RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

Flood Risk Regulations 2009

PRELIMINARY FLOOD RISK ASSESSMENT

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Preliminary Flood Risk Assessment

May 2011

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Abbreviations

Acronym	Definition
AStSWF	Areas Susceptible to Surface Water Flooding
WW	Welsh Water
CFMP	Catchment Flood Management Plan
CBC	County Borough Council
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EC	European Commission
RCTCBC	Rhondda Cynon Taf CBC
FMfSW	Flood Map for Surface Water
FWMA	Flood & Water management Act 2010
GIS	Geographical Information System
IUD	Integrated Urban Drainage
LDF	Local Development Framework
LLFA	Lead Local Flood Authority
LoSA	Level of Service Agreement
LPA	Local Planning Office
LRF	Local Resilience Forum
MoU	Memorandums of Understanding
PPS25	Planning and Policy Statement 25: Development and Flood Risk
PFRA	Preliminary Flood Risk Assessment
RBD	River Basin District
RFDC	Regional Flood Defence Committee
SAB	SuDS Approving Body
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
WAG	Welsh Assembly Government

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Executive Summary

This report has been prepared for Rhondda Cynon Taf C.B.C. to meet their duties to manage local flood risk and deliver the requirements of the Flood Risk Regulations (2009). Rhondda Cynon Taf C.B.C. defined as a Lead Local Flood Authority (LLFA) under the Regulations. The Preliminary Flood Risk Assessment (PFRA), comprising this document, the supporting spreadsheets and GIS layer represents the first stage of the requirements of the Regulations.

The PFRA process is aimed at providing a high level overview of flood risk from local flood sources, including surface water, groundwater, ordinary watercourses and canals. As a LLFA, Rhondda Cynon Taf C.B.C. must submit their PFRA to the Environment Agency for review by 22nd June 2011. The methodology for producing this PFRA has been based on the Environment Agency's Final PFRA Guidance and DEFRA's Guidance on selecting Flood Risk Areas, both published in December 2010.

In order to develop a clear overall understanding of the flood risk across Rhondda Cynon Taf C.B.C., flood risk data and records of historic flooding were collected from local and national sources including, the Environment Agency, water companies, emergency services and other risk management authorities.

Information relating to 11,923 flood events/incidence/flood risk, caused by flooding from local sources, was collected and analysed. However, comprehensive details on flood extents and consequences of the events were largely unavailable. Based on the evidence that was collected, 37 past flood events were considered to have had 'significant harmful consequences' at local level and 7 of those at national level.

The Environment Agency has used a national methodology, which has been set out by DEFRA, to identify indicative Flood Risk Areas across Wales. Of the Eight indicative Flood Risk Areas that have been identified nationally, one is located within Rhondda Cynon Taf C.B.C.'s administrative area.

This indicative area has been reviewed and amended by increasing the number of 1km squares above the flood risk threshold by 4 based on local records to form a Flood Risk Area. The flood risk area covers approximately 50% of Rhondda Cynon Taf and includes 91% of all people predicted to be at risk from future flooding.

Within this Flood Risk Area, the Regulations require Rhondda Cynon Taf C.B.C. to carry out two subsequent key stages:

- Flood hazard maps and flood risk maps (by 22nd June 2013); and
- Flood risk management plans (by 22nd June 2015).

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1 Introduction

1.1 Preliminary Flood Risk Assessment

This document reports the findings of research undertaken by Rhondda Cynon Taf County Borough Council towards the preparation of a Preliminary Flood Risk Assessment (PFRA) for their administrative area.

The chief drivers behind this research and preparations of the PFRA report are two sets of new legislation: the Flood Risk Regulations (The Regulations), which came into force on the 10th December 2009, and the Flood & Water Management Act, (FWMA), that gained Royal Assent on the 8th April 2010. Under these pieces of legislation, all Unitary Authorities are designated a Local Lead Flood Authority (LLFA) and have formally been allocated a number of key responsibilities with respect to local flood risk management. A full description of these responsibilities is provided in Chapter 2.

The purpose of the Flood Risk Regulations was to transpose the EC Floods Directive (Directive 2007/60/EC on the assessment and management of flood risk) into domestic law in England and Wales and to implement its provisions. In particular it places duties on the Environment Agency and LLFAs to prepare a number of documents including:

- Preliminary Flood Risk Assessments;
- Flood hazard and flood risk maps;
- Flood Risk Management Plans.

Table 1-1 shows the elements of work required from Rhondda Cynon Taff CBC under the Flood Risk Regulations 2009, along with the timescales of their respective delivery. The first two elements of work, highlighted in **bold**, are covered by the preparation of this PFRA report.

Table 1-1: Elements of Work required under Flood Risk Regulations 2009

Stage 1	22nd June 2011	**Prepare Preliminary Assessment Report.**	The PFRA should focus on local flood risk surface water, groundwater, ordinary watercourses and canals.
	22nd June 2011	On the basis of the PFRA, identify **Flood Risk Areas.**	Flood Risk Areas are areas of significant risk identified on the basis of the findings of the PFRA, national criteria set by the Welsh Minister and guidance provided by the Environment Agency.
Stage 2	22nd June 2013	Prepare **Flood Hazard Maps** and **Flood Risk Maps** for each Flood Risk Area.	Used to identify the level of hazard and risk of flooding within each Flood Risk Area to inform Flood Risk Management Plans.
Stage 3	22nd June 2015	Prepare **Flood Risk management Plans** for each Flood Risk Area.	Plans setting out risk management objectives and strategies for each Flood Risk Area.

It is noted that the scope of this PFRA is to consider past flooding and possible future flooding from the following local flood sources:

- Surface water;
- Groundwater;
- Ordinary watercourses; and
- Canals

It is also noted that the PFRA report must consider floods which have significant harmful consequences for human health, economic activity and the environment.

As described in Table 1-1, flooding associated with the sea, main rivers and reservoirs is the responsibility of the Environment Agency and does **not** need to be considered by the LLFA as part of the PFRA, unless it is considered that it may affect flooding from one of the sources listed above.

1.2 Study Area

The study area for this PFRA is defined by the administrative boundary of Rhondda Cynon Taf CBC.

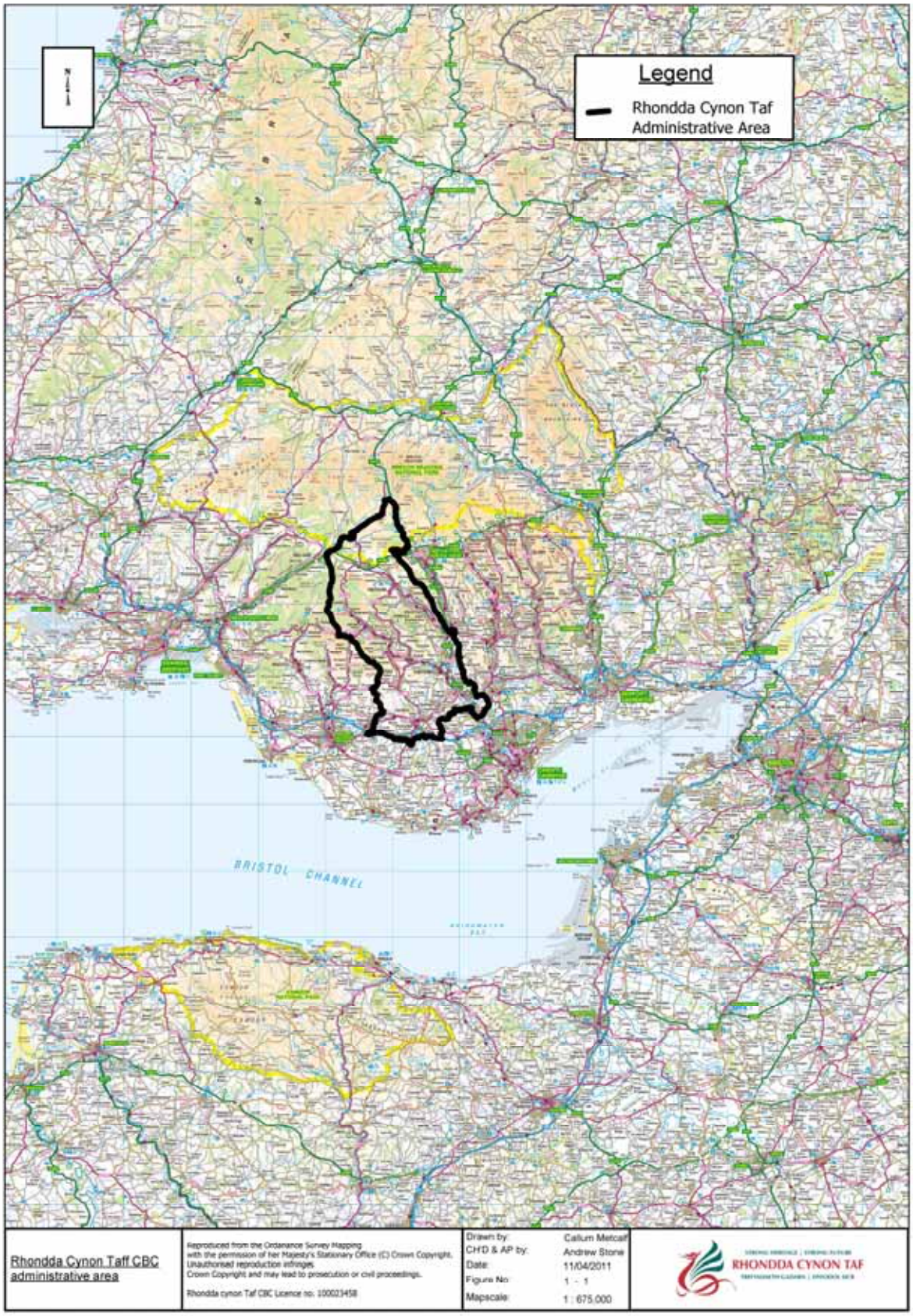
The administrative area of Rhondda Cynon Taf CBC covers approximately 424km^2 with a population of 231,796 (2001 Census)

The study area falls across the Taff and Ely catchment area that includes the catchments of the river Taff, Ely, Rhondda, Cynon and Clun and is served by one water company Welsh Water. The study area is also currently served by Environment Agency Wales.

