

Unit Aim

This unit is designed to allow the candidate to demonstrate the skills and knowledge required to monitor excavation in the highway. The candidate will be able to monitor excavation work, in line with the relevant specifications and codes of practice, and will show that they monitor the action taken to avoid damage to underground apparatus during excavation. The candidate will also be able to monitor the selection, storage and disposal of re-usable and unusable materials on site, and they will be able to monitor site safety throughout the excavation operation.

Learning Outcome 1 Monitor excavation work in the highway**Assessment criteria:**

- 1.1 ensure that the footway or carriageway structure has been identified correctly prior to excavation
- 1.2 ensure that materials are excavated at all construction layers according to current **specifications**
- 1.3 ensure that the working methods used minimise the risk of reinstatement failure
- 1.4 ensure that the size of the excavation is sufficient for the work activity and future reinstatement
- 1.5 check for any problems with the excavation work, and confirm the appropriate action required.

Learning Outcome 2 Understand how to monitor excavation work in the highway**Assessment criteria:**

- 2.1 describe the characteristics of the main types of footway and carriageway
- 2.2 describe the factors that affect the selection of **equipment** required for excavation activities
- 2.3 describe how to check that **equipment** is fit for purpose
- 2.4 explain how to identify areas of high risk for excavation activities
- 2.5 describe the precautions to take when excavating in **high risk areas**
- 2.6 explain why trenches must be excavated to the correct **specifications**
- 2.7 describe working methods that minimise the need for subsequent reinstatement
- 2.8 describe potential problems with excavation work and the appropriate remedial action.

Learning Outcome 3 Monitor the action taken to avoid damage to underground apparatus during excavation**Assessment criteria:**

- 3.1 ensure that **utilities apparatus** is located and marked correctly on site
- 3.2 ensure that exposed **utilities apparatus** is identified correctly
- 3.3 ensure that precautions are taken to minimise the risk of damage to **utilities apparatus**
- 3.4 identify damage to **utilities apparatus** and confirm the action required
- 3.5 ensure that exposed **utilities apparatus** is supported and protected safely.

Learning Outcome 4 Understand how to monitor the action taken to avoid damage to underground apparatus during excavation

Assessment criteria:

- 4.1 explain how to locate and mark the different types of **utilities apparatus** found on site
- 4.2 explain how to identify the different types of exposed **utilities apparatus**
- 4.3 describe the risks and consequences of damage to **utilities apparatus**
- 4.4 explain the precautions required to avoid damage to **utilities apparatus**
- 4.5 explain how to safely support and protect exposed **utilities apparatus**
- 4.6 describe the circumstances in which trench sidewall support is needed, and where to find the guidelines for its provision.

Learning Outcome 5 Monitor the selection, disposal and storage of excavated materials

Assessment criteria:

- 5.1 ensure that **excavated materials** selected for re-use are checked against the current **specification**
- 5.2 ensure that materials selected for disposal are confirmed as unsuitable for re-use
- 5.3 ensure that re-usable materials are stored in line with current relevant **specifications and procedures**
- 5.4 ensure that materials that cannot be re-used are stored and disposed of in line with current relevant **specifications and procedures**
- 5.5 check for any problems with the selection, storage and disposal of materials and confirm the appropriate action required.

Learning Outcome 6 Understand how to monitor the selection, disposal and storage of excavated materials

Assessment criteria:

- 6.1 describe the range of backfill, sub-base materials that may be re-used
- 6.2 describe the factors influencing the selection of materials for re-use or for disposal and the consequences of using unsuitable materials
- 6.3 describe suitable and safe storage **procedures** for re-usable materials
- 6.4 describe the correct **procedures** for storage and re-use of chalk
- 6.5 describe suitable and safe storage and disposal **procedures** for materials that cannot be re-used
- 6.6 describe potential problems with selection, storage and disposal of materials and the appropriate remedial action.

Learning Outcome 7 Monitor site safety

Assessment criteria:

- 7.1 ensure that an risk assessment has been carried out
- 7.2 monitor site operations in accordance with health and safety requirements

- 7.3 assess site conditions in accordance with health and safety requirements
- 7.4 ensure that **safety equipment** is available and fit for purpose
- 7.5 ensure that **safe working practices** are followed in line with current relevant **specification**
- 7.6 check for risks to site safety, and confirm the appropriate action required.

Learning Outcome 8 Understand how to monitor site safety

Assessment criteria:

- 8.1 explain the purpose of an on-site risk assessment
- 8.2 describe the health and safety requirements for site operations
- 8.3 describe the health and safety requirements for different site conditions
- 8.4 describe the **safety equipment** required during site operations and how to ensure that it is fit for purpose
- 8.5 describe **safe working practices** on site
- 8.6 describe the potential risks to site safety and the appropriate remedial action.

Evidence Requirements / Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Specifications and procedures** include:
 - (a) Specification for the Reinstatement of Openings in Highways
 - (b) Health and Safety Guidance 47, *Avoiding Danger from Underground Services*
 - (c) Health and Safety Guidance 150, *Health and Safety in Construction*
 - (d) manufacturers' operating procedures for powered tools and plant.
2. Factors influencing the size and depth of excavation and support equipment include:
 - (a) trench width, length and depth
 - (b) ease of access
 - (c) types of ground
3. Suitable **equipment** includes as necessary:
 - (a) hand tools
 - (b) powered equipment – pavement saw, breaking-out tools
 - (c) equipment to support exposed utilities – slings, ropes, props.
 - (d) equipment to minimise noise nuisance
4. **Safe working practices** include:
 - (a) safe use of tools and equipment
 - (b) use of PPE (including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask)
 - (c) use of risk assessment methods to identify and control hazards on site
 - (d) precautions to minimise danger or inconvenience to road users
 - (e) precautions to minimise danger or inconvenience to site personnel
 - (f) precautions to minimise damage to equipment or apparatus.

5. **Utilities apparatus** includes:
 - (a) plastic and metallic gas mains
 - (b) plastic and metallic water mains
 - (c) sewers and drains
 - (d) high- and low-voltage electricity cables
 - (e) telecommunications, television cables and optic fibres

6. **Excavated materials** include:
 - (a) Class A
 - (b) Class B
 - (c) Class C
 - (d) Class D
 - (e) Class E.

7. **Safety equipment** may include as necessary:
 - (a) adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - (b) high visibility safety equipment
 - (c) suitable materials to construct ramps.

8. **High risk areas** include:
 - (a) Utilities apparatus
 - (b) in close proximity to trees
 - (c) bad ground conditions
 - (d) special engineering difficulty.

Assessment Requirements

Assessment for this unit consists of practical observations and knowledge questioning to cover the requirements of the learning outcomes.

Current requirements for practical observations, including assessor and verifier qualifications and facilities requirements are provided in the joint awarding organisation centre document.