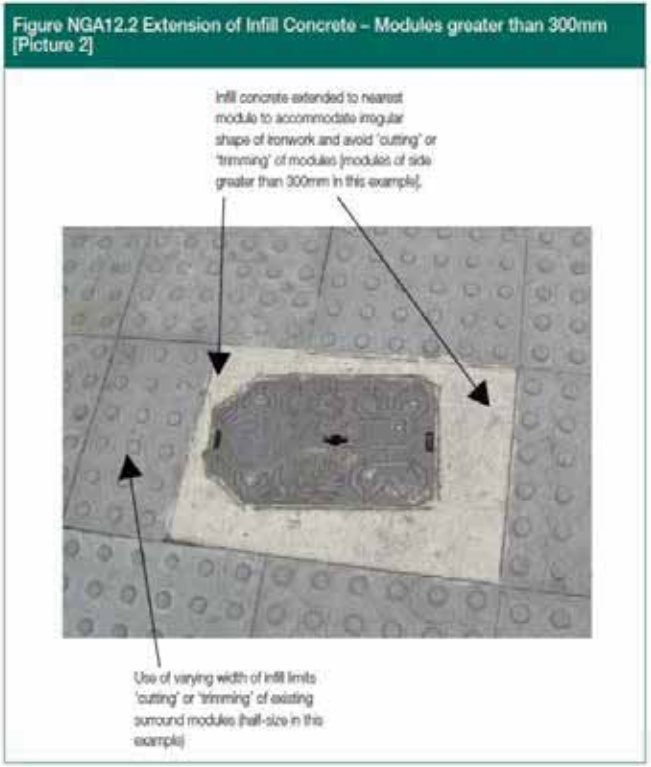
  (b) for larger gaps or in-fills, where aggregate can be used – a 1:5:3 cement: sand: aggregate concrete infill should be used, with a maximum aggregate size of 10mm.

- In-fills should be generally as small as possible, subject to the proviso that where the physical characteristics of the bond, fixed feature, or proximity of other fixed features do not allow for a small infill, then best endeavours should be used to achieve the smallest infill possible.

- In-fills should match existing work by the Authority.
- Infill Widths and Limitations
- Where possible, In-fills should be limited to a maximum width of 50mm in all modular areas, irrespective of whether the existing footway area was originally constructed in accordance with BS7533.

- In the case of modules where one side of the module is greater than 300mm, there are instances where it shall be permissible to increase the width of the infill to a maximum of 150mm, in order to achieve a better engineering and aesthetically pleasing reinstatement. These include instances where the intervening distance is less than 150mm:
  (a) between the Undertaker's newly laid apparatus and the nearest module (on any side), or
  (b) between two or more pieces of Undertaker's newly laid apparatus, or
  (c) to an existing fixed or boundary feature.
- Where it can be shown to be acceptable custom and practice, in exceptional cases, the maximum permissible infill width may be increased to 200mm, for irregularly shaped apparatus. Typical examples are in Notes for Guidance Section NGA12.
- In the case of modules where all sides are 300mm or less, there are similarly instances where it is permissible to increase the width of the infill to the same as the full width of module (measured on the shortest side), again in order to achieve a better engineering and aesthetically pleasing reinstatement. These include instances where the intervening distance is less than the full width of a module plus 25mm (measured on the shortest side):

Figure NGA12.2 Extension of Infill Concrete – Modules greater than 300mm [Picture 2]



10.0 Reinstating concrete surfaces (F/Way)

- Check that the edge of the existing surface slab is straight, smooth and vertical. All openings must be squared off (see figure 1).

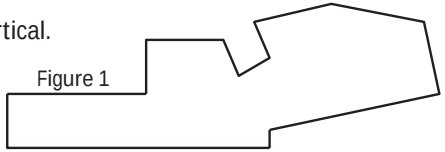


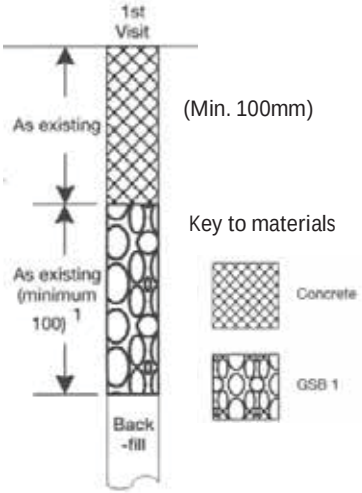
Figure 1

- **Concrete thickness is to match existing (Minimum 100mm).**
- Ensure that if the edges of the reinstatement are within 150mm of any existing Ironwork, Kerb, Fixed features or another reinstatement that this is also removed and included within your reinstatement.
- Ensure all damaged edgings are replaced
- The reinstated concrete slab is to match the thickness of the existing, and a slip membrane should be installed, clean and wet sides prior to placing concrete
- All concrete surfaces finishing must match existing. Cover concrete with curing membrane to allow curing and for protection.