Rhondda Cynon Taf is bordered to the east by Caerphilly CBC and to the south by Cardiff County Council and the Vale of Glamorgan CBC. To the north are the County Boroughs of Powys and Merthyr Tydfil; and to the west is the County Borough of Bridgend

The geographical extent of the study area is illustrated in Figure 1-1.

Figure 1-1: Rhondda Cynon Taff CBC administrative area



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1.3 Aims and Objectives

The PFRA is a high level screening exercise to locate areas in which the risk of surface water and groundwater flooding is significant and warrants further examination through the production of maps and management plans.

The aim of this PFRA is to provide an assessment of local flood risk across the study area, including information on past floods and the potential consequences of future floods.

The key objectives can be summarised as follows:

- Identify relevant partner organisations involved in future assessment of flood risk; and summarise means of future and ongoing stakeholder engagement;
- Describe arrangements for partnerships and collaboration for ongoing collection, assessment and storage of flood risk data and information;
- Provide a summary of the systems used for data sharing and storing, and provision for quality assurance, security and data licensing arrangements;
- Summarise the methodology adopted for the PFRA with respect to data sources, availability and review procedures;
- Assess historic flood events within the study area from local sources of flooding (including flooding from surface water, groundwater and ordinary watercourse), and the consequences and impacts of these events;
- Establish an evidence base of historical flood risk information, which will be built on in the future and used to support and inform the preparation of Rhondda Cynon Taf's Local Flood Risk Strategy;
- Assess the potential harmful consequences of future flood events within the study area;
- Review the provisional national assessment of indicative Flood Risk Areas provided by the Environment Agency and provide explanation and justification for any amendments required to the Flood Risk Area.

2 Lead Local Flood Authority (LLFA) Responsibilities

2.1 Introduction

The preparation of a PFRA is just one of several responsibilities of LLFAs under the new legislation. This section provides a brief overview of other responsibilities Rhondda Cynon Taf CBC are obliged to fulfil under their role as a LLFA.

2.2 Coordination of Flood Risk Management

In his Review of the summer 2007 flooding, Sir Michael Pitt stated that "*the role of local authorities should be enhanced so that they take on responsibility for leading the coordination of flood risk management in their areas".* As the designated LLFA, Rhondda Cynon Taf CBC is therefore responsible for leading local flood risk management across Rhondda Cynon Taf.

Much of the local knowledge and technical expertise necessary for Rhondda Cynon Taf CBC to fulfil their duties as LLFA lies within the Council and other partner organisations. It is therefore crucial that Rhondda Cynon Taf CBC work alongside these groups and organisations as they undertake their responsibilities to ensure effective and consistent management of local flood risk throughout the county and to contribute to the provision of a coordinated and holistic approach to flood risk management across the study area.

As Lead Local Flood Authority, it is the role of Rhondda Cynon Taf CBC to forge effective partnerships with Welsh Water and the Environment Agency Wales, as well as other key stakeholders and risk management authorities. Ideally these working arrangements should be formalised to ensure clear lines of communication, mutual co-operation and management through the provision of Level of Service Agreements (LoSA) or Memorandums of Understanding (MoU).

2.3 Stakeholder Engagement

As part of the PFRA, Rhondda Cynon Taf CBC has sought to engage stakeholders representing the following organisations and authorities:

- *Welsh Water Dwr Cymru*
- *South Wales Fire and Rescue*
- *Environment Agency Wales*
- *RCTCBC Customer Contact Centre*
- *RCTCBC Land Drainage*
- *RCTCBC Emergency Planning*
- *RCTCBC Highways Maintenance (Streetcare)*

It is important to note that we have communicated with and collated data from various sector/department leads including Emergency Planning, Strategic Planning, Highways, Drainage and Parks Departments.

2.4 Public Engagement

It is recognised that members of the public may also have valuable information to contribute to local flood risk management across Rhondda Cynon Taf. However, no public consultation has taken place at this stage. This is due to the high level nature of the Preliminary Assessment and the detail resolution of 1 km^2 required by the guidance. It is the first stage to identify an area for further investigation under Stage 2 and 3.

However, stakeholder engagement can afford significant benefits to local flood risk management including building trust, gaining access to additional local knowledge and increasing the chances of stakeholder acceptance of options and decisions proposed in future flood risk management plans.

It is important to undertake some public engagement when formulating local flood risk management plans, Stage 3, (for the Flood Risk Area within Rhondda Cynon Taf) as this will help to inform future levels of public engagement. It is recommended the guidelines outlined in the Environment Agency's 'Building Trust with Communities' document which provides a useful process of how to communicate risk including the causes, probability and consequences to the general public and professional forums such as local resilience forums, be utilised.

2.5 Further Responsibilities

Aside from forgoing partnerships and coordinating and leading on local flood management, there are a number of other key responsibilities that have arisen for Lead Local Flood Authorities from the Flood & Water Management Act and the Flood Risk Regulations. These responsibilities include:

- **Investigating flood incidents** – LLFAs have a duty to investigate and record details of significant flood events within their area. This duty includes identifying which authorities have flood risk management functions and what they have done or intend to do with respect to the incident, notifying risk management authorities where necessary and publishing the results of any investigations carried out. Further information with respect to this duty is provided in Chapter 7.

- **Asset Register** – LLFAs also have a duty to maintain a register of structures or features which are considered to have an effect on flood risk, including details on ownership and condition as a minimum. The register must be available for inspection and the Ministers will be able to make regulations about the content of the register and records.

- **SuDS Approving Body** – LLFAs are designated the SuDS Approving Body (SAB) for any new drainage system, and therefore must approve, adopt and maintain any new sustainable drainage systems (SuDS) within their area**.**

- **Local Strategy for Flood Risk Management** – LLFAs are required to develop, maintain, apply and monitor a local strategy for flood risk management in its area. The local strategy will build upon information such as national risk assessments and will use consistent risk based approaches across different local authority areas and catchments.

- **Work powers** – LLFAs have powers to undertake works to manage flood risk from surface runoff and groundwater, consistent with the local flood risk management strategy for the area.

- **Designation powers** – LLFAs and the Environment Agency have powers to designate structures and features that affect flooding in order to safeguard assets that are relied upon for flood risk management.

3 Methodology and Data Review

3.1 Introduction

The PFRA is a high-level screening exercise used to identify areas where the risk of flooding is considered to be significant and warrants further examination and management through the production of flood risk and flood hazard maps and flood risk management plans.

The approach for producing the PFRA was based upon the Environment Agency's PFRA Final Guidance, which was released in December 2010. The PFRA is based on readily available or deliverable data and with this in mind, the following methodology has been used to undertake the PFRA.

3.2 Methodology

Data Collection from partner Organisations

The following authorities and organisations were identified and contacted to share data for the preparation of the PFRA; Rhondda Cynon Taf CBC, Welsh Water, the Environment Agency Wales and South Wales Fire and Rescue Service.

Assessing Historic Flood Risk

Existing datasets, report and anecdotal information from the stakeholders listed above were collated and reviewed to identify details of major past flood events and associated consequences including economic damage, environmental and cultural consequences and impact on the local population.

It was anticipated that information would be provided in a geo-referenced format. However, where this was not the case for some datasets, this was geo-referenced where possible. This made it possible to display this information using GIS software and overlay layers to identify the spatial distribution of historic flood events and relate these datasets to receptor information, in order to assess the overall flood risk.

Assessing Future Flood Risk

The identification of Flood Risk Areas through the PFRA should also take into account future floods, defined as any flood that could potentially occur in the future. This definition includes predicted floods extrapolated from current conditions in addition to those with an allowance for climate change. The assessment of future flood risk will primarily rely on a technical review of the Environment Agency's Flood Map for Surface Water, which has been recently circulated to Lead Local Flood Authorities. The Flood Map for Surface Water uses a numerical hydraulic model to predict the extent of flood risk from two rainfall events (1 in 30 annual chance and 1 in 200 annual chance).

The following factors were considered when assessing *future* flood risk across the Rhondda Cynon Taf study area; topography, location of ordinary watercourses, location of flood plains that retain water, characteristics of watercourses (lengths, modifications), effectiveness of any works constructed for the purpose of flood risk management, location of populated areas, areas in which economic activity is concentrated, the current and predicted impact of climate change and the predicted impact of any long-term developments that might affect the occurrence or significance of flooding, such as proposals for future development.

Identifying Flood Risk Areas

Information regarding historic and future flood risk will be used to formally identify Flood Risk Areas. To achieve this, *flood risk indicators* will be used to determine the impacts of flooding on human health, economic activity, cultural heritage and the environment. The use of flood risk indicators helps to develop understanding of the impacts and consequences of flooding. Key flood risk indicators are summarised in Table 3-1.

Table 3-1: Key Flood Risk Indicators

Impacts of flooding on:	Flood Risk Indicators
Human Health	Number of residential properties Critical service (Hospitals, Police/Fire/Ambulance stations, Schools Nursing Homes etc)
Economic Activity	Number of non-residential properties. Length of road or rail. Area of agricultural land.
Cultural heritage	Cultural heritage sites (World Heritage Sites).
Environment	Designated sites (SSSIs, SACs, SPAs, etc) and BAP habitat

The above indicators have been selected and analysed by Defra and the Environment Agency in order to identify areas where flood risk and potential consequences exceed a pre-determined threshold. The areas that have been identified using this methodology and exceed 5,000 people at risk have been mapped and identified as Indicative Flood Risk Areas. For further details, please refer to Defra's Guidance for selecting and reviewing Flood Risk Areas for local sources of flooding (December 2010).

3.3 Data Sources

Table 3-2 catalogues the relevant information and datasets held by partner organisations and provides a description of each of the datasets.

