

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

This unit covers the requirements that you must meet when monitoring the reinstatement of modular surfaces and concrete footways. **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 four elements, which you must cover:

- 16.1 Monitor reinstatement of concrete blocks (or similar materials) in either carriageways or footways
- 16.2 Monitor reinstatement of paving slabs in footways
- 16.3 Monitor reinstatement of concrete footways
- 16.4 Monitor site safety

In element 16.1, you will monitor the reinstatement of concrete blocks, ensuring that suitable materials and equipment are selected for the operation and that any defects in the sub-base are identified and made good using the appropriate materials. You will need to monitor the reinstatement operation, and check that bedding materials are laid correctly, that the compaction of the surface layer and any necessary jointing is carried out correctly and that the reinstated surface matches the existing modules. Where you identify any problems with the reinstatement of concrete blocks, you demonstrate that you know the appropriate remedial action to be taken.

In element 16.2, you will monitor the reinstatement of paving slabs, ensuring that suitable materials and equipment are selected for the operation and that any defects in the sub-base layer are identified and made good using the appropriate sub-base materials. You will need to monitor the reinstatement operation, and check that bedding materials are laid correctly, that the compaction of the surface layer and any necessary jointing is carried out correctly and that the reinstated surface matches the existing modules. Where you identify any problems with the reinstatement of the paving slabs, you demonstrate that you know the appropriate remedial action to be taken.

In element 16.3, you will monitor the reinstatement of concrete footways, ensuring that suitable materials and equipment are selected for the operation and that any defects in the sub-base layer are identified and made good using the appropriate sub-base materials. You will need to monitor the reinstatement operation, and ensure that compaction and curing of the concrete is carried out correctly. Where you identify any problems with the reinstatement of the concrete footway, you demonstrate that you know the appropriate remedial action to be taken.

In element 16.4, you will monitor site safety throughout the reinstatement of modular surfaces and concrete footways, ensuring that health and safety requirements are met in respect of site operations and site conditions. You will need to ensure that the appropriate equipment is available on site, in sound working condition, and that safe working practices are followed throughout the operation. You must show that you know what action must be taken to remedy any risks to site safety.

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.1 Monitor reinstatement of concrete blocks (or similar materials) in either carriageways or footways

Performance criteria	
<p>You must show that:</p> <ul style="list-style-type: none"> a) you ensure that the materials and equipment selected for use are suitable to the prescribed operation and the site conditions b) you ensure that the sub-base is checked for uniformity and that defects identified in the sub-base are made good as necessary using the appropriate materials c) you monitor the reinstatement operation, the laying of bedding material, the thickness of surcharge and compactive effort, the treatment of joints and the matching of and bonding with existing modules d) you assess the finished modular surface to ensure the quality of the reinstatement operation e) you ensure that safe working practices are followed for reinstating concrete blocks, that are in accordance with the current relevant specifications and procedures f) you identify any problems with the reinstatement of the concrete blocks and demonstrate that you know the appropriate remedial action to be taken 	
Knowledge requirements	Related performance criteria
<p>You need to know:</p>	
1 the types of roads on which the operation could be carried out (including modular surfaced carriageways and high duty and high amenity footways)	a
2 the factors influencing the selection of materials and equipment for reinstating concrete blocks (including the requirement to match materials with the existing modular surface and the appropriate bedding and grouting materials to use)	a
3 potential defects in the sub-base, how to identify them and the appropriate materials to use to rectify them	b
4 appropriate procedures for laying bedding materials and how to check that this is done correctly	c
5 appropriate procedures for laying concrete blocks and the checks and assessments to carry out to ensure construction is correct	c
6 appropriate jointing procedures and how to ensure that jointing is carried out correctly	c
7 factors affecting the quality of the finished modular surface (including the moisture content of the bedding sand, the thickness of surcharge and compactive effort, treatment of joints and matching of and bonding with existing modules)	d
8 the checks to make to ensure the quality of the finished surface (including visual inspection - for surface defects, edge depression, surface crowning, surface regularity and jointing - and measurement of surface profile)	d
9 safe working practices for reinstatement of concrete blocks	all
10 problems which occur during the reinstatement of concrete blocks and the appropriate remedial action to take	f

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.1 Monitor reinstatement of concrete blocks (or similar materials) in either carriageways or footways

Range to be covered

- I. You must show that **materials** include:
 - i. concrete blocks (or similar modules) to match existing
 - ii. bedding and grouting materials – including sand and mortar
 - iii. appropriate sub-base materials for making good defects
- II. You must show that **equipment** includes:
 - i. concrete block splitters
 - ii. vibrating plate
 - iii. appropriate hand tools
- III. You must show that **safe working practices** include:
 - i. safe use of tools and equipment
 - ii. use of appropriate personal protective equipment, including as necessary:

