Section 5
Wastewater

CONTENTS

5.1 SCOPE 2

5.2 PERFORMANCE STANDARDS 2

5.2.1. General 2

5.3 MEANS OF COMPLIANCE 2

5.3.1. General 2
5.3.2. Gravity Mains Reticulation Layout 3
5.3.3. Manholes 3
5.3.4. Manhole Safety Grille 4
5.3.5. Service Connections 4
5.3.6. Bedding and Protection 5
5.3.7. Pipe Materials 6
5.3.8. Pump Stations 6

5.4 TESTING AND ACCEPTANCE 6

5.4.1. On-site Wastewater Disposal Design and Construction 6
5.4.2. Pressure Test Criteria. 7

SCOPE

5.1.1. This part of the Code sets out the engineering requirements for the provision of wastewater reticulation associated with land development projects, including performance standards, methods for design and construction.

5.2. PERFORMANCE STANDARDS

5.2.1. General

5.2.1.1. Council, with input from Community Boards, has developed and agreed on the Levels of Service to be provided for each wastewater scheme, which are within the Council's Areas of Benefit. The applicant is to meet the performance standard as required by the Levels of Service adopted for that community.

5.2.1.2. A wastewater reticulation system is to be provided which is adequate for the maintenance of public health, minimises the ingress of stormwater and groundwater, and avoids the occurrence of system surcharging or overflows.

5.2.1.3. Industrial and commercial wastewater reticulation and wastewater disposal systems are to be designed in accordance with specified approved parameters for the development.

5.3. MEANS OF COMPLIANCE

5.3.1. General

5.3.1.1. Connections to Council's existing live system may only be made by an approved contractor under the direct supervision of the Council. The Council will invoice the Developer for the cost of any such supervision. All such connections require a Council permit (refer Appendix F3 for application form) and must be approved by Council.

5.3.1.2. Self-cleansing velocities (0.65m/s) are to be maintained within reticulation systems.

5.3.1.3. The reticulation and pumping system is to be designed and constructed to allow the passing of 75mm solids unless grinder or cutter pumps are used.

5.3.1.4. The reticulation and disposal system is to be designed and constructed for a functional design life of 50 years.

5.3.1.5. Unless otherwise approved, the wastewater reticulation system shall be designed to cater for a peak flow without surcharge of 0.60 litres/second/gross ha for residential and industrial developments (based on 50 persons/gross ha, 250 litres/person/day and peak flow factor of 4 times average flow). This shall be based on a "Colebrook- White" pipe roughness coefficient of ks=1.50mm.

5.3.1.6. All 150mm diameter lines may be assumed to flow at a minimum of half full. However, branch lines at the head of a catchment area should be steepened to a grade of 1% where practical.

5.3.1.7. The reticulation system shall provide, as a minimum, a connection of 100mm diameter gravity to each lot at a depth capable of servicing the entire building site, terminating a minimum of 1.0m within each site, providing a suitable outlet to an approved means of wastewater disposal.

5.3.2. Gravity Mains Reticulation Layout

5.3.2.1. The primary wastewater drainage reticulation system shall consist of pipelines of minimum internal diameter of 150mm laid to a true grade and line between access manholes.

5.3.2.2. Each Branch line shall join the main line at a manhole junction.

5.3.2.3. Access manholes are to be located at each change of direction, grade and diameter.

5.3.2.4. Manhole spacings shall not exceed 100m.

5.3.2.5. Where any public main passes through privately owned residential, commercial or industrial sites, then the main should be installed inside the yard setback of the site. An easement shall be provided in favour of the Council to allow for access and repairs to the main at all times.

5.3.3. Manholes

5.3.3.1. Manholes shall be located on all pipelines and at the end of all terminal lines greater than 50m in length.

5.3.3.2. All wastewater manholes shall be constructed as detailed on the standard drawings.

5.3.3.3. Outlet pipes from manholes shall have a soffit level 20mm lower than that of the lowest incoming lines, plus 5mm per 10 degrees of angle change between the two lines.

5.3.3.4. Where a branch line is less than 50m in length and has a maximum of four service connections it may be terminated with a 150mm blank cap adjoining the terminating 'Lunden Junction' or similar.

5.3.3.5. Each line connecting to a manhole structure shall have two approved flexible joints within 750mm of the manhole wall.

5.3.3.6. The throats of all manholes shall be painted red with a suitable paving paint. The covers can remain unpainted.

5.3.4. Manhole Safety Grille

5.3.4.1. Council, at their discretion, may require the fitting of a Hynds Caliber safety grille (or a Council approved equivalent) within new and existing wastewater manholes.

5.3.5. Service Connections

5.3.5.1. No more than one lot may be served by a single 100mm connection**.**

5.3.5.2. Where two or more lots are to be served by the same connection to the main, a sub-main shall be installed with a minimum diameter of 150mm terminating with a manhole. This sub-main shall become part of the public reticulation.

5.3.5.3. All service connections to the site boundary shall form part of the public system. The Council shall be responsible for the maintenance and operation of the laterals to either the boundary of the lot or to the last public manhole.

