

BEFORE LOWER HUTT CITY COUNCIL

UNDER The Resource Management Act 1991

AND

IN THE MATTER Proposed District Plan

Hearing Stream 6 - Infrastructure (Three Waters)

STATEMENT OF EVIDENCE OF DAVID GIBSON

for
Survey & Spatial New Zealand – Wellington Branch (Submitter #466)

Dated: 8th September 2026

EXPERIENCE

1. My full name is Alexander David Gibson, and I am a Technical Director with the firm of Spencer Holmes Limited. I hold a Bachelor of Surveying from the University of New South Wales and I am an Associate member of the New Zealand Planning Institute (NZPI) as well as a Professional Associate of Survey and Spatial New Zealand (S+SNZ). I have worked in the resource management planning field for thirty years.
2. My evidence is given on behalf of the Wellington Branch of Survey and Spatial New Zealand.
3. I have been representing S+SNZ at District Plan Hearings of the various Territorial Authorities in the Wellington Region for over twenty years.

CODE OF CONDUCT

4. I am familiar with the Code of Conduct for Expert Witnesses set out in Section 7 of the Environment Court Practice Note, dated 2023. Whilst this is a Council hearing, I agree to comply with the relevant parts of the Code of Conduct. Except where I state that I am relying upon the specified evidence of another person, my evidence in this statement is within my area of expertise as set out above. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

INTRODUCTION

5. I prepared the original submission for S+SNZ. The submission covered the Three Waters and Subdivision chapters of the Proposed District Plan. Hearing Stream #6 covers the Three Waters provisions.
6. My evidence will follow the same order as the Section 42A report in respect of the matters covered in the original submission.
 - Rule THW-R1,
 - Rule THW-R2,
 - Rule THW-R3.
7. For each submission point, my evidence will be in the following format.
 - Summary of original submission point,
 - Section 42A report recommendation,
 - My response and further evidence on the submission point.

RULE – THW-R1 (New building connections)

Original Submission

8. S+SNZ made submissions on the Three Waters rule THW-R1 where the 2021 version of the Regional Standard for Water Services (RSWS 2021) is proposed to be a compliance standard. The submission opposed the use of the RSWS 2021 as a compliance standard on the basis that this document is not actually written in the manner of a compliance standard (despite its name) that is appropriate to determine whether the new building and its connections are a permitted activity.
9. The Commissioners are likely to be aware that Wellington City Council had a similar standard in their new 2024 District Plan and have recently completed a Plan Change process to remove the RSWS 2021 as a compliance document, and replaced it with an Appendix that lists the relevant and specific parts of the RSWS 2021 with which compliance is required.
10. For the Commissioners information, the final version of the WCC Appendix was agreed between WCC, Tiaki Wai and S+SNZ.
11. The relief sought by S+SNZ would be a similar Appendix for the LHCC Proposed District Plan.

Section 42A Report

12. The section 42A report finds that the District Plan should retain references to the RSWS rather than reproduce the RSWS in the District Plan [Para 118].
13. Consequently, the submission by S+SNZ is recommended to be rejected.

Response to Section 42A Report

14. It is disappointing that the reporting Officer has not investigated how other Councils in the Wellington Region are approaching their Three Waters provisions in their District Plans. Particularly given the recent indications from Central Government that amalgamations of Council's is highly likely to happen in the near future.
15. The objective of the Wellington Branch of Survey and Spatial NZ is to achieve consistency of approach for subdivision and three waters provisions in District Plans throughout the region.
16. Attached is a copy of WCC's Appendix 17 (recently approved under Plan Change 1), which sets out the three waters standards for the WCC District Plan.
17. My recommendation is that the content of WCC's Appendix 17 should be incorporated into a similar Appendix for the LHCC proposed District Plan. This would also require

consequential amendments to rule THW-R1 to refer to the new Appendix as the relevant compliance standards.

18. I would be happy to work with Council Officers, Tiaki Wai and any other relevant parties to formulate the new Appendix.