• high visibility jacket or waistcoat	• dust mask
• hard hat	• gloves
• ear defenders	• protective footwear
• eye protection visor/goggles	• waterproof clothing
 - iii. use of risk assessment methods to identify and control any hazards on site
 - iv. precautions to minimise danger or inconvenience to road users
 - v. precautions to minimise danger or inconvenience to site personnel
 - vi. precautions to minimise damage to equipment or apparatus
- IV. You must show that **specifications and procedures** are:
 - i. Health and Safety Executive Guidelines (*HSG 185: Health and Safety in Excavations*)
 - ii. Specification for the Reinstatement of Openings in Highways
 - iii. manufacturer's operating procedures for powered 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 an actual or simulated site situation:
 - A. Monitor selection of materials and equipment.
 - B. Monitor the preparation of the sub-base and rectification of defects.
 - C. Monitor the reinstatement of the concrete blocks and assess the quality of the finished surface.

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 monitoring the reinstatement of concrete blocks (or similar modules) in carriageways or footways.
- 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.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
 - a) the reinstatement activities shown must conform to the specification detailed above
 - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of sub-base and base (roadbase) as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works supervisor or assessor must provide this.

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.1 Monitor reinstatement of concrete blocks (or similar materials) in either carriageways or footways

Evidence requirements

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 sections of the Specification provide particular guidance on various items within the performance criteria:
 - i. S2.1.4 Performance requirements of modular surfaces
 - ii. S2.2 Surface profile requirements
 - iii. S7.1.2 Reinstatement of modular surfaces and concrete footways (also see NG7.1, A7.2 and A7.3)
 - iv. S7.4.2 Edge Preparation, including ironworks and kerbs
 - v. S7.7.2-3 Permanent reinstatement of bedding material
 - vi. NG7.7 Performance requirements of bedding and joint sand
 - vii. S8.1.4 Permanent sub-base reinstatement of modular surfaces
 - viii. S8.3.6 Reinstatement of modular footways
 - ix. A12.2 Permanent reinstatement of bedding
 - x. AG26 Application Guide 26, *Footway and Cycle track Construction and Maintenance Guide* (TRL, 2002) provides advice on reinstatement of modular and concrete footways
 - xi. BS7263, BS6717 and BS6677 provide necessary guidelines and steps for laying modules

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.2 Monitor reinstatement of paving slabs in footways

Performance criteria	
<p>You must show that:</p> <ul style="list-style-type: none"> a) you ensure that the materials and equipment selected for use are suitable to the prescribed operation and the site conditions b) you ensure that the sub-base layer is checked for uniformity and that defects identified in the sub-base layer are made good using the appropriate sub-base materials c) you monitor the reinstatement operation, the laying of bedding material, the compaction operation, the treatment of joints and the matching and bonding of modules with existing modules d) you assess the finished surface to ensure the quality of the reinstatement operation e) you ensure that safe working practices are followed for reinstating paving slabs in footways, that are in accordance with the current relevant specifications and procedures f) you identify any problems with the reinstatement of paving slabs and demonstrate that you know the appropriate remedial action to be taken 	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <ul style="list-style-type: none"> 1 the types of footway on which the operation could be carried out (including modular surfaced footways, and high duty and high amenity footways) 2 the factors influencing the selection of materials and equipment for reinstating paving slabs (including the requirement to match and bond modules with the existing modules, the appropriate bedding and grouting materials to use, the replacement of damaged modules and the treatment of joints) 3 potential defects in the sub-base layer, how to identify them and the appropriate sub-base materials to use to rectify them 4 appropriate procedures for laying bedding materials, and how to check that this is done correctly 5 appropriate procedures for laying paving slabs and the checks and assessments to carry out to ensure construction is correct 6 appropriate jointing procedures and how to ensure that jointing is carried out correctly 7 the checks to make to ensure the quality of the finished surface (including visual inspection - for surface defects, edge depression, surface crowning, surface regularity and jointing - and measurement of surface profile) 8 safe working practices for the reinstatement of paving slabs in footways 9 problems which occur during the reinstatement of paving slabs and the appropriate remedial action to take 	<ul style="list-style-type: none"> a a b c c c d all f

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.2 Monitor reinstatement of paving slabs in footways

