Flood and Water Management Act 2010

Section 19 Report

Storm Bert – Flood Investigation Area 12

October 2025

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This report should be read in its entirety.

This report has been prepared in accordance with the requirements of Section 19 of the Flood and Water Management Act 2010. The Council assumes no responsibility or liability from any person in connection with its contents or findings.

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EXECUTIVE SUMMARY

This report has been produced through the duties placed upon Rhondda Cynon Taf County Borough Council (RCTCBC) under Section 19 of the Flood and Water Management Act 2010. The Act states, "On becoming aware of a flood in its area, a Lead Local Flood Authority must, to the extent that it considers it necessary or appropriate, investigate:

a) Which Risk Management Authorities have relevant flood risk management functions and
b) Whether each of those Risk Management Authorities has exercised or is proposing to exercise those functions in response to the flood".

This Section 19 investigation provides a report of the storm event that occurred on 23 and 24th November 2024 within the Rhondda Cynon Taf (RCT) area, focusing investigation on the flooding at Treforest Industrial Estate, Oxford Street and Rhyd-Yr-Helyg in the Taf catchment area (referred to as Flood Investigation Area 12 (FIA 12), (Figure 1)).

This report was undertaken to identify the mechanisms for flooding, establish which Risk Management Authorities have relevant flood risk management functions under the Flood and Water Management Act 2010 and ascertain if those Risk Management Authorities have undertaken or are planning to undertake actions related to those functions to manage the risk of flooding.

The flooding that affected RCT on 23 and 24 November 2024 was a result of an extreme rainfall event, designated by the Met Office as 'Storm Bert'. The impact of the event at FIA 12 resulted in internal flooding to 21 properties: including 18 residential properties and 3 non-residential properties. Significant flooding to the highway also occurred within the investigation area.

These impacts were identified through inspections made by RCT's Flood Risk Management Team during the days following the storm event, as well as information collated by residents, RCT's Public Health team, RCT's Highway and Streetcare Depot, Natural Resources Wales (NRW) and Dŵr Cymru Welsh Water (DCWW).

It has been established from the evidence gathered within this report that the primary source of flooding in this incident was the River Taf overtopping its river bank at Treforest Industrial Estate following persistent and heavy rainfall. The River Taf overtopped its river bank at the location of a service crossing, the abutment of which previously tied into the flood defences upstream. This service crossing had been removed without a Flood Risk Activity Permit from NRW prior to the storm event.

NRW river level gauge data at NRW's Upper Boat monitoring station reveal that the River Taf was over four times its typical level during Storm Bert, reaching a peak level of 5.07 metres; approximately 0.42 metres lower than the highest recorded peak at the station during Storm Dennis in February 2020.

The investigation also identified surface water accumulation on the highway to have exacerbated the main river flooding at FIA 12. Main river flows entering the surface water drainage systems, the associated settling of fluvial deposits and the sheer intensity of rainfall during Storm Bert have been attributed as the causes of surface water flooding.

NRW has been determined as the relevant Risk Management Authority responsible for managing the main river flooding that occurred during Storm Bert. In response to the flooding at FIA 12, NRW propose to:

- Undertake a review of the resultant thresholds for this Flood Warning Area (FWA).
- Undertake a topographical survey of main river flood defences in this area.

- Develop a long-term Strategic Flood Risk Management plan for the Taf catchment to manage the negative impacts of flooding on people, property, infrastructure and the environment. The plan will identify where NRW need to act and who is best placed to action the opportunities identified.

RCTCBC as the LLFA and Highway Authority has been determined as the relevant Risk Management Authority responsible for managing the surface water flooding that occurred during Storm Bert. In response to the flooding at FIA 12, RCT propose to:

- Cooperate and collaborate with NRW to carry out a detailed study of the investigation area and to help deliver NRW's Strategic Flood Risk Management Plan for the Taf Catchment.
- Establish internal trigger levels for extreme weather that will provide a more robust warning and informing arrangement and improve the Council's standby protocol by building resilience for "on call" staff to be able to cope with longer duration events.
- Roll out additional interim Property Flood Resistance (PFR) equipment to over 150 properties across RCT. This is in line with the LLFA's permissible powers to assist residents with temporary resilience measures pending the outcome of NRW's review of river flooding.

The event that occurred on 23 and 24 November was extreme, and it is unlikely flooding from a similar event could be prevented entirely. It is concluded that the LLFA, NRW and the Highway Authority have relevant flood risk management functions, and all three RMAs have outlined which functions have been exercised and which are proposed to be exercised in response to the Storm Bert flooding event.

ABBREVIATIONS

CaRR – Communities at Risk Register

DCWW – Dŵr Cymru Welsh Water

FIA 12 – Flood Investigation Area 12

FWMA – Flood and Water Management Act 2010

LDA - Land Drainage Authority

LFRMS – Local Flood Risk Management Strategy

LLFA – Lead Local Flood Authority

NRW – Natural Resources Wales

PFR - Property Flood Resistance / Resilience

Q – Return Period (1 in X chance of an event occurring in any given year)

RCT - Rhondda Cynon Taf

RCTCBC – Rhondda Cynon Taf County Borough Council

RMA – Risk Management Authority

SFRA – Strategic Flood Risk Area

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1. INTRODUCTION

1.1. PURPOSE OF INVESTIGATION

On the 23 and 24th November 2024, Rhondda Cynon Taf County Borough Council (RCTCBC) was impacted by a severe weather event which was designated by the Met Office as 'Storm Bert' on 20th November 2024.

The storm resulted in widespread flooding to residential and non-residential properties within Rhondda Cynon Taf (RCT). This report will focus on Flood Investigation Area 12 (referred to as 'FIA 12' within this report) which covers the area of Treforest Industrial Estate, Oxford Street, and Rhyd-Yr-Helyg, located in Nantgarw in the River Taf catchment.

The purpose of RCTCBC's investigation is in response to the duties of the local authority as Lead Local Flood Authority (LLFA) in regard to Section 19 of the Flood and Water Management Act 2010 (FWMA), which states:

1. "On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate:

a) which risk management authorities have relevant flood risk management functions and
b) whether each of those risk management authorities has exercised or is proposing to exercise those functions in response to the flood.

2. When an authority carries out an investigation under subsection (1) it must (a) publish the results of its investigation, and (b) notify any relevant risk management authority".[1]

[1] Flood and Water Management Act 2010, Section 19

The purpose of the investigation is to determine which Risk Management Authorities (RMA) have relevant flood risk management functions and which functions have been exercised in response to a flood.

Current Welsh Government guidance outlined within the National Strategy for Flood and Coastal Erosion Risk Management[2] stipulate that a Section 19 report should be produced for flooding incidences where twenty or more properties experience internal flooding following a storm event. Due to the extent and impact of the event at FIA 12, the Lead Local Flood Authority (LLFA) have opted to undertake a formal Section 19 investigation for this area.

Specific details of Storm Bert, such as rainfall analysis and watercourse response, are covered within a separate overview report that covers the wider RCT area. The report is titled 'Storm Bert November 2024 – Overview Report'[3].

[2] National Strategy for Flood and Coastal Erosion Risk Management in Wales, October 2020
[3] RCTCBC Storm Bert Overview Report, March 2025

1.2. SITE LOCATION

The area investigated within this report (FIA 12) forms part of the community of Nantgarw, between the electoral wards of Hawthorn & Lower Rhydyfelin and Taf's Well in the south easternmost sector of the county borough (Figure 1). It is located within the River Taf catchment, which flows northwest to southeast adjacent to the investigation area.

