

Unit 6 Reinstatement in cold-lay bituminous materials

This unit covers the requirements that you must meet when reinstating cold-lay bituminous materials in highways. **You must ensure that you act in accordance with all current specifications and procedures and that you follow safe working practices at all times when carrying out the activities covered in this unit. The Code of Practice specified in this unit is *Specification for the Reinstatement of Openings in Highways*.**

The unit contains the following three elements, which you must cover:

- 6.1 Prepare layer of pavement structure to receive cold-lay surfacing materials
- 6.2 Construct a cold-lay bituminous surfacing layer
- 6.3 Dispose of surplus materials

In element 6.1, you will prepare the layer of pavement structure to receive cold-lay surfacing materials, by removing all loose matter, making good any defects in the roadbase, re-position displaced ironwork, kerbs and edge restraints and checking that the pavement layer construction is correct.

In element 6.2, you will construct the cold-lay bituminous surfacing layer, selecting the appropriate equipment to use for the prescribed operation. You will need to ensure that the cold-lay bituminous material is correctly handled and stored, check that it meets the requirements of the specification, compact it correctly using suitable equipment and seal the edges correctly.

In element 6.3, you will dispose of surplus material. You will need to identify materials that are unsuitable for re-use or are surplus to requirements, and ensure that safe temporary storage is provided for them on site. You must load all materials for disposal safely for transportation, using the appropriate equipment, and you must leave the site in a clean and safe condition.

Please note: *You must use metric units of linear measurement when undertaking this unit.*

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Element 6.1 Prepare layer of pavement structure to receive cold-lay surfacing materials

Performance criteria	
<p>You must show that:</p> <p>a) you remove loose and deleterious matter from the area to be reinstated using the appropriate equipment</p> <p>b) you identify and rectify any pavement layer surface contamination</p> <p>c) where edge damage has occurred or where undercut is evident, you prepare the area to be surfaced by trimming back correctly, using the appropriate equipment</p> <p>d) you re-position displaced ironwork, kerbs and edge restraints in accordance with established levels, using the appropriate equipment</p> <p>e) you confirm that the pavement layer construction is correct</p> <p>f) you follow safe working practices for preparing the pavement structure to receive cold-lay surfacing materials, that are in accordance with current relevant specifications and procedures</p>	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <p>1 how to remove loose matter from the area to be reinstated</p> <p>2 the implications of pavement layer surface contamination, and how to identify and rectify contamination</p> <p>3 how to identify edge damage and undercut, and correct procedures for trimming back</p> <p>4 how and where to re-position displaced ironwork, kerbs and edge restraints, and the appropriate equipment to use</p> <p>5 how to confirm that the pavement layer construction is correct, the checks to make to ensure this, and the implications of incorrect pavement layer construction</p> <p>6 safe working practices for reinstatement in cold-lay bituminous materials</p>	<p>a</p> <p>b</p> <p>c</p> <p>d</p> <p>e</p> <p>all</p>
Range to be covered	
<p>I. You must show that the appropriate equipment for preparing the layer of pavement structure includes:</p> <p>i. appropriate hand tools - including square and round-mouth shovels, hand pick, hard bristle broom, profile board and measuring tape</p> <p>ii. appropriate powered equipment - including breakout equipment</p> <p>II. You must show that safe working practices include:</p> <p>i. safe use of tools and equipment</p> <p>ii. use of appropriate personal protective equipment, including as necessary:</p> <ul style="list-style-type: none"> • high visibility jacket or waistcoat • hard hat • ear defenders • eye protection visor/goggles • dust mask • gloves • protective footwear • waterproof clothing <p>iii. use of risk assessment methods to identify and control and hazards on site</p> <p>iv. precautions to minimise danger or inconvenience to road users</p> <p>v. precautions to minimise danger or inconvenience to site personnel</p> <p>vi. precautions to minimise damage to equipment or apparatus</p> <p>III. You must show that specifications and procedures are:</p> <p>i. Health and Safety Executive Guidelines (HSG 185: Health and Safety in Excavations)</p> <p>ii. Specification for the Reinstatement of Openings in Highways</p> <p>iii. manufacturer's operating procedures for powered equipment</p>	

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Element 6.1 Prepare layer of pavement structure to receive cold-lay surfacing materials

Evidence requirements

- Your evidence must cover all the performance criteria, all the knowledge requirements and all the range items listed in this element.
- You must complete the following tasks for a previously reinstated excavation in an actual or simulated footway or carriageway:
 - A. Remove loose and deleterious matter.
 - B. Confirm the measurement of the cavity depth.
 - C. Make good roadbase defects.
 - D. Trim the trench edges and eliminate undercutting.
 - E. Re-position highway ironwork, kerbs and edge restraints.