Table 3-2: Relevant Information and Datasets

	Dataset	Description
Environment Agency	Areas Susceptible to Surface Water Flooding	The first generation national mapping, outlining areas of risk from surface water flooding across the country with three susceptibility bandings (less, intermediate and more).
	Flood Map for Surface Water	The updated (second generation) national surface water flood mapping which was released at the end of 2010. This dataset includes two flood events (with a 1 in 30 and a 1 in 200 chance of occurring) and two depth bandings (greater than 0.1m and greater than 0.3m).
	Flood Map (Rivers and the Sea)	Shows the extent of flooding from rivers with a catchment of more than 3km² and from the sea.
	Areas Susceptible to Groundwater Flooding	Coarse scale national mapping showing areas which are susceptible to groundwater flooding.
	National Receptors Dataset	A National dataset of social, economic, environmental and cultural receptors including residential properties, schools, hospitals, transport infrastructure and electricity substations.
	Indicative Flood Risk Areas	Nationally identified flood risk areas, based on the definition of 'significant' flood risk described by Defra and WAG.
	Historic Flood Map	Attributed spatial flood extent data for flooding from all sources.
	Taf and Ely Catchment Flood Management Plans (CFMP)	CFMPs consider all types of inland flooding, from rivers, groundwater, surface water and tidal flooding and are used to plan and agree the most effective way to manage flood risk in the future.
Rhondda Cynon Taf CBC	Flooding Incident Reports	Flood incident information contained within the electronic databases within RCTCBC customer contact records.
	Flooding Reports/Appraisals	Formal reports on flooding and appraisal area reports for flood risk management under Section 59 grants under the Land Drainage Act 1991
	Flooding Reports	Anecdotal information on flood risk, flood history and local flood hotspots
South Wales Fire & Rescu	Historic flooding records	Records of historic flooding events from the Fire Service's call out history records including location, incident type and response given.
Welsh Water	Flood Register for Welsh Water	Flood Risk Register, hydraulic overload.

3.4 Data Limitations

A brief assessment of the data collection process is included in this chapter to provide transparency with respect to the methodology. By flagging up the issues identified in the data collection phase it is hoped this could serve as a catalyst to improve the collection of flood risk data going forward. A number of issues arose during the data collection process, as described below:

Inconsistent Recording Systems

The lack of a consistent flood data recording system across Rhondda Cynon Taf has led to major inconsistencies in the recording of flood event data. This has resulted in incomplete, or sometimes nonexistent, flood record datasets. Further information on addressing this issue in the future is included in Chapter 7.

Incomplete Datasets

As a result of the lack of consistent flood data recording arrangements some of the datasets collated are not exhaustive and it is felt that they are unlikely to accurately represent the complete flood risk issues in a particular area. The corresponding gaps in flood data will also hinder the identification of accurate flood risk areas.

Varied Quality of Data

Based upon the data collected from all sources described above, there was found to be varied quality in historic flood records and information. For example, where project appraisal work had taken place there was adequate information, whereas some were brief paper records of flooded locations with some anecdotal information on flood risk areas.

Records of Consequences of Flooding

Very few data providers were able to provide comprehensive details of the consequences of specific flood events, which made accurately assessing the consequences of historic flooding difficult.

4 Historic Flood Risk

4.1 Overview of Historic Flooding in Rhondda Cynon Taf

Flood records across Rhondda Cynon Taf were collected from the data sources discussed in Table 3-2.

These flood events came from a range of flood sources, and in many cases the source of the flooding was unknown or not recorded. A summary of information specific to each source of flooding considered as part of the PFRA is included below.

Surface Water (Including Surface Runoff & Ordinary Watercourse) Flooding

Surface water flooding occurs when heavy rainfall exceeds the capacity of local drainage networks and water flows across the ground or water cannot enter the surface of the ground but has not yet entered a watercourse, drainage system or public sewer. Information on surface water flooding incidents has been obtained from a number of sources, as discussed in Table 3-2. Key sources of surface water records were from Rhondda Cynon Taf CBC's contact centre and land drainage dept, South Wales Fire and Rescue Service and the Catchment Flood Management Plans (CFMPs), which are high-level strategic plans published by the Environmental Agency that focus on flooding in major river catchments.

Groundwater Flooding

Groundwater flooding occurs as a result of water rising up from the underlying aquifer or from water flowing from normal springs. This tends to occur after long periods of sustained high rainfall, and the areas at most risk are often low-lying where the water table is more likely to be at shallow depth. Groundwater flooding is known to occur in areas underlain by major aquifers, although increasingly it is also being associated with more localised floodplain sands and gravels.

Historic mining activities within Rhondda Cynon Taf have disrupted the "natural" groundwater regime within the coal measures and it is likely that the interconnection between many of the collieries has resulted in cross catchment "groundwater flow" in certain parts of Rhondda Cynon Taf. However, although the carboniferous limestone is recognised as a major aquifer, and the coal measures and Triassic strata are minor aquifers with local importance, the contribution of groundwater to even low flows is modest.

The Taff and Ely CFMP states that there is little documented evidence of groundwater flooding in the catchment and therefore the risk of flooding from this source is considered small, particularly at the catchment scale in comparison to other sources.

For the purposes of this PFRA document, there are no historic groundwater flooding records with significant consequences.

Sewer Flooding

Sewer flooding is often caused by excess surface water entering the drainage network. Welsh Water provided data from their flood risk register which were analysed to investigate the occurrence of sewer flooding incidents across Rhondda Cynon Taf. It was found that there were a total of 279 sewers currently at risk of flooding that have been recorded by the water company. Of these, 93 had a 1 in 20 chance or greater of flooding. There are no records of properties affected by sewer flooding with significant consequences within Rhondda Cynon Taf.

Interaction with Main Rivers

Insufficient data was available to draw definitive conclusions at this point. However, there is anecdotal evidence to suggest that surface water flooding is exacerbated in some areas when gravity drains and outfalls are blocked with high river waters.

4.2 Analysis of Historic Flooding in Rhondda Cynon Taf

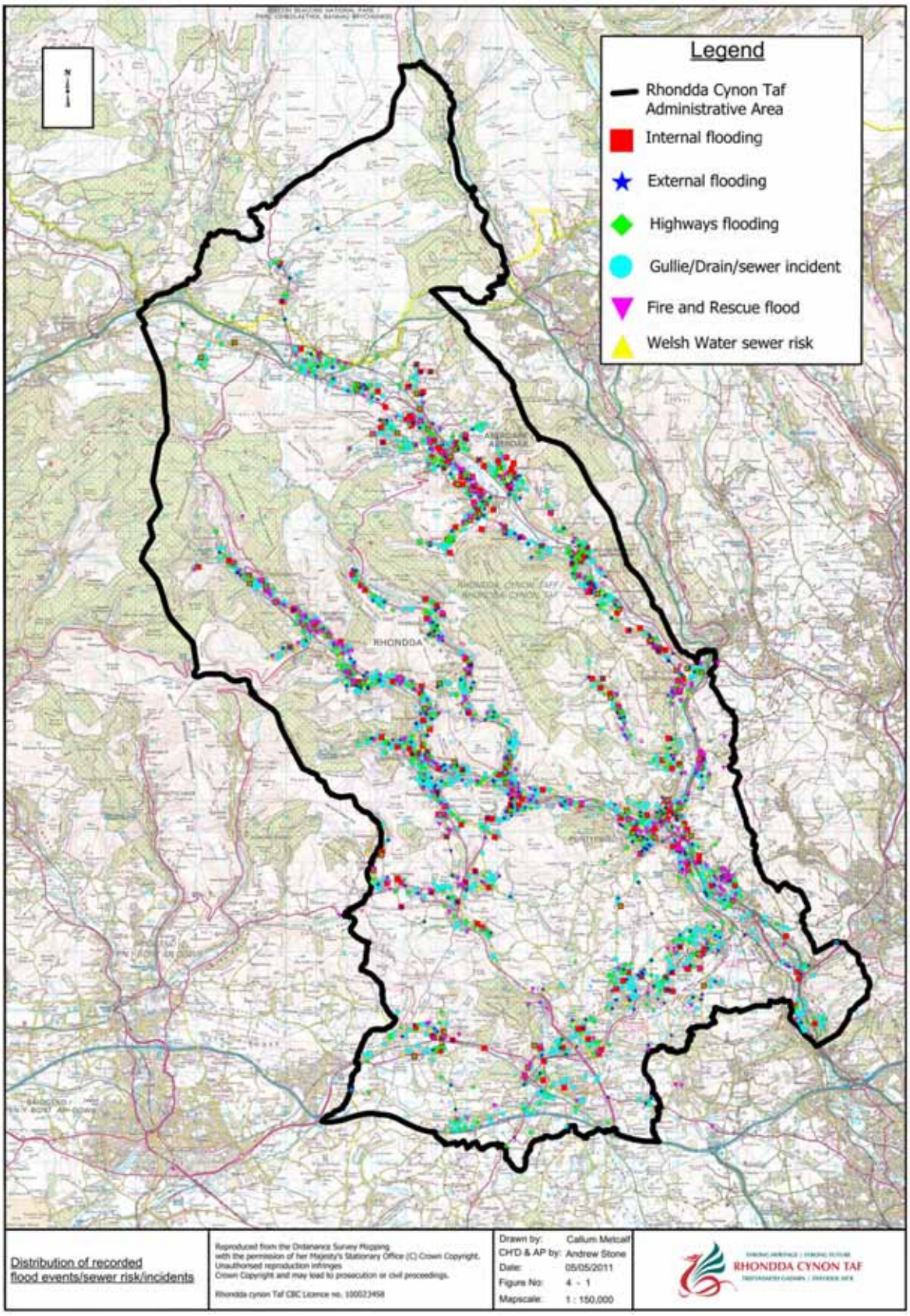
Section 3 described data issues and limitations. There was generally not enough information to draw conclusions from the data other to display the records geographically to give an indication of areas of historic flood risk. However, not all records had a geographical reference. Table 4-1 provides a summary of the records found.

Table 4-1: Summary of Historic Flood event/incidents

Type of Flooding	Number of Records	Number of Records with Geographic Information
Internal Flooding (RCT)	914	419
External Flooding (RCT)	483	483
Highways Flooding (RCT)	2215	983
Flooding from Gullies, drains and sewers (RCT)	7650	3215
Fire and Rescue Incidents	412	403
Welsh Water – Flood Risk Register for Sewers	279	279
Total Records	**11,923**	**5,782**

Figure 4-1 shows the distribution of the 5,782 recorded flood events/incidents that has a geographic reference.

