

# Explanation of Spreadsheet Tabs and Rainfall Calculations

This document explains the purpose of each tab within the spreadsheet and how rainfall measurements in millimetres (mm) were converted into estimated water volumes.

The purpose of this analysis was not to prove or disprove any predetermined conclusion, but to independently examine whether the publicly reported stormwater storage figures could realistically be generated from rainfall over the relevant site area.

The investigation therefore tested both:

- claims that may potentially be inaccurate, and
- claims that may in fact be technically plausible.

This approach is important because it demonstrates that the analysis is evidence-led rather than outcome-led.

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## Spreadsheet Tabs Explained

### 1. “Rainfall Estimates”

This tab contains estimated monthly rainfall totals for the Bentham area from June 2024 onwards.

Rainfall is shown in:

- millimetres (mm)

and includes:

- monthly rainfall,
- cumulative rainfall totals.

#### What does “mm rainfall” mean?

Rainfall is measured as a depth.

For example:

- 100 mm rainfall means rain fell to a depth of 100 millimetres across a flat surface.

Rainfall depth does not directly tell you total water volume until you know the size of the area receiving the rain.

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# Key Conversion Principle

The standard hydrological conversion used is:

**1 mm rainfall on 1 m<sup>2</sup> = 1 litre of water**

This is because:

- 1 mm = 0.001 metres
- 1 m<sup>2</sup> × 0.001 m = 0.001 cubic metres
- 0.001 cubic metres = 1 litre

Therefore:

- 50 mm rainfall on 1 m<sup>2</sup> = 50 litres
- 50 mm rainfall on 100 m<sup>2</sup> = 5,000 litres
- 50 mm rainfall on 1,000 m<sup>2</sup> = 50,000 litres

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## 2. “Angus Volumes”

This tab contains the publicly reported stormwater storage figures taken from Angus Fire Town Council updates.

The figures include statements such as:

- “over 2.0 million litres stored”
- “over 8.8 million litres stored”
- etc.

These figures were not independently verified and were included solely for comparison purposes.

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## 3. “Combined Timeline”

This tab aligns:

- cumulative rainfall estimates,  
with:
- publicly reported storage volumes.

This allows comparison between:

- rainfall accumulation over time, and:
- reported increases in stored stormwater volumes.

The purpose was to determine whether the reported storage growth was broadly consistent with local rainfall conditions.

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## 4. “Catchment Analysis”

This tab contains the hydraulic calculations used to estimate theoretical runoff volumes.

The measured catchment area used was:

**3,675 m<sup>2</sup>**

This area was estimated using polygon measurements from aerial mapping imagery over the apparent runoff capture area.

The analysis then applied the following formula:

**Rainfall (mm) × Catchment Area (m<sup>2</sup>) = Litres**

Using:

- cumulative rainfall ≈ 2,605 mm
- catchment area = 3,675 m<sup>2</sup>

The theoretical maximum rainfall accumulation becomes:

**2,605 × 3,675 = 9,573,375 litres**

or approximately:

**9.57 megalitres (ML)**

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## Runoff Coefficients

Not all rainfall becomes recoverable runoff.

Some water is lost through:

- evaporation,
- splashing,
- drainage inefficiencies,
- infiltration,
- or surface retention.

Industrial roofs and hardstanding areas typically generate:

- 85–95% runoff efficiency.

Applying those coefficients produced estimated recoverable volumes of approximately:

- 8.14 ML (85%)
- 8.62 ML (90%)
- 9.09 ML (95%)

These figures align relatively closely with the publicly reported storage volumes.

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## Important Analytical Conclusion

This analysis showed that:

**the reported stormwater volumes are hydraulically plausible based on rainfall accumulation alone.**

This means the investigation did NOT support the conclusion that the reported volumes were obviously impossible or fabricated purely from a rainfall perspective.

However, this does NOT determine:

- whether all collected water was contaminated,
- whether all runoff legally required containment,
- whether storage methods complied with regulations,
- whether any discharge occurred,
- or whether all communications fully contextualised the situation.

Those remain separate regulatory and environmental questions.

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## Why This Matters

The purpose of including findings that support aspects of the publicly reported figures is to demonstrate:

- independence,
- lack of bias,
- willingness to follow evidence,
- and proper analytical methodology.

A credible investigation must be willing to:

- challenge inaccurate claims,  
but also:
- acknowledge where evidence supports parts of a statement.

This analysis therefore reflects an evidence-based approach rather than an attempt to support a predetermined narrative.