RULE – THW-R2 (Hydraulic Neutrality)

Original Submission:

19. The S+SNZ submission seeks to amend rule THW-R2 such that hydraulic neutrality can be achieved for the development of up to three residential units by a range of stormwater management systems, and not only by using the “pre-approved” systems outlined by Tiaki Wai in their document “Managing Stormwater Runoff – The Use of Approved Solutions for Hydraulic Neutrality” (March 2024, Version 5).
20. That is, the rule allows developments of 4+ residential units to use a be-spoke stormwater management system, provided the design of the system can be shown (via calculations and modelling) to achieve the principle of hydraulic neutrality, yet development of 1 to 3 residential units cannot use a bespoke stormwater management system. The submission by S+SNZ seeks that such bespoke stormwater management systems can also be used for development of up to three residential units as well for development of 4+ residential units.

Section 42A Report

21. The Section 42A Report dismisses the submission on the grounds that it would remove the distinction between small scale development and larger development. The Officer considers it is beneficial to retain a specific compliance pathway for smaller scale development.

Response to Section 42A Report

22. While I understand the appeal for Council to utilise the “pre-approved” systems outlined by Tiaki Wai as a pathway for compliance to achieve hydraulic neutrality, these pre-approved systems should not be the only option available. That is, the option to have a bespoke stormwater management system should be equally applicable for 1 – 3 residential units as for 4+ residential units.
23. The intention of the S+SNZ submission was not to remove the option to use the pre-approved systems outlined by Tiaki Way, but to allow all options to be utilised, provided the principle of hydraulic neutrality can be achieved.
24. I note that the Fuel Companies (Submitter 471) have also made submissions on this matter. I have some agreement with the amendments proposed by the Fuel

Companies. However, I disagree that the rule / standards should refer to the “volume” of stormwater discharged from the development site.

25. My disagreement with references to the “volume” of stormwater is because the proposed definition of “Hydraulic Neutrality” does not refer to the volume of stormwater. Even under the Officers proposed amendments to the definition of Hydraulic Neutrality (shown below), there is no reference to the volume of stormwater discharged. The definition only refers to the “rate” of stormwater discharge related to “peak flows”.

Hydraulic Neutrality:

means managing stormwater runoff from all new lots or development through either on-site disposal or storage, so that the rate of stormwater ~~is~~ released from the site ~~at a rate that~~ does not exceed ~~the pre-development peak stormwater runoff modelled peak flows prior to the proposed new lots or development in the 10% annual exceedance probability and 1% annual exceedance probability modelled design rainfall events including the predicted impacts of climate change.~~

26. The volume of stormwater discharge is a matter addressed by GWRC under Plan Change 1 to the Natural Resources Plan. That is, GWRC have specific rules for “Hydrological Controls” in respect of amended / new impervious surface areas. The Commissioners will be aware that GWRC have now initiated a variation to Plan Change 1 where the requirement for Hydrological Control has been removed for small sites.
27. Therefore, it would be unnecessary for Council to introduce rules in respect of hydrological controls when GWRC has resiled from imposing these types of rules.
28. Consequently, I recommend the following changes to rule THW-R2.

1. Activity status: Permitted

Where:

- a. *For development of ~~no more than three residential units~~ one to three residential units or a non-residential building with a building footprint of less than 200m²:*
- i. ~~The development incorporates a Wellington Water Limited approved An Approved Hydraulic Neutrality solution for managing the rate of stormwater runoff~~ is incorporated; or*
- ii. The rate of stormwater released from the site does not exceed the modelled peak flows and volumes prior to the development.*
- b. *For development of four or more residential unit, a retirement village, or a non-residential building with a building footprint of more than 200m²:*
- ~~Stormwater management measures are incorporated which achieve post development peak stormwater flows which are the same or less than the modelled peak flows for the site before the commencement of the development.~~ Stormwater management measures are incorporated so that the rate of stormwater released from the site does not exceed the modelled peak flows and volumes prior to the development.*

RULE – THW-R3 (Water Sensitive Design)

Original Submission:

