



Appendix J

Design Standards



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The design and evaluation of the stormwater drainage and treatment for the Project has taken into account the key design standards and guidance documents:

- Austroads, (2009), Guide to Road Design - Part 5: Drainage Design;
- Auckland Council (2013), TR2013/035 - Auckland Unitary Plan stormwater management provisions: Technical basis of contaminant and volume management requirements;
- Auckland Regional Council Guidelines for Stormwater Treatment Devices (2003), Technical Publication No. 10 (TP10);
- Auckland Regional Council Guidelines for Stormwater Runoff Modelling in the Auckland Region (1999), Technical Publication No. 108 (TP108);
- Auckland Unitary Plan Operative in Part, 15 November 2016 (2016)
- Auckland Council TP124 - Low Impact Design Manual for the Auckland Region Index (2000);
- Auckland Council TP90 - Erosion and sediment control guidelines for land disturbing activities in the Auckland Region Part (1999);
- Highway Surface Drainage Design Guide for Highways with a Positive Collection System (Ministry of Works and Development, 1977);
- Stormwater Treatment Standard for State Highway Infrastructure (NZTA, May 2010);
- State Highway Stormwater Specification P46 (NZTA, April 2016);
- AS/NZS 4058:2007 Precast concrete pipes (pressure and non-pressure);
- AS/NZS 3725:2007 Design for installation of buried concrete pipes;
- Concrete Pipe Association of Australia – Hydraulics of Precast Concrete Conduits, Hydraulic Design Manual;
- NZTA (2014), Technical Memorandum 2502: Preferred method for calculating road surface water runoff in New Zealand;
- Transit New Zealand (2000), Specification for Pipe Culvert Construction, F/3 Specification for Drainage Systems, Transit;
- Ministry for the Environment (2008), Climate Change Effects and Impacts Assessment - A Guidance Manual for Local Government in New Zealand, Second edition;
- Auckland Motorway Alliance (2009), Operations and Maintenance Guidelines for Planning, Design, Construction and Handover of Capital Projects in the Auckland South Area Motorway Network;
- Auckland Transport Code of Practice (2013);
- Auckland Council Code of Practice for Land Development and Subdivision Chapter 4 – Stormwater (Version 2.0, November 2015); and
- Weeks, W and Rugby, T 2016, Flood Hydraulics, Book 6, Blockage of Hydraulic Structures, Chapter 7 in Australian Rainfall and Runoff – A Guide to Flood Estimation, Commonwealth of Australia.