



## Rhydyfelin Flood Alleviation Scheme

Flood Alleviation Scheme delivered to reduce the risk of ordinary watercourse and surface water flooding to 223 properties, a local school, local roads and the Taff trail cycle way in the Rhydyfelin area.

Scheme Summary	
Strategic Flood Risk Area	Lower Taf
Location	Rhydyfelin
Properties benefiting	222 Properties comprised of 222 Residential properties, 1 commercial and a local school
Type of scheme	Complex Flood Alleviation Scheme
Cost	£3,000,000
Contractor	Costain
Status	Completed
Scheme Completion Date	May 2013
Funding Source	Welsh Government's Flood Risk Management Grant & European Regional Development Fund



*Image of one of the upgraded inlets built as part of the Rhydyfelin Flood Alleviation Scheme*

## Scheme Background

Rhydyfelin is noted as an area of high surface water and ordinary watercourse flood risk based on Natural Resources Wales's Flood Risk Assessment Wales (FRAW) maps. The community of Rhydyfelin is also identified as the **8<sup>th</sup> most at risk** community for ordinary watercourse and surface water flooding in Wales according to the Communities at Risk Register (CaRR) which was developed to provide an objective means of identifying risk and prioritising flood risk management activities at a Wales-wide, community level.

Rhydyfelin has been subject to several flooding events dating back to the 1980s, where over 100 homes have been impacted by flooding. The Rhydyfelin flood alleviation scheme was intended to tackle the flooding problems associated with the five unnamed ordinary watercourse tributaries of the Nant Corrwg, which drain the hillsides to the north-east of Rhydyfelin. Due to the topography of the catchment, exceedance flows from these channels impact the lower reaches of Rhydyfelin including Wordsworth Gardens, Oak Street and Holly Street, where the most severe and frequent flooding incidences have occurred.

## Scheme Description

The Rhydyfelin flood alleviation scheme was completed thanks to funding from Rhondda Cynon Taf Council capital funds, the Welsh Government's Flood Risk Management Grant, and the European Regional Development Fund to alleviate historical flooding issues associated with the network of unnamed ordinary watercourses draining the hillsides above Rhydyfelin.

The aim of the project is to **reduce the risk of flooding** to people and properties in the area utilising a **catchment-based approach** with both traditional engineered solutions as well as sustainable drainage techniques.

The scheme included the **creation of an upper catchment attenuation basin**, modification and **replacement of culverts**, overflow systems, **flood water routing** and **storm water storage** tanks/pipes.

Key features of the Rhydyfelin flood alleviation scheme include:

- The construction of an upper catchment attenuation pond with a **storage capacity of 2000m<sup>3</sup>**, **reducing peak flow by 500l/s**.
- Implementation of on-line water storage within the culvert network, providing over **500m<sup>3</sup> of additional storage capacity**.
- The introduction of surface storage ponds or underground attenuation tanks sized to accommodate the **30% increase in peak rainfall intensity** caused by climate change.
- **Reconstruction of 7 inlet structures to improve efficiency and resilience.**
- Creation of inlet overflow systems to **enhance resilience to blockages**.

- **Introduction of “flood plain” storage** by utilising maintenance tracks as **additional storage areas** around Sycamore Street.
- Reconstruction of the Taff Trail to **improve flood resilience and accessibility**.
- Implementation of resilience measures for surface infrastructure, including **flow path management** and **linear drainage to manage exceedance flows**.
- Installation of **water level** and **rainfall monitoring devices** with remote monitoring capabilities and early warning alarms installed for Council maintenance purposes.
- **Routine inspections** and **maintenance activities** to ensure the functionality and longevity of critical infrastructure.
- **Habitat creation** in attenuation pond to **enhance biodiversity** and **ecosystem health**.

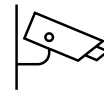
## Scheme Benefits



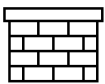
Reduce the risk of flooding to **300 properties, a local school, local roads and Taf trail**



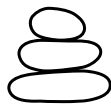
**Natural Flood Management** techniques utilised throughout the scheme.



**CCTV Monitoring** of critical infrastructure installed. **Early Warning Alarm Systems** installed for Council maintenance purposes.



Improved the **long-term resilience** of the culvert networks and downstream community.



Approximately **2000m<sup>3</sup>** of **water storage** installed as part of scheme.



**Debris control measures installed** to reduce the risk of blockages at critical culvert inlets.