29. The submission by S+SNZ opposed the use of the “Water Sensitive Design for Stormwater: Treatment Device Design Guideline” (December 2019) as a matter of discretion. This was on the basis that rule THW-R3.3 is only aimed at large multi-unit developments, retirement villages and large non-residential buildings. The concern with this guideline document is that it outlines treatment options that are aimed at greenfield subdivisions (where there is scope to allocate larger areas of land to stormwater treatment devices), rather than intensive housing developments (where land is at a premium for houses, access and parking). Additionally, the guideline document does not support the use of proprietary devices for stormwater treatment such as those devices manufactured by Stormwater 360, Atlan Stormwater and Hynds.
30. The submission also opposed the inclusion of “ownership” as a matter of discretion. The basis of this submission point is on my experience that Wellington Water (Tiaki Wai) did not accept shared stormwater systems for housing developments if the development was to be subdivided into fee simple titles. However, if the development was subdivided into unit titles (with a mandatory Body Corporate) then shared stormwater systems would be accepted by Council / Tiaki Wai.
31. Lastly, the submission opposed the inclusion of “stormwater retention” as a matter of discretion. The concern here is that Council is attempting to introduce stormwater volume controls (i.e. Hydrological Controls).

Section 42A Report

32. The Section 42A Report recommends that the S+SNZ submission is rejected as removing the matters of discretion will remove relevant technical guidance and weaken Council’s ability to assess stormwater matters.

Response to Section 42A Report

33. I note that Kāinga Ora (Submitter 386) have requested the addition of a further assessment criteria to the effect that “alternative engineering solutions” for stormwater management system that mitigate adverse effects of the stormwater discharges can be considered. I support this submission point by Kāinga Ora.
34. On the basis that the additional assessment criteria matter proposed by Kāinga Ora is accepted by Council, I believe that the assessment criteria in respect of the Water Sensitive Design guidelines can remain, as the two criteria would balance each other so as to provide applicants with scope for a sufficient range of options to achieve water sensitive design outcomes as sought by policy THW-P4.
35. In respect of the matter to include “ownership” as a matter of discretion, I have (unsuccessfully) taken this same matter up with Wellington City Council under their recent Plan Change 1.

36. Giving Council's discretion over ownership of water sensitive design features implies that Council can determine what form of tenure a development can be subdivided into. That is, Council can decide whether a development is held under fee simple titles or under unit titles. As mentioned above, my experience with Wellington Water is that they accepted a shared stormwater system for a unit title development, but would not if the same development is subdivided into fee simple lots.
37. I maintain the view that Council does not need to have discretion over ownership of water sensitive design features. Council has sufficient discretion to assess stormwater systems and to develop appropriate conditions where the discretion is restricted to "maintenance and operation arrangements" for the water sensitive design features.



David Gibson

Planning Consultant

8 September 2026

In this Appendix:

- Text recommended to be added or deleted by Commissioner following submission and hearing process is underlined or ~~struck-through~~ in green.

APP17 – Ngā Hononga Wai e Toru

APP17 – Three Waters Connections

Where this Appendix refers to Wellington Water Ltd, it also applies to any future entity that manages Wellington City’s reticulated water, wastewater or stormwater networks.

1. Stormwater

1.1 Private Connections

1.1.1 Lateral connections to the existing public stormwater network

The following applies to lateral connections to public mains:

- a. Private connections must be a minimum size of 100 mm nominal diameter.
- b. A vacant lot must be serviced by a separate connection to the public network.
- c. Each proposed ~~dwelling~~ residential unit on a lot must be serviced by a separate connection to the public system, except that:
 - i. Unit-titled developments are exempt from this criterion and may be serviced by a single, suitably-sized connection.
- d. Each connection must be capable, as a minimum, of conveying the design level of service.
- e. Industrial and commercial lots must have a minimum nominal diameter of 150 mm and must connect to a public stormwater pipe.
- f. Connections provided to lots must be at sufficient depth so that they can be extended to the building platform in a manner compliant with the New Zealand Building Code.
- g. Where the connection is to an empty lot, the terminal connection must be:
 - i. Laid at least 1 m inside and within the boundary of the property.
 - ii. End in a method that can accept an approved spigot.
 - iii. Pipe colour-coded green, ensuring that if paint is used any rubber ring gap is taped over to protect it from the paint.
 - iv. Be blanked off or sealed with a removable cap colour-coded green.
 - v. Be marked with a securely embedded H4 treated timber post, with at least 600 mm protruding above ground, and the top 100 mm painted green.
- h. Connections larger than 150 mm must be connected to the public system via a manhole only. Connections must be made at angles 90 degrees or less to the direction of the flow.