Specification of works

- The assessment must take place at a site with physical characteristics that conform to the definition of 'street' at section 48 or 'road' at section 107 of the New Roads and Street Works Act 1991.
- The previously reinstated excavation must have a minimum surface area of 1.2 square metres.

Assessment conditions

- The assessment will be undertaken by a qualified assessor, who will observe you preparing the layer of pavement structure to receive cold-lay surface materials.
- The site at which you are assessed must conform to the specifications listed above. Real equipment must be used, that complies with the requirements of the Code of Practice.
- Where you provide supplementary evidence of competence from your workplace, which includes a documented observation report, a qualified Street Works operative, supervisor or assessor must provide this.

Additional information for candidates and assessors

- The adopted specification for the works should correspond to *Specification for the Reinstatement of Openings in Highways and Safety at Street Works and Road Works A Code of Practice* under the New Roads and Street Works Act 1991. The following sections of the Specification provide particular guidance on various items within the performance criteria:
 - i. S6.5 Base and edge preparation, including:
 - S6.5.2.3 Proximity to road edges, ironwork, etc.
 - S6.5.2.4 Undercutting and trim back
 - NG6.5 Notes for guidance on base and edge preparation
 - ii. S8.3.7 Edge requirements in footways and cycle tracks
 - iii. S9.2 Adjacent road structures, including kerbs and edge restraints

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Element 6.2 Construct a cold-lay bituminous surfacing layer

Performance criteria	
<p>You must show that:</p> <ol style="list-style-type: none"> you spread and level cold bituminous material in binder course and surface course layers using the appropriate equipment you select the appropriate equipment for compaction and ensure that it is fit for purpose you handle and store cold bituminous material correctly using the appropriate equipment you check that imported bituminous material complies with the requirements of the specification you compact the bituminous material correctly using the appropriate equipment you seal the edges correctly you follow safe working practices for constructing a cold-lay bituminous surface layer that are in accordance with current relevant specifications and procedures 	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <ol style="list-style-type: none"> the correct procedures for spreading and levelling cold bituminous material in binder course and surface course layers how to select appropriate hand tools and compaction equipment for the prescribed operation and how to ensure that equipment is fit for purpose appropriate handling and storage procedures for cold bituminous material how to check that imported bituminous material complies with the requirements of the specification the appropriate compaction procedures to use for cold bituminous material, and how to confirm that compaction has been carried out correctly correct procedures for sealing edges safe working practices for constructing a cold-lay bituminous surface layer 	
	<p>a</p> <p>a, b, c</p> <p>c</p> <p>d</p> <p>e</p> <p>f</p> <p>all</p>
Range to be covered	
<ol style="list-style-type: none"> You must show that material includes: <ol style="list-style-type: none"> deferred set materials to BS 4987 for interim reinstatement permanent cold-lay surfacing material for interim/permanent reinstatement materials to BS 4987 – 6mm or 10mm Surface Course, or 20mm dense Binder Course cold edge sealant You must show that appropriate equipment includes: <ol style="list-style-type: none"> appropriate hand tools - including square mouth shovel, hard bristle broom and measuring tape powered equipment - including vibrotamper, vibrating roller or vibrating plate and Turk's head brush 	

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Element 6.2 Construct a cold-lay bituminous surfacing layer

Evidence requirements

- III. You must show that **safe working practices** include:
- safe use of tools and equipment
 - use of appropriate personal protective equipment, including as necessary:
 - high visibility jacket or waistcoat
 - hard hat
 - ear defenders
 - eye protection visor/goggles
 - dust mask
 - gloves
 - protective footwear
 - waterproof clothing
 - use of risk assessment methods to identify and control any hazards on site
 - precautions to minimise danger or inconvenience to road users
 - precautions to minimise danger or inconvenience to site personnel
 - precautions to minimise damage to equipment or apparatus
- IV. You must show that **specifications and procedures** are:
- Health and Safety Executive Guidelines (HSG 185: Health and Safety in Excavations)
 - Specification for the Reinstatement of Openings in Highways
 - manufacturer's operating procedures for compaction equipment

Evidence requirements

- Your evidence must cover all the performance criteria, all the knowledge requirements and all the range items listed in this element.
- You must complete the following tasks for a prepared excavation in an actual or simulated footway or carriageway:
 - Seal the edges.
 - Spread the cold-lay bituminous material.
 - Achieve surcharge of uncompacted layer.
 - Compact layers.

Specification of works

- The assessment must take place at a site with physical characteristics that conform to the definition of 'street' at section 48 or 'road' at section 107 of the New Roads and Street Works Act 1991.
- The prepared excavation must have a minimum surface area of 1.2 square metres.

