National Unit specification: general information

Unit title: Location and Avoidance of Underground Apparatus

Unit code: F932 04

Superclass: TK

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Version: Second

Credit points and level

1 National Unit credit(s) at SCQF level 5: (1 SCQF credit points at SCQF level 5*)

**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.*

UNIT 001	Location and avoidance of underground apparatus

Unit Aim

This unit is designed to allow the candidate to demonstrate the skills and knowledge required to successfully locate and avoid underground utilities apparatus and highways services. The candidate will know how to interpret plans, and confirm that the plans used correspond with details of the work site. They will be able to identify the different types of underground utilities apparatus and highways services that are encountered prior to carrying out excavation, and to identify the risks and implications of damage to underground utilities apparatus and highways services. The candidate must also show that they can use pipe and cable location equipment to locate underground utilities apparatus and highways services.

Learning Outcome 1	Interpret plans showing location of underground apparatus

Assessment criteria:

1.1 inspect the work site to confirm that it corresponds with the plans
1.2 identify visual indications of services being present on the site location
1.3 identify **symbols** on plans, covering water, gas, sewers, telecommunications and electricity and **highways services** and structures
1.4 check and confirm that the information recorded on plans is accurate and current for the site

Learning Outcome 2	Understand how to interpret plans showing location of underground apparatus

Assessment criteria:

2.1 describe the criteria for checking that plans are current
2.2 identify the types of **symbols and legends** that are used on plans
2.3 identify different types of services on plans
2.4 explain the importance of marking the site clearly prior to excavation.

Learning Outcome 3	Identify utilities apparatus and highways services encountered during excavation

Assessment criteria:

3.1 identify the underground **utilities apparatus** on the site
3.2 identify the **highways services** on the site
3.3 identify damage to **utilities apparatus** and **highways services**.

Learning Outcome 4	Understand how to identify types of utilities apparatus and highways services encountered during excavation

Assessment criteria:

4.1 identify the different types of underground **utilities apparatus**
4.2 identify the different types of **highways services**
4.3 describe the distinguishing characteristics of different types of underground **utilities apparatus**
4.4 describe the distinguishing characteristics of different types of **highways services**.

Learning Outcome 5	Identify the risks and implications of damage to underground utilities apparatus and highways services

Assessment criteria:

5.1 carry out a risk assessment on **utilities apparatus** and **highways services** on site
5.2 ensure that contingency plans are in place in case of damage occurring to **utilities apparatus** and **highways services**.

Learning Outcome 6	Understand the risks and implications of damage to underground utilities apparatus and highways services

Assessment criteria:

6.1 identify the elements in a risk assessment on **utilities apparatus** and **highways services**
6.2 identify damage to different types of underground **utilities apparatus** and **highways services**
6.3 explain the **implications of damage** to different types of underground **utilities apparatus** and **highways services**
6.4 explain how to minimise the effects of damage to underground **utilities apparatus** and **highways services**
6.5 describe the content of contingency plans in relation to damaged underground apparatus.

Learning Outcome 7	Use pipe and cable location equipment

Assessment criteria:

7.1 select **equipment** for the pipe and cable location activity
7.2 check that the **equipment** to be used is fit for purpose
7.3 prepare **equipment** for use
7.4 complete the search procedures to locate underground **utilities apparatus**
7.5 interpret the results of search procedures accurately
7.6 mark the site clearly showing the location of services found using cable and pipe location **equipment**
7.7 compare the results of searches undertaken with the information on the site plans.

Learning Outcome 8 Understand the use of pipe and cable location equipment

Assessment criteria:

8.1 describe the operational limitations of different pipe and cable location **equipment**

8.2 explain how to select **equipment** that is fit for purpose

8.3 explain the procedure for notifying the relevant authority of discrepancies between search results and site plans

8.4 explain the procedure to follow where underground **utilities apparatus** cannot be found using pipe and cable location **equipment**.

Learning Outcome 9 Follow safe working practices

Assessment criteria:

9.1 follow current relevant health and safety **regulations, standards and other legislation** relating to:

(a) **working practices** within the construction environment

(b) **working practices** specific to any practical task that they are required to carry out

9.2 identify the current relevant health and safety **regulations, standards and other legislation** that must be applied in relation to:

(a) **working practices** within the construction environment

(b) **working practices** specific to any practical task that they are required to carry out

Evidence Requirements / Scope

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

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

2. **Highways services** includes:
   (a) highway drainage
   (b) culverts
   (c) land drains
   (d) highways/road with special engineering controls.

3. The **symbols and legends** must cover a minimum of three of the following types:
   (a) water
   (b) gas
   (c) sewers
   (d) telecommunications
   (e) electricity.

4. Safe **working practices** may 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/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. **Regulations, standards and other legislation** include:
(a) Health and Safety Guidance 47, *Avoiding Danger from Underground Services*
(b) Health and Safety Guidance 150, *Health and Safety in Construction*.

6. Potential **implications of damage** to underground utilities' apparatus include:
(a) health and safety hazards (including personal injury and dangerous situations)
(b) disruption of service
(c) disruption of traffic.

7. **Equipment** used when locating pipes and cables includes:
(a) proprietary pipe and cable location equipment
(b) suitable marking equipment
(c) personal protective equipment.

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.