

DEPARTMENT OF INFRASTRUCTURE
HIGHWAY SERVICES DIVISION
HIGHWAY REINSTATEMENT STANDARD

OP-06-057



Isle of Man
Government

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Issue/Rev Nr	Date	Approved by	Description
1.0	Jul 21	JR	First issue
2.0	Dec 23	JR	HAPAS approved system specified for ironwork reinstatement

1. Context

Highway Services within the Department of Infrastructure is the highway authority for the Isle of Man, and is tasked with maintaining and controlling works within the highways to ensure the assets remain in an acceptable condition.

This document has been produced to assist those working in the highway, and applies to all works carried out within the highway.

Quality of reinstatements can have a large impact on the condition of roads, and the requirements set out in this document are designed to balance the whole life costs of maintaining the network with the cost of undertaking reinstatements and other works in the highway.

Highway Services acknowledges the need for utility companies and third parties to undertake works in the highway to access apparatus buried within and beneath the highways and to improve their networks.

This document covers reinstatements around openings; for new works or other modifications these are covered separately. This document does not apply to unsurfaced roads or footpaths, where works are required within these please consult with Highway Services.

The key objectives of this document are:

- a. Achieving a high quality of reinstatements that minimises the reduction in lifespan of carriageways and footways following works, by following best practice
- b. Setting clear quality standards that can be met, to reduce the amount of re-work and disruption for the travelling public
- c. Balancing the above against the needs of utilities and other parties to undertake works in the carriageway and achieve value for money

2. Requirements before undertaking works

To undertake works within the highway a body must have appropriate permission from the highway authority. There are several routes for this depending on who is undertaking the work:

	<u>Permission / Notification</u>	<u>Notice Period</u>	<u>Comments</u>
Works on behalf of a statutory undertaker	Road opening notice (under s56 of the Highways Act)	Minimum of 7 working days	Road opening notice shall be submitted by the statutory undertaker (and not their contractor) Suitably qualified contractors must be appointed
Works undertaken on behalf of a third party	Road opening notice (under s75 of the Highways Act)	Minimum of 7 working days, however license is required and adequate consultation should be given in advance	Suitably qualified contractors must be appointed
Works undertaken by Highway Services	Forward programmes provided to highway inspectors		Suitably qualified persons should undertake works

Where temporary traffic orders are required (e.g. closures, suspensions), an appropriate application must be made with a minimum of 28 days notice. These will be added to Road Watch which will inform the general public of upcoming roadworks. Where temporary traffic lights are to be used, consent should be sought from the highway inspector and Highway Services Control (850000) advised of when they will be placed on the network.

This document covers reinstatements from works within the highway. Where permanent changes to the highway are proposed, please consult Manual for Manx Roads.

Utility providers should attend the Joint Utilities Group and share information on their forward plans. This enables other utility providers to coordinate works.

Major disruption and/or closures from planned works require consultation with relevant stakeholders (e.g. local residents, businesses, Local Authorities). Highway Services will require proof of consultation and discussions as part of the application process.

3. Requirements for undertaking works

The UK Code of Practice "Safety at Street Works and Road Works" (the red book) provides useful guidance for carrying out street works safely. Operatives should be suitably trained in roadworks, and Highway Services will require a minimum standard of training in street works before operatives can work on the highway (from 1st April 2022).

Appropriate considerations must be given to traffic management. Suitably trained and competent persons shall be used for design and installation of traffic management, which should comply with Chapter 8 of the Traffic Signs Manual.

The location of other services shall be identified before commencing works, using **DialB4UDig** and appropriate site measures. Where services are exposed during works they must be adequately protected and supported.



Highway Services Control (on 850000) should be informed of the intended start date and duration of works, and updated where this changes. Road opening notices and temporary traffic orders (where required) must be in place prior to the start of any works, and for emergency works in place within 24 hours. A notice board displaying the applicant and contractors name, address and contact details including out of hours contacts must be displayed on the site.