Soft brush


Wooden float


Textured roller



11.0 Reinstating bituminous materials

- Re-compact the GSB1 material prior to laying bituminous binder course.
- The use of diesel to clean tools is prohibited. Only use the approved cleaning solution.
- Apply Edge sealant to the vertical edges of the reinstatement (Check that it has it been applied correctly? I.e. free of contamination, loose material and the like. In all cases the manufacturer's instructions will be followed).

Edge sealant

- Using a **50kg Vibrotamper** (Not recommended on trenches >500mm) the minimum Passes/Lift for compacted lift thickness up to 40mm thick = 5 passes and 60mm thick = 7 Passes.
- Using a **Single Drum Roller** (600-1000kg) the minimum Passes/Lift for compacted lift thickness up to 40mm thick = 10 passes and 60mm thick = 12 Passes.
- Using a **Vibrating Plate** (1400-1800kg) the minimum Passes/Lift for compacted lift thickness up to 40mm thick = 6 passes.

A Tack Coat must be applied to the Binder Course layer prior to laying the Surface Course

Vibrotamper 50Kg minimum

Vibrating Plate

Single drum Roller

Percussive Rammer

Edge Sealant Application

Photo A

Don't coat on a wet slurry saw-cut edge. Brush first.

Photo B

First application of sealant. (Only 5 minutes of drying time allowed before reinstatement commenced).

Photo C

Second application of sealant to top of reinstatement edge following compaction of first reinstatement lift. (Only 2 minutes of drying time allowed before reinstatement commencement).

Photo D

Core comments:

- Core taken through joint shows sealant has not adhered to vertical edge
- No bond observed between reinstatement and adjacent surfacing.

Overall comments:

- Reinstatement edge should have been washed and substantially dried before application of spray sealant
- Allowed drying time does not conform with manufactures Instruction
- Incorrect application of edge sealant could permit water penetration into joint, potentially leading to early life edge deterioration, settlement of trench and future (avoidable) defects.

12.0 Narrow Trench Compaction

Compacting small excavations and trenches less than 200mm width

- Using a Vibrotamper (25Kg minimum) or a Percussive Rammer (10Kg minimum) a minimum of 6 compaction passes and a Maximum of 75mm compacted lift thickness is required. The number of passes and lift thickness will differ when using a 55kg narrow foot vibrotamper. Refer to specific process for compaction and lift thickness narrow trenches.

- If using Hot-Lay materials, ensure the temperature is correct, using a temperature probe.
- Do not apply too much water when compacting, apply through a watering can fitted with a rose.
- Ensure the correct surcharge of each lift has been applied:

Surcharge	Compacted lift thickness					
	40mm	50mm	60mm	100mm	150mm	200mm
40%*	16mm	20mm	24mm	40mm	60mm	80mm

* = SMA materials vary considerably

Additional Checks to Make:

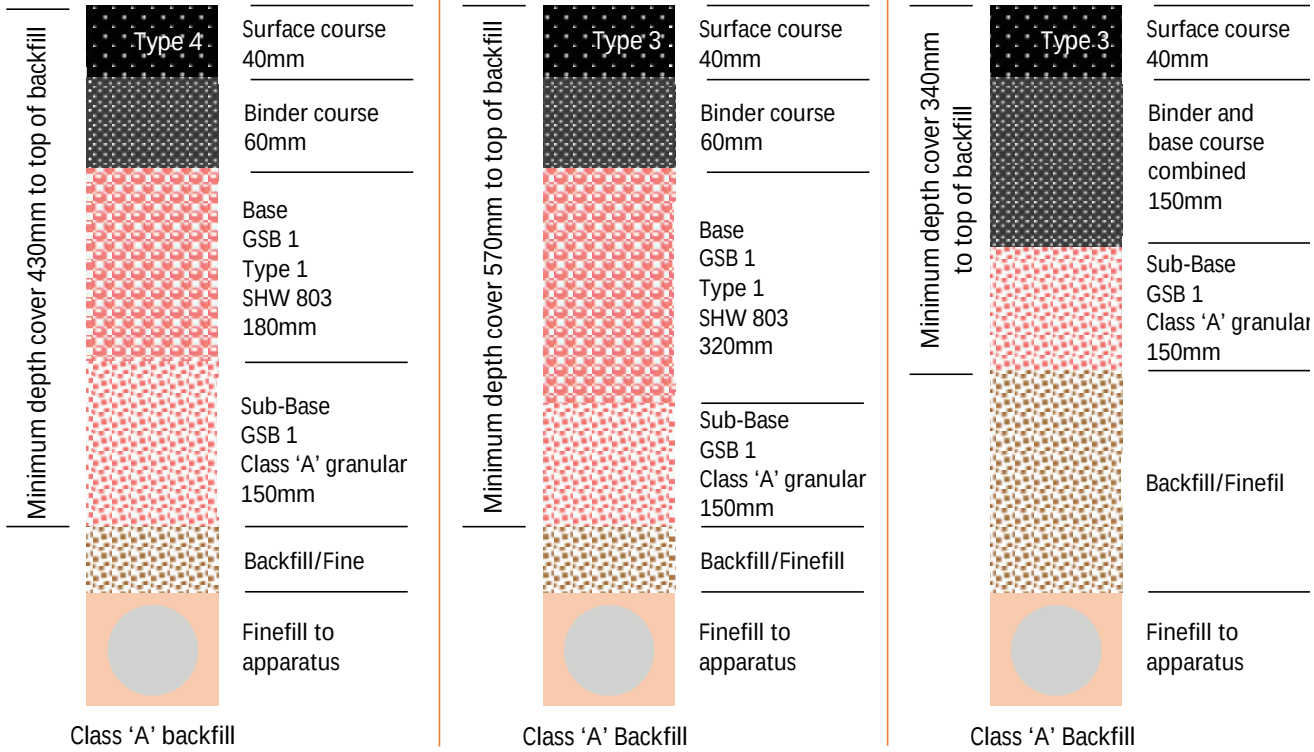
- Has the correct Surface material been identified?
- Has the thickness/s of each layer been identified?