The investigation area itself is confined to the base of the valley where residential and commercial development has been built on the floodplains of the River Taf.

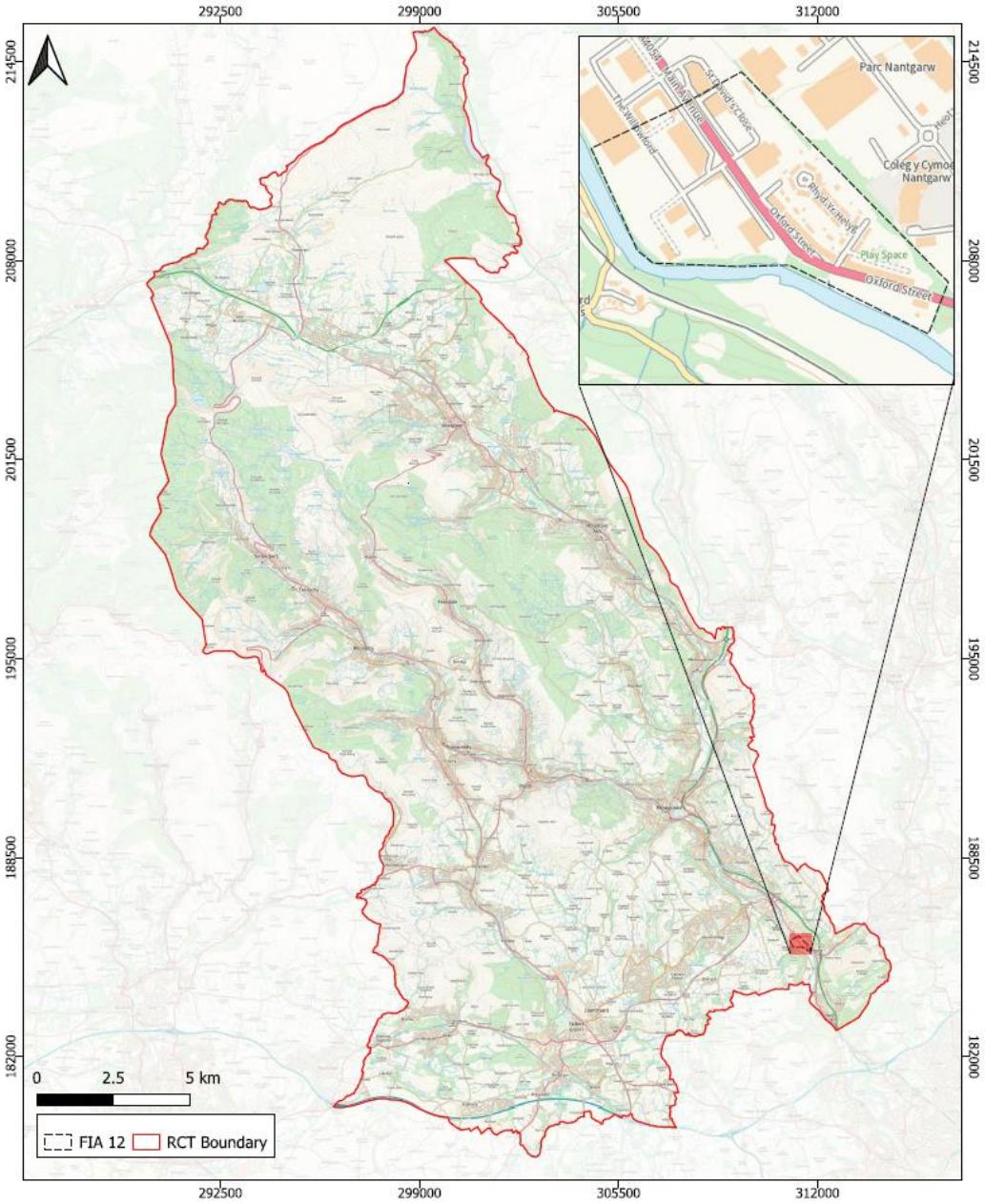

Figure 1: Location plan of FIA 12.

FIA 12 falls within the Lower Taf Strategic Flood Risk Area, as defined by RCT's Local Flood Risk Management Strategy and Action Plan 2024[4]. These boundaries are based

[4] RCTCBC Local Flood Risk Management Strategy and Action Plan, March 2024

on the latest flood risk datasets, geographical knowledge of the catchment drainage basins and local flood history to assess flood risk in RCT.

According to Natural Resources Wales's (NRW) Flood Risk Assessment Wales (FRAW) maps, the area is widely affected by both main river and surface water and ordinary ('small') watercourse flood risk (Figure 2). Low to high surface water and ordinary watercourse flood risk is present across much of the investigation area. This can be attributed to local topography; whereby surface water accumulates within the topographical low points across the low-lying area of FIA 12. Main river flood risk compounds the risk posed to people and properties within the investigation area. The entirety of FIA 12 is affected by low to high main river flood risk sourced from the River Taf.

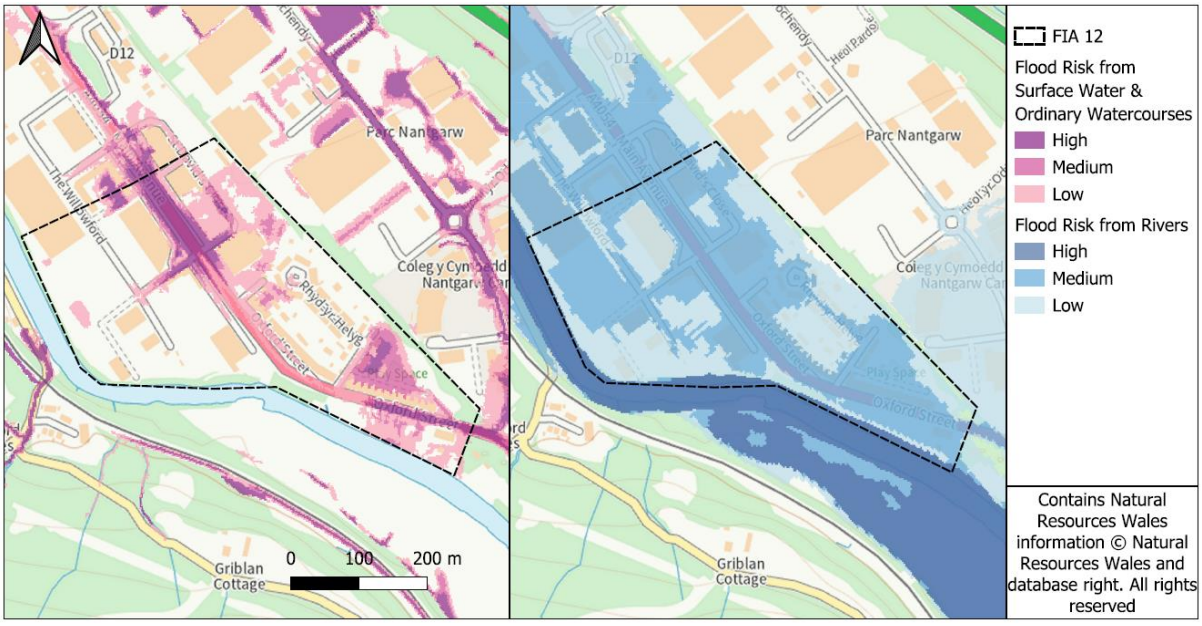

Figure 2: Natural Resources Wales's Flood Risk Assessment (FRAW) map for surface water and small watercourse, and main river flood risk at FIA 12.