Figure 4-1: Distribution of recorded flood events/sewer risk/incidents



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4.3 Consequences of Historic Flooding

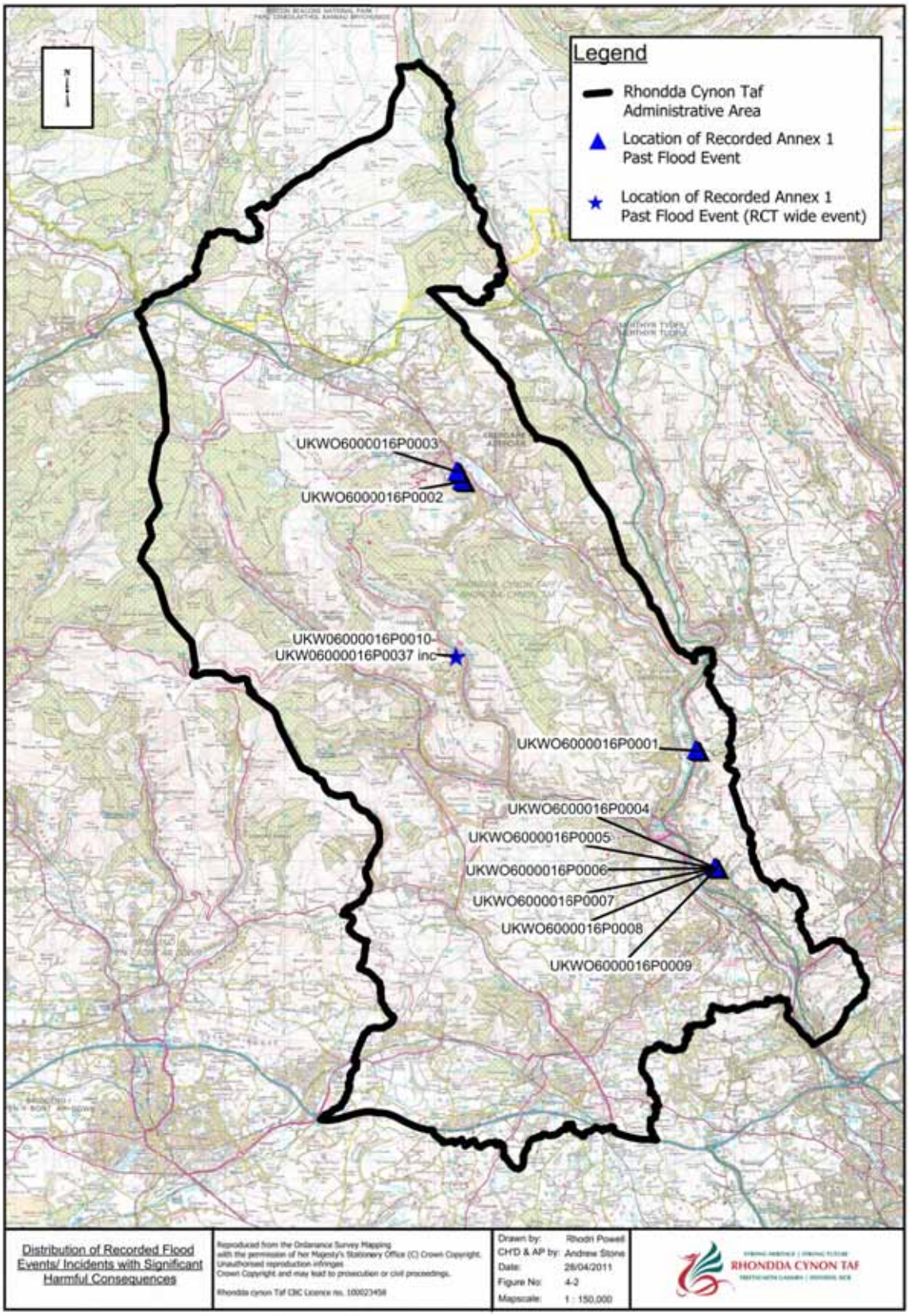
As a result of the issues discussed in Chapter 3.4, in the most part there was insufficient data available to draw definitive conclusions on the impacts and consequences of historic flood events on people, the economy and the environment, as this information has not been recorded in the past.

However, a number of past floods have been recorded or investigated and have been deemed of sufficient data to warrant further consideration. These have been collated and assessed in the light of "significant harmful consequences", as determined by the Welsh Assembly Government Minister, and for local significance.

For the purpose of this report, a locally significant event which has had harmful consequences is defined as one where 8 or more residential properties are flooded internally. This is approximately an order of magnitude below the flood risk thresholds used for future flood risk, 84 properties, which is considered as nationally significant. Where works have been undertaken to alleviate flooding problems or where an incident does not meet the criteria of significance, that particular incident does not form part of this report. However, details of the incident will be maintained on the database and will be re-assessed should further flooding incidents occur at that site.

37 number historic flood events have been considered to have had locally and of these 7 had nationally "significant harmful consequences" and therefore will be recorded in Annex 1 of the preliminary Assessment Spreadsheet and are shown on Figure 4-2 and summarised in Annex 6. However, a complete record of locations where flooding has occurred will be kept by Rhondda Cynon Taf as a future evidence base. This base will be built up in the future ensuring full details of flood events are recorded; this will then be used to support and inform future PFRA cycles as well as Rhondda Cynon Taf's Local Flood Risk Management Strategy.

Figure 4-2: Distribution of Recorded Flood Events/Incidents with Significant Harmful Consequences



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5 Future Flood Risk

5.1 Overview of Future Flood Risk

Surface Water Flooding

No local information is currently available on surface water flood risk in Rhondda Cynon Taf.

The Environment Agency has produced a national assessment of surface water flood risk in the form of two national mapping datasets. The first generation national mapping, Areas Susceptible to Surface Water Flooding (AStSWF), contains three susceptibility bandings for a rainfall event with a 1 in 200 chance of occurring. The national methodology has since been updated to produce the Flood Map for Surface Water (FMfSW), a revised model containing two flood events (1 in 30 annual chance and 1 in 200 annual chance) and two depth bandings (greater than 0.1 and greater than 0.3m).

Local drainage capacity has been designed to accommodate a 1 in 5 to 1 in 30 storm event.

The Flood map for Surface Water is illustrated in Figure 5-1, highlighting areas at risk of surface water flooding in the future.

Using this dataset, the number of properties at risk of surface water flooding within Rhondda Cynon Taf has been estimated. For a rainfall event with a 1 in 200 annual chance of occurring, 21,200 properties are at risk from flooding to a depth 0.3m and 50,900 properties to a depth of 0.1m. Of these properties at risk, with over 85% are residential properties. Further details on the potential harmful consequences of future flooding are included in Annex 2 of the Preliminary Assessment Spreadsheet.

Groundwater Flooding

There is no local information available which provides evidence on future groundwater flood risk across Rhondda Cynon Taf and groundwater rebound is not believed to be an issue in the County Borough. The Environment Agency's national dataset, Areas susceptible to Groundwater Flooding, has been used to form the basis of the assessment for future flood risk from groundwater. This dataset is illustrated in Figure 5.2 and areas at high risk from groundwater flooding are identified.

Figure 5-1: Flood Map for Surface Water (1 in 200 Probability)

