



## Book VIII Urban Drainage Systems

James E Ball

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### Changes

- Relevant hydrologic and hydraulic theory presented elsewhere and referenced in this book.
- Fine tuning of Rational Method
  - $t_c$  estimation modified.
  - Highlight uncertainty, i.e. emphasise estimates are not exact but in a band.

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### Changes

- Fine tuning HGL techniques
  - Only for design
  - Note upstream control till pressurised, then downstream control.

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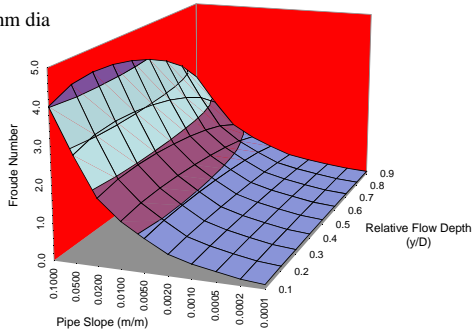
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### Flow Conditions

375mm dia



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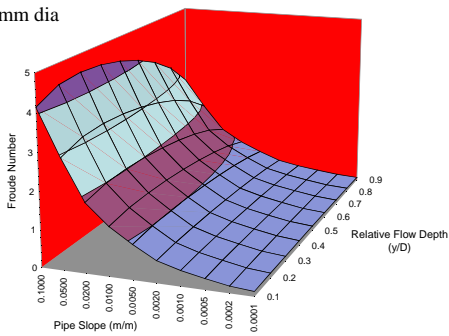
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### Flow Conditions

450mm dia



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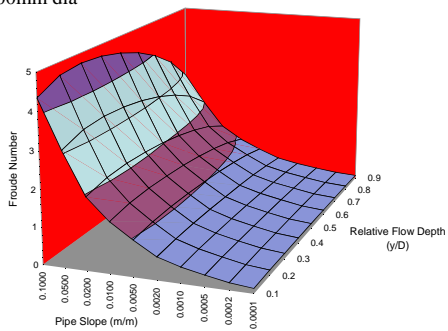
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### Flow Conditions

600mm dia



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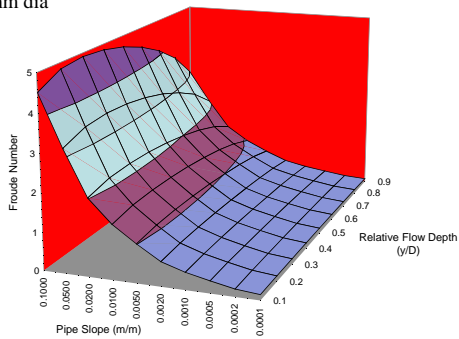
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750mm dia

## Flow Conditions



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## Changes

- Inclusion of section on simulation
  - Highlights differences between design and analysis.
  - References back to Book 5.
  - Will **NOT** recommend software.

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## Changes

- Inclusion of section on safety.
  - Developments have occurred since 1970s work on safety in floodways.
  - These developments have shown the need to consider type of people and their activity.
  - Generic model for safety presented at 2004 Hydraulics Conf.

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