The Welsh Government's Communities at Risk Register (CaRR), produced by NRW, provides a national assessment of flood risk and hazard from all sources of flooding, enabling flood risk and hazard to be ranked at a local level to identify those communities at highest risk. The national flood risk rankings for the community of

Nantgarw, which FIA 12 is located within, have been presented in Table 1 for the present day and climate change scenario (CaRR, 2024[5]).

Table 1: Surface water and ordinary watercourse and main river (managed) flood risk ranking for the present day and climate change scenario for Nantgarw according to the CaRR, 2024.

Community Name	Present Day Ranking		Climate Change Scenario (2120) Ranking	
	Surface Water & Ordinary Watercourse	Main River (Managed)	Surface Water & Ordinary Watercourse	Main River (Managed)
Nantgarw	125	154	139	126

As illustrated in Table 1, the community of Nantgarw is predicted to fall in ranking for surface water and ordinary watercourse flood risk. This does not indicate that surface water and ordinary watercourse flood risk will naturally decrease but rather it will increase at a slower rate relative to certain communities in Wales. On the other hand, main river flood risk in Nantgarw is projected to increase significantly when compared to other communities, ranking 28 communities higher for main river flood risk. Table 2 exemplifies the projected change in flood risk in terms of the number of properties at risk in Nantgarw. Properties at risk of both surface water and ordinary watercourse, and main river flood risk are projected to increase in line with climate change.

Table 2: Properties at Risk from surface water and ordinary watercourse, and main river flooding in the present day and climate change scenario, according to the CaRR, 2024.

Community Name	Properties at Risk- Present Day		Properties at Risk- Climate Change Scenario (2120)	
	Surface Water & Ordinary Watercourse	Main River (Managed)	Surface Water & Ordinary Watercourse	Main River (Managed)
Nantgarw	387	371	468	433

[5] Communities at Risk Register 2024 – Present Day (CaRR) | DataMapWales

1.3. Drainage System

The surface water drainage systems that serve FIA 12 are that of the highway drainage network which is designed to manage the surface water within the highway, and public surface water sewer and combined sewer networks (foul and surface water) operated by Dwr Cymru Welsh Water.

1.4. Investigation Evidence

To support the investigation, a range of qualitative and quantitative evidence has been gathered from numerous sources, the summary of which is listed in Table 3.

Table 3: Investigative evidence gathered in preparation of this Section 19 Report.

Source	Data
Residents	Photographs, videos, statements, email correspondence, public engagement survey responses
Responders' Statements	Local responders' statements
Risk Management Authority (RMA) Responses	In pursuant of Section 13 (1) of the FWMA, relevant RMAs provided RCTCBC with information to support the production of this report
CCTV Surveys	Internal surveys of the local drainage networks
Met Office Data	Weather Warning information (see FRM- Storm Bert- Overview Report)
Natural Resources Wales	River Level and Flood Warning Data
RCT Local Flood Risk Management Strategy and Action Plan 2024	Site specific information and data for each electoral ward in RCT
Communities at Risk Register 2024	Flood risk ranking and scores for all flood types based on community data in Wales
Envirocheck Report	A comprehensive environmental risk assessment tool used by professionals to evaluate potential hazards on a site. These reports include historical maps, flood risk assessments, geology maps and contamination screening.

1.5. Public Engagement

Following the initial flood event that occurred on the 23 and 24 November 2024 during Storm Bert, flood risk officers from the RCT Flood Risk Management department were deployed to areas across the borough to investigate reports of flooding by residents. Residents engaged with the Flood Risk Management team to help determine the initial impacts caused by the flooding event and to investigate the potential source(s) and

pathways(s) of flood water during the event. Due to the volume of calls received by RCT's Out of Hours department, visits were prioritised to those areas experiencing significant internal flooding to residential properties.

To support these investigations, a public engagement exercise was undertaken between 17 March and 28 April 2025. This exercise comprised of an online survey which enabled residents who were affected by the flood event to provide further detail on how they were impacted, the source and movement of flood water within the area, how receptors were impacted as well as drawing on local knowledge to query how local conditions could have exacerbated the event. Residents were also encouraged to submit photo/video evidence of flooding to their properties. This data is useful to help the LLFA better understand and validate our assessment of the flood event to support the investigation under Section 19 of the FWMA.

During the consultation period, a total of 2 responses were received from individuals within FIA 12.

2. FLOODING HISTORY

2.1. PREVIOUS FLOOD INCIDENTS

Table 4 lists the previous incidences of flooding to properties within FIA 12 based on resident's accounts and available historical information held by the Council.

Historical flood records held by RCT's Flood Risk Management team show little evidence of internal flooding of properties within the investigation area prior to 2020. Residents accounts suggest that properties along Rhyd-yr-Helyg have experienced flooding on at least two occasions between 1960 and 1970, however no further accounts of historical flooding have been reported.

On the 15 and 16 of February 2020, Storm Dennis resulted in a flooding event which internally impacted 1,498 homes and businesses across RCT, of which 128 were impacted within the investigation area. Flooding was primarily attributed to the River Taf overtopping its river banks at multiple locations, as well surface water runoff along the highway network due to intense rainfall. Worst affected areas in Nantgarw during Storm Dennis include Oxford Street and Rhyd-yr-Helyg. Further details of the flooding caused by Storm Dennis at this location can be found in the published Section 19 report titled "Storm Dennis- Flood Investigation Area RCT16 (Upper Boat & Nantgarw)"[6].

Since Storm Dennis, there have been no further recorded instances of internal flooding within the investigation area until Storm Bert.

[6] Storm Dennis- Flood Investigation Area RCT16 (Upper Boat & Nantgarw), March 2024

Table 4: Depicts the recorded internal flood history of FIA 12.

Name & Date of Storm Event	Nr Receptors Impacted Internally	Streets Affected
Unnamed Storm 1960-1970	Unknown	Unknown
Unnamed Storm 1960-1970	Unknown	Unknown
Storm Dennis February 2020	128	The Willowford, St David's Close, Oxford Street, Rhyd-Yr-Helyg

2.2. FLOOD INCIDENT

The flooding incident that occurred on 23 and 24 November 2024 was a result of an extreme rainfall event, designated by the Met Office as 'Storm Bert'. The rainfall event affected the majority of RCT and caused widespread flooding to communities.

Specific details of Storm Bert, such as rainfall and watercourse level analysis, are covered within a separate overview report that covers the wider RCT area, referenced 'Storm Bert November 2024 – Overview Report'[3].

The post event inspections undertaken on the days following the storm event by RCTCBC's Flood Risk Management team and RCTCBC's Public Health, Protection and Community teams identified 18 residential and 3 non-residential properties as internally flooded within FIA 12.

A summary of the source(s) and pathway(s) for flooding within FIA 12 during Storm Bert have been outlined in Table 5 and further described throughout this section.

Table 5: Summary of the source(s), pathway(s) and receptor(s) affected during Storm Bert within FIA 12.

Source	Pathway	Receptor
The River Taf overtopping its river bank at Treforest Industrial Estate, adjacent to a commercial premise at Willowford, Main Avenue.	Main river flood water conveyed through the industrial estate and onwards towards Main Avenue in which the flow split in two directions. The first flow path conveyed onwards toward St Davids Close whilst the main flow conveyed south-east via the highway network towards	Main river flood water from the River Taf resulted in internal flooding to 18 residential and 3 non-residential properties at Treforest Industrial Estate, Oxford Street and Rhyd-Yr-Helyg.