Operatives shall keep on site at all times:

- A copy of the road opening notice
- Proof of competence
- Work package plans, including risk assessments, method statements and any existing services information

Trees must be appropriately protected during works. Where works are in proximity to trees, specialist advice should be sought from DEFA or a qualified arborist. The National Joint Utilities Group publication NJUG 10 - "Guidelines for the Planning, Installation and Maintenance of Undertaker Services in Proximity to Trees" has further guidance for working near trees.

4. Reinstatement standards

The construction and size of reinstatements is critical for maintaining the highway asset. Evolved roads which are not constructed to modern standards can pose a particular challenge, when left undisturbed these will have a long residual life, but when trenched and opened this will often reduce a pavement's lifespan drastically.

5.1. Excavations

Regardless of the type of works, asphalt surfaces must be cut out to prevent damage to adjacent surfaces. Where there are modular surfaces such as paving, these must be carefully removed and stored as the same material should be re-laid where possible and in a suitable condition.

Excavated fill constitutes unacceptable material (U2) and shall not be used for fill within trenches.

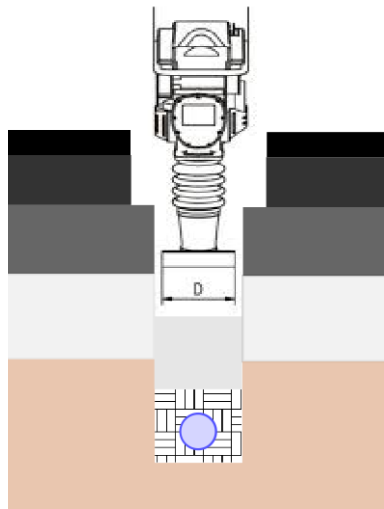
Where topsoil is to be reused it should be carefully removed and stored separately from other materials, and protected from excessive wetting and drying.

Excavated material shall be removed from site as soon as practicable. Care shall be taken to stop contamination of any surface water drainage systems.

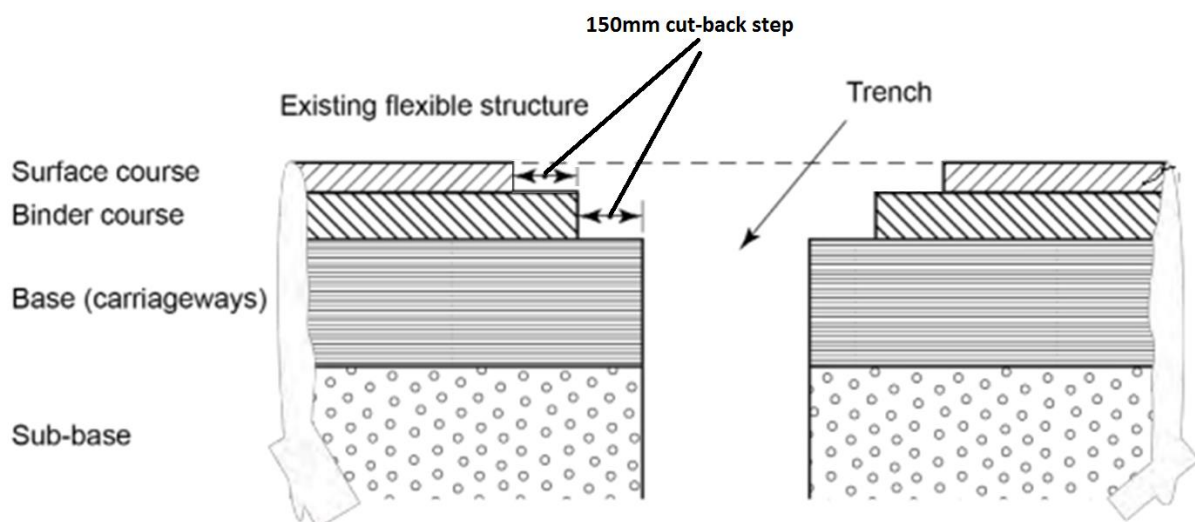
Geometry of openings and reinstatements

Trenching. Where a linear trench is dug to either install, replace or repair buried equipment, or where an excavation is made to undertake works around a particular chamber, gully or similar asset in the surface of road.