- i. Connections 150 mm or less can be made directly to a stormwater main, using one of the methods listed in Table 5 below:

Table 5 – Acceptable connection methods

Public main Material	Acceptable method
PVC	PVC Y-junction with rubber ring joint slip couplers
PE100	Electrofusion PE100 Y-saddle or Y-junction
Earthenware or concrete	Proprietary Y-junction with mechanical elastomeric metal banded couplers
Twin wall polypropylene	Twin wall polypropylene
AC and other pipe materials	AC and other pipe materials

- j. Connections must not be made to a public pipe deeper than 3.5 m to the crown, and instead:
- i. A shallower public branch stormwater main must be provided to collect private connections before joining the deeper main at a manhole
- k. Connections must not be connected to the wastewater network.
- l. A private connection cannot cross an adjacent property without the permission of the adjacent property owner. Where permission is obtained, in writing, an easement must be obtained in favour of the connection’s lot.

1.1.2 Lateral connections that require extensions/upgrades to the public stormwater network

In addition to the lateral requirements under 1.1.1, where a private connection to the public stormwater network requires an extension to, or upgrade of, the public stormwater network, the design requirements of 1.2 are also to be complied with.

1.1.3 On-site soakage stormwater disposal

Where an on site soakage system is proposed (i.e. no connection to the public network) the design requirements under section 1.2 are to be complied with.

1.2 General Requirements for 1.1.2 and 1.1.3

1.1.1 Climate change

All systems must be designed to accommodate the predicted impacts of climate change in terms of hydrology (refer to the Wellington Water Ltd Reference Guide for Design Storm Hydrology, which is available on the Wellington Water Ltd website) and design sea levels allowing for climate change and predicted land subsidence to 2130 as in Table 1 below.

Table 1 – Design sea levels allowing for climate change

Mean high water springs (NZVD2016) (m)	0.537 m
+ Projected sea level rise (m)	1.23 m
+ Land subsidence (m)	0.47 m (York Bay)
+ Barometric allowance (m)	0.25
= Design sea level (NZVD2016) (m)	2.49

1.1.2 1.2.2. Primary system level of service

The primary system typically comprises piped drainage systems, formed drainage channels and soakage systems. Each system is to be designed:

- To accommodate the design storm to a set level of service as defined by the annual exceedance probabilities (AEPs) listed in Table 2.
- To the General Catchment Level of Service, and then demonstrate that the roads, sections and other considerations internal to the catchment are not inundated when the general catchment is subjected to the assigned internal event for each consideration.
- The catchment is the entire drainage area above the design point of concentration.

Table 2 – Primary level of service (AEP)

General catchment level of service	
Residential	10%
Commercial/industrial	10%
Rural/rural residential	10%
Internal level of service for roads	
Primary arterial	1%
Secondary arterial	5%
Local/minor	20%
Bridges	2%
Internal level of service for sections	
Open space/reserve	50%
Private yards	50%
Car parks	20%
Internal level of service for others	
Where no secondary path is available	1%
Key public facilities, hospitals, substations etc.	1%
Wastewater disposal fields	5%

1.1.3 1.2.3 Secondary system level of service

The secondary system comprises secondary flow paths typically overland and along carriageway surfaces. The secondary systems must:

- a. Follow the required level of service for secondary systems as outlined in **Table 3**.
- b. Follow the maximum stormwater flow depths and velocities for access roads as outlined in **Table 4**.

Table 3 – Secondary system level of service

Building floors	Design Storm Event (AEP)
Housing and communal residential and communal non-residential	1%
Commercial	1%
Industrial	1%
Rural residential	1%
Roads	Design Storm Event (AEP)
Primary arterial*	1%
Secondary arterial*	5%
Local/minor*	20%
Bridges and major culverts	1%

* Flooding is allowed at these levels of service, but the road must be passable by light vehicles. The table below indicates acceptable depths and flow velocities as measured at the road centreline.