Source	Pathway	Receptor
	Oxford Street and Rhyd-Yr-Helyg.	
Surface water drainage infrastructure along the highway at Oxford Street was observed as surcharging during the storm event, exacerbating the main river flooding in the area.	Flood water from the surcharging highway drainage accumulated within the topographical low points along Oxford Street and Rhyd-Yr-Helyg.	Surcharging flows from the highway drainage network contributed to the flooding of 16 residential and 1 non-residential property at Oxford Street.
Intense rainfall and subsequent localised surface water runoff and accumulation from the surrounding area.	Surface water runoff and accumulation was observed along the highway network including the A4054 Main Avenue and Oxford Street, particularly at localised low points.	Surface water is considered to have exacerbated the internal flooding experienced across FIA 12 during Storm Bert.

On review of Table 5, the primary source of the recorded flooding within FIA 12 was a result of the River Taf overtopping its river bank and conveying through a gap created by the removal of a service crossing located at Treforest Industrial Estate. The abutment of the service crossing previously tied into the flood defences upstream. According to Natural Resources Wales (NRW), the service crossing had been removed without a Flood Risk Activity Permit from NRW (as the regulatory body for main rivers) prior to the storm event. The location of the removed service crossing is illustrated in Figure 3 which was captured by the Council's Flood Risk Management team during post event investigations.

Figure 3: Image of the location of the removed service crossing at Treforest Industrial Estate (image captured by RCTCBC Flood Risk Management officers on 28/11/2024).

The overtopping was reported by local business owners to have occurred at approximately 8:15am on Sunday 24 November 2024, whereby main river flood water travelled east along the highway network through the industrial estate, towards the A4054 Main Avenue. From here, the main river flood water took two main flow paths, referenced as ‘Flow path A’ and ‘Flow path B’ in Figure 4.

As shown in Figure 4, ‘Flow path A’ continued east through the industrial estate towards St Davids Close where it accumulated at a topographic low point adjacent to a commercial property. This flow path resulted in internal flooding to 2 commercial premises.

‘Flow path B’ conveyed in a south-easterly direction along Main Avenue, following the natural gradient of the highway towards Oxford Street where the flood water entered

the fronts of 17 properties. Main river flows also conveyed onto Rhyd-Yr-Helyg and through to the rear lane of Oxford Street, causing internal flooding to a further 2 residential properties at Rhyd -Yr-Helyg from the rear gardens before infiltrating into the adjacent recreation land.

Both ‘Flow path A’ and ‘Flow path B’ led to extensive flooding of the highway network across FIA 12. This resulted in main river flows entering the surface water highway drainage system, contributing to the surcharging of the system downstream at the topographic low point at Oxford Street. The surcharging highway drainage network and subsequent surface water accumulation at Oxford Street is considered to have contributed to the internal flooding of 16 residential and 1 non-residential properties. During the event, residents were reported to have diverted some of the flood water from the highway at Oxford Street and onto the grass land to the south (demarcated by a blue hatched area in Figure 4) by cutting channels in the grass verge (Figure 5).

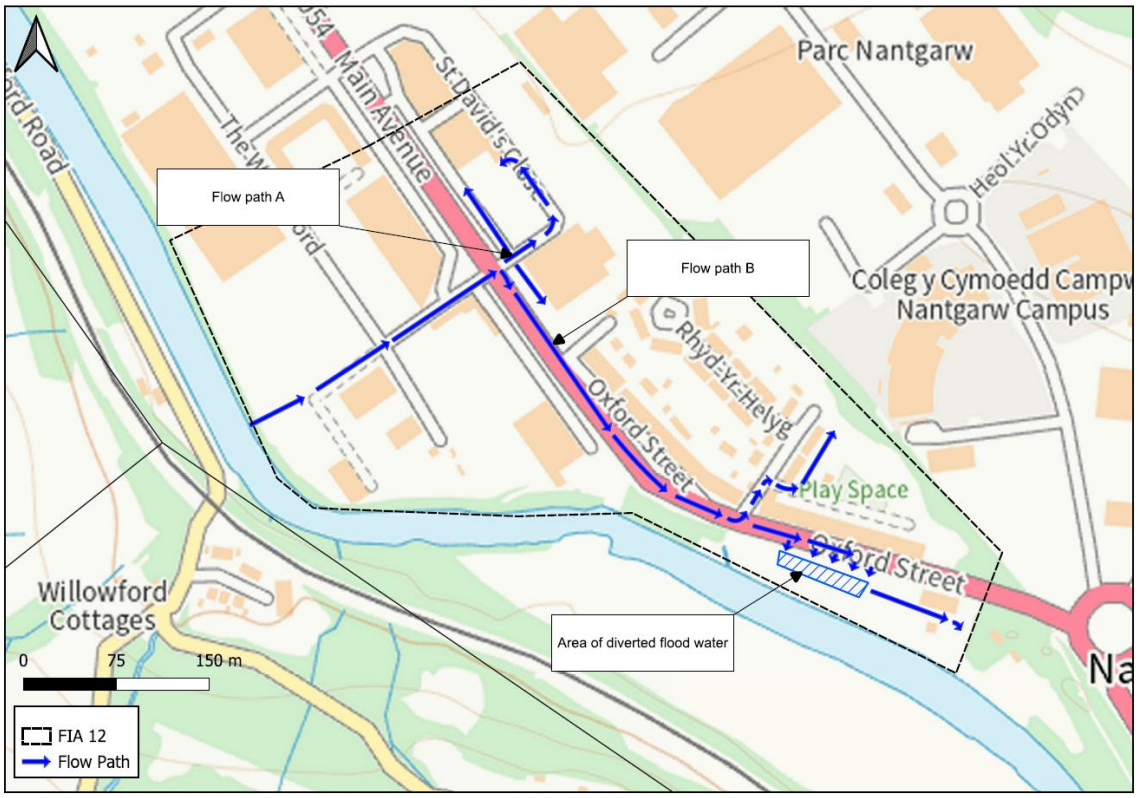

Figure 4: Indicative overland flow paths observed during Storm Bert within FIA 12.

Figure 5: Channels cut in the grass verge to divert floodwater during the event at Oxford Street.

2.3. RAINFALL ANALYSIS

See RCT's 'Storm Bert November 2024 – Overview Report'[3], for a detailed analysis of the rainfall and ordinary watercourse response.

3. POSSIBLE CAUSES

The below sections describe the possible causes of flooding that occurred within FIA 12 during Storm Bert.

3.1. CULVERT CONDITIONS

There is no evidence from this investigation to suggest that culverted ordinary watercourses within the investigation area significantly contributed to the recorded flooding of properties in FIA 12 during Storm Bert.

As such, neither the condition, nor the capacity, of culverted ordinary watercourse infrastructure within the investigation area has been investigated as part of this report.

3.2. ORDINARY WATERCOURSE CONDITIONS

There are no ordinary watercourses within the investigation area. As such, ordinary watercourse conditions have not been investigated as part of this report.

3.3. MAIN RIVER

The River Taf, designated as a main river by NRW, borders the southern boundary of the investigation area, flowing from the northwest of FIA 12 at Upper Boat, in a southeasterly direction towards Nantgarw and Taffs Well.

Both residential and commercial properties were internally impacted by main river flooding across FIA 12 as a result of the main river overtopping its river bank and conveying through a gap created by the unpermitted removal of a service crossing located at Treforest Industrial Estate. The abutment of the service crossing previously tied into the flood defences located upstream.