The width of an excavation will be set by the size of the apparatus and surround required, and shall also be a minimum of 30mm larger than the plant to be used for compaction to allow for sufficient working space.



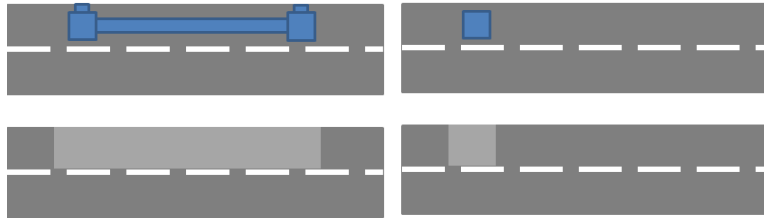
Reinstatement through pavement layer should be stepped to ensure loads are adequately spread through the pavement as shown below.



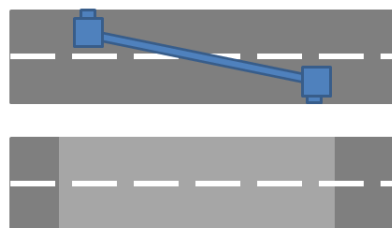
Surface course reinstatements

Where there is disturbance below the pavement depth (trenching, chambers, gullies), surface course reinstatements are required as below:

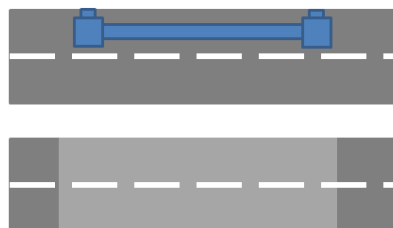
- Where confined to one lane, full width of the single lane



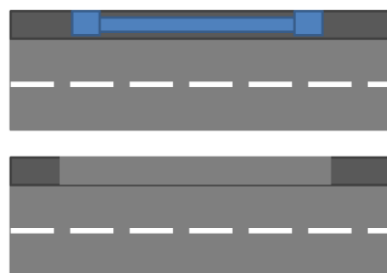
- Where works exceed the centre line, full carriageway width



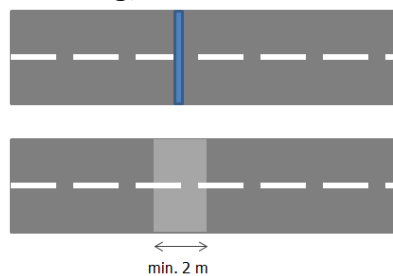
- Where works are on a racing course, full carriageway width



- Where works are on in the footway, the full footway width



- Where works involve a road crossing, a minimum of 2m width



Where the existing carriageway surface is unsuitable for full reinstatement, the highway inspector will provide further guidance. Full width or lane carriageway reinstatements should be undertaken using a paver rather than by hand lay, unless otherwise agreed with the highway inspector.

Surfacing requirements are contained in – “Highway surfacing and patching standard specification”, OP-06-058.

Patching and highway repairs. Where work is undertaken primarily to surface layers to improve the condition of the carriageway or footway.



Patching is a surface level repair and therefore does not pose the same issues with settlement. The size of patches will depend on the nature of the defect found. Patches should be kept reasonably rectangular and with straight edges.

However, care should be taken to not compromise the integrity of adjacent surfaces by cutting square edges. Where the existing surface will be less than 200mm in width the patch should be extended to the edge.

Machine laid surfaces provide better longevity and performance than hand laid surfaces, and therefore larger patches where it is feasible for a paver should be machine laid unless site constraints make this impractical.

Patching requirements are contained in – “Highway surfacing and patching standard specification”, OP-06-058.

Manholes, chambers and other ironwork

Edges for manholes should be saw cut. Chamber construction and proprietary bedding mortar shall be in accordance with the standard details or manufacturer guidance.

Haunching shall use non-shrink concrete such as QC10 or equivalent HAPAS approved product. This shall be installed in accordance with manufacturer guidance, and hot tar used for the asphalt reinstatement.