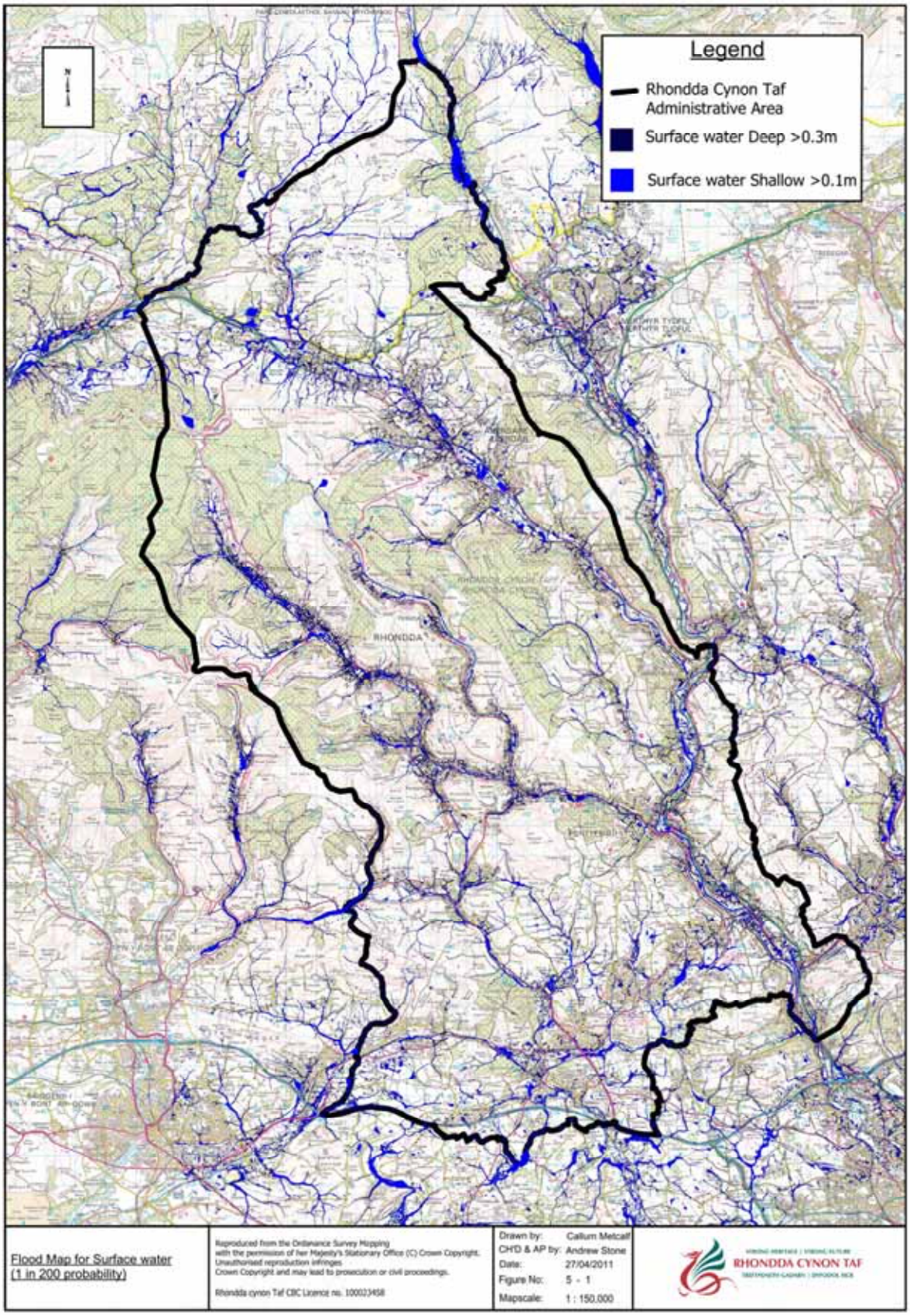

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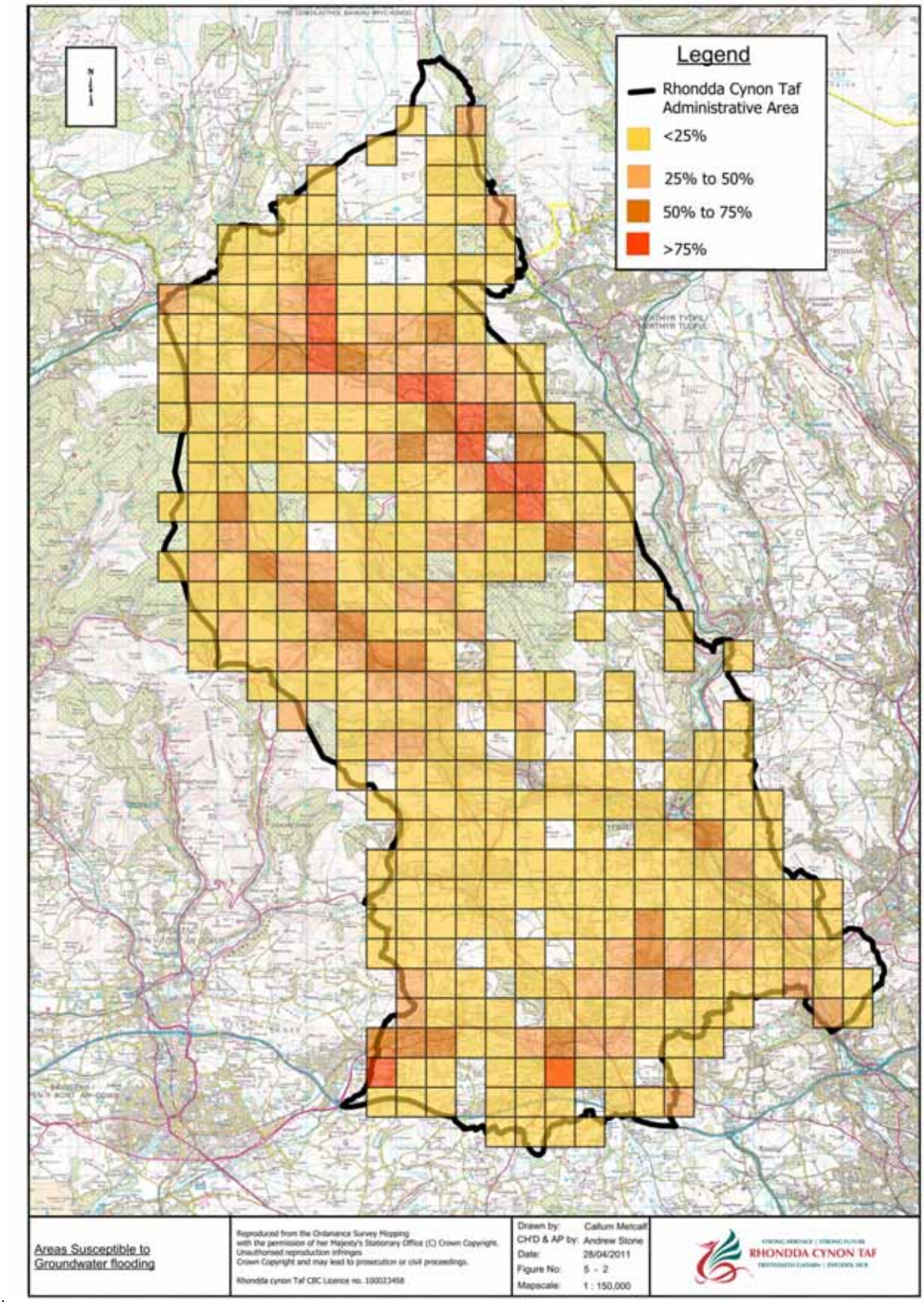
Figure 5-2: Areas Susceptible to Groundwater Flooding



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5.2 Locally Agreed Surface Water Information

A definition of 'locally agreed surface water information' has been considered in conjunction with the Environment Agency in order to agree what surface water information best represents local conditions across Rhondda Cynon Taf.

As there is no local information on future flooding available, the 'locally agreed surface water information' is the Flood Map for Surface Water dataset, which gives an overview of the future flood risk from surface water across Rhondda Cynon Taf and is considered to be the most appropriate source of information. This dataset is illustrated in figure 5.1.

5.3 Potential Consequences of Future Flooding

The Environment Agency has used the Flood Map for Surface Water mapping and the National Receptors Database to identify a number of areas across the borough that exceeds a given threshold, described in Table 5.1 below.

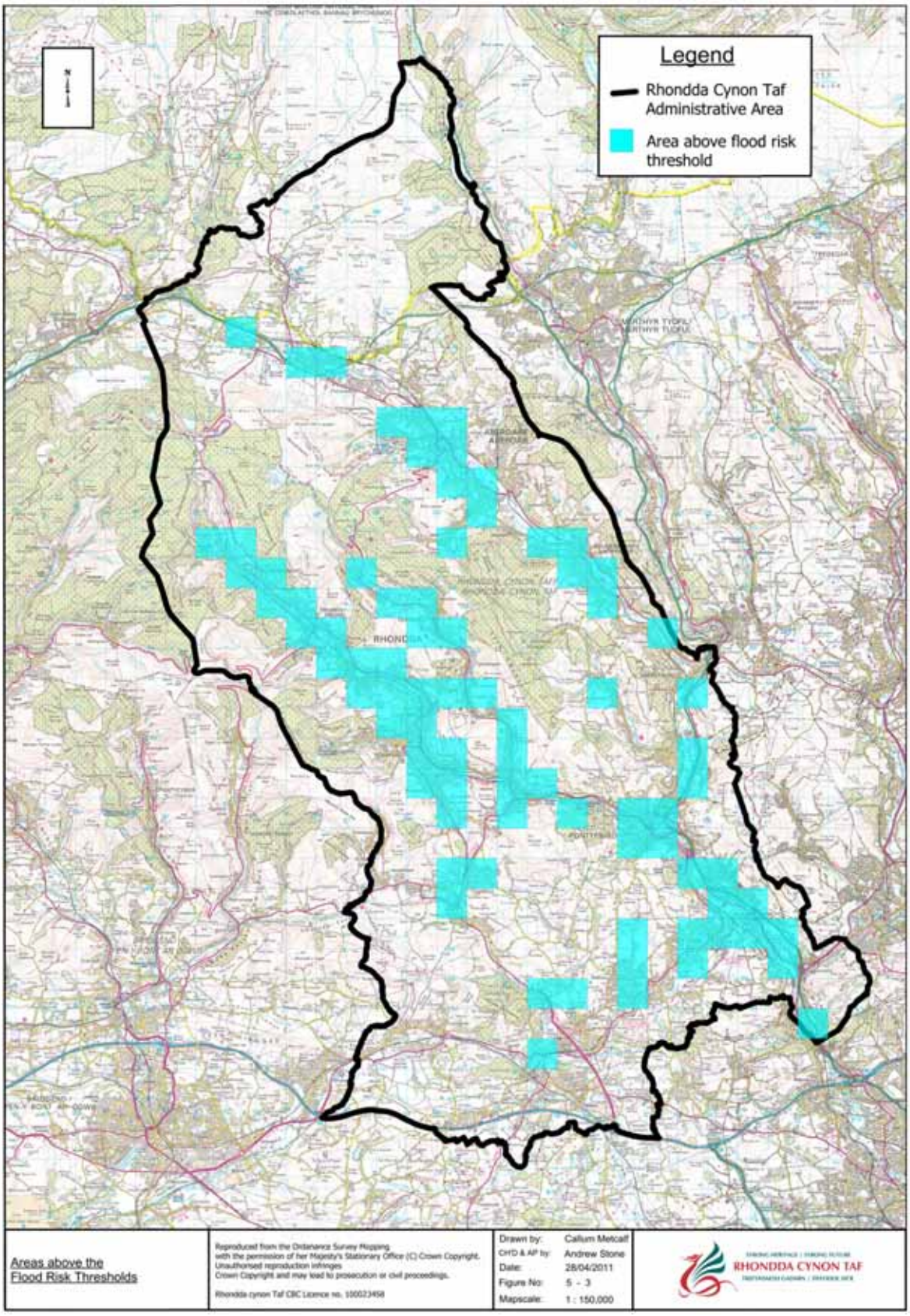
Table 5.1: Flood risk threshold used to identify future consequences of flooding

'Significant harmful consequences' defined as greater than….	Description
200 People or	Flooded to a depth of 0.3m during a rainfall event with a 1 in 200 chance of occurring (or 0.5%)
20 Non - Residential or	
1 critical service	

This assessment was carried out based on 1km national grid squares, and grid squares that exceed this criterion were identified. The grid squares within Rhondda Cynon Taf where flood risk is considered to exceed this threshold are illustrated on Figure 5-3. There areas represent where flood risk is considered to be the most severe across the County Borough of Rhondda Cynon Taf.

The potential consequences on key flood risk indicators (as discussed in Table 3-1) have been assessed by the Environment Agency; this information has been included in Annex 2 of the Preliminary Assessment Spreadsheet. Within the administrative boundary of Rhondda Cynon Taf it is predicted that 41,507 people, 3425 non- residential properties and 117 pieces of critical infrastructure estimated to be at risk from flooding.

