

STATEMENT TO PROPOSED DISTRICT PLAN HEARINGS COMMITTEE

HEARING 9 RURAL AND HORTICULTURAL ZONES

INTRODUCTION

1. My full name is John Francis Papesch. I am a Director and Senior Civil Engineer at Haigh Workman Ltd in Kerikeri.
2. I am a Chartered Member of Engineering New Zealand and a Chartered Professional Engineer with two practice fields, being civil and geotechnical engineering. I have a Bachelor of Engineering from the University of Auckland and a New Zealand Certificate of Engineering from the Unitec Institute of Technology.
3. I have 25 years of experience in civil and geotechnical engineering, with the past 21 years of that in Northland. I have been actively involved in engineering matters of resource consent applications in the Far North District through my whole period with Haigh Workman. My role includes working on a diverse range of land development projects in the areas of water, wastewater, stormwater, flooding, earthworks and roading.

CODE OF CONDUCT

4. I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses. I agree to comply with the Code of Conduct. My qualifications as an expert are set out above. Other than where I state that I am relying on the advice of another person, I confirm that the matters addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

SCOPE OF EVIDENCE

5. My evidence relates to Haigh Workman submission 215 on stormwater management (submissions 215.052 to 215.055). My evidence on stormwater management in the rural and horticultural zones also applies to residential zones that contain the same impermeable surfaces rule.

DISTRICT PLAN STORMWATER MANAGEMENT POLICY

6. In submission S215/052, Haigh Workman sought a new chapter in the District Plan addressing Stormwater Management (or impermeable surfaces generally), including overview, objectives, policies and rules. As I stated at Hearing 8, I accept the recommendations of the S42A report not to adopt a separate chapter with objectives, policies and rules. However, without a separate chapter addressing Stormwater Management, the only guidance in the District Plan are contained in the matters of discretion when the permitted activity rules for impermeable surfaces are breached. As discussed below, these matters of discretion do not give adequate guidance on how the rules should be applied.

MATTERS OF DISCRETION

7. The Matters of Discretion specified for the Rural Production zone in Rule RPROZ-R2 are:
- a. the extent to which landscaping or vegetation may reduce adverse effects of run-off;*
 - b. the effectiveness of the proposed method for controlling stormwater on site;*
 - c. the availability of land for disposal of effluent and stormwater on the site without adverse effects on adjoining waterbodies (including groundwater and aquifers) or on adjoining sites ;*
 - d. whether low impact design methods and use of green spaces can be used;*
 - e. any cumulative effects on total catchment impermeability;*
 - f. natural hazard mitigation and site constraints.*
8. The purpose of the matters of discretion may be inferred from the text, but clauses (b), (c) and (f) provide no guidance on what is intended to be achieved by the rule, and it is unclear what (f) is intended to achieve. For example, clause (b) does not state what stormwater is to be controlled for – no increase in peak runoff off-site?, if so for what storm event?; no increase in downstream flooding?, again ?, if so for what storm event? What about erosion resulting from increased velocities in streams and watercourses? What about water quality?
9. If properly drafted, clause (b) could cover all downstream effects. My recommended wording is covered in paragraph 22.

10. In urban areas, increases in stormwater runoff may exacerbate capacity constraints in Council's stormwater infrastructure. This should be an additional matter of discretion in the General Residential zone Rule GRZ-R2.
11. Clause (d) reference to 'low impact design' needs further definition as discussed in Haigh Workman submission S215.056.

REGIONAL COUNCIL POLICIES AND RULES

12. The District Plan must not be inconsistent with the Regional Policy Statement, and where directed, must implement it. The **Regional Policy Statement for Northland** contains objectives and policies on natural hazard mitigation. They largely relate to development within natural hazard areas (rather than development that exacerbates natural hazards), but the last two paragraphs in the explanation to Objective 3.13 are relevant and the last specifically refers to impermeable surfaces.

This objective seeks to ensure that risk posed by natural hazard events does not increase as a result of human activity. Certain human activities can increase the risk associated with natural hazards, particularly where those activities modify, reduce, remove or otherwise compromise existing defences against hazards such as dune systems, coastal vegetation, wetlands, flood plains and estuaries.