Brickwork	Bedding Mortar	Backfill	Edge Sealant	Surfacing	Ironwork	Suggested Ancillaries
MCHW Series 2400 Clause 2406.3 Table 24/2. Interlocking mono-polymer bricks	HA 104 Compliant HAPAS (or similar third party) Approved by product or as part of a HAPAS approved system Or polymer modified Mastic Asphalt System	HAPAS approved rapid set concrete 10mm, gaining 20N/mm ² within 90-120 mins Or polymer modified Mastic Asphalt System	Prior to all surfacing works an appropriate tack/bond coat must be used – aerosol or emulsion	Bituminous Mixtures with a CE mark to BS EN 13108 parts 1, 2, 4, 5 and 6 or suitable products with HAPAS certification	Group 4 D400 third party approved to BS EN 124	HAPAS Approved Over banding



- Existing ironwork should be cleanly saw cut and broken out, removing all loose material and debris.



- New frame should be bedded using M60 or similar approved and levelled with adjacent



- Haunching using QC10 or similar approved should be installed to 100mm below the surface of carriageway



- Vertical edges should be sprayed with a bitumen cold joint sealer using SCJ or similar approved prior to hot tar



- Hot tar should be placed



- Properly compacted, and subsequently overbanded

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Acceptable Materials

Fill materials

The HAUC 'Reinstatement of Highway Openings' guidelines shall be used for acceptable materials for bedding, backing and other fill.

Asphalt

The table below shows the required materials and thicknesses for reinstatements.

Table 1 - Construction details for reinstatements

	<i>Standard flexible asphalt pavement carriageway</i>	<i>Standard asphalt footway</i>	<i>Rigid or semi rigid pavements (concrete or concrete slabs)</i>	<i>Concrete footways</i>	<i>Other construction</i>
Surface layer	Material - AC10 Thickness – 40mm	Material – AC6 Thickness – 20mm	(To match existing construction)	150mm ST4 concrete with bay sizing and crack mesh as required	Seek advice from Highway Services
Binder layer	Material – AC20 Thickness– 60mm	Material - AC20 Thickness – 50mm	(To match existing construction)	N/A	Seek advice from Highway Services
Base layer	Material – AC32 Thickness – to depth to meet minimum total thickness (see below) ¹	N/A	(To match existing construction)	N/A	Seek advice from Highway Services
Subbase	Granular Type 1 material Thickness – 300mm	Granular Type 1 material Thickness – 150mm	(To match existing construction)	150mm subbase	Seek advice from Highway Services

¹ Total thickness required for flexible asphalt pavements:-

- 250mm for Primary routes
- 200mm for all other routes

A map of Primary routes is available on the Highway Services website and shown in *Appendix 1*. Where the existing construction is substandard and it may not be possible to provide the construction given in Table 1, agreement should be sought from the highway inspector on acceptable thicknesses.

Deferred set materials are only acceptable as interim or temporary reinstatements, and shall be replaced with permanent materials as soon as practicable.