3.3.1. Main River Levels and Flood Warnings

The hydrograph in Figure 6 illustrates the significant rise in the River Taf's levels in response to rainfall between the 23 and 25 November 2024. River level data was captured at the nearest NRW river monitoring station to FIA 12, which is located approximately 1.4 kilometres upstream at the Upper Boat Bridge station.

The green bar displayed in Figure 6 shows the typical level of the River Taf at the Upper Boat station, ranging between approximately 0.25 and 1.25 metres. The River Taf level was above this green line for over 48 hours before falling back to typical levels by 26 November 2024, highlighting the severity of the storm event. At its peak, the River Taf at Upper Boat was near 4 metres higher than its typical level and according to NRW, the River Taf rose 300mm every 15 minutes at the height of the rainfall[7].

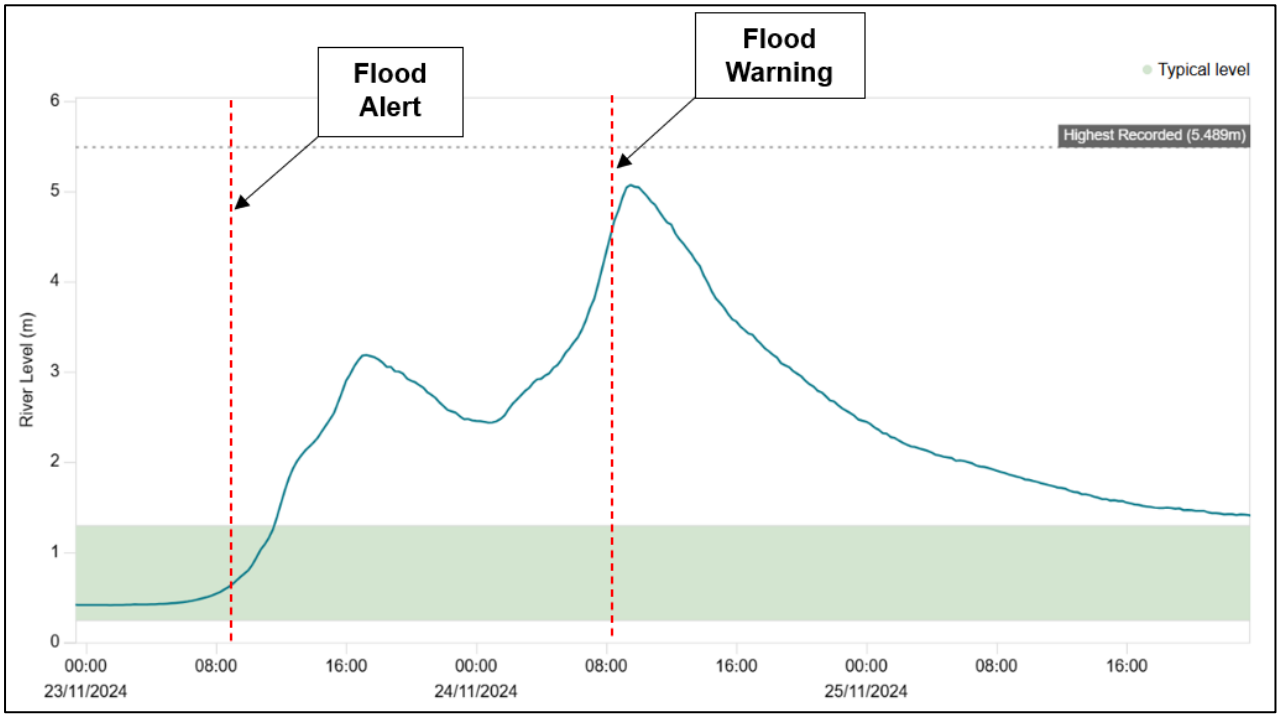

Figure 6: The River Taf levels at Upper Boat station between 23 and 25 November 2024.

[7] Natural Resources Wales / Storm Bert

The investigation area FIA 12 falls within NRW's 'River Taf' Flood Alert Area and 'River Taf at Nantgarw' Flood Warning Area. The 'Flood Alerts' (indicating possible flooding) and 'Flood Warnings' (indicating flooding is expected) issued by NRW for the River Taf at FIA 12 during Storm Bert are shown in Table 6 and have also been illustrated in Figure 6 above.

Table 6: Flood Alert and Warnings issued by NRW for the main river flowing through FIA 12 during Storm Bert.

Flood Warning Type	Location	Start Date & Time	River Level (m)	NRW Station Name
Flood Alert	River Taf	23/11/2024 10:01	0.802	Upper Boat
Flood Warning	River Taf at Nantgarw	24/11/2024 8:13	4.5	Upper Boat

NRW issued a 'Flood Alert' (indicating possible flooding) for the River Taf at 10:01 on Saturday 23rd November 2024; at which point the main river at the Upper Boat Bridge monitoring station was approximately 0.8 metres in depth and rising quickly in response to rainfall. Following a short drop in levels, at approximately 01:30 on Sunday 24 November 2024, the River Taf began to rise again, reaching a peak river level of 5.07 metres at 9:30 on 24 November. The peak river level recorded at Upper Boat station was 0.419 metres lower than the peak level recorded at the station during Storm Dennis in February 2020.

The 'Flood Warning' was issued by NRW for the River Taf at Nantgarw at 8:13 on Sunday 24 November, 1 hour and 17 minutes before its peak. The River Taf was reported to have conveyed through the gap created by the removal of a service crossing at Treforest Industrial Estate shortly after the 'Flood Warning' was issued, at approximately 8:15.

3.3.2. Main River Flood Risk

As outlined in section 2.2, the River Taf overtopping its river bank and conveying through a gap created by the unpermitted removal of a service crossing located at Treforest Industrial Estate during Storm Bert has been identified as the primary cause of flooding to 21 receptors (18 residential and 3 non-residential) within the investigation area.

Figure 7 is an excerpt from NRW's Flood Risk Assessment Wales (FRAW) mapping exercise which depicts the main river flood risk extents for the 'Managed' scenario, i.e., with the presence of flood defence infrastructure. The darker shading identifies areas at higher risk of flooding (more frequent/less extreme rainfall events) and lighter shading showing the lower risk areas (less frequent/more extreme rainfall events).

A low risk of flooding means that an area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%) each year; meanwhile, a medium risk of flooding signifies a yearly chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%).

The flooding that occurred within FIA 12 is largely consistent with the modelled outputs of NRW's FRAW map (Figure 7), with the impacted properties falling within an area of medium main river flood risk.

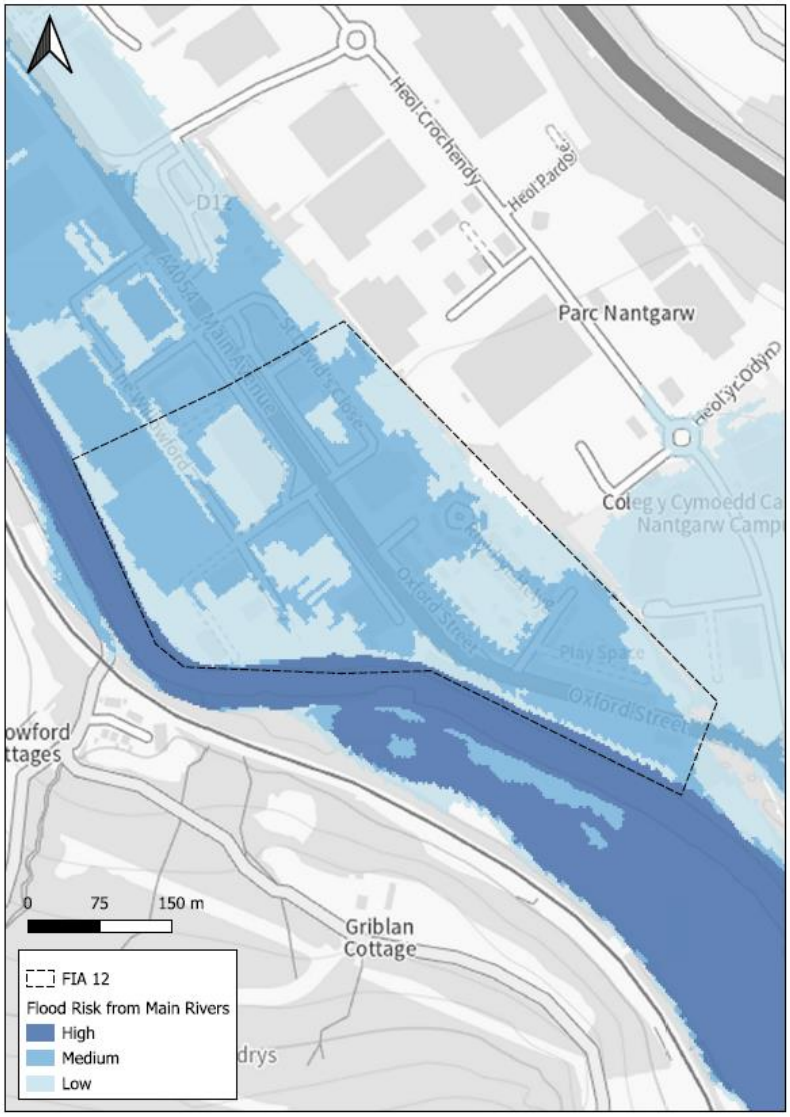

Figure 7: NRW's FRAW map for main river sources at FIA 12. Natural Resources Wales.

3.3.3. Main River Flood Defences

As illustrated in Figure 8, there are approximately 782 metres of recorded main river flood defence infrastructure along the eastern bank of the River Taf at FIA 12. The flood defence infrastructure consists of a section of flood defence wall (demarcated by a red line) and embankment (demarcated by a purple line). This infrastructure is operated and maintained by NRW.

In consultation with NRW, they have confirmed however, that the extent of the mapped Flood Defence Wall (red line) is incorrectly displayed as it does not account for a private section of wall which acts as a service crossing access point as depicted in Figure 9. This section of wall is considered to act as a non-flood defence asset which was removed without consent from NRW as regulators of any works carried out "on or near a flood defence structure"[8].

According to NRW's Flood Defence Structures Map[9], the flood defence infrastructure shown in Figure 8 provides a standard of protection (SOP) up to a 1 in 30 annual probability (Q30) flood event to properties within the investigation area (demarcated by the black hatched area in Figure 8). The current SOP for this area, sourced from NRW's Flood Defence Structures Map[9], was last updated by NRW on 28 November 2024, following the events of Storm Bert.

Following the consultation with RMA's, NRW have clarified the current SOP and have stated the following:

"flood defence infrastructure is shown within the Lower Taff fluvial model to provide a SOP up to and including the 50-year event, with flooding of property only seen to start occurring in the 75-year event."

[8] Natural Resources Wales / Check if you need a flood risk activity permit (FRAP)
[9] Flood Defence Structures | DataMapWales

Furthermore, due to the unpermitted removal of a service crossing (refer to Figure 3) the perceived SOP is expected to have been reduced and the area benefitting from flood defences would have been impacted during the flood event.

The current indicative design standard of protection for flood defences on a main river is 1 in 100 annual probability (Q100) flood event plus, for new schemes, an allowance for climate change. This is stated within the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management which encourages main river flood alleviation schemes to provide a SOP up to Q100[10].

Since the storm event, the gap created by the removed service crossing has been filled by a new section of wall by private landowners in consultation with NRW (as shown in Figure 9).

[10] National Strategy for Flood and Coastal Erosion Risk Management in Wales, Welsh Government 2020

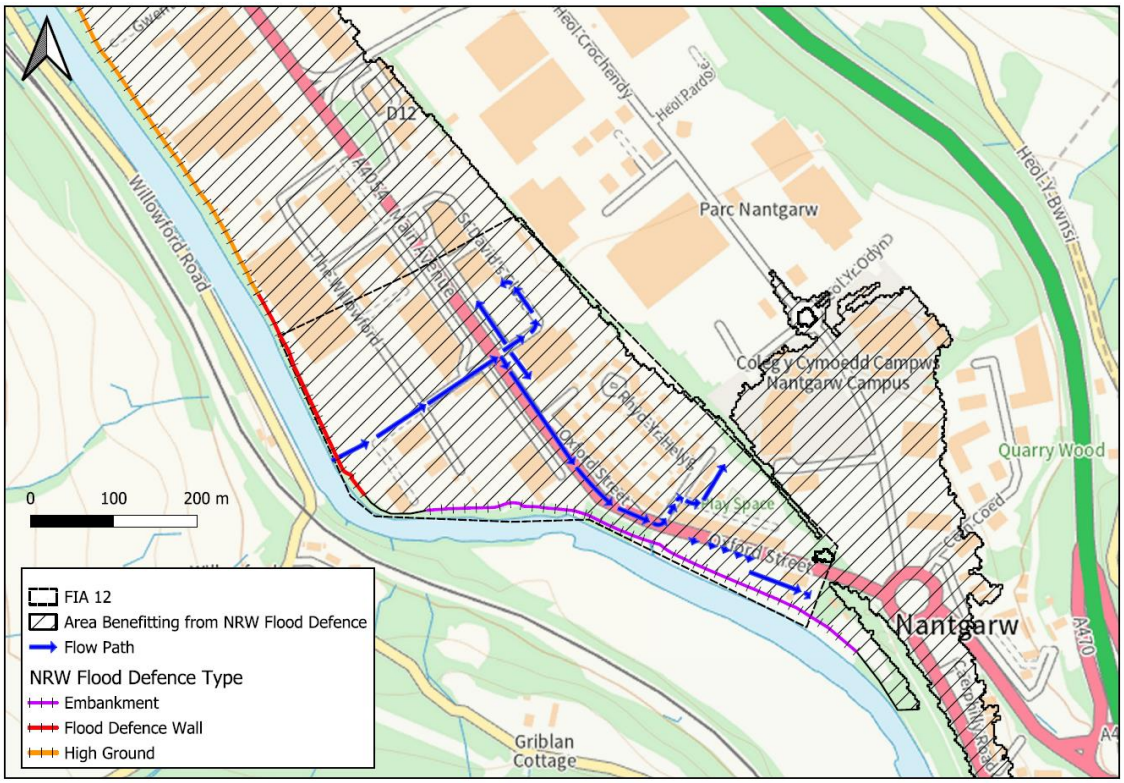

Figure 8: Natural Resources Wales's map for Main River Flood Defences, areas benefitting and flow path at FIA 12.

Figure 9: (Left) Gap created downstream of NRW flood defence wall by unpermitted removal of service crossing (image captured on 28/11/2024). (Right) New wall constructed to infill the gap downstream of NRW flood defence wall (image capture on 06/05/2025).

3.4. HIGHWAY DRAINAGE CONDITIONS

Inspection records held by the Highways Authority show that the highway drainage system at FIA 12 was inspected and cleansed on 18 June 2024, five months prior to the event. During this inspection, no defects to the infrastructure were identified and any minor build-up of silt was cleansed.

During Storm Bert, the A4054 Main Avenue and Oxford Street were observed as flooding as a result of the River Taf overtopping its river bank and conveying through a gap created by the unpermitted removal of a service crossing. The resultant fluvial flows deposited mud, silt and debris across the impacted area. These sediments are considered to have entered the highway drainage system, leading to blockages and a reduction in the hydraulic capacity of the surface water network.

It was reported by residents that highway drainage gullies along Oxford Street were surcharging during the event. Highway drainage is not designed to manage overland flows from private areas, parks or open space, nor is it designed to accommodate fluvial flows that may arise during storm events. In this instance, the capacity of the highway drainage in FIA 12 is considered to have been exceeded primarily by main river flows entering the drainage network and the associated settling of fluvial deposits, but also the sheer intensity of rainfall during Storm Bert entering the network. The maintenance condition of the highway drainage infrastructure is not considered to have significantly impacted the flooding experienced at FIA 12.

3.5. DCWW Apparatus

There is no evidence from this investigation that DCWW apparatus contributed to the flooding that occurred during Storm Dennis within investigation area FIA 12.

DCWW reported no issues within FIA 12 during Storm Bert and it is not believed that any DCWW infrastructure was damaged during the storm event.

3.6. SURFACE WATER

Whilst surface water is not considered to have been the primary cause of flooding to properties within FIA 12, it is considered to have contributed to and exacerbated the main river flooding observed at this location.

On review of NRW's national surface water and ordinary ("small") watercourse flood map (Figure 10), the areas impacted by flooding during the storm event correlate well with areas deemed to be at high risk of surface water and ordinary watercourse flooding, including Main Avenue, Oxford Street and parts of Rhyd-Yr-Helyg. Areas of high risk are primarily associated with the conveyance of surface water runoff towards topographic low points across FIA 12 which result in surface water accumulation at these locations.

Surface water flooding as a contributing source of flooding to properties along Oxford Street has been primarily attributed to main river flows entering and overwhelming the surface water drainage network, in addition to intense and persistent rainfall resulting in the accumulation of runoff towards localised low points.

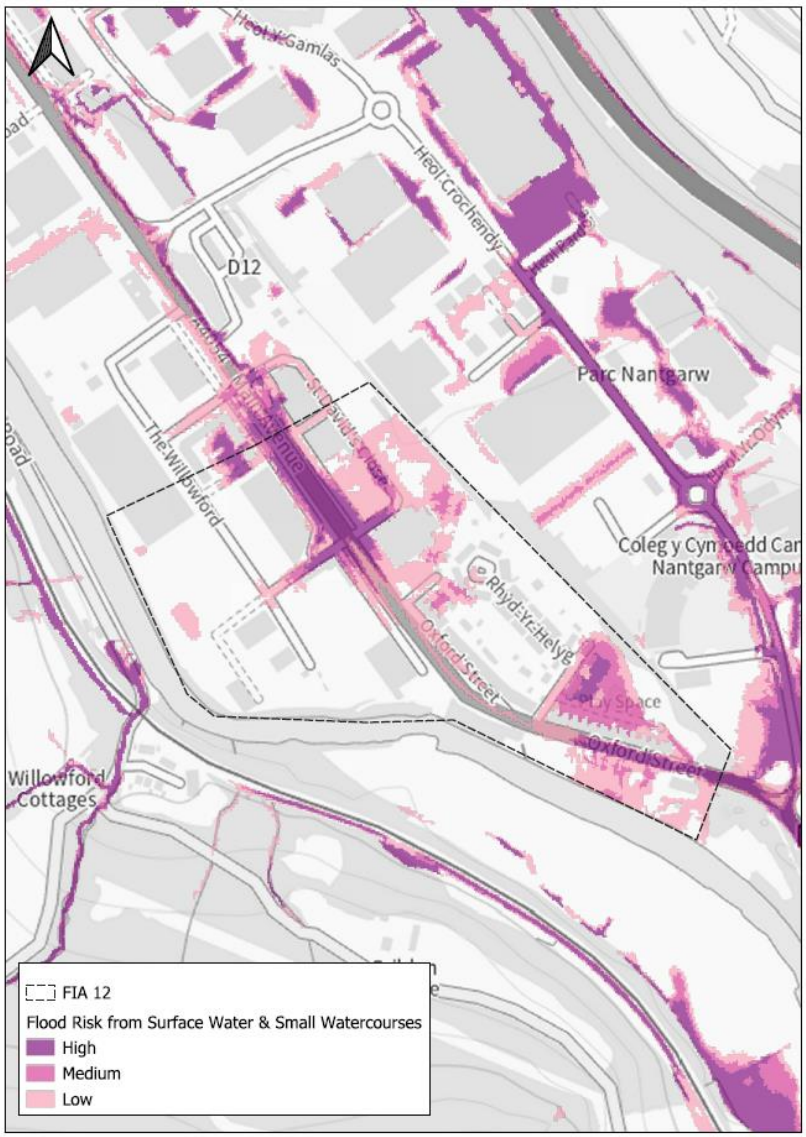

Figure 10: NRW's Flood Risk Assessment Wales (FRAW) map for Surface Water and Ordinary Watercourse flood sources at FIA 12.

3.7. SUMMARY OF POSSIBLE CAUSES

The above sections have identified and described the possible causes of flooding within investigation area FIA 12 during Storm Bert. A summary of the identified sources and possible causes of flooding (issue) have been outlined below in Table 7.

Table 7: Summary of the source(s) and possible cause(s) of flooding in FIA12 during Storm Bert

Ref Nr	Asset (Source)	Issue	Asset Owner	Type of Flooding
1	River Taf	High river levels within the River Taf resulted in the main river overtopping its river bank and conveying through a gap created by the unpermitted removal of a service crossing onto the highway network and adjacent properties. Extensive flooding to the highway network resulted in main river flows entering the surface water drainage system which contributed to surface water flooding at Oxford Street.	Private Landowner(s)	Main River
2	Surface water drainage network across FIA 12	Intense rainfall across RCT combined with main river flood water from the River Taf severely overwhelmed the highway drainage infrastructure resulting in the accumulation of surface water across several streets throughout the investigation area.	RCTCBC Highway Authority	Surface Water

4. Risk Management Authority Functions

4.1. Risk Management Authorities and their Functions

The term 'Risk Management Authority' refers to the organisation(s) that have legislative powers concerning flood risk management. Risk Management Authorities (RMA) across Wales include NRW, the 22 Local Authorities as Lead Local Flood Authority (LLFA) and highway authority, water companies, and the Welsh Government as highway authority for trunk roads. Each RMA is required to fulfil a number of statutory duties, as defined under the FWMA. In addition to these statutory duties, the Act sets out a range of permissive powers for RMAs, enabling them to undertake defined activities if they so wish.

RCTCBC work in partnership with those organisations to investigate and manage flood risk. Whilst RCTCBC as the LLFA has a duty to investigate flood incidents in its area, it may be the responsibility of another RMA, or land/property owner, to take actions to resolve an issue.

Table 8 summarises which RMAs are primarily responsible for managing flood risk dependent on the type of flooding.

Further information pertaining to the roles and responsibilities of each individual RMA to manage flood risk is described in Section 5 of RCTCBC's Local Flood Risk Management Strategy and Action Plan.[4]

Table 8: Risk Management Authorities responsible for managing different types of flooding in RCT.

