



Unit Title	Civil engineering technology in the water industry (K/506/1622)	
Level	4	
Credit Value	12	
Learning Outcomes – the learner will be able to:	Assessment Criteria – the learner can:	
1. Understand the methods and techniques used in earthwork activities	1.1	explain the use of earth moving equipment .
	1.2	discuss appropriate techniques to ensure safe and productive activities in deep excavations.
	1.3	illustrate temporary works required to deal with ground stability and groundwater .
2. Understand the methods and techniques used to create substructures	2.1	describe and compare techniques to install piling systems and ground stabilisation activities.
	2.2	describe methods of constructing substructure activities and the appropriate foundations.
	2.3	illustrate construction methods used in drainage works, culverts, underpasses and the provision of utilities.
3. Understand the methods and techniques used to create superstructures	3.1	discuss construction methods used for typical water industry structures .
	3.2	explain the construction methods used for falsework and formwork and structural steelwork in reinforced concrete structures.
4. Understand the hazards associated with civil engineering activities	4.1	explain the hazards and related safety arrangements associated with civil engineering activities .
	4.2	explain the legal framework of: (a) health, safety and welfare (b) the requirements of the Construction (Design and Management) (CDM) Regulations.
	4.3	evaluate the role of the planning supervisor in civil engineering activities.
5. Solve problems associated with civil engineering activities	5.1	design appropriate solutions to civil engineering problems .
	5.2	produce safety plans for problems arising from civil engineering activities.

Additional information about the unit	
Unit purpose and aims	<p>This unit enables learners to develop an understanding of the methods and techniques used to create civil engineering structures and the skills needed to solve problems associated with civil engineering activities.</p> <p>On completion of the unit, the learner will be able to:</p> <ul style="list-style-type: none">• understand the methods and techniques used in earthwork activities• understand the methods and techniques used to create



	<p>substructures</p> <ul style="list-style-type: none">• understand the methods and techniques used to create superstructures• understand the hazards associated with civil engineering activities• solve problems associated with civil engineering activities.
Unit expiry date	31/03/2019
Assessment requirements or guidance specified by a sector or regulatory body (if appropriate)	<p>In the assessment of this unit, the learner must ensure that the evidence that they produce covers the following:</p> <ol style="list-style-type: none">1. Earth moving equipment is the equipment associated with the formation of cuttings and embankments.2. The illustration of temporary works required to deal with ground stability and groundwater must cover:<ol style="list-style-type: none">(a) groundwater problems(b) techniques used to deal with issues of ground and slope stability(c) dewatering techniques (temporary and permanent)(d) deep excavation techniques(e) trenching works.3. Typical water industry structures must include:<ol style="list-style-type: none">(a) reservoirs(b) tanks(c) culverts(d) process buildings.4. The learner's explanation of hazards and related safety arrangements associated with civil engineering activities must cover the risks and safety arrangements for:<ol style="list-style-type: none">(a) excavations(b) working in confined spaces(c) working on structures(d) working within temporary works.5. The learner's explanation of the legal framework of Health, Safety and Welfare and the sections of the CDM Regulations 2007 must cover the roles and responsibilities of all parties in civil engineering projects.6. The learner's explanation of the role of the planning supervisor must cover:<ol style="list-style-type: none">(a) ensuring that the Health, Safety and Welfare Inspectorate (HSWI) is notified of the project(b) ensuring co-operation between designers(c) ensuring that a pre-tender stage health and safety plan is prepared



	<ul style="list-style-type: none">(d) advising the client when requested to do so(e) ensuring that a health and safety file is prepared(f) maintaining a health and safety file. <p>7. The learner's solutions to civil engineering problems must include problems that arise in relation to:</p> <ul style="list-style-type: none">(a) safety(b) the environment(c) quality(d) technical issues(e) economic factors. <p>The assessment of this unit will be via a combination of centre-devised assignments and tests, and will be conducted in supervised conditions. The assessment strategy for the unit has been agreed with industry stakeholders.</p>
Location of the unit within the subject/sector classification system	4.1 Engineering
Name of the organisation submitting the unit	CABWI Awarding Body
Availability for use	Shared
Unit guided learning hours	48