Range to be covered

- I. You must show that **materials** include:
 - i. natural/pre-cast paving slabs to match existing ones
 - ii. bedding and grouting materials, including mortar and sand
 - iii. appropriate sub-base materials for making good defects
- II. You must show that **equipment** includes:
 - i. concrete saws
 - ii. vibrating plate
 - iii. appropriate hand tools
- III. You must show that **safe working practices** include:
 - i. safe use of tools and equipment
 - ii. use of appropriate personal protective equipment, including as necessary:

• high visibility jacket or waistcoat	• dust mask
• hard hat	• gloves
• ear defenders	• protective footwear
• eye protection visor/goggles	• waterproof clothing
 - iii. use of risk assessment methods to identify and control any hazards on site
 - iv. precautions to minimise danger or inconvenience to road users
 - v. precautions to minimise danger or inconvenience to site personnel
 - vi. precautions to minimise damage to equipment or apparatus
- IV. You must show that **specifications and procedures** are:
 - i. Health and Safety Executive Guidelines (*HSG 185: Health and Safety in Excavations*)
 - ii. Specification for the Reinstatement of Openings in Highways
 - iii. manufacturer's operating procedures for powered 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 an actual or simulated site situation:
 - A. Monitor selection of materials and equipment.
 - B. Monitor the preparation of the sub-base layer and rectification of defects.
 - C. Monitor the reinstatement of the paving slabs and assess the quality of the finished surface.

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 monitoring the reinstatement of paving slabs in footways.
- 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.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
 - a) the reinstatement activities shown must conform to the specification detailed above
 - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of sub-base and base (roadbase) as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works supervisor or assessor must provide this.

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Element 16.2 Monitor reinstatement of paving slabs in footways

Evidence requirements (contd.)

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 sections of the Specification provide particular guidance on various items within the performance criteria:
 - i. S2.1.4 Performance requirements of modular surfaces
 - ii. S2.2 Surface profile requirements
 - iii. S7.1.2 Reinstatement of modular surfaces and concrete footways (also see NG7.1, A7.2 and A7.3)
 - iv. S7.4.2 Edge Preparation, including ironworks and kerbs
 - v. S7.7.2-3 Permanent reinstatement of bedding material
 - vi. NG7.7 Performance requirements of bedding and joint sand
 - vii. S8.1.4 Permanent sub-base reinstatement of modular surfaces
 - viii. S8.3.6 Reinstatement of modular footways
 - ix. A12.2 Permanent reinstatement of bedding
 - x. AG26 Application Guide 26, *Footway and Cycle Track Construction and Maintenance Guide* (TRL, 2002) provides advise on reinstatement of modular and concrete footways
 - xi. BS 7623, BS 6717 and BS 6677 provide necessary guidelines and steps for laying modules

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.3 Monitor reinstatement of concrete footways

Performance criteria	
<p>You must show that:</p> <ul style="list-style-type: none"> a) you ensure that the materials and equipment selected for use are suitable to the prescribed operation and the site conditions b) you ensure that the sub-base layer is checked for uniformity and that defects identified in the sub-base layer are made good using the appropriate sub-base materials c) you monitor the reinstatement operation, the compaction operation and the method used to cure the concrete d) you assess the finished surface to ensure the quality of the reinstatement operation e) you ensure that safe working practices are followed for reinstating concrete footways, that are in accordance with the current relevant specifications and procedures f) you identify any problems with the reinstatement of concrete footways and demonstrate that you know the appropriate remedial action to be taken 	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <ul style="list-style-type: none"> 1 the types of footway on which the operation could be carried out (including concrete surfaced footways - to include high duty and high amenity footways) 2 the factors influencing the selection of materials and equipment for reinstating concrete footways 3 potential defects in the sub-base layer, how to identify them and the appropriate materials to use to rectify them 4 appropriate procedures for reinstating and compacting the concrete (including the quality control of site-mixed and ready-mix concrete) and how to check that this is done correctly 5 appropriate procedures for curing the concrete and how to check that this is done correctly 6 the checks to make to ensure the quality of the finished surface (including visual inspection - for transverse, longitudinal and random cracking - and profile checks including checking the finished level in respect of the surrounding surface and surface fixture) 7 safe working practices for the reinstatement of concrete footways 8 problems which occur when during the reinstatement of concrete footways and the appropriate remedial action to take 	<ul style="list-style-type: none"> a a b c c d all f

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.3 Monitor reinstatement of concrete footways

