Implications of ARR2016 on Sewer Systems

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Overview

- Introduction
- Summary of Major Changes
- Implications on Infiltration to Sewer Systems
- Q&A

Impacts of ARR'16

- Australian Rainfall & Runoff 2016 is a game changer for stormwater hydrology
- Many changes between ARR'87 and '16
  - Rainfall Intensities (although a few years old now…)
  - Rainfall Patterns
  - Updated Infiltration Data
  - Updated Climate Change
- But what about sewerage…

Impacts of ARR'16

- Section B4 of WSAA Sewer Code 2002 presents Rainfall Dependent Infiltration

B4 IIF CALCULATION

IIF is the peak (rainfall dependent) inflow and infiltration that may enter the sewer network as inflow via localised flooding of yard gully traps, illegal stormwater connections and as rainfall infiltration through pipe and maintenance structure defects. IIF is affected by factors such as soil type, the condition of pipes, fittings, joints (including customer sanitary drains), maintenance structures, surface covers and community awareness and attitudes regarding the impact of sanitary drains and illegal stormwater connections. Control of IIF requires the Water Agency to deploy programmed monitoring, condition assessment, inspection, testing and maintenance of the sewer network and to cultivate community awareness to improve the level of compliance of customer sanitary drains.

IIF is calculated in L/s by using a model similar to the National "Rational Method" for stormwater flow calculation using the formula:

$$IIF = 0.028 * A_{Eff} * C * I$$

- So lets focus on 'I'

Rainfall Intensities

- Table B2 presents a series of refence locations across Australia

City	Intensity ARR'87	Intensity ARR'16
Adelaide	16-18	15.9
Alice Springs	21-23	21.3
Ballarat	18-19	16.9
Brisbane	43-48	43.7
Broome	44-46	50.1
Cairns	57-62	59.5
Canberra	22-23	22.0
Darwin	62-66	62.5
Dubbo	26-27	26.5
Geelong	18-20	13.7
Gold Coast	50-52	43.7
Gosford	35-40	33.9
Hobart	16-20	13.4
Melbourne	18-20	19.4
Newcastle	33-36	35.5
Perth	20-21	20.7
Port Headland	35-36	30.4
Sydney	30-45	35.9
Whyalla	15	15.4