Table 4 – Maximum stormwater flow depths and velocities for access roads

	Max depth	Max velocity
Primary/secondary arterial road	0.1 m	2 m/s
Local/minor road	0.2 m	2 m/s
Steep local/minor roads	0.1 m	3 m/s
Walkways only	0.4 m	1 m/s

1.1.4 1.2.4 Secondary flow path

A secondary flow path is the path the stormwater would take if the primary drain was rendered inoperable or is overwhelmed by a flow exceeding the drain’s design capacity. The secondary flow path must:

- a. Be shown on the submitted design and subsequent as-built plans, including demonstrating that existing and proposed ~~dwellings~~ residential units are not affected by the secondary flow during the design secondary storm event.
- b. Include a secondary inlet (if required by Wellington Water Ltd) where the primary drain’s capacity is large and the consequence of overflow is great (primary flow is greater than secondary flow path capacity).

- c. Convey the secondary system level of service event, less the design capacity of the primary system, regardless of secondary intakes.

1.2 Private Connections

1.2.1 Lateral connections to the public stormwater network

The following applies to lateral connections to public mains:

- a.—Private connections must be a minimum size of 100 mm nominal diameter.
- b.—Each proposed dwelling on a lot must be serviced by a separate connection to the public system, except that:
 - i.—Unit-titled developments are exempt from this criterion and may be serviced by a single, suitably-sized connection.
- c.—Each connection must be capable, as a minimum, of conveying the design level of service.
- d.—Industrial and commercial lots must have a minimum nominal diameter of 150 mm and must connect to a public stormwater pipe.
- e.—Connections provided to lots must be at sufficient depth so that they can be extended to the building platform in a manner compliant with the NZBC.
- f.—Where the connection is to an empty lot, the terminal connection must be:
 - ii.—Laid at least 1 m inside and within the boundary of the property.
 - iii.—End in a method that can accept an approved spigot.
 - iv.—Pipe colour-coded green, ensuring that if paint is used any rubber ring gap is taped over to protect it from the paint.
 - v.—Be blanked off or sealed with a removable cap colour-coded green.
 - vi.—Be marked with a securely embedded H4 treated timber post, with at least 600 mm protruding above ground, and the top 100 mm painted green.
- g.—Connections larger than 150 mm must be connected to the public system via a manhole only. Connections must be made at angles 90 degrees or less to the direction of the flow.
- h.—Connections 150 mm or less can be made directly to a stormwater main using one of the methods listed in Table 5 below.

Table 5 – Acceptable connection methods

Public main Material	Acceptable method
PVC	PVC Y-junction with rubber ring joint slip couplers
PE100	Electrofusion PE100 Y-saddle or Y-junction
Earthenware or concrete	Proprietary Y-junction with mechanical elastomeric metal banded couplers
Twin-wall polypropylene	Twin-wall polypropylene
AC and other pipe materials	AC and other pipe materials

- i.—Connections must not be made to a public pipe deeper than 3.5 m to the crown.

- j. ~~—A private connection cannot cross an adjacent property without the permission of the adjacent property owner. Where permission is obtained, in writing, an easement must be obtained in favour of the connection’s lot.~~

2. Wastewater

2.1 Private Connections

2.1.1 Lateral connections to the existing wastewater network

The following applies to lateral connections to the wastewater network:

- a. A minimum nominal diameter for a lateral connection must be 100 mm.
- b. A vacant lot must be serviced by a separate connection to the public network.
- c. Each proposed ~~dwelling~~ residential unit on a lot must be serviced by a separate connection to the public main, except that:
 - i. Unit titled developments are exempt from this criterion and may be serviced by a single, suitably sized connection.
- d. Connections provided to the ~~lots~~ boundary must be at sufficient depth that they can be extended to the building platform in a manner compliant with the New Zealand Building Code.
- e. Minimum grades for private connections up to the property boundary must be as outlined in Clause G13 of the New Zealand Building Code, but with a minimum grade of 1:60.
- f. Laterals must be no ~~lower~~ deeper than 600 mm below ground level at the boundary.
- g. An inspection eye must be installed at the property boundary (on the public side of the boundary with the lot), comprised of either:
 - i. Proprietary inspection chamber with minimum 150 mm riser and screwcap fitting within:
 1. Manifold box with red lid marked ‘SS’ in non-trafficable areas, or
 2. Ductile iron lamp-hole frame and cover on a concrete footing
 - Or:
 - ii. On steep property ~~boundaries~~ frontages with an exposed lateral pipe, the inspection eye may be replaced with a sealed inspection junction point.
- h. Connections must be made at a manhole in the following situations:
 - i. Where the lateral connection is 225 mm or greater.
 - ii. Where the public main is identified as a trunk main, either on existing GIS network plans or as required by Council.
- i. Connections, must not be made to a public sewer pipe deeper than 3.5 m to the crown, ~~and instead:~~
 - i. ~~—A lower public branch sewer must be provided to collect private connections before joining the deeper main at a manhole.~~
- j. Where the connection is to an ~~empty~~ vacant lot, the terminal connection must be:
 - i. Laid at least 1 m inside and within the boundary of the property.
 - ii. End in a method that can accept an approved spigot.
 - iii. Pipe colour-coded red, ensuring that if paint is used any rubber ring gap is taped over to protect it from the paint.