Belle vibrotamper
25Kg minimum

Percussive
Rammer

13.0 Typical carriageway construction types

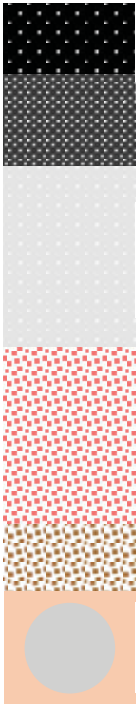
Typical 'Flexible – Type 3 & 4' Construction / Layer depths



"If you are not able to achieve the construction depths or the works are in a type 1 or 2 carriageway consult your supervisor

Typical 'Composite – Type 3 & 4' and 'Rigid 2, 3 & 4 Construction / Layer depths

Composite – Type 3 & 4



Surface course
40mm

Binder course
Match existing

Base
CBGM B
150mm

Sub-Base
GSB 1
Class 'A' granular
150mm

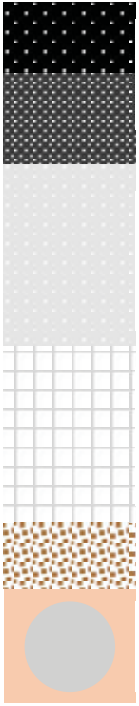
Backfill/Finefill

Finefill to
apparatus

Class 'A' backfill

"If you are not able to achieve the construction depths consult your supervisor"

Rigid – Type 2, 3 & 4



Running surface
overlay if
existing

Concrete
as existing
replace
reinforcement

As existing
minimum 150mm
CBGM 3 if
existing

Backfill/Finefill

Finefill to
apparatus

Class 'A' backfill

14.0 Reinstating around Iron work in carriageway

- **Reinstatement Materials which do not require compaction**

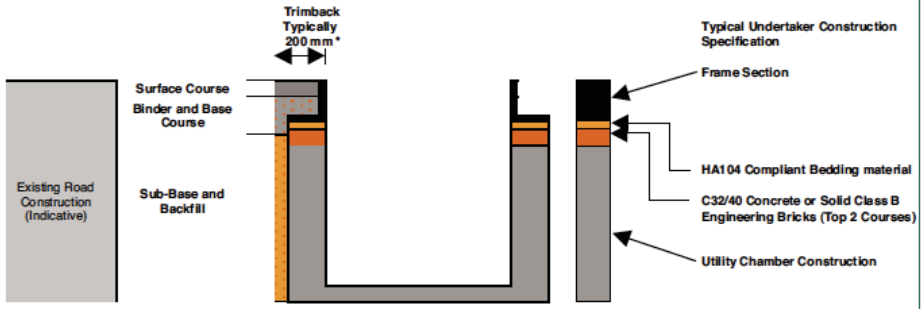
  If reinstatement materials are being used which do not require compaction e.g. rapid cure concrete, flowable mastic asphalt, etc. then a minimum width of trim-back will be required. Typically, it will be 50mm in excess of the flange width e.g. a frame which has a 150 mm base will require 200 mm width of trim-back.

- **Reinstatement Materials which require compaction**

  If reinstatement materials are being used that require compaction e.g. granular sub base, hot rolled asphalt, etc. Then the width of trim-back required will be the width of the frame base plus the width of the] compaction tool sole plate plus 50 mm. Typically, a frame which has a 150 mm flange will require 350 mm width of trim-back to accommodate a compaction tool sole plate of 150 mm.