Assessment conditions

- The assessment will be undertaken by a qualified assessor, who will observe you constructing a cold-lay bituminous surface layer.
- The site at which you are assessed must conform to the specifications listed above. Real equipment must be used, that complies with the requirements of the Code of Practice.
- Where you provide supplementary evidence of competence from your workplace, which includes a documented observation report, a qualified Street Works operative, supervisor or assessor must provide this.

Additional information for candidates and assessors

- The adopted specification for the works should correspond to *Specification for the Reinstatement of Openings in Highways* and *Safety at Street Works and Road Works A Code of Practice* under the New Roads and Street Works Act 1991. The following sections of the Specification provide particular guidance on various items within the performance criteria:
 - S6.5.2.2 Edge Sealing
 - S6.5.2.5 Overbanding
 - S8.3.7 Edge sealing and overbanding in footways and cycle tracks
 - S10 Compaction Requirements, including:
 - S10.2.1-5 Different surfacing materials requirements
 - S10.3 Compaction equipment operation
 - Appendix A2.4 Cold-lay Surfacing Materials
 - Appendix A10 Permanent Cold-lay Surfacing Materials - (PCSMs)

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Element 6.3 Dispose of surplus materials

Performance criteria	
<p>You must show that:</p> <p>a) you identify materials that are unsuitable for re-use or surplus to requirements and provide safe temporary storage for them on site</p> <p>b) you load all types of materials for disposal safely for transportation to the designated disposal area, using the appropriate equipment and at the appropriate time</p> <p>c) you leave the site in a clean and safe condition</p> <p>d) you follow safe working practices for disposing of surplus materials that are in accordance with current relevant specifications and procedures</p>	
Knowledge requirements	Related performance criteria
<p>You need to know:</p>	
1 how to determine whether materials are unsuitable for re-use or surplus to requirements	a
2 how to store unsuitable materials away from re-usable materials on site, and the distance required between them to ensure re-usable or imported materials are not contaminated	a
3 how to load materials safely for transportation	b
4 the time limit to impose in removing surplus materials	b
5 the action to take to leave the site in a clean and safe condition at the conclusion of works	c, d
6 safe working practices for disposing of surplus materials	all
Range to be covered	
<p>I. You must show that materials are:</p> <p>i. unsuitable surplus materials</p> <p>ii. surplus materials that are suitable for re-use</p> <p>II. You must show that the appropriate equipment for disposing of surplus materials includes:</p> <p>i. square mouth shovel</p> <p>ii. hard bristle broom</p> <p>III. You must show that safe working practices are:</p> <p>i. safe use of tools and equipment</p> <p>ii. use of appropriate personal protective equipment, including as necessary:</p> <ul style="list-style-type: none"> • high visibility jacket or waistcoat • hard hat • ear defenders • eye protection visor/goggles • dust mask • gloves • protective footwear • waterproof clothing <p>iii. use of risk assessment methods to identify and control any hazards on site</p> <p>iv. precautions to minimise danger or inconvenience to road users</p> <p>v. precautions to minimise danger or inconvenience to site personnel</p> <p>vi. precautions to minimise damage to equipment or apparatus</p> <p>IV. You must show that specifications and procedures are:</p> <p>i. Health and Safety Executive Guidelines (HSG 185: Health and Safety in Excavations)</p> <p>ii. Specification for the Reinstatement of Openings in Highways</p>	

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Element 6.3 Dispose of surplus materials

Evidence requirements

- Your evidence must cover all the performance criteria, all the knowledge requirements and all the range items listed in this element.
- You must complete the following tasks for a surfaced area of an actual or simulated footway or carriageway following reinstatement in cold-lay bituminous materials:
 - A. Identify, provide temporary storage for, and load surplus materials for disposal.
 - B. Clean the site.

Specification of works

- The assessment must take place at a site with physical characteristics that conform to the definition of 'street' at section 48 or 'road' at section 107 of the New Roads and Street Works Act 1991.

Assessment conditions

- The assessment will be undertaken by a qualified assessor, who will observe you disposing of surplus materials following reinstatement in cold-lay bituminous materials.
- The site at which you are assessed must conform to the specifications listed above. Real equipment must be used, that complies with the requirements of the Specification.
- Where you provide supplementary evidence of competence from your workplace, which includes a documented observation report, a qualified Street Works operative, supervisor or assessor must provide this.

Additional information for candidates and assessors

- The adopted specification for the works should correspond to *Specification for the Reinstatement of Openings in Highways*. The following section of the Specification refers particularly to reusable materials:
 - i. S3.3.2 indicates that any "excavated material which is unsuitable for re-use should be removed from site as soon as practicable."