- iv. Be blanked off or sealed with a proprietary removable cap colour-coded red.
- v. Be marked with a securely embedded treated timber post, with at least 600 mm protruding above ground, and the top 100 mm painted red.
- k. Allow for Gully traps to be installed at a level that:
 - i. prevents unwanted wastewater discharge by being a minimum of 150 mm above the nearest opening (e.g. manhole) in the wastewater network; and
 - ii. prevents stormwater inflow by being above the 1% AEP flood event level, or at the minimum clearance allowable by the New Zealand Building Code based on the overflow level of the lowest plumbing fixture.
- l. A private connection cannot cross an adjacent property without the permission of the adjacent property owner. Where permission is obtained, in writing, an easement must be obtained in favour of the connection’s lot.
- m. The wastewater network must:
 - i. be of capacity suitable for carrying peak flows anticipated during the lifetime, without surcharge and with due allowance for ground and surface water infiltration and inflow; and
 - ii. adequately convey wastewater to an approved discharge point.

2.1.2 Lateral connections that require extensions/upgrades to the public wastewater network

In addition to the lateral requirements under 2.1.1, where a private connection to the public wastewater network requires an extension to, or upgrade of, the public wastewater network, the design requirements of 2.2. are also to be complied with.

2.2 2.1 General Design Requirements for 2.1.2

2.2.1 2.1-2 Level of service

The wastewater network must:

- a. Consist of an underground piped reticulation system where an adjacent public reticulation is available.
- b. Be of capacity suitable for carrying peak flows anticipated during the lifetime, without surcharge and with due allowance for ground and surface water infiltration and inflow.
- c. Be designed to minimise blockage and sediment deposition.
- d. Adequately convey wastewater to an approved discharge point.
- e. Not be connected to the stormwater network. Wastewater systems must be designed and constructed to minimise the risk and extent of stormwater inflow and infiltration.
- f. Be designed to prevent floodwaters entering the network where the wastewater network is within a flood plain, or secondary flow path.
- g. Allow for Gully traps must to be installed at a level that:
 - i. prevents unwanted wastewater discharge by being a minimum of 150 mm above the nearest opening (e.g. manhole) in the wastewater network; and
 - ii. prevents stormwater inflow by being above the 1% AEP flood event level, or at the minimum clearance allowable by the New Zealand Building Code based on the

overflow level of the lowest plumbing fixture.

2.1.2.1 2.2.2 Population

The following applies to the population for wastewater design:

- a. The population to be used for wastewater design in typical residential developments must be based on a people per dwelling-residential unit basis.
- b. Where the proposed number of dwellings-residential units cannot be determined, the minimum density per hectare (ha), outlined in Table 6, must be adopted.

Table 6 – Residential development population density

	Population per dwelling-residential unit	Minimum density people per ha*
Outside the City Centre Zone	3.1	General Residential Zone or Medium Density Residential Zone – 140 High Density Residential Zone – 400 Metropolitan Centre Zone, Local Centre Zone or Neighbourhood Centre Zone - 1200
City Centre Zone	3.1	400/ha of floor area**

* Gross area including streets but excluding reserves.

** Assuming 3 m between floor levels, the building heights at the height thresholds specified in CCZ-S1, and 80% site coverage. Ninth floors and above can assume 50% occupancy.