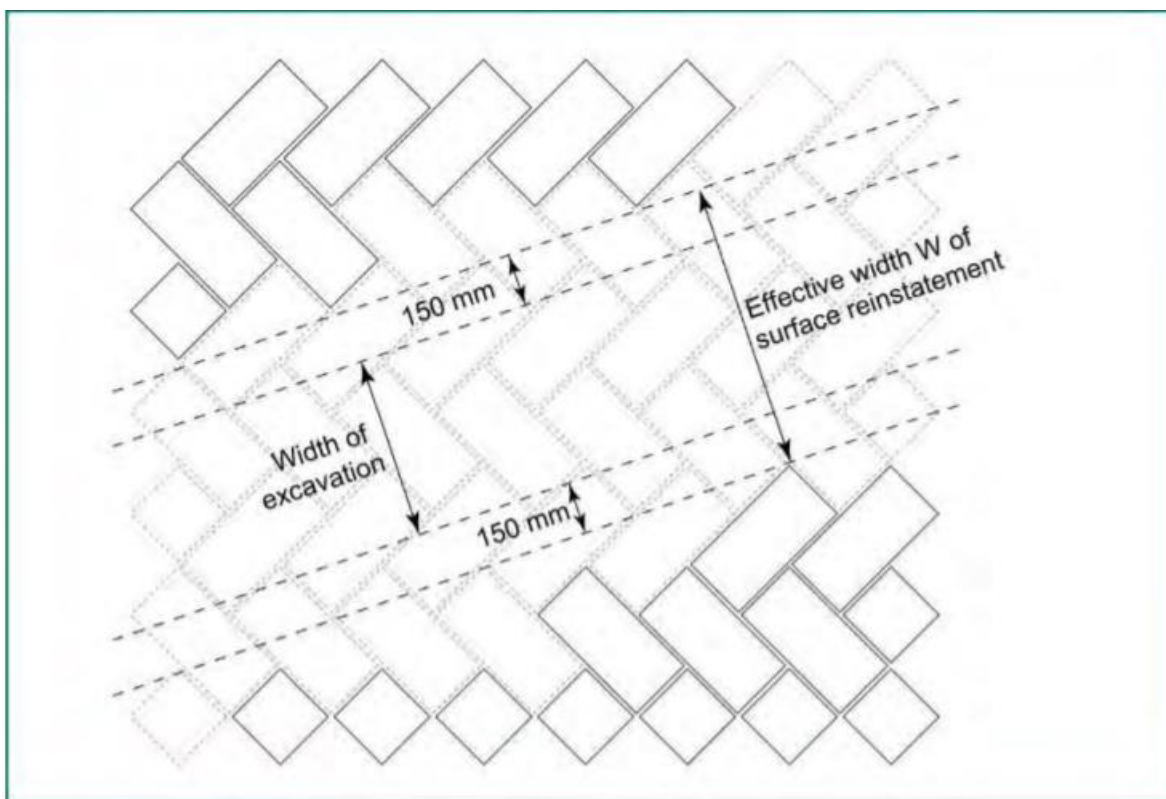
Tack coats shall be used between layers to ensure good adhesion. Vertical sides shall be painted with bitumen and overbanding shall be used to seal joints except on road racing circuits.

Concrete should not be shallower than 100mm from the surface for trench reinstatements to in flexible (asphalt) pavements except when agreed in advance with the highway inspector.

Where reinstatements cross road markings or high friction surfaces these shall be reinstated.

Modular surfaces

Modular surfaces shall be restored to their original standard. Units which cross an area of 150mm from the trench shall be taken up beyond the extent of any trench work.



Where the modular surfaces are high quality finishes (e.g. Granite or granite composite paving), guidance shall be sought from Highway Services for the construction detail and acceptable jointing and bedding materials.

Locations with high quality finishes include:

- Duke Street, Douglas
- Strand Street, Douglas
- Market Hill, Douglas
- Regent Street, Douglas
- Castle Street, Douglas
- Nelson Street, Douglas
- Howard Street, Douglas
- Granville Street, Douglas
- Senna Slip, Douglas
- Douglas Promenade
- North Quay, Douglas
- Wellington Street, Douglas
- Circular Road, Douglas (Microgaming)
- Bay View Road, Port St Mary
- Laxey Village
- Parliament Street, Ramsey
- Market Place, Ramsey
- East Street, Ramsey
- Market Hill, Ramsey
- Peel Street, Ramsey
- Bourne Place, Ramsey
- Post Office Lane, Ramsey
- Trafalgar Hotel Lane, Ramsey
- Collins Lane, Ramsey
- Market Square, Castletown
- George Lane, Castletown
- Station Road, Port Erin
- Orchard Road, Port Erin
- Market Square, Peel