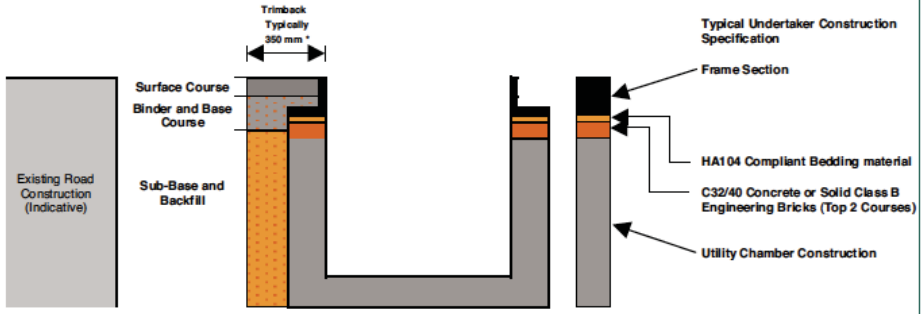
- Note: Replace road markings and surface treatments. Ensure signing is in-place informing the anti-skid is not reinstated.

Figure S11.1 Reinstatement adjacent to Undertaker's Apparatus (Carriageway)



Example 1 - Flowable Reinstatement Materials

* Trimback Typically assumes 150 mm Frame + 50 mm Adjustment



Example 2 - Asphalt Reinstatement Materials

* Trimback Typicallyassumes 150 mm Frame + 50 mm Ad justment + 150 mm Compaction Sole Plate

15.0 Chamber construction verge

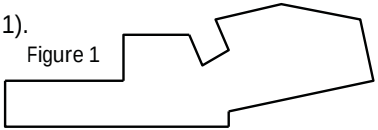
The following points will ensure the chamber is constructed correctly

- The chamber is constructed on
  - JF2 150mm CBGM
  - JF4 200mm CBGM
  - JF6 100mm GSB and 100mm CBGM
- The excavation is large enough to accept the compaction equipment
- The compaction is undertaken in layers either @ 100mm 4 passes or 150mm 5 passes using an upright compactor
- Replace grass, or topsoil and seed area around frame and cover
- Ensure all stones greater than 20mm are removed from surface area

16.0 Reinstating concrete surfaces (C/Way)
Edge taper support

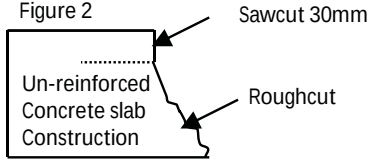
- All edges must be trimmed and squared off to give a regular plan shape (see figure 1).

Figure 1



- Where the surface of the slab is the running surface of the road the excavation shall be cut by road saw to a depth of 30mm and the remainder of the exposed faces should be rough-cut at an angle (see figure 2).

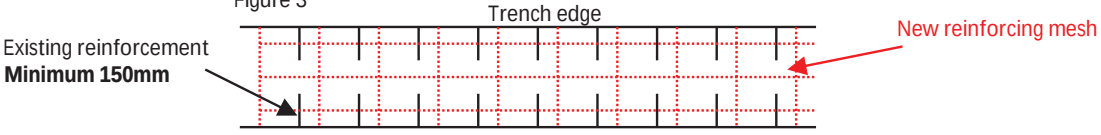
Figure 2



- Any cracked sections within an adjacent road slab should be removed and included within the area to be reinstated.
- Where the trimmed edge of your excavation is within 300mm of the road slab edge, a joint, another reinstatement or ironwork, you must extend the trim line to include the feature.
- The reinstated concrete slab is to match the thickness of the existing road slab, and a slip membrane should be installed. Any warping/expansion join removed must be replaced.

- Install steel mesh reinforcement (where required). The new mesh should be attached (lapped and wired, etc.) to the existing reinforcement. A minimum of 150mm of existing reinforcement should be exposed for lapping (see figure 3).

Figure 3

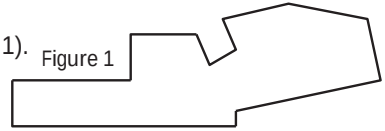


- Ensure all edges of existing slab are Clean and wet.
- Place and level concrete. (Note that you must use air-entrained concrete for at least the top 50mm of the roadslab).
- Texture the surface of the concrete (groove or brush), to match the existing surface and Cover concrete with curing membrane to allow curing and for protection.

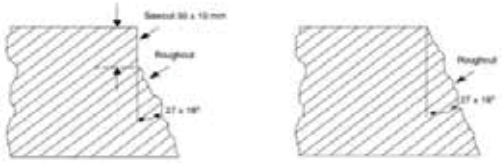
17.0 Reinstating concrete surfaces (C/Way)
Dowel bar support

- All edges must be trimmed and squared off to give a regular plan shape (see figure 1).