2.2-Private Connections

2.2.1—Lateral connections to the wastewater network

The following applies to lateral connections to the wastewater network:

- a.—Each proposed dwelling on a lot must be serviced by a separate connection to the public main, except that:
 - i.—Unit titled developments are exempt from this criterion and may be serviced by a single, suitably sized connection.
- b.—Connections provided to lots must be at sufficient depth that they can be extended to the building platform in a manner compliant with the NZBC.
- c.—Minimum grades for private connections up to the property boundary must be as outlined in Clause G13 of the NZBC, but with a minimum grade of 1:60.
- d.—A minimum nominal diameter for a lateral connection must be 100 mm.
- e.—Laterals must be no lower than 600 mm at the boundary.
- f.—An inspection eye must be installed at the property boundary, comprised of:
 - i.—Proprietary inspection chamber with minimum 150 mm riser and screwcap fitting within:
 - 1.—Manifold box with red lid marked ‘SS’ in non-trafficable areas, or
 - 2.—Ductile iron lamp-hole frame and cover on a concrete footing
 - ii.—On steep property boundaries with an exposed lateral pipe, the inspection eye may be replaced with a sealed inspection junction

point.

- g.—Connections must be made at a manhole in the following situations:
 - i.—Where the lateral connection is 225 mm or greater.
 - ii.—Where the public main is identified as a trunk main, either on existing GIS network plans or as required by Council.
- h.—Connections, must not be made to a sewer pipe deeper than 3.5 m to the crown, and instead:
 - i.—A lower public branch sewer must be provided to collect private connections before joining the deeper main at a manhole.
- i.—Where the connection is to an empty lot, the terminal connection must be:
 - i.—Laid at least 1 m inside and within the boundary of the property.
 - ii.—End in a method that can accept an approved spigot.
 - iii.—Pipe colour-coded red, ensuring that if paint is used any rubber ring gap is taped over to protect it from the paint.
 - iv.—Be blanked off or sealed with a proprietary removable cap colour-coded red.
 - v.—Be marked with a securely embedded treated timber post, with at least 600 mm protruding above ground, and the top 100 mm painted red.
- j.—A private connection cannot cross an adjacent property without the permission of the adjacent property owner. Where permission is obtained, in writing, an easement must be obtained in favour of the connection’s lot.

3. Water Supply

3.1 Private Connections

3.1.1 Residential Service Connections

The following applies to residential service connections:

- a. Each residential dwelling unit, on a or vacant lot in a residential zone, proposed, anticipated or otherwise, must require be provided with a separate, single potable service connection from the public main up to and including the agreed point of supply.
 - i. Unit titled developments are exempt from this requirement in a) and may be serviced by a single suitably sized service connection.
- b. Front sections (or dwelling units residential units with individual street frontage) must have the point of supply located adjacent to the street boundary.
- c. For properties supplied from a public main in a right-of-way or private land, the service valves must be located in a shared property.
- d. Service valves (or meters) must not be located in driveways or on-site vehicle parking and manoeuvring areas.

3.1.2 Commercial Service Connections

Each commercial property on a or vacant lot, proposed, anticipated or otherwise, must:

- a. ~~Require be provided with a separate, single suitably sized potable service connection from the public main up to and including the agreed point of supply~~
- b. ~~Have the size, depth of cover and material of the service pipe and the connection comply with the requirements of Regional Specification for Water Services~~
- b. Include backflow prevention.

3.2 3.1 General Requirements

The following applies to all new private connections.

3.2.1 3.1.1 Functionality

The functionality of the water supply system must achieve the following:

- a. The network must provide firefighting flows and pressures in compliance with SNZ PAS 4509:2008, and during firefighting scenarios, the pipeline pressure in elevated areas of water distribution zone must remain positive.
- b. ~~Customer~~ Private connections must not be directly to a trunk main.
- c. Pressure to ~~all customer~~ the points of supply, in a reticulated network, must be provided by gravity from a public storage reservoir.