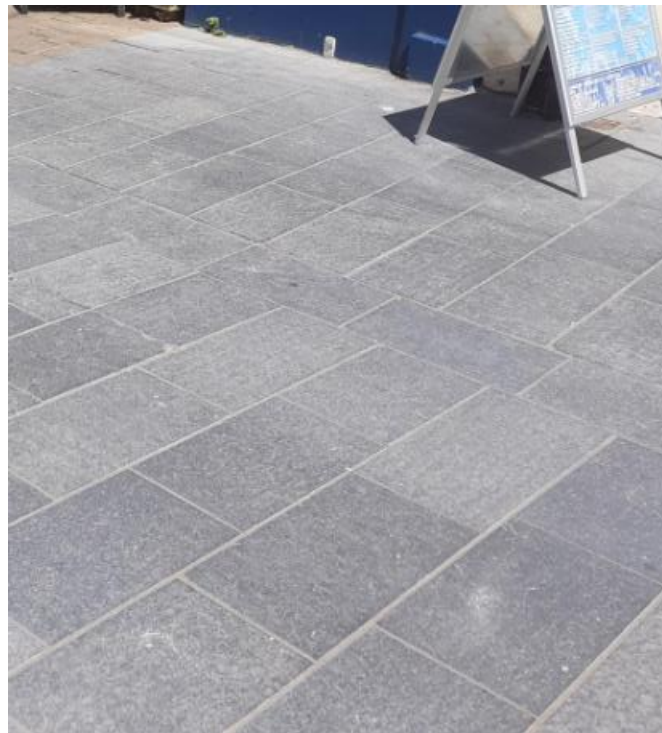


Figure 1 - Example of high quality paving where consultation with Highway Services required

5. Reinstatement Quality

Acceptance Criteria

The reinstatement of the highway surface will:

- a. Be free of tripping hazards for pedestrians.
- b. Provide an acceptable ride quality for vehicles.
- c. Provide a safe running surface for vehicles, including two wheeled vehicles.
- d. Be free draining with no significant puddles in that no standing water wider than 500mm, or exceeding 1m² in area shall be present 2 hours after the cessation of rainfall.
- e. Have no significant cracking and crazing.
- f. Overbanding will be at least 3 mm wide, no wider than 40 mm, and be no more than 3 mm thick at the surface (with approved BBA product).
- g. Be able to take the anticipated traffic loading.
- h. Not induce other failures in the highway surface.
- i. Comply with Table 2 in terms of depression or crowning.
- j. Provide a consistent finish (road markings and high friction surface reinstated)

The installation of any cover, frame, ironwork or associated chamber will:

- a. Not induce other failures in the highway surface.
- b. Not constitute a noise nuisance, skid or trip hazard
- c. Comply with Table 2.

Reinstatement width W (mm)	Intervention limit X (mm)	Combined defect intervention limit (mm)
Up to 400	10	10
Over 400 to 500	12	10
Over 500 to 600	14	12
Over 600 to 700	17	14
Over 700 to 800	19	16
Over 800 to 900	22	18
Over 900	25	20

Table 2 - intervention limits following reinstatement works

Remedial Action and timescales

Reinstatement works shall be guaranteed for 24 months. Where defects are identified as per the above criteria, notice will be given to the applicant that they are required to correct the defective works. Where these are safety issues correction will be required within 24 hours, other issues require correction within 28 days. Where corrections are not made within sufficient timescales Highway Services may undertake works and re-charge the applicant.

Following corrective works, the guarantee period will extend for a further 24 months.

6. Monitoring and compliance

Reinstatement works are a key factor in the future performance of pavements and Highway Services will take steps to ensure the requirements in this document are followed.

Our highway inspectors may inspect and witness works as deemed necessary, and we reserve the right to open reinstatements and undertake testing works to ensure appropriate materials, depths and compaction have been undertaken as part of reinstatement works.

Where there is evidence of non-compliance applicants will be required to undertake remedial works to rectify issues at their own cost.

Highway Services will monitor quality of reinstatements and where trends are identified these will be raised through channels such as the Joint Utilities Group. Applicants and contractors will be expected to undertake appropriate steps to improve the quality of their work and risk refusal of future applications where this is not seen.

7. Appendix A – Roads Hierarchy



- — Primary Distributor Roads
- — District Distributor Roads
- — Local Roads
- — Local Access Roads

All adopted roads that are not Primary, District or Local are designated Local Access roads. These are shown in a smaller size on the above map for clarity.

A larger resolution map is available on the Highway Services website.