National Unit specification: general information

Unit title: Monitoring Excavation in the Road/Highway

Unit code: F93A 04

Superclass:	TK
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Credit points and level

1 National Unit credit(s) at SCQF level 6: (1 SCQF credit points at SCQF level 6*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Monitoring excavation in the highway

Article I. Certificate Aim

This certificate has been 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 demonstrate how to 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

Assessment criteria:

1.1 ensure that the type of footway or carriageway has been identified correctly prior to excavation
1.2 ensure that materials are excavated at all construction layers complying current specifications
1.3 ensure that the techniques used to excavate 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

Assessment criteria:

2.1 identify the characteristics of recognised footway and carriageway designs
2.2 describe the equipment required for excavating in the highway and the factors influencing their selection
2.3 define the requirements that equipment must meet to be considered fit for purpose
2.4 define the appropriate methods used to identify areas of high risk relating to excavation activities
2.5 define the appropriate precautions to take when excavating in areas of high risk
2.6 state how to check that a trench has been excavated to the correct specifications
2.7 state the excavation techniques that minimise subsequent reinstatement problems
2.8 identify potential issues poor excavation work may cause and the appropriate remedial actions.

Learning Outcome 3	Monitor the action taken to avoid damage to underground apparatus

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 safely supported and protected to prevent damage.

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

Assessment criteria:

4.1 define how to locate and mark the different types of utilities apparatus found in the highway
4.2 specify the characteristics used to identify the different types of exposed utilities apparatus
4.3 state the potential consequences of damaging underground utilities apparatus
4.4 state the appropriate remedial action to take when underground utilities apparatus have been damaged
4.5 state the precautions required to avoid damage to utilities apparatus
4.6 specify how to safely support and protect exposed utilities apparatus
4.7 define the circumstances in which trench support systems would be required, and where to find the guidelines for its installation and safe use.

Learning Outcome 5

Assessment criteria:

5.1 ensure that excavated materials selected for re-use are tested following the guidance within the appropriate 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 the appropriate specifications and ensure that materials that cannot be re-used are stored and disposed of in line with current relevant specifications and procedures
5.4 check for any problems with the selection, storage and disposal of materials and confirm the appropriate actions required.

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

Assessment criteria:

6.1 identify the range of backfill, sub-base materials that may be re-used
6.2 define the factors influencing the selection of materials for re-use or for disposal and the consequences of using unsuitable materials
6.3 state the suitable and safe storage procedures for re-usable materials
6.4 specify how the characteristics of excavated materials affect storage arrangements
6.5 define the storage and disposal procedures for materials that cannot be re-used
6.6 state the potential problems with selection, storage and disposal of materials and the appropriate remedial action.

Learning Outcome 7
Assessment criteria: 7.1 ensure that a risk assessment has been carried out and that adequate control measures are in place 7.2 monitor site operations in accordance with health and safety legislation and guidance 7.3 assess site conditions in accordance with health and safety legislation and guidance 7.4 ensure that safety equipment and personal protection equipment is available, in use and fit for purpose 7.5 ensure that safe working practices are followed in line with the appropriate specifications 7.6 review the sites safety hazards, and confirm the appropriate actions required.

Learning Outcome 8 Understand how to monitor site safety
Assessment criteria: 8.1 define the purpose of a site specific risk assessment 8.2 state the health and safety requirements for site operations 8.3 define the health and safety requirements for different site conditions 8.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose 8.5 state the safe working practices on site 8.6 define the potential risks to site safety and the appropriate remedial action 8.7 state how to leave the site in a clean and safe condition.

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) *Safety and Street Works and Road Works – A Code of Practice*. (e) National Joint Utilities Group – Colour coding and positioning of underground apparatus Volume 1 (f) 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 dust 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 fibre optic
   (f) highway drainage

6. **Excavated materials** include:
   (a) Class A Graded granular
   (b) Class B Granular
   (c) Class C Cohesive granular
   (d) Class D Cohesive
   (e) Class E Unacceptable.

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** includes:

   (a) Utilities apparatus
   (b) in close proximity to trees
   (c) bad ground conditions
   (d) special engineering difficulty.

Assessment Requirements and Guidance
Assessment for this unit consists of practical observations and a multiple-choice knowledge examination to cover the requirements of the learning outcomes. Current requirements for practical observations, including Assessor and Internal Quality Assurer qualifications and facilities requirements are provided in the HAUC (UK) The Street Works Assessment Strategy and The Streetworks Centre Compliance Document.