3.2.2 3.1.2 Levels of service

3.2.2.1 3.1.2.1 Network pressure

~~Pressures in the n~~Network pressure at the connection point must comply with the following clauses:

- a. The maximum pressure in any part of the water supply network must not exceed 90 m head of pressure.
- b. The minimum pressure available at the downstream outlet of the point of supply must not be less than 25m head of pressure measured from the bottom water level of the reservoir ~~those set out in Table 7.~~
- c. ~~The minimum pressure must be the pressure available immediately downstream of the point of supply when the property is continuously drawing water.~~
- d. ~~The water supply network must be capable of providing the minimum levels of service at peak demand, as calculated in Section 3.3.1 Peak demand.~~
- e. ~~c. Where t~~The water pressure is must not be less than 10 m head of water at the final level on the building platform, ~~a private boosting pump station may be permitted provided pressures compliant with Table 7 can be achieved at the point of supply.~~
- i. ~~Such pump stations must be sized so that they cannot deliver flows and pressures greater than the specified minimum levels of service at the final level of the building platform.~~
- ii. ~~The pump station must be fitted with an approved double-check valve to prevent backflow from the property into the water supply.~~
- iii. ~~A private booster station serving multiple lots must have the facility to connect a standby generator.~~
- f. Fire suppression sprinkler systems (whether commercial or residential) may have a flow and pressure requirement greater than these minimum standards.
- g. ~~It is the designer’s responsibility to demonstrate that the public network can supply the sprinkler system’s flow and comply with all relevant standards.~~

Table 7 – Mandated levels of service for pressure at point of supply

Maximum pressure*	Minimum pressure**	Comment
90 m	25 m	10 m minimum pressure may be accepted for highest properties adjacent to reservoir

*—Gauge pressure as measured at any point in the public network.

**—As measured during peak demand flow assuming reservoir level is at the reservoir floor (bottom water level)

3.2.2.2 3.1.2.2. Reservoir volume

The water supply reservoir must have sufficient storage capacity to achieve the storage volume outlined in Table 8.

Table 8 – Mandated levels of service for storage volumes

Method	Storage (L/person)	Scenario
1	700	Where actual consumption is not known such as new developments
2	2 x Average Day Demand	Used when demand statistics are available from Wellington Water Ltd. The designer to target the greater of the volume determined by each method. Consult with Wellington Water Ltd to determine critical users and their consumption.
3	Maximum Day Demand + 20% + SNZ PAS 4509:2008 firefighting requirements	
4	(20 L/person/day for 23 days + critical users allowance) x 1.43	

3.1.2.3 Firefighting flows

Firefighting flows must be as outlined in the latest revision of SNZ PAS 4509. Compliant pressures must be calculated with the firefighting flows being delivered simultaneously during a two thirds (2/3) peak demand period on a maximum demand day.

3.2 — Private Connections

3.2.1 — Residential Service Connections

The following applies to residential service connections:

- a.—Each residential dwelling on a lot, proposed, anticipated or otherwise, must require a separate, single potable service connection from the public main up to and including the agreed point of supply:
 - i.—Unit titled developments are exempt from this requirement in a) and may be serviced by a single suitably sized service connection.
- b.—Front sections (or dwelling units with individual street frontage) must have the point of supply located adjacent to the street boundary.
- c.—For properties supplied from a public main in a right-of-way or private land, the service valves must be located in a shared property.
- d.—Service valves (or meters) must not be located in driveways or on-site vehicle parking and manoeuvring areas.

3.3—Commercial Service Connections

Each commercial property on a lot, proposed, anticipated or otherwise, must:

- a.—Require a separate, single potable service connection from the public main up to and including the agreed point of supply
- b.—Have the size, depth of cover and material of the service pipe and the connection comply with the requirements of Regional Specification for Water Services

3.3.1—Backflow Prevention

The following applies to backflow prevention:

- a.—Where required, backflow preventers must be installed, appropriate to the hazard classification of the user type:
- b.—The backflow prevention device must comply with NZBC and AS/NZS 2845.1:
- c.—All commercial and industrial services must require a testable backflow preventer installed downstream of the service valve and meter and as close as practicable to the point of supply:
 - i.—A second shut-off valve must be installed on the downstream side of the back-flow preventer and meter to allow the backflow preventer to be isolated for maintenance purposes.
- d.—All fire service connections require a double check detector check backflow prevention device.
- e.—Requirements for access and easements must be considered:
- f.—Wellington Water, at its discretion, may also request additional backflow prevention to meet their obligations under the Health (Drinking Water) Amendment Act.