5.3.5.4. The connection point of the laterals to each lot shall be sited, where possible, on the low side of any proposed sites that have a cross fall greater than 1.0m.

5.3.5.5. The cover to all pipes from finished ground level shall be a minimum of 600mm or as per the pipe manufactures specifications, which ever is the

greater. Where this minimum cover cannot be achieved an approved concrete cover slab or other approved measures may be authorised by the Council.

5.3.5.6. If a connection point between 600 and 1200mm depth (in relation to the building site) cannot be obtained beyond the designer's control due to contour and available pipe grade, the restriction shall be identified by way of a Consent Notice on the Title, and the appropriate floor level shall be stated.

5.3.5.7. Any service connections shall be laid true to line and grade at right angles to the main line, and may be connected as specified in the standard drawings. Where manholes are conveniently located, service connections shall be directed to them. The maximum length of service connections shall be 6.0m from the main line to the site boundary.

5.3.5.8. Service connections shall be brought to between 600mm and 1200mm of the final ground surface. For sites where substantial improvements can be made to the drainage alignment by the deletion of the Lunden Junction at terminal ends of lines, a level invert connector may be authorised for use in lieu of a Lunden Junction.

5.3.5.9. Where the main line is deeper than 4.0m, service connections will not be permitted directly to the line.

5.3.5.10. Service connections direct to pumpstation pressure rising mains are not permitted.

5.3.6. Bedding and Protection

5.3.6.1. The pipe bedding shall be in accordance with the *Concrete Pipe Selection & Installation Guide* by the Concrete Pipe Association of Australasia and the manufactures guide to installation of PVC pipes.

5.3.6.2. All drainage lines shall be designed and constructed to withstand all the likely loads they will be subject to during the life of the system. The load carrying capacity in relation to their installation conditions shall be calculated in accordance with the relevant Standards.

5.3.6.3. For drainage lines laid at grades steeper than 10% (including service connections) the bedding and surround material shall be of a low-grade weak concrete. For lines exceeding 20% in grade, anchor blocks shall be located at pipe joints, not exceeding 6m spacing.

5.3.6.4. Where public mains are located within rights of way or private access legs all other utility services such as power, telephone and gas shall be located at least 300mm clear of the pipe.

5.3.7. Pipe Materials

5.3.7.1. All public pressure mains and fittings shall be designed and manufactured to Class D (PN12) working pressure or better, unless otherwise approved. Any rising main will be subject to specific design consideration, which are required to be submitted to Council for review.

5.3.7.2. Wastewater main construction material shall be as defined in Council's Approved Materials Schedule.

5.3.7.3. All pressure fittings such as tees, tapers, blank caps, bends and gibaults shall be manufactured of Cast or Ductile Iron to the relevant standard with approved external protection. Approved uPVC fittings will be permitted when not in direct contact between two cast iron or ductile iron fittings. Refer to the Council's Approved Materials Schedule (Appendix J - AM6).

5.3.7.4. Adjacent "specials" and fittings shall be flanged and bolted together to form a single unit. Stand-alone fittings shall be, where possible, socket jointed to avoid the use of gibault jointing".

5.3.7.5. All joints on pipes and fittings shall comply with the Council's Approved Materials Schedule.

5.3.7.6. The minimum radius on which pressure mains may be installed shall be in accordance with the manufacturer's recommendation.

5.3.8. Pump Stations

5.3.8.1. All pump stations shall be in accordance with Appendices I4.

5.4. TESTING AND ACCEPTANCE

5.4.1. On-site Wastewater Disposal Design and Construction

5.4.1.1. On-site wastewater disposal systems must be designed and constructed in accordance with Waikato Regional Council rules and either ANZS 1547:2012 or Auckland Regional Councils Technical paper 58 (TP58).

5.4.1.2. Properties within the area of influence must connect to the Council's reticulated wastewater system unless an on-site wastewater dispersal system is approved by the Council's Manager of Water Services.

5.4.1.3. Before new work is connected to the existing public wastewater system it shall be inspected and tested by the applicant's engineer in the presence of the Council's Service Provider.

5.4.1.4. The developer/ applicant shall supply all necessary testing apparatus.

5.4.1.5. Prior to the acceptance test, the applicant's representative shall supply the Council with As Built drawings of the work to be tested. Final certification of the work will be required prior to the issue of the TCDC Engineering Release Certificate.

5.4.1.6. All pipes shall pass a low-pressure air test and require approval by Council. Field low pressure testing must be carried out as described in NZS 4404:2010, Appendix C2.

5.4.1.7. QA documentation confirming testing shall be included with the As Builts.

5.4.2. Pressure Test Criteria

5.4.2.1. Before fittings and anchors are covered, each section of main together with all fittings shall be visually inspected and pressure tested by the developer/ applicant or their representative in the presence of the Council Representative. The test shall be carried out, and all necessary apparatus supplied, by the developer/ applicant.

5.4.2.2. Field hydrostatic pressure testing must be carried out as described in NZS 4404:2010 Appendix C3.