Range to be covered

- I. You must show that **materials** include:
 - i. C30 concrete
 - ii. slip membrane
 - iii. curing material
 - iv. appropriate sub-base materials for making good defects
- II. You must show that **equipment** includes:
 - i. hand tamping beam
 - ii. curing membrane
 - iii. edge trimming equipment
- III. You must show that **safe working practices** include:
 - i. safe use of tools and equipment
 - ii. 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
 - iii. use of risk assessment methods to identify and control any hazards on site
 - iv. precautions to minimise danger or inconvenience to road users
 - v. precautions to minimise danger or inconvenience to site personnel
 - vi. precautions to minimise damage to equipment or apparatus
- IV. You must show that **specifications and procedures** are:
 - i. Health and Safety Executive Guidelines (*HSG 185: Health and Safety in Excavations*)
 - ii. Specification for the Reinstatement of Openings in Highways
 - iii. manufacturer's operating procedures for powered 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 an actual or simulated site situation:
 - A. Monitor the selection of materials and equipment.
 - B. Monitor preparation of the sub-base layer, including the rectification defects.
 - C. Monitor the reinstatement of the concrete footway.

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 monitoring the reinstatement of concrete footways.
- 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.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
 - a) the reinstatement activities shown must conform to the specification detailed above
 - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of sub-base and base (roadbase) as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works supervisor or assessor must provide this.

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Element 16.3 Monitor reinstatement of concrete footways

Evidence requirements (contd.)

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 sections of the Specification provide particular guidance on various items within the performance criteria:
 - i. S2.1.4 Performance requirements of modular surfaces
 - ii. S2.2 Surface profile requirements
 - iii. S7.1.2 Reinstatement of modular surfaces and concrete footways (also see NG7.1, A7.2 and A7.3)
 - iv. S7.4.2 Edge Preparation, including ironworks and kerbs
 - v. S7.7.2-3 Permanent reinstatement of bedding material
 - vi. NG7.7 Performance requirements of bedding and joint sand
 - vii. S8.1.4 Permanent sub-base reinstatement of modular surfaces
 - viii. S8.3.6 Reinstatement of modular footways
 - ix. A12.2 Permanent reinstatement of bedding
 - x. AG26 Application Guide 26, *Footway and Cycle Track Construction and Maintenance Guide* (TRL, 2002) provides advise on reinstatement of modular and concrete footways
 - xi. BS 7623, BS 6717 and BS 6677 provide necessary guidelines and steps for laying modules

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.4 Monitor site safety

Performance criteria	
<p>You must show that:</p> <p>a) you monitor site operations in accordance with health and safety requirements</p> <p>b) you assess site conditions in accordance with health and safety requirements</p> <p>c) you ensure that checks have been carried out to ensure that appropriate safety equipment is available and is fit for purpose</p> <p>d) you ensure that the site is left in a clean and safe condition</p> <p>e) you ensure that safe working practices are followed on site throughout the reinstatement operation, that are in accordance with health and safety requirements and current relevant specifications and procedures</p> <p>f) you identify risks to site safety and demonstrate that you know the appropriate remedial action to be taken</p>	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <p>1 health and safety requirements for site operations</p> <p>2 health and safety requirements for particular site conditions</p> <p>3 the appropriate safety equipment to use during site operations, and how to ensure that it is fit for purpose</p> <p>4 the actions that should be taken to leave the site in a clean and safe condition</p> <p>5 safe working practices on site and for reinstatement of modular surfaces and concrete footways</p> <p>6 potential risks to site safety and the appropriate remedial action to take</p>	
	<p>a</p> <p>b</p> <p>c</p> <p>d</p> <p>e</p> <p>f</p>
Range to be covered	
<p>I. You must show that the following safety equipment is used on site as necessary:</p> <p>i. adequate range of signing, lighting and guarding equipment, including:</p> <ul style="list-style-type: none"> • signs • cones • signals • lamps • barriers <p>ii. high visibility safety equipment</p> <p>iii. suitable materials to construct ramps</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 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>III. You must show that specifications and procedures are:</p> <p>i. Health and Safety Executive Guidelines (<i>HSG 185: Health and Safety in Excavations</i>)</p> <p>ii. Specification for the Reinstatement of Openings in Highways</p> <p>iii. Safety at Street Works and Road Works – A Code of Practice</p>	

Unit 16 Monitoring reinstatement of modular surfaces and concrete footways

Element 16.4 Monitor site safety

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 provide evidence of monitoring safety on site *throughout* an actual or simulated site situation.

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 monitoring site safety during the reinstatement of modular surfaces and concrete footways.
- 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.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
 - a) the reinstatement activities shown must conform to the specification detailed above
 - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of sub-base and base (roadbase) as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works 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, Safety at Street Works and Road Works – A Code of Practice* under the New Roads and Street Works Act 1991, and safe working practices and personal hygiene measures in connection with cutting/sawing equipment use when reinstating modular surfaces.