

# **Blaenau Gwent Strategic Flood Consequence Assessment (SFCA) (June 2023)**

## **Executive Summary**

Blaenau Gwent County Borough Council commissioned Wallingford HydroSolutions to prepare this Strategic Flood Consequence Assessment (SFCA) to inform the Replacement Local Development Plan (RLDP). The SFCA evaluates flood risk from all major sources—fluvial, surface water, groundwater, sewers, and reservoirs—and provides evidence to support site allocation, development policy, and long-term flood management strategy.

## **Purpose and Scope**

The SFCA:

- Identifies areas at risk from all forms of flooding, using updated NRW Flood Map for Planning data (June 2023), hydraulic modelling, historical flood incidents, and climate change projections.
- Supports application of the TAN15 Sequential Test to guide development toward lower-risk areas.
- Reviews 122 candidate sites submitted for the RLDP to determine suitability and potential constraints related to flood risk.
- Identifies opportunities for Natural Flood Management (NFM), Sustainable Drainage Systems (SuDS), and resilience measures to reduce future risk.

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## **Key Findings**

### **Flooding Mechanisms**

#### **1. Fluvial Flooding (Main Rivers)**

- Dominant in valley communities such as Abertillery, Rassau, Cwm, Carmeltown, and Ebbw Vale.
- Floodplains are narrow due to steep topography, widening only in flatter urban areas.
- 10 out of 122 sites have some exposure to Zones 2 or 3.

#### **2. Surface Water & Small Watercourses**

- Significant risk in Cwm, Ebbw Vale, Tredegar, and Rassau.
- 82 sites exhibit some level of risk (47 low, 33 moderate, 2 high).

#### **3. Groundwater Flooding**

- Influenced by geological conditions, restored soils, and legacy mining infrastructure.
- 43 sites categorised as high risk and 47 as moderate risk.

#### **4. Sewer Flooding**

- 37 sites lie within 250 m of historical sewer flooding incidents.
- Highest recorded incident clusters: Brynmawr and Rassau.

#### 5. Reservoir Flooding

- 22 sites show potential inundation in a breach scenario, though actual probability remains very low due to modern regulation.

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### Review of Existing Flood Infrastructure

- Numerous NRW flood defences exist along the River Ebbw and Ebbw Fach.
- Defences are generally in fair to good condition and designed to a 1 in 100-year standard of protection.
- Gaps exist in northern areas—Ebbw Vale, Tredegar, Rassau, Blaina, Nantyglo, Brynmawr have no formal defences.

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### Sequential Test Outcomes

- **112 candidate sites** lie entirely within Flood Zone 1 (no fluvial risk).
- **10 candidate sites** intersect Flood Zones 2/3:
  - 4 Low-risk, 5 Moderate-risk, 1 High-risk (T025 at Tredegar Business Park).
- For 9 sites, development remains viable but requires a site-level sequential approach (prioritising low-risk parts for vulnerable uses).
- Site T025 at Tredegar Business Park: >75% located in Flood Zone 3 – a Level 2 SFCA / detailed assessment is recommended before considering allocation.

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### Flood Risk Management Opportunities

The SFCA identifies strategic opportunities for:

- **Natural Flood Management (NFM)** (e.g., leaky barriers, storage areas, wetland creation).
  - **SuDS-led runoff control**, particularly in urban areas with documented surface water issues.
  - **Targeted asset improvements**, such as culvert upgrades and maintenance.
  - **Enhancement of green-blue infrastructure** to support water attenuation, habitat creation, and amenity.
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## Recommendations

1. **Apply Sequential Test rigorously** – prioritise allocated development sites in Flood Zone 1 and place more vulnerable uses on higher ground.
  2. **Require Site-Specific Flood Consequence Assessments (FCAs)** for sites:
    - In Zones 2 or 3
    - Larger than 1 hectare
    - With demonstrated surface water, groundwater, or sewer flooding issues
  3. **Integrate SuDS** in all developments; greenfield sites should not exceed existing runoff rates and brownfield sites should aim for betterment.
  4. **Adopt flood resilience measures** in areas where development in flood-prone zones is justified.
  5. **Consider Level 2 SFCA for Candidate Site T025** and further flood modelling work due to extensive Flood Zone 3 coverage.
  6. **Identify opportunities to reduce downstream flood risk** through NFM and infrastructure enhancements.
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## Overall Conclusion

While fluvial flood risk is relatively constrained and manageable due to valley topography, surface water, groundwater, and sewer flooding present widespread challenges across Blaenau Gwent.

Most candidate sites are suitable for allocation with minimal constraint; however, a minority require careful layout planning, additional assessment, or avoidance of high-risk land. The SFCA provides the evidence base for informed, climate-resilient spatial planning in the RLDP.