

**Overview**

This standard is about implementing tunnelling requirements, prioritising tunnelling activities and identifying and scheduling tunnelling requirements with decision-makers, in accordance with current organisational requirements which are equal to or exceed current statutory and legislative requirements.

This standard is for people working in the occupational area of construction site management which is defined as the management of multiple construction trades and disciplines and can be used by supervisors and managers

## Performance criteria

*You must be able to:* P1 determine and record at least two of the following tunnelling activities against the input of information from at least five of the following information sources

### **Tunnelling activities**

- 1.1 mobile plant and machinery operations
- 1.2 back up services installation, maintenance or removal
- 1.3 spoil removal
- 1.4 access equipment erection, maintenance or removal
- 1.5 pipejacking operations
- 1.6 micro tunnelling operations
- 1.7 excavation and installation of supports
- 1.8 shaft and tunnel construction
- 1.9 tunnel transport
- 1.10 spraying concrete lining
- 1.11 operating separation plant
- 1.12 temporary works
- 1.13 lifting loads

### **Information sources**

- 1.14 survey reports
- 1.15 site investigations
- 1.16 drawings
- 1.17 schedules and specifications
- 1.18 contractual
- 1.19 statutory consents
- 1.20 risk assessments and method statements
- 1.21 programmes
- 1.22 records about the competence of people
- 1.23 sub-contractor arrangements
- 1.24 health, safety and environmental plan
- 1.25 material suppliers
- 1.26 tunnelling plans

- P2 identify and review at least three of the following influencing factors relating to the work environment and record the outcomes
  - 2.1 organisational requirements
  - 2.2 contractual requirements
  - 2.3 statutory requirements
  - 2.4 resource allocation
  - 2.5 working requirements
  - 2.6 environmental considerations
  - 2.7 weather conditions
  - 2.8 ground conditions
- P3 prioritise activities by assessing and accounting for all the influencing factors
- P4 identify and review at least two of the following guidance materials and record the outcomes
  - 4.1 owner's manuals
  - 4.2 log books
  - 4.3 maintenance schedules and manuals
  - 4.4 practice guides and specifications
  - 4.5 current legislation and official guidance
  - 4.6 organisational procedures
  - 4.7 historical data
- P5 amend priorities to take account of at least four of the following changing circumstances whilst maintaining consistency with the influencing factors
  - 5.1 susceptibility to damage
  - 5.2 safety requirements
  - 5.3 need to inhibit and respond to deterioration
  - 5.4 compromised operational effectiveness
  - 5.5 weather conditions
  - 5.6 unidentified obstructions
  - 5.7 meeting current legislation
  - 5.8 resources
  - 5.9 security threats
  - 5.10 ground conditions
  - 5.11 face instability

- P6 prepare plans and programmes for at least three of the following activities then negotiate, agree and record them with stakeholders
  - 6.1 mobile plant and machinery operations
  - 6.2 back up services installation, operations, maintenance or removal
  - 6.3 spoil removal
  - 6.4 access equipment erection, maintenance or removal
  - 6.5 pipejacking operations
  - 6.6 micro tunnelling operations
  - 6.7 excavation and/or installation of supports
  - 6.8 shaft and tunnel construction
  - 6.9 tunnel transport
  - 6.10 spraying concrete lining
  - 6.11 operating separation plant
  - 6.12 temporary works
  - 6.13 lifting loads

## Knowledge and understanding

*You need to know and understand:* **Performance Criteria 1**

### **Determine work requirements**

K1 how to determine work requirements for the following tunnelling activities against the following information sources:

#### **Tunnelling activities**

- K1.1 mobile plant and machinery operations
- K1.2 back up services installation, maintenance or removal
- K1.3 spoil removal
- K1.4 access equipment erection, maintenance or removal
- K1.5 pipejacking operations
- K1.6 micro tunnelling operations
- K1.7 excavation and installation of supports
- K1.8 shaft and tunnel construction
- K1.9 tunnel transport
- K1.10 spraying concrete lining
- K1.11 operating separation plant
- K1.12 temporary works
- K1.13 lifting loads