Source of Flooding	Lead Local Flood Authority	Natural Resources Wales	Water Company	Highway Authority	South Wales Trunk Road Agency (Trunk Roads & Motorway)
Main River		✓			
Surface Water	✓			✓ (on or coming from the Highway)	✓ (on or coming from the Highway (Trunk Roads & Motorway)
Ordinary Watercourse	✓				
Groundwater	✓				
Sewer Flooding			✓		
Reservoirs		✓			

Risk Management Authorities have direct flood risk management functions under the Flood and Water Management Act 2010, as well as the Land Drainage Act 1991 and the Highways Act 1980. Through analysis of the flooding that impacted FIA 12, the flood risk management functions exercised or proposed to be exercised by relevant RMAs was recorded in pursuant to Section 19 of the Flood and Water Management Act 2010, which states;

“On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate:

a) Which risk management authorities have relevant flood risk management functions and,

b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in the response to the flood."

Through the investigation process, the source(s) and possible causes of flooding in FIA 12 as a result of Storm Bert have been previously identified and summarised within Table 7. The RMAs responsible for managing that type of flooding have been determined in Table 9.

Table 9: Risk Management Authorities identified in response to the source(s) and type of flooding in FIA12 (as per Table 7).

Ref Nr	Asset (Source)	Asset Owner	Type of Flooding	RMA responsible for managing risk
1	River Taf	Private Landowner(s)	Main River	NRW
2	Surface water drainage network across FIA 12	RCTCBC Highway Authority	Surface Water	Highway Authority and LLFA

4.2. Lead Local Flood Authority

In review of Ref 2 in Table 9, the LLFA has been determined as the relevant Risk Management Authority in relation to the surface water flooding which occurred in FIA 12 during Storm Bert.

The LLFA exercised the following functions in response to the flooding at FIA 12:

- Officers investigated the initial flooding and have produced this report in line with Section 19 of the Flood and Water Management Act 2010
- Officers contacted residents affected by flooding to offer support and advice to assist in the recovery following the event.
- A public engagement exercise was carried out by the LLFA to gain further local insight and anecdotal evidence to support the flood investigation.
- The LLFA has exercised its powers, under Section 13 of the FWMA, to request information and co-operation from the relevant Risk Management Authorities (NRW and DCWW) in relation to their responsibilities as RMAs in response to Storm Bert.
- The LLFA has developed a revised "Flood Response Protocol", designed to pro-actively determine the agreed requisite response and resource levels related to potential storm events.
- The Council's central Control Room, which was established following Storm Dennis, was in operation during Storm Bert to provide a comprehensive and informed response to the residents of RCT as appropriate during storm events, and to accommodate multi departmental / agency meetings where required.
- The Council introduced a Community Flood Recovery Grant (Hardship Payment) programme, with support from the Welsh Government, to provide financial assistance to residents who were subjected to internal flooding as a result of Storm Bert.

- The LLFA, working alongside the Council's Prosperity & Development Directorate, supported businesses impacted by Storm Bert by establishing a Flood Recovery Grant and Flood Resilience Grant, providing financial assistance during the recovery phase and longer-term measures to enhance resilience against future events.
- Notwithstanding that NRW are the relevant RMA for main river flooding, the LLFA have expanded their interim Property Flood Resistance project offering expandable flood gates to those properties who have suffered repeat flooding from the main river during Storm Dennis and Bert.

The LLFA also propose to exercise the following functions in response to the flooding at FIA 12:

- Following a review of Met Office and NRW warning systems and their effectiveness when applied to localised weather events, the Council will establish internal trigger levels for extreme weather to provide a more robust warning and informing arrangement and improve the Council's standby protocol.
- The LLFA will cooperate and collaborate with NRW to carry out a detailed study of the investigation area and to help deliver NRW's Strategic Flood Risk Management Plan for the Taf Catchment.
- The LLFA will engage with landowners and property owners to provide advice and guidance to help make them aware of their personal flood risk and the options available to improve flood resilience.

4.3. NATURAL RESOURCES WALES

In review of Ref 1 in Table 9, NRW have been identified as the relevant Risk Management Authority in relation to the main river flooding from the River Taf during Storm Bert.

NRW have exercised the following functions in response to the flooding at FIA 12:

- NRW have carried out post event data collection including an assessment of the properties impacted by main river flooding and a survey of wrack marks, i.e., the marked high-water level.
- Undertaken post event asset inspections of main river flood defences in the area following Storm Bert.

NRW propose to exercise the following functions in response to the flooding at FIA 12:

- NRW will be undertaking a review of Resultant Thresholds for the River Taf at Nantgarw Flood Warning Area (FWA). This is critical for assessing the performance, timeliness and accuracy of the warning service after a flood.
- NRW plan to undertake a topographical survey of main river flood defences in the area.
- NRW will review the asset data attributed to a former utility crossing at Treforest Industrial Estate.
- NRW are developing a long-term Strategic Flood Risk Management Plan for the Taf catchment to manage the negative impacts of flooding on people, property, infrastructure and the environment. The Strategic Plan will identify where NRW need to act and who is best placed to action the opportunities identified.

4.4. WATER COMPANY

Dŵr Cymru Welsh Water were not identified as a relevant authority in relation to the flooding at FIA 12 during Storm Bert. DCWW do not propose to undertake any actions in relation to the event within the investigation area.

4.5. HIGHWAY AUTHORITY

In review of Ref 2 in Table 9, the Highway Authority has been identified as the relevant Risk Management Authority in relation to the surface water flooding that occurred along the highway across FIA 12 during Storm Bert.

RCTCBC as the Highway Authority have exercised the following functions in response to the flooding at FIA 12:

- The Highway Authority assisted with the emergency response during the event by supplying equipment and sandbags, some to individual properties and using sandbags to redirect flood water away from properties.
- The Highway Authority exercised their functions under Section 100 of the Highways Act 1980, to arrange for all gullies and open drains in the highway to be inspected and cleansed following the influx of fluvial flood water to ensure the safety of the highway post event.
- The Highway Authority has jetted, cleansed and mapped an estimated 1298 metres of surface water drainage network length within FIA 12 following Storm Bert to ascertain both the operational condition and structural integrity along sections of the network.
- Since Storm Bert, the Highway Authority have sources and deployed an additional Gulley cleansing vehicle for 6 months annually to increase gulley cleansing activities ahead of winter to improve the resilience of their highway drainage infrastructure to the impacts of heavy rainfall.

RCTCBC as the Highway Authority propose to exercise the following functions in response to the flooding at FIA 12:

- The Highway Authority's Pluvial Drainage Team, which was established following Storm Dennis, are to be reviewed and restructured to create increased

response and resilience including staff, stores, machinery and materials deployment.

USEFUL LINKS/CONTACTS

Blue Pages – property Resilience - http://bluepages.org.uk/

Flood Re – Flooded Property Insurance Scheme - https://www.floodre.co.uk/

Natural Resources Wales – Check Flood Warnings – Natural Resources Wales / Check flood warnings

Natural Resources Wales – Check your flood risk on a map (Flood Risk Assessment Wales Map) - Natural Resources Wales / Check your flood risk on a map (Flood Risk Assessment Wales Map)

Natural Resources Wales – Sign up to receive flood warnings – Natural Resources Wales / Sign up to receive flood warnings

Rhondda Cynon Taf County Borough Council – Flood Risk Management - Flood Risk Management | Rhondda Cynon Taf County Borough Council