*Activities that could compromise the effectiveness of existing defences include infilling of flood plains resulting from earthworks (this reduces the volume available to attenuate flood flows), raising roads and highways, vegetation clearance or the **creation of impermeable surfaces (this leads to increased run-off)** and the diversion of floodwater associated with structures erected on overland flow paths or in high velocity areas of flood plains.*

13. The Policies also largely relate to development within natural hazard areas, although Policy 7.1.1 clause (e) requires a cautionary approach to natural hazard risk management (15% permitted impermeable surfaces in rural zones is certainly not cautionary).
14. The **Regional Plan for Northland** includes rules on stormwater discharge. Rule C.6.4.2 clause (2) requires that:

the diversion and discharge does not cause or increase flooding of land on another property in a storm event of up to and including a 10 percent annual exceedance probability, or flooding of buildings on another property in a storm event of up to and including a one percent annual exceedance probability,

15. This rule provides clear unambiguous direction on what must be achieved when land use changes increase stormwater flows from a property.

OTHER STANDARDS

16. Other standards such as Auckland Council Guidance Document GD01 *Stormwater Management Devices in the Auckland Region* provide non-statutory guidance. The guideline document is an updated of TP10 *Stormwater Management Devices: Design Guidelines Manual*. Auckland Council guidelines are regularly used in northland as a recognised standard to achieve objectives associated with water quality treatment, retention, detention for frequent storm events for stream protection and detention for larger storm events for flood mitigation as laid out in the preface contained in **Attachment 1**
17. Guidance on *low impact design* was previously provided by the Auckland Regional Council Technical Publication TP124 *Low Impact Design Manual for the Auckland Region (2000)*. GD04 *Water sensitive design for stormwater* is an update of this document. The preface is included in **Attachment 2**

IMPERMEABLE SURFACES THRESHOLDS

18. The lack of problem definition for stormwater management has resulted in arbitrary thresholds for the permitted activity rules. The thresholds should be set at a level that allows for reasonable land use while avoiding or minimising off-site effects (almost always downstream effects). The thresholds for residential and lifestyle zones generally achieve this purpose. However, the 15% permitted impermeable surfaces threshold in the Rural Production and Horticultural zones may result in significant adverse effects on a cumulative basis if there is no provision for low impact design / water sensitive design.
19. The Planner's report recommends no change to the existing 15% permitted impermeable surfaces in rural zones on the basis that the operative rule seems to be working ok and no

one would create 15% impermeable surfaces anyway. This misses the point - the threshold should be set at a level where adverse effects (including cumulative effects) will be minor and tolerable. At 15%, adverse effects could be significant as provided in the Haigh Workman submission.

20. Even if a more generous threshold than 5% (as sought in the Haigh Workman submission) is justified, for consistency it should certainly be less than the 12.5% threshold in the rural lifestyle zone. The threshold should also be consistent with the earthworks Rule EW-S1 which has a permitted activity threshold of 2500 m² per year in all zones (*note: this rule deals with on-site stormwater management but does not explicitly control effects on downstream flooding*).

DECISIONS SOUGHT

21. Reduce impermeable surfaces threshold in Rural Production zone Rule RPROZ-R2 and Horticultural zone Rule HZ-R2 from 15% to 5%.
22. Amend Matters of Discretion in Rules RPROZ-R2, HZ-R2, RLZ-R2, RSZ-R2, GRZ-R2) and RRZ-R2 clauses a to f as follows:
- a. *the extent to which landscaping or vegetation may reduce adverse effects of run-off;*
 - b. *the effectiveness of the proposed method for controlling stormwater on site to ensure compliance with Regional Plan for Northland Rule C.6.4.2*
 - c. *the availability of land for disposal of effluent and stormwater on the site without adverse effects on adjoining waterbodies (including groundwater and aquifers) or on adjoining sites; and*
 - d. *whether water sensitive design for stormwater and use of green spaces can be used;*
 - e. *any cumulative effects on total catchment impermeability;*
 - f. *flood hazard mitigation and site constraints.*
23. Add an additional Matter of Discretion in the General Residential zone GRZ-R2:

Any capacity constraints in the existing Council stormwater infrastructure.

JOHN FRANCIS PAPESCH

2 DECEMBER 2024

Preface

What is the purpose of this document?

This guideline document, *Stormwater Management Devices in the Auckland Region* (GD01) provides detailed design considerations aligned with the Auckland Council philosophy of stormwater management – where cultural values, social needs and natural features are considered as part of the functional design of the stormwater network – to achieve a resilient and sustainable outcome under the principles of water sensitive design. While overall guidance on the principles and process of water sensitive design can be found in the Auckland Council Guideline Document GD2015/004 *Water Sensitive Design for Stormwater*, this document focuses on the selection and design of stormwater management devices which achieve:

- Water quality treatment (sediment, nutrients, metals, microbes, hydrocarbons, temperature etc.)
- Retention of stormwater on-site (either as reuse or infiltration)
- Detention of the most frequent storm events (90th and 95th percentile) for stream protection
- Detention of larger storm events (50%, 10% and 1% Annual Exceedance Probability (AEP) design storm events) for flood mitigation.

GD01 is an update of TP10 – *Stormwater Management Devices: Design Guidelines Manual*, (Auckland Regional Council, 1992 and 2003) and will supersede that document once included in the Auckland Unitary Plan. The scope and objective of this guideline is to provide a user-friendly technical design guide to developers, designers and regulators which provides stormwater choice and design advice based on current good practice specific to the requirements of the Auckland Unitary Plan.

It should be noted that this document has been prepared for use in the Auckland region. While many of the principles are universal and can be used elsewhere, the technical specifications have been developed for the geology, geography, climate, receiving environments and context of Auckland. Auckland Council therefore disclaims any responsibility for use of GD01 outside of the Auckland region.

What new inclusions and approaches are in this guideline document?

The key new inclusions and approaches in this document, relative to TP10, are:

- Overall alignment with water sensitive design philosophy with guidance on cultural, social and environmental considerations when designing for stormwater management
- Alignment with the requirements of the Auckland Unitary Plan (2016)
- Inclusion of detailed design considerations for soils and plants
- Additional guidance on other device design considerations such as safety in design and whole-of-life costs.

Preface

Water Sensitive Design for Stormwater

This document, *Water Sensitive Design for Stormwater*, known as GD04, provides guidance for the application of water sensitive design (WSD) to land use planning and land development, with a specific focus on stormwater and freshwater management.

WSD applies a set of principles to land development to reduce or minimise negative effects on the environment. The emphasis is on the appropriate location, layout and design of development, including its context within the broader catchment and region. WSD can be applied at multiple scales, for structure planning, subdivision and site development, and is appropriate for both greenfield sites and brownfield redevelopment.

A WSD approach takes into account the multiple objectives influencing project outcomes, including urban design, landscape amenity, and community issues and aspirations. In this way, stormwater management is targeted to where the greatest benefit can be achieved, both for the community and the land developer, and is an integral component of good urban design.

New approaches adopted by GD04:

Guidance on low impact design (LID) was previously provided by the Auckland Regional Council Technical Publication TP124 *Low Impact Design Manual for the Auckland Region* (2000). GD04 is an update of this document and includes the following new material:

1. A change in focus from LID to WSD and reframing to provide emphasis on freshwater management, particularly stormwater management, throughout all phases of land use planning, design and development
2. A WSD definition and set of principles
3. An analysis of challenges to WSD implementation
4. A discussion of synergies and conflicts between WSD and urban design principles
5. Application of WSD principles to brownfield environments

Extensive consultation was undertaken to develop GD04. Early in the development of this document, three consultation groups were tasked with providing the following specific input:

1. An internal Auckland Council technical review group provided the overarching direction of the document and helped to guide the focus of content within GD04.
2. A representative stakeholder group external to Auckland Council provided detailed guidance towards the practical application of content within GD04.
3. A group of local and internationally recognised WSD (or similar) practitioners provided independent peer review of the document. The international practitioners ensured that the content of GD04 was aligned with international best practice, while independent local peer reviewers ensured that its content remained relevant to New Zealand and the Auckland region.

For your comments and suggestions, please fill in a feedback form downloadable from <http://www.aucklanddesignmanual.co.nz/design-thinking/wsd/documents> and send to wsd@aucklandcouncil.govt.nz.