



Unit Title	Water industry materials and components (A/506/1608)	
Level	4	
Credit Value	12	
Learning Outcomes – the learner will be able to:	Assessment Criteria – the learner can:	
1. Understand the properties and uses of water industry engineering materials	1.	explain the historical development of the use of metal and plastic in the water industry.
	2.	describe the properties of typical metal and plastic materials used in the water industry.
	3.	explain the constituents and properties of concrete and its uses within the water industry.
	4.	describe the types of materials that are used for different trench support systems in the water industry, and their advantages and disadvantages.
2. Understand how materials are selected for water industry network installation systems	1.	describe the selection of materials and the factors that influence selection.
	2.	describe the material selection process and the suitability of materials for a given network installation system.
3. Understand the function of components used within the water industry	1.	explain the function of different components used within the water industry.
	2.	explain using examples how components are interrelated in a water distribution system.
	3.	explain the maintenance requirements for components in a water distribution system, including the need for a maintenance schedule.
4. Understand corrosion prevention methods for the water industry	1.	describe different types of corrosion and their causes.
	2.	explain the effects of corrosion on metal and concrete within the water industry.
	3.	explain different corrosion prevention methods and their suitability for use for a given installation in the water industry.
5. Understand the materials and components for installation and rehabilitation of waste water collection systems	1.	describe different types of waste water collection systems in common use in the water industry, the materials and components used in each and their suitability for use.
	2.	describe the installation procedure for a waste water collection system, including the materials and components used, and jointing and testing procedures.
	3.	describe different rehabilitation techniques applicable to waste water collection systems.

Additional information about the unit	
Unit purpose and aims	This unit is designed to enable learners to develop their knowledge and understanding of the principal materials and components used within the water industry.



	<p>On completion of the unit the learner will be able to:</p> <ul style="list-style-type: none">• describe the properties and uses of water industry engineering materials.• describe the process of material selection for a given network installation system within the water industry.• explain the function of components used within the water industry.• explain corrosion prevention methods for the water industry.• describe the materials and components for installation and rehabilitation of waste water collection systems.
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. The description of the historical development of the use of metal and plastic in the water industry must include:<ol style="list-style-type: none">(a) the properties of the different materials(b) at least four developments(c) the improvements created by the use of these materials.2. The description of the properties of typical metal and plastic materials used in the water industry must cover:<ol style="list-style-type: none">(a) at least two metal materials(b) at least two plastic materials.3. The description of the properties and uses of concrete in the water industry must include:<ol style="list-style-type: none">(a) at least three properties of concrete(b) at least two uses of concrete(c) the constituents of concrete(d) testing of concrete for workability and strength(e) at least two examples of where concrete may be best used.4. The description of the types of materials used for trench support systems must include:<ol style="list-style-type: none">(a) at least two materials used for two trench support systems used in the water industry(b) at least two advantages of each material(c) at least two disadvantages of each material.5. The description of the selection of materials and the factors that influence selection, must be supported by reasons for selection, and must cover:<ol style="list-style-type: none">(a) at least two metal materials



- (b) at least two plastic materials.
6. The description of the **material selection process** must include:
- (a) the requirements of the network installation system
 - (b) a justification for the selection of different materials on the basis of their suitability to the given system.
7. The learner must describe the **function** of at least six components used within the water industry.
8. The learner must give at least three examples of **how components are interrelated** in a water distribution system.
9. **Different types of corrosion** and their causes must include:
- (a) acidic corrosion
 - (b) air corrosion
 - (c) soil corrosion.
10. The explanation of **effects of corrosion** on metal and concrete in the water industry must include the consequences of:
- (a) pitting of iron pipes
 - (b) exposure of reinforcements.
11. The explanation of **corrosion prevention methods** must cover at least three corrosion prevention methods and their suitability for use.
12. The description of **waste water collection systems** must include:
- (a) at least three different waste water collection systems
 - (b) their suitability for use
 - (c) the materials and components used in each system.
13. The description of the **installation procedure** must include:
- (a) materials
 - (b) components
 - (c) jointing
 - (d) testing.
14. The learner must describe three **rehabilitation techniques** applicable to waste water collection systems.

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.
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