Figure 5-3: Areas above the Flood Risk Threshold



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5.4 Effect of Climate Change and Long Term Developments

The impacts of climate change

Although the broad climate change picture is clear, we have to make local decisions against deeper uncertainty. Several national flood maps have informed the preliminary assessment report – specifically the Flood Map for Surface Water (surface runoff), Areas Susceptible to Surface Water Flooding (surface runoff), Areas Susceptible to Groundwater Flooding (groundwater) and Flood Map (ordinary watercourses). These do not show the impact of climate change on local flood risk.

There was consensus amongst climate model projections in the IPCC fourth assessment report for northern Europe suggesting that in winter high extremes of precipitation are very likely to increase in magnitude and frequency. These models project drier summers with increased chance of intense precipitation – intense heavy downpours interspersed with longer, relatively dry periods (Solomon et al., 2007).

United Kingdom Climate Projections 2009 (UKCP09) provides the most up to date projections of future climate for the UK (http://ukclimateprojections.defra.gov.uk). In terms of precipitation, the key findings are:

By the 2080's under medium emissions, over most of lowland UK central estimates are for heavy rain days (rainfall greater than 25mm) to increase by a factor of between 2 and 3.5 in winter, and 1 to 2 in summer.

By the 2080's, under Medium emissions, across regions in England & Wales, the central estimates (50% probability) for winter mean precipitation percentage change ranges from + 14 to + 23 and the central estimate for summer mean precipitation percentage change ranges from 18 to 24.

Certain key processes such as localised convective rainfall are not represented within this modelling so there is still considerable uncertainty about rarer extreme rainfall events for the UK. We can be more certain that heavy rainfall will intensify in winter compared to summer. The proportion of summertime rainfall falling as heavy downpours may increase. The impact of these changes on local flood risk is not yet known.

Appraisal guidance

Current project appraisal guidance (Defra, 2006) provides indicative sensitivity ranges for peak rainfall intensity, for use on small catchments and urban/local drainage sites. These are due to be up dated following the UKCP09 projections above. They describe the following changes in peak rainfall intensity; +5% (1990-2025), +10% (2025-2055), +20% (2055-2085) and +30% (2085-2115). This was reviewed by the Met Office in 2008 using UKCP09 models (Brown et al., 2008). They suggest that, on the basis of our current understanding, these levels represent a pragmatic but not a precautionary response to uncertainty in future climate impacts. In particular for an event with a 1 in 5 chance of occurring, increases in precipitation intensity of 40% or more by the 2080's are plausible across the UK at the local scale.

Long term developments

It is possible that long term developments might affect the occurrence and significance of flooding. However current planning policy aims to prevent new development from increasing flood risk.

In Wales, Technical Advice Note 15 (TAN15) on development and flood risk sets out a precautionary framework to guide planning decisions. The overarching aim of the precautionary framework is "to direct new developments away from those areas which are at high risk of flooding."

Adherence to Government policy ensures that new development does not increase local flood risk. However, in exceptional circumstances the Local Planning Authority may accept that flood risk can be increased contrary to Government Policy, usually because of the wider benefits of a new or proposed major development. Any exceptions would not be expected to increase risk to levels which are "significant" (in terms of the Government's criteria), but should be recorded here so that they can be reviewed in the future.

6 Flood Risk Areas

6.1 Overview

In order to ensure consistent national approach, Defra and WAG have identified significance criteria and thresholds to be used for defining flood risk areas. Guidance on applying these thresholds has been released in Defra's document "Selecting and reviewing Flood Risk Areas for local sources of flooding". In this guidance document, Defra have set out key risk indicators and threshold values which must be used to determine Flood Risk Areas.

The methodology is based on using national flood risk information to identify 1km squares where local flood risk exceeds a defined threshold; these areas within Rhondda Cynon Taf are illustrated in figure 5-3, the "blue" squares.

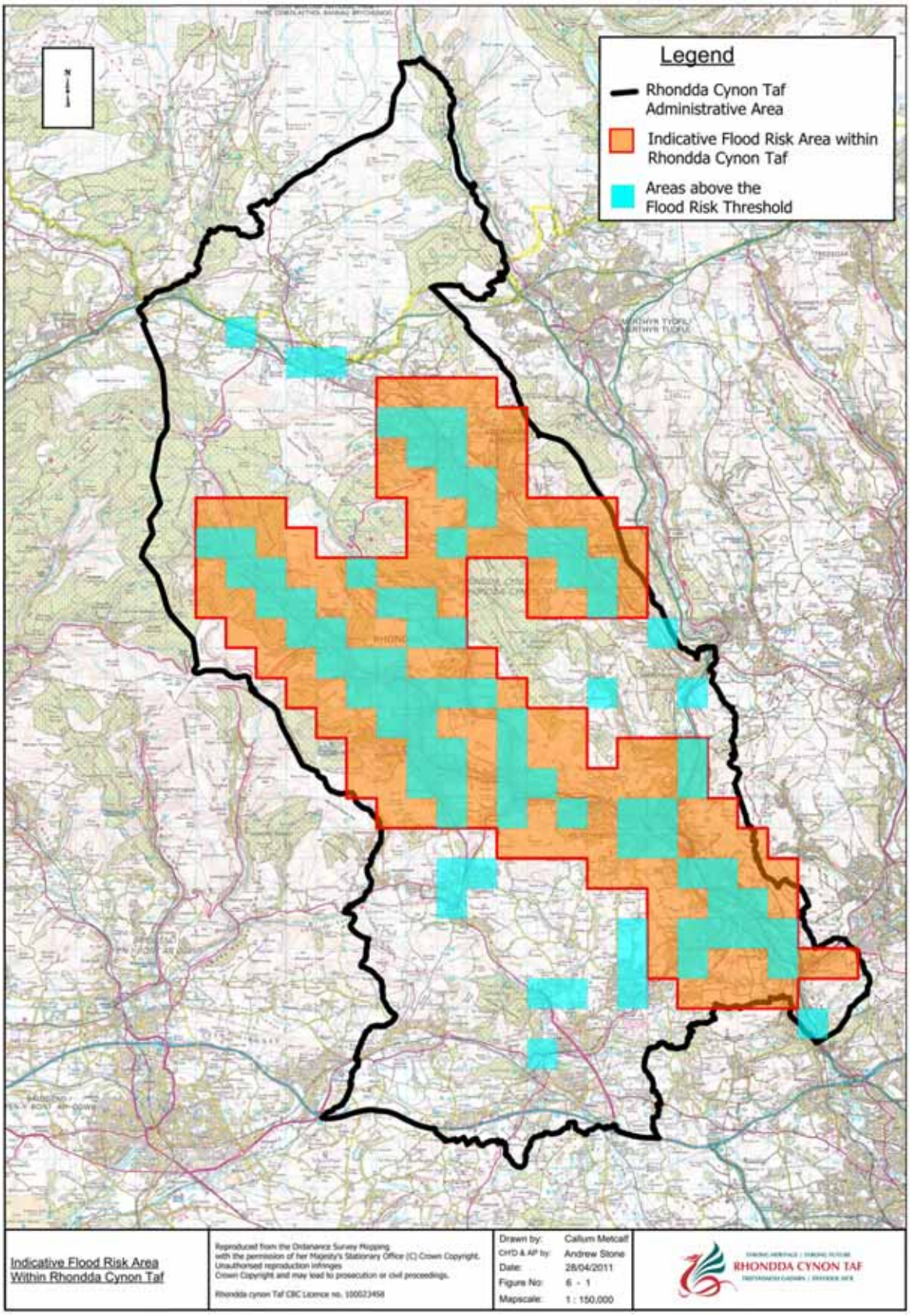
The indicative flood risk areas use clusters formed from all 3 Km squares that contain 4 or more 1km square above the flood risk thresholds, that are touching, which contain locations where there has been historical flooding or the data indicates that a flood could occur that satisfies the criteria for the flood risk thresholds.

Where a cluster of these grid squares leads to an area where flood risk is most concentrated, and over 5,000 people are predicted to be at risk of flooding, this area has been identified as an Indicative Flood Risk Area.

Of the eight (8) national Indicative flood risk Areas, one falls with Rhondda Cynon Taf County Borough Council's administrative boundary, as shown in Figure 6-1.

Figure 6-1 shows that approximately 41% of Rhondda Cynon Taf has initially been identified as an Indicative Flood Risk Area, with 34,838 people (84%), 2529 non- residential properties (74%) and 84 pieces of critical infrastructure (72%) estimated to be at risk from flooding in this area. Figures in parenthesis are percentages of total flood risk as indicated in 5.3. This is the only indicative Flood Risk Area within Rhondda Cynon Taf that meets the specified criteria.

Figure 6-1: Indicative Flood Risk Area within Rhondda Cynon Taf



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6.2 Review of Indicative Flood Risk Area

Figure 6-1 shows the geographical extent of the indicative Flood Risk Area for Rhondda Cynon Taf.

The shape of the indicative flood risk area generally mirrors the valley topography of Rhondda Cynon Taf and generally follows the settlements. It was noted that the clustering stopped when there was a break in the "blue" due to the narrow valley topography but there were several "blue" squares identified which were close too or directly abutted the indicative flood risk area.

Local Flood Risk indicators were used to analyse all 1km squares within Rhondda Cynon Taf for local flood risk using the indicators below in Table 6-1.

Table 6-1: Local Flood Risk Indicators

Ref	Indicator	Description
1	Critical Services	EA Flood Map for Surface Water - Flooded to a depth of 0.3m during a rainfall event with a 1 in 200 chance of occurring (or 0.5%) – Detailed GIS NRD
2	Non Residential	
3	People	
4	Internal Flooding	Records taken from RCT customer contact database over last 10 years. Countered per 1km square.
5	External Flooding	
6	Highways Flooding	
7	Flooding from Gullies, drains and sewers	
8	Fire and Rescue Incidents	Records of incidents obtained from South Wales Fire & Rescue for last 3 years. Countered per 1km square.
9	Welsh Water Flood Risk Register	Records of sewers where there is a registered flood risk on a sewer. Countered per 1km square.
10	Flood Appraisal Areas	Formal reports on flooding and appraisal area reports for flood risk management under Section 59 grants under the Land Drainage Act 1991. Counted per 1km square.