Figure 1

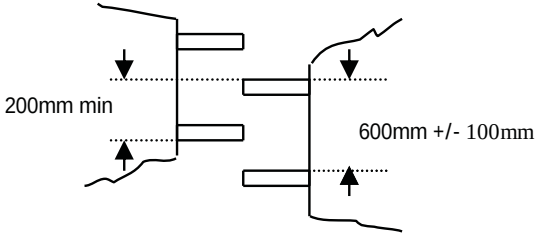


- Where the surface of the slab is the running surface of the road the excavation shall be cut by road saw to a depth of 20mm and the remainder of the exposedfaces should be rough cut at an angle (see figure 2).



- Any cracked sections within an adjacent road slab should be removed and included within the area to be reinstated.
- Where the trimmed edge of your excavation is within 300mm of the road slab edge, a joint, another reinstatement or ironwork, you must extend the trim line to include the feature.
- The reinstated concrete slab is to match the thickness of the existing road slab, and a slip membrane should be installed. And all warping/expansion joints removed must be replaced.
- Cut dowel bars to required length: Maximum length = 400mm
  Minimum length = width of reinstatement minus 50mm

- Drill holes to accept dowel bars. All holes must be drilled at 600mm centres (with a 100mm tolerance) and offset by at least 200mm.

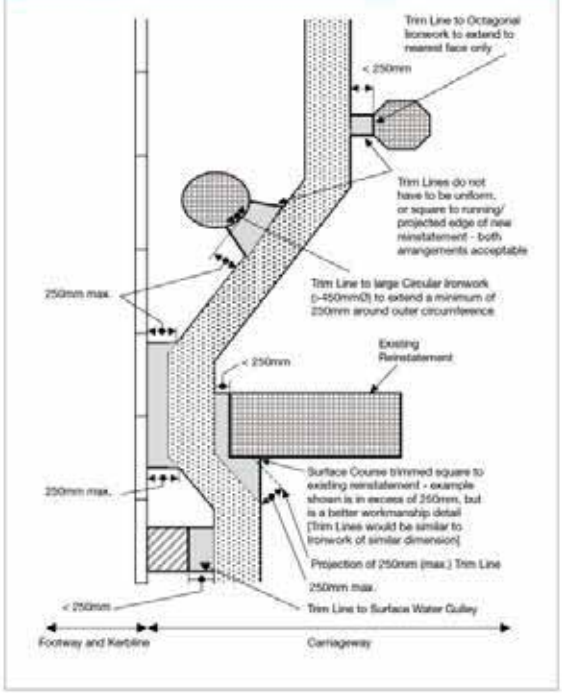


- Insert dowel bars (where required.) Install steel mesh reinforcement. The new mesh should be attached (lapped and wired, etc) to the existing reinforcement. A minimum of 150mm of existing reinforcement should be exposed for attachment.
- Ensure all edges of existing slab are Clean and wet.
- Place and level concrete. (Note that you must use air-entrained concrete for at least the top 50mm of the road slab).
- Texture the surface of the concrete (groove or brush), to match the existing surface and Cover concrete with curing membrane to allow curing and for protection.

18.0 Edge Requirements and Trim lines in Carriageway

- Where the "trimmed" edge of any excavation is within 250 mm of the road edge, kerbing, other fixed features or another reinstatement, the trim-line shall be extended to the interface with the road edge, kerbing etc. See Figure S6.2.
- The additional reinstatement area required by extending the trim-line may be confined to the surface course, provided the lower layers have not been damaged.
- Where an existing fixed feature is immediately adjacent to another fixed feature (e.g. road gully, stop-cock valve cover, etc.) material selection shall be appropriate to ensure adequate compaction and surface profile.

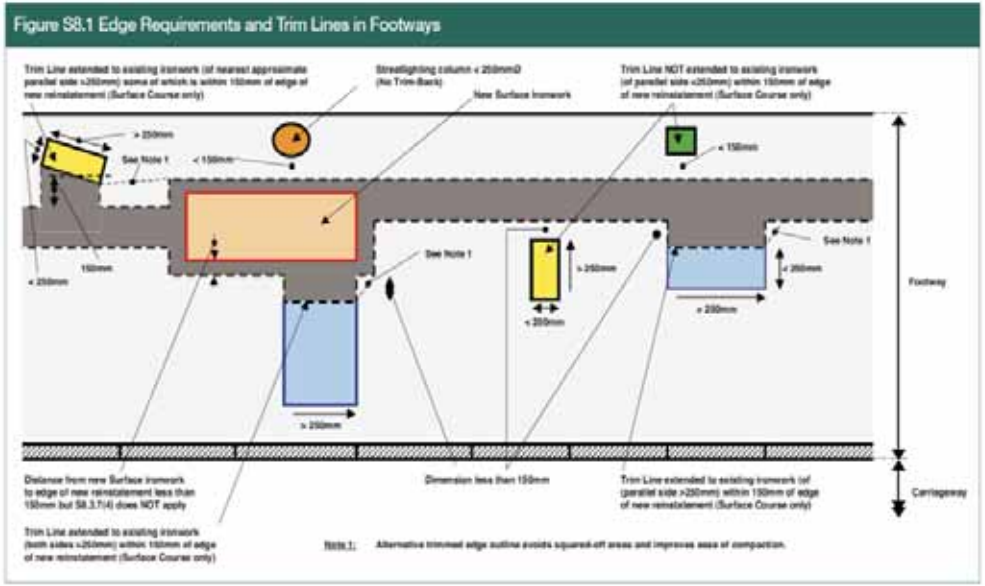
Figure S6.2 Edge Requirements and Trim Lines in Carriageways