#### **Information sources**

- K1.14 survey reports
- K1.15 site investigations
- K1.16 drawings
- K1.17 schedules and specifications
- K1.18 contractual
- K1.19 statutory consents
- K1.20 risk assessments and method statements
- K1.21 programmes
- K1.22 records about the competence of people
- K1.23 sub-contractor arrangements
- K1.24 health, safety and environmental plan
- K1.25 material suppliers
- K1.26 tunnelling plans

K2 who to consult to confirm work requirements

**Performance Criteria 2****Identify and review influencing factors**

- K3 how to identify and review the following influencing factors:
  - K3.1 organisational requirements
  - K3.2 contractual requirements
  - K3.3 statutory requirements
  - K3.4 resource allocation
  - K3.5 working requirements
  - K3.6 environmental considerations
  - K3.7 weather conditions
  - K3.8 ground conditions

**Performance Criteria 3****Prioritise activities**

- K4 how to assess and account for the following influencing factors:
  - K4.1 organisational requirements
  - K4.2 contractual requirements
  - K4.3 statutory requirements
  - K4.4 resource allocation
  - K4.5 working requirements
  - K4.6 environmental considerations
  - K4.7 weather conditions
  - K4.8 ground conditions
- K5 how to prioritise the following tunnelling activities:
  - K5.1 mobile plant and machinery operations
  - K5.2 back up services installation, maintenance or removal
  - K5.3 spoil removal
  - K5.4 access equipment erection, maintenance or removal
  - K5.5 pipejacking operations
  - K5.6 micro tunnelling operations
  - K5.7 excavation and installation of supports
  - K5.8 shaft and tunnel construction
  - K5.9 tunnel transport
  - K5.10 spraying concrete lining
  - K5.11 operating separation plant
  - K5.12 temporary works
  - K5.13 lifting loads
- K6 why it is important to prioritise tunnelling activities

**Performance Criteria 4****Guidance materials**

- K7 how to identify and review the following guidance materials:
  - K7.1 owner's manuals
  - K7.2 log books
  - K7.3 maintenance schedules and manuals
  - K7.4 practice guides and specifications
  - K7.5 current legislation and official guidance
  - K7.6 organisational procedures
  - K7.7 historical data
- K8 why it is important to review influencing factors against guidance materials

**Performance Criteria 5****Amend priorities**

- K9 how to take account of the following changing circumstances
  - K9.1 susceptibility to damage
  - K9.2 safety requirements
  - K9.3 need to inhibit and respond to deterioration
  - K9.4 compromised operational effectiveness
  - K9.5 weather conditions
  - K9.6 unidentified obstructions
  - K9.7 meeting current legislation
  - K9.8 resources
  - K9.9 security threats
  - K9.10 ground conditions
  - K9.11 face instability
- K10 how to amend priorities when reviewing the following influencing factors
  - K10.1 organisational requirements
  - K10.2 contractual requirements
  - K10.3 statutory requirements
  - K10.4 resource allocation
  - K10.5 working requirements
  - K10.6 environmental considerations
  - K10.7 weather conditions
  - K10.8 ground conditions

**Performance Criteria 6**

**Prepare plans and programmes**

- K11 how to prepare plans and programmes for the following tunnelling activities
  - K11.1 mobile plant and machinery operations
  - K11.2 back up services installation, maintenance or removal
  - K11.3 spoil removal
  - K11.4 access equipment erection, maintenance or removal
  - K11.5 pipejacking operations
  - K11.6 micro tunnelling operations
  - K11.7 excavation and installation of supports
  - K11.8 shaft and tunnel construction
  - K11.9 tunnel transport
  - K11.10 spraying concrete lining
  - K11.11 operating separation plant
  - K11.12 temporary works
  - K11.13 lifting loads
- K12 how to negotiate and agree plans and programmes with stakeholders



## Plan Tunnelling activities

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