It was found that a number of 1km squares provided a break in the "blue" squares that were only marginally below the threshold criteria used for the "blue" squares but also the indicators showed a high degree of past flooding, above the 85th percentile for all 1km squares in Rhondda Cynon Taf, within those squares therefore suggesting a potential underestimation of the future flood risk. These squares are presented in Table 6-2 and geographically presented in figure 6-2.

Table 6-2: Additional 1km "blue" Squares deemed above threshold.

Square Ref	Local Flood Risk Indicators									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
AS1	0	3	177	2	5	5	17	1	0	0
AS2	0	15	54	1	5	2	4	0	0	0
AS3	0	15	44	0	0	0	6	0	0	0
AS4	0	3	136	4	5	14	32	1	0	0
85th %tile	0	12.3	152.8	2	2	4	15	1	1	0

Table Note: Indicators shaded green are equal to or above the 85th percentile.

It is proposed that these squares are reassessed as having a significant risk and the indicative flood risk area is adjusted by using the same methodology in terms of clustering as the indicative flood risk area. On using the clustering methodology it was noticed that two blue squares, in the South West corner, abutted the area mapped out by the clustering. On examination further it was found that these two squares contained one of the main commercial hubs, Ynysmaerdy Industrial Estate and the main general hospital, the Royal Glamorgan. The two squares representing 71 commercial properties and 3 pieces of critical infrastructure. These two squares have been included in the revised flood risk area.

Based on the analysis of these factors, the amended Flood Risk Area is presented in figure 6-3 and in Annex 3.

The adjusted Flood Risk Area covers approximately 50% of the administrative area of Rhondda Cynon Taf, and includes :-

- 37,805 people (91%,+7%),
- 2890 non- residential properties (84%,+10%)
- 96 pieces of critical infrastructure (82%,+10%)

estimated to be at risk from flooding in this area.

Figures in parenthesis are percentages of total flood risk as indicated in 5.3 and percentage increase compared to the indicative flood risk area in 6.1.

The chart below gives a graphical comparison between the indicative flood risk area and the adjusted flood risk area against their coverage of the local flood risk indicators indicated in Table 6-1.

Chart 6-1: Comparison of Flood Risk Areas using Local Flood Risk Indicators.

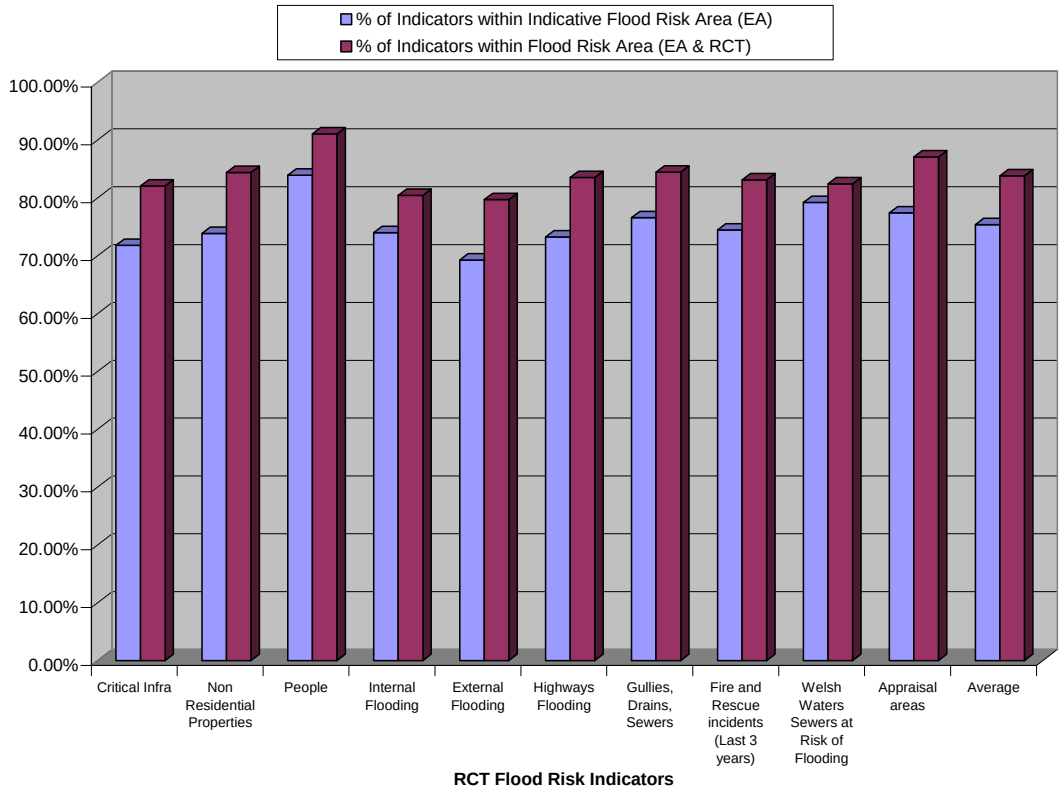

Figure 6-2: Additional 1km grid squares re-assessed as above threshold.