19.0 Edge Requirements and Trim lines in Footway

- For all footways, footpaths and cycle tracks, where trim-lines for the reinstatement edges are within 150 mm of an edge, kerb, ironwork or other reinstatements, the trim-lines shall be extended to the interface of the edge, kerb etc. This additional reinstatement may be confined to the surface course provided lower courses have not been damaged. See Figure S8.1.

- Fixed features in the footway such as sign posts, lamp columns, stopcock valve boxes, etc. that are less than 250mm diameter or 250 mm width on the side facing the reinstatement are exempt from the trim-line extension.

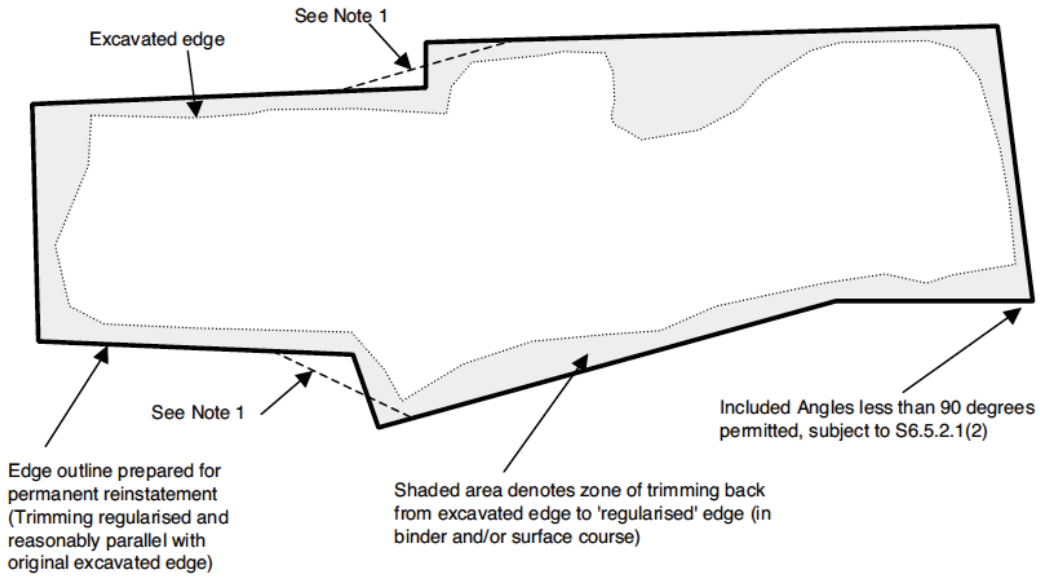


20.0 Edge Preparation/Regularity

- The edges of excavations may need to be trimmed, at binder course and/or surface course level, to meet the following requirements:

  - All bound edges shall be essentially straight, smooth and vertical.
    Note, should the edge from a cutting wheel not prove satisfactory – It must be saw cut
  - Edge regularity requirements are intended to provide a shape that will not hinder the compaction of material adjacent to the reinstatement edge. Overlapping edge cuts and corner cut outs should be minimal and all cuts extending into the existing surface shall be filled with flexible bituminous sealant. A circular excavation shall be considered a regular shape.
  - The internal corners and edges of a reinstatement shall be as square as possible. Internal angles less than 90° are acceptable and, where this is the case, appropriate compaction equipment shall be used to achieve the specified compaction.
  - There shall be no requirement to trim the sides of trench excavations solely to provide a uniform width, provided that individual projections are not less than 250 mm length, measured parallel to the nominal centreline of the trench. See also Figure S6.1 (Example 1).
  - There shall be no requirement to trim a small excavation solely in order to provide a square or rectangular shape. Any shape, in any excavation, with included angles, which may be less than 90º, with no projection less than 250 mm length, may be considered to be regular. See also Figure S6.1 (Example 2).

