

Kaipara District Council

Engineering Standards

2011



October 2011

**Kaipara District Council
Engineering Standards
2011**

Table of Contents

1.1	Introduction.....	1
1.2	Mandatory Standards and Guidelines.....	1
1.3	Definitions	2
1.4	Standards	7
1.5	List of Related Documents.....	7
1.6	Engineering Standard Reviews.....	9
2.	GENERAL DESIGN PROVISIONS.....	10
2.1	Design, Construction and Monitoring	10
2.2	Supporting Information and Calculations for Design	10
2.3	General Design Information	12
2.4	Vesting and Easements	13
2.5	Management Entity	13
2.6	Low Impact Design Principles	14
3.	QUALITY ASSURANCE REQUIREMENTS	15
3.1	General	15
3.2	General Construction and Monitoring Requirements	15
3.3	Construction Management Plan.....	17
3.4	Quality Documentation.....	17
3.5	Construction Monitoring	18
3.6	As-Built Documentation	20
3.7	Operations and Maintenance Manuals	23
3.8	Maintenance	23
4.	LAND STABILITY AND EARTHWORKS	25
4.1	General	25
4.2	Resource Management.....	25
4.3	Erosion, Sediment and Dust Control.....	25
4.4	Design of Earthworks and Geotechnical Requirements	25
4.5	Construction Specification and Quality Control	25
5.	ROADS AND ACCESS.....	26
5.1	General	26
5.2	Design Requirements	27
5.3	Unsealed Road Guidelines	45
5.4	Construction Requirements	45
6.	STORMWATER DRAINAGE	51
6.1	General	51
6.2	Design Criteria	52
6.3	Piped Stormwater System	56

6.4	Overland Flow Paths.....	59
6.5	Stormwater Control and Treatment Devices Guidelines	61
6.6	Stormwater from Industries Which Use Hazardous Substances.....	62
6.7	Building Over Pipelines.....	62
6.8	Construction Requirements	62
7.	WASTEWATER RETICULATION AND ON-SITE TREATMENT	64
7.1	General	64
7.2	Design Criteria	65
7.3	Reticulated (Gravity) Sewerage Systems	66
7.4	Manholes and Maintenance Structures.....	70
7.5	Construction and Testing	71
7.6	Reticulation (Low Pressure).....	72
7.7	Wastewater Pump Stations.....	78
7.8	On Site Treatment and Disposal Systems Guidelines	87
8.	WATER SUPPLY AND RETICULATION.....	90
8.1	General	90
8.2	Design Requirements	91
8.3	Reticulated Water Supply Systems.....	92
8.4	Disinfection and Testing.....	96
9.	LANDSCAPE DESIGN AND PRACTICE	97
9.1	General	97
10.	NETWORK UTILITIES.....	98
10.1	General Requirements.....	98
10.2	Design Drawings.....	98
10.3	Electricity	98
10.4	Telecommunications.....	98
10.5	Service Location	98
10.6	As-Built Plans	99
11.	APPENDIX A	1
	Drawings	1
12.	APPENDIX B	41
	Mangawhai EcoCare Project.....	41
	Pump Stations Communication Standard.....	41