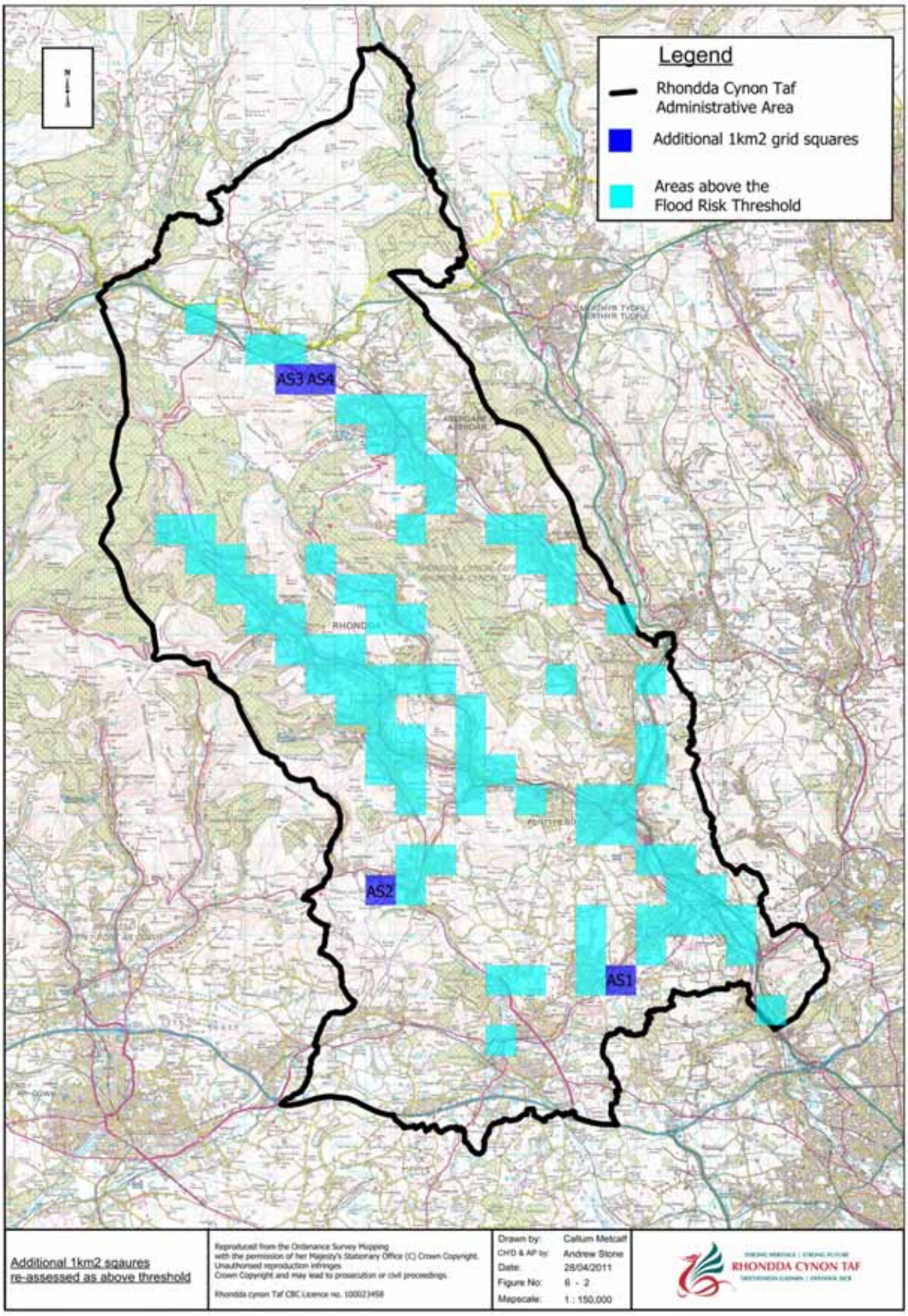

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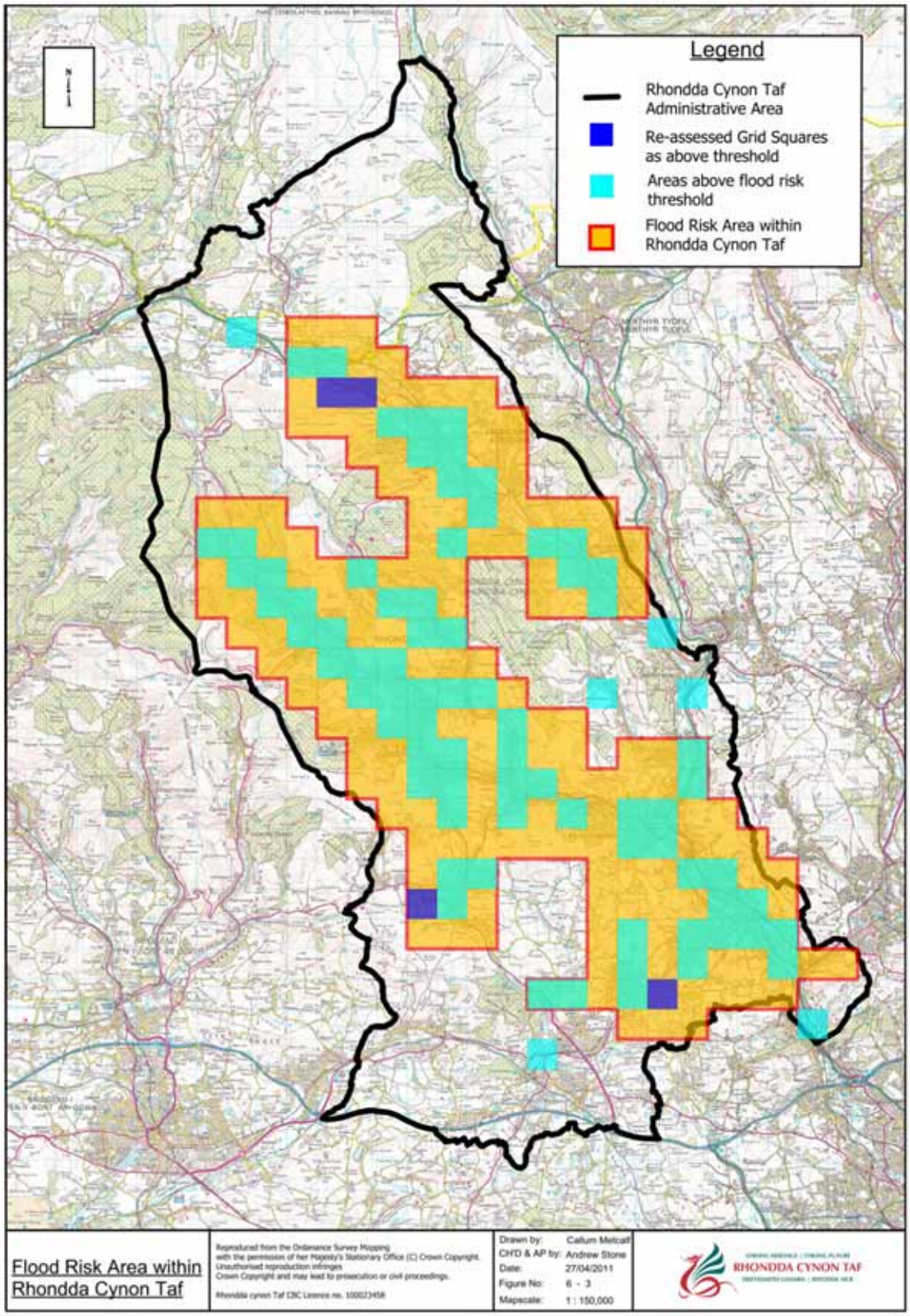
Figure 6-3: Flood Risk Area within Rhondda Cynon Taf



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7 Next Steps

7.1 Future Data Management Arrangements

In order to continue to fulfil their role as Local Lead Flood Authority, Rhondda Cynon Taf Council are required to investigate future flood events and ensure continued collection, assessment and storage of flood risk data and information.

It is crucial that all records of flood events are documented consistently and in accordance with the INSPRIRE Directive (2007/2/EC). It is recommended that a centralised database will be kept up to date by Rhondda Cynon Taf Council, who have the overall responsibility to manage flood data through the whole administrative area. This can be used as an evidence base to inform future assessments and reviews and for input into the mapping and planning stages.

References

Brown, S. Beswick, M. et al. (2008) Met Office Submission to the Pitt Review – Executive Summary, The extreme rainfall of Summer 2007 and future extreme rainfall in a changing climate.

Defra (2006) Flood and Coastal Defence Appraisal Guidance, FCDPAG3 Economic Appraisal, Supplementary Note to Operating Authorities – Climate Change Impacts. October 2006. Available from http://www.defra.gov.uk/environment/flooding/documents/policy/guidance/fcdpag/fcd3cl

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Defra (2010) Surface Water Management Plan Technical Guidance

Environmental Agency (2009) Managing Flood Risk – Taff and Ely Catchment Flood Management Plan – Final Plan

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Environment Agency (2010) Preliminary Flood Risk Assessment – Annexes to the Final Guidance (Report-GEHO1210BTHF-E-E). Available from http://publications.environment-agency.gov.uk/pdf/GEHO1210BTHF-e-e.pdf

Environment Agency Building Trust with Communities

Miller, H.L. (eds). Summary for Policymakers. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.9.Available for download from http://www.ipcc.ch/ipccreports/ar4-wg1.htm

The Pitt Review (2008) Learning lessons from the 2007 floods

Annex 1: Record of past floods and their significant consequences (Preliminary Assessment Spreadsheet)

Please refer to Annex 1 of the Preliminary Assessment Spreadsheet attached with this new report.

Annex 2: Records of future floods and their significant consequences (Preliminary Assessment Spreadsheet)

Please refer to Annex 2 of the Preliminary Assessment Spreadsheet attached with this report. This spreadsheet includes a complete record of future flood risk within Rhondda Cynon Taf, including details of the potential consequences of flooding to key receptors within the county.

Annex 3: Records of Flood Risk Area and its rationale (Preliminary Assessment Spreadsheet)

Please refer to Annex 3 of the Preliminary Assessment Spreadsheet attached with this report. This spreadsheet includes information and details about he identified Flood Risk Area within Rhondda Cynon Taf.

Annex 4: Review Checklist (Review Checklist Spreadsheet)

Please refer to Review Checklist Spreadsheet, attached to this report, that contains the Review Checklist that has been provided by the Environment Agency to act as a checklist for reviewing PFRA submissions.

Annex 5: GIS layer of Flood Risk Area.

Please refer to Electronic GIS layer attached to this report.

Annex 6: Table of Locally and Nationally Significant Past Flood Events (Nationally Significant Events are shaded blue)

Flood ID	Summary description	Name of Location	Human health consequences - residential properties
1	On the 6th June 2009, Cilfynydd was subject to approximately 80 – 90mm of rainfall over a 24 hour period. The flooding events at the above location are coincident with the deposition of large quantities of loose stone/debris within watercourse and on the trash screens protecting culvert entry points within the area. As such it is not conclusive that the flooding could be attributed to a lack of culvert capacity alone.	Cilfynydd, Pontypridd	14 properties
2	On the 05th September 2008, the Culvert inlet at the junction of Gwawr St and Cardiff Rd, Aberaman surcharged/overtopped causing flooding to several properties in the immediate vicinity. The circumstances at the time of the overtopping are unclear with no definitive cause being attributed to the failure. Possible causes are blocked trash screen, a lack of capacity or a combination of both. The storm on the day in question has been broadly categorised as a 1 in 25 year event, however, it occurred after several days of sustained rainfall, which resulted in saturated ground conditions within the area.	Gwawr Street/ Cardiff Road, Aberaman	10 - 20 properties
3	Following the flooding events of 5th September 2008, The storm on the day in question has been broadly categorised as a 1 in 25 year event, however, it occurred after several days of sustained rainfall, which resulted in saturated ground conditions within the area. This created a situation, which exacerbated the surface water run off rates on the landforms above Sunnybank Street and the surrounding area. Sunnybank relies upon natural drainage features in the fields above it to provide its flood defences, these features were believed to have been overwhelmed causing floodwaters to accumulate in the field adjacent to No 32 Sunnybank Street. The floodwaters were held back by the boundary wall of the garden which ultimately failed leading to the flooding of several properties.	Sunnybank Street, Aberdare	7 - 13 properties
4	On 6th June 2009, Glyntaff farm estate and surrounding area was subject to approximately 80 - 90 mm of rainfall over a sustained period. The flood events at the above location are coincident with the deposition of large quantities of loose stone/ debris within watercourse and on the trash screens protecting culvert entry points, resulting in over topped of the culvert defences. Approx 44 properties experience internal flood with a larger number experiencing external flooding. Closure of several highways resulted.	Glyntaff Farm Estate/ Taff Trail/ Area surrounding Sycamore Street, Rhydyfelin, Pontypridd	44 properties with internal flooding
5	On 12th August 2004 after period of sustained heavy rainfall Glyntaff farm estate and surrounding area was subject flooding. Internal and external flooding occurred to several properties. It is suggested flooding occurring due to a lack of culvert capacity and the volume of debris washed down into culvert inlets.	Glyntaff Farm Estate and surround area, Rhydyfelin, Pontypridd	119 properties affected by internal/ external flooding
6	During 1985 flooding event documented in Bingham Hall O'Hanlon report (2001) for Cadarn Housing Group refers to major flooding incident involving foul and surface water.	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	8 - 100 properties
7	On 18th December 1993, flooding event documented in Bay Associates Report (1994) for Newydd Housing Association refers to internal flooding of properties. 16 other properties recorded as suffering external flooding	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	16 properties
8	On 6th July 2001, report of flooding to Glyntaff Farm Estate and surrounding area. Report referred to in Bingham Hall O'Hanlon report to Newydd Housing Association in August 2001. Flooding to properties arising from surcharge from a main culvert.	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	8 - 100 properties
9	December 1979, Flooding at Pontypridd Town Centre, Glyntaff Farm Estate, Rhydyfelin, and Trehafod. Extreme weather event and breach of flood defence at Trehafod	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	> 100
10	February 1997, Flooding at Underhill Villas, Tanyard Place and Sunnybank Street, Aberaman ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Cemetery Road, Dumfries Street, Glyncoli Road and High Street, Treorchy ; Scales Row, Cwmbach ; Hilltop Crescent, Pontypridd ; Abercynon Road, Ynysboeth ; Eirw Road, Porth ; Plantation Road, Mountain Ash. Severe weather event.	Rhondda Cynon Taf County Borough	13 - 26 properties

Flood ID	Summary description	Name of Location	Human health consequences - residential properties
11	January 1998, Flooding at Cemetery Road , Glyntaff ; Oakland Terrace, Cilfynydd Road and Ffordd Catraeth, Cilfynydd ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; John Street, Treforest ; Cwrt-y-Goedwig, Llantwit Fardre ; Cemetery Road and Glyncoli Road, Treorchy ; Abercynon Road and Nant Y Fedw, Ynysboeth ; Wordsworth gardens, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	> 100
12	March 1998, Flooding at Hillcrest Avenue, Aberaman ; Llys Corrwg and Sycamore Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; Park Street and John Street, Treforest ; Cemetery Road, Glyncoli Road, Dumfries Street, Column Street, Stuart Street and High Street, Treorchy ; Cwmbach Road, Cