



# **Connections to Three Waters Reticulation Networks and Stormwater Design Criteria**

## **Proposed Practice Note 01 – December 2021**

### **Purpose**

This practice note is intended to assist developers and their professional advisors and Council staff from the Invercargill City Council when applying for, or processing, subdivision consents.

This practice note is intended to set out good practice expectations and is intended to be incorporated into the Council's Code of Practice for Land Development and Subdivision Infrastructure Bylaw, or subsequent documents, at the time of its next review.

### **Background**

The Invercargill City Council wants to provide consistent and predictable consent conditions for subdivision consents, which also follow consistent good practice with other territorial authorities around New Zealand.

### **Connections to Three Waters Reticulation Networks**

The Invercargill City Council expects that connections to three waters reticulation networks are made at the time of subdivision, regardless of the size of the subdivision. This applies where there are reticulation networks that are to be connected to in accordance with the provisions of the Local Government Act<sup>1</sup>, for example where the property to be subdivided is located within the water reticulation area or foul sewer reticulation area as noted in the District Plan. It is not intended to capture rural properties where Council reticulation networks do not exist.

### **Stormwater Design Criteria**

Because of the impact of Climate change we now need to consider this impact on our three waters infrastructure.

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<sup>1</sup> In this practice note this includes both the Local Government Act 2002 and Local Government Act 1974 and their regulations.

The Code of Practice for Land Development and Subdivision Infrastructure Bylaw shall be now read to include latest effects of climate change when we are considering Stormwater design.

We have based this on the RCP4.5 scenario for the period 2018-2100 and for a five year return period.

There are two rainfall intensity relationships, one for the city of Invercargill and one for the township of Bluff.

The rainfall data in Table 1 and Table 2 below can then be used to develop an appropriate relationship between intensity (I) and time of concentration, or for simple catchments can be interpolated linearly.

**Table 1 Rainfall intensity (mm/hr) for an ARI of 5 years under RCP 4.5 for the period 2081 to 2100 in Invercargill.**

Source: *hirds.niwa.co.nz* 2020, WGS84 168.3585, -46.4119

| ARI | AEP | 10m  | 20m  | 30m  | 1h   | 2h   | 6h   | 12h  | 24h | 48h  | 72h  | 96h  | 120h  |
|-----|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 5y  | 0.2 | 48.2 | 32.2 | 25.3 | 16.9 | 11.1 | 5.68 | 3.69 | 2.4 | 1.56 | 1.21 | 1.01 | 0.879 |

**Table 2 Rainfall intensity (mm/hr) for an ARI of 5 years under RCP 4.5 for the period 2081 to 2100 in Bluff**

Source: *hirds.niwa.co.nz* 2020 WGS84 168.3444, -46.6022

| ARI | AEP | 10m  | 20m  | 30m  | 1h   | 2h   | 6h   | 12h  | 24h  | 48h  | 72h | 96h  | 120h  |
|-----|-----|------|------|------|------|------|------|------|------|------|-----|------|-------|
| 5y  | 0.2 | 46.7 | 31.1 | 24.8 | 16.9 | 11.6 | 6.26 | 4.21 | 2.78 | 1.81 | 1.4 | 1.15 | 0.991 |