Title	**Plan an irrigation system**		
Level	**5**	**Credits**	**75**

Purpose	People credited with this unit standard are able to: select a system to best fit the client specifications and design brief; and determine the distribution, pumping and control components for an irrigation system.

Classification	Water Industry > Irrigation

Available grade	Achieved

Guidance Information

1 Legislation, regulations, and the policy statement relevant to this unit standard include but are not limited to:
- Building Act 2004;
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Electrical (Safety) Regulations 2010;
- National Policy Statement for Freshwater Management 2014;
- Local bylaws;

and any subsequent amendments.

2 For the purposes of assessment:
- the irrigation system performance assessment is for an agricultural or horticultural property, sports turf, or public ground;
- the irrigation system could be an upgraded system or a new system;
- evidence for all outcomes must be presented in accordance with: New Zealand Piped Irrigation System Performance Assessment Code of Practice; New Zealand Piped Irrigation Systems Design Code of Practice; New Zealand Water Measurement Code of Practice; and Irrigation New Zealand Technical Glossary; available from the Irrigation New Zealand website, http://irrigationnz.co.nz/.

3 Definitions
Capex is the cost of developing or providing non-consumable parts for the product or system.
Opex is an ongoing cost for running a product, business, or system.

Outcomes and performance criteria

Outcome 1

Select a system to best fit the client specifications and design brief.

Performance criteria

1.1 Calculate key performance indicators, seasonal variations, peak demand and implications of each in relation to the design brief.

1.2 Evaluate a range of irrigation systems and determine system type most suitable to the design brief, taking into account opex and capex considerations.

Outcome 2

Determine the distribution components for an irrigation system.

Performance criteria

2.1 Calculate the pressures and flows in pipelines and determine a range of system parameters.

2.2 Implement measures to mitigate the operational risks of pipelines.

2.3 Specify most suitable pipe type, size and specifications, and headwork componentry.

Outcome 3

Determine the pumping components for an irrigation system.

Performance criteria

3.1 Describe how the characteristics of pumps and motors are determined by the working parameters of an irrigation system.

Range includes – operating flow and pressure.

3.2 Carry out opex and capex calculations in relation to pumping components.

3.3 Specify most suitable pump components to match suction and discharge requirements.

Outcome 4

Determine the control components of an irrigation system.

Performance criteria

4.1 Describe electrical safety requirements of an irrigation system.

4.2 Identify electrical regulatory thresholds relevant to irrigation.

4.3 Describe irrigation control systems and their applications.

4.4 Specify the most suitable control system for an irrigation system.

Replacement information	This unit standard replaced unit standards 25139, 25140, 25141, 25135, and 20956.

Planned review date	31 December 2024

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 August 2015	31 December 2022
Review	2	27 February 2020	N/A

Consent and Moderation Requirements (CMR) reference	0179

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.