Figure S6.1 Examples of Prepared Edge (Example 2)



EXAMPLE 2 - SMALLER PATCH OPENING

Note 1: Alternative trimmed edge outline avoids squared-off areas and improves ease of compaction.

21.0 Structural Material for Reinstatement (SMR)

SMR if used in footways to reduce the surfacing material to 1 layer of AC 6mm should be placed and compacted to a thickness of 150mm, this will effectively replace the sub-base and binder course leaving 30mm for surface course (as detailed below). Compaction for SMR and AC 6mm is as detailed above within the relevant sections of this RQP.

A9.3.1 Permitted Uses of SMRs

1) SMRs may be used in any combination of the following, regardless of the nature of reinstatement materials used above and below:

   a) At any position within the surround to apparatus and/or backfill as the entire layer or combined with any other permitted backfill materials, in any proportion, within any reinstatement.

   b) As a sub-base within any reinstatement.

   c) As a combined sub-base and base within any reinstatement in Road Types 1, 2, 3 & 4 and as base within any reinstatement in Road Types 3 & 4.

d) As a combined sub-base and binder course, within any reinstatement in footways, footpaths and cycle tracks.

Note: should SMR be used then the locations must be recorded at registration of the works to the HA.

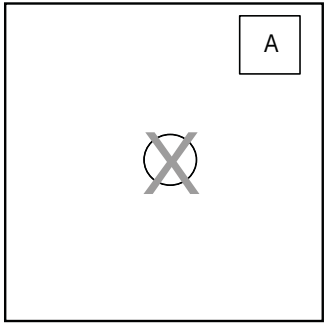
22.0 Opening up the Highway (avoiding S74)

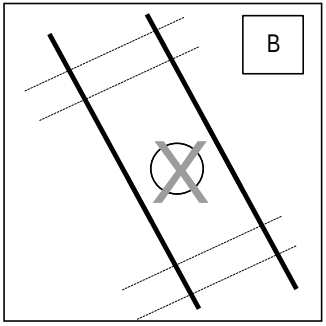
It is important to ensure when works have been completed and the highway is opened back up to the public that the following checks are undertaken that will avoid S74 charges.

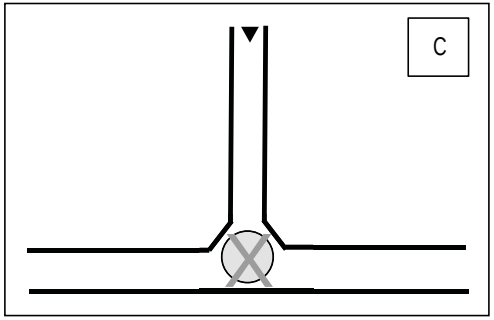
- All works visually comply with the requirements of the SROH
- All signing, lighting, guarding and traffic lights are removed
- Road markings have been replaced
- Anti-skid is either replaced or signed in accordance with the red book for the prescribed period (15 days)
- Site is swept clean with all residue from cement or other staining caused by your works removed
- In grass verge all stones greater than 20mm are removed
- Grass seed and top soil has been placed
- Grab or blade damage from mini digger has been cut out and reinstated
- Should it not be possible to comply with the above due to the duration nearing its end then issue a 'Self Defect' to complete the works
- Finally ensure images are taken confirming site is clear

23.0 Core Sampling and Air Void Testing

All core sampling and air void testing will be undertaken in accordance with the Statutory Guidance Street Works Inspections Coring. In general core positions will be completely within the proposed reinstatement intended for sampling and will be taken as indicated below, “A” The centre of a single reinstatement. “B” Trenches up to 200 metres a single core. “C” Narrow trenching where the sample will be taken at the “T” position as indicated below. No sample will be taken on the edge of a reinstatement.







For the purposes of this document a unit of inspection is defined as either:

- a single excavation not exceeding 200 metres in length and not part of works as defined under (ii) below. Excavations longer than 200 metres will be counted as one unit of inspection for each 200 metres or balance thereof; or
- (ii) Up to 5 excavations (up to 10 excavations in the case of works relating to service pipes or service lines), provided that they meet all of the following criteria:

  (a) all the excavations are in the same street;
  (b) all the excavations are part of the same works;
  (c) all the excavations are made over the same period of time (not exceeding 10 days);
  (d) each excavation is within 500 metres of every other excavation;
  (e) the aggregate length of all the excavations does not exceed 200 metres.

Best Practice Guide – Backfill & Compaction

1

Tools needed

2

Excavated material should be covered when being reused

3

Check cavity depth prior to

4

Material should be at optimum moisture content, too wet and it will not compact correctly

5

Compact material in confined spaces using a hand tamper

6

Repair any damaged apparatus caused by the excavation works. If this is not possible report it to your supervisor

Some safety barriers were moved to permit photographing of the works.

Compact in lifts with 50kg wacker
100mm compacted thickness = 4 passes
150mm compacted lift thickness = 8 passes

7

8

Compact in lifts and layers

Compacting in lifts & layers is the key to compliance

9

Ensure you leave the correct cavity depth for the reinstatement

10

Take Clegg readings photograph and record the fourth drop

Clegg testing to be carried out on each layer of construction			
Reinstatement Level	Fourth Drop Impact Value		
	Target Value	Typical Range	Highest Likely
Trench Bed	7	7 – 8	30
Top of Finefill	10	10 – 17	-
Top of Backfill	18	17 - 27	-
Top of Subbase	22	24 - 27	-
Top of Roadbase	30	32 - 34	38

Some safety barriers were moved to permit photographing of the works.

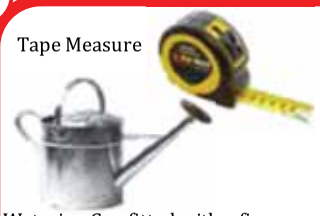
Reinst8ment

Best Practice Guide – Bituminous Carriageway

1

Ensure you have with you

Tape Measure



Watering Can fitted with a fine rose

2

Check cavity depth is correct for construction type and adjust

3

Trim Reinstatement as required

Remember PPE

4

Always re-compact the sub-base

Remember PPE

Apply minimal water using a watering can fitted with a fine rose

5

Clean & paint all vertical edges including kerbs and ironwork

Remember COSHH & PPE

6

Using a 50kg wacker compact a maximum of 40mm thickness 5 passes and 60mm thickness 7 passes

Remember PPE

Some safety barriers were moved to permit photographing of the works.

Apply bond coat to base course, re-paint all vertical edges including kerbs and ironwork

7

8

Compact material in lifts and layers Maximum compacted lift thickness				
Aggregate size		Depth		
6mm		20mm		
10mm		40mm		
20mm		60mm		
Material Temperature				
Material	Binder	Maximum	Min	Rolling
CGSC	100/150	170	120	95
DSC	160/220	170	110	85
DBC	40/60	190	130	100
	70/100	185	125	95
	100/150	170	120	90
	160/220	170	110	80
HRA SC	40/60	190	140	110
	70/100	185	125	90
	100/150	170	120	85
HRA BC	40/60	190	130	105
	70/100	180	125	90
	100/150	170	120	85
SMA BC	40/60	200	130	100
	70/100	180	125	90
	100/150	170	120	85

Remember to apply sufficient material to allow for surcharge

9

Pinch material into edges before compacting

10

Using a 600-1000kg roller compact a maximum of 40mm with 10 passes
Apply minimal water

11

Replace road markings

12

Some safety barriers were moved to permit photographing of the works.

Reinst8ment

Best Practice Guide – Bituminous Footway

1 Ensure you have with you

Tape Measure

Watering Can fitted with a fine rose

2 Check the cavity depth is correct

3 Trim Reinstatement as required

4 Re-Compact sub-base

5 Clean & paint all vertical edges including kerbs and ironwork

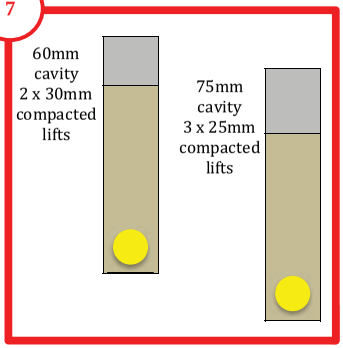
6

Compact material in lifts and layers Maximum compacted lift thickness				
Aggregate size			Depth	
6mm			20mm	
10mm			40mm	
20mm			60mm	
Material Temperature				
Material	Binder	Maximum	Min	Rolling
CGSC	100/150	170	120	95
DSC	160/220	170	110	85
DBC	40/60	190	130	100
	70/100	185	125	95
	100/150	170	120	90
	160/220	170	110	80
HRA SC	40/60	190	140	110
	70/100	185	125	90
	100/150	170	120	85
HRA BC	40/60	190	130	105
	70/100	180	125	90
	100/150	170	120	85
SMA BC	40/60	200	130	100
	70/100	180	125	90
	100/150	170	120	85

Some safety barriers were moved to permit photographing of the works.

7

The key to success is to
Compact in lifts & layers



8

Apply minimal water it is only
needed to stop the material
adhering to the equipment

Compacting in lifts & layers is the key to compliance

9

Using a 50kg wacker compact
a maximum of 40mm thickness
with 5 complete passes

10

Re-apply edge sealant to all vertical
Edges including kerbs & ironwork

11

Remember to apply sufficient material
to allow for surcharge, pinch material
in to edges before compacting

12

Using a 600-1000kg roller compact a maximum of
40mm with 10 passes Or using 1400-1800
vibrating plate 6 passes

Reinst8ment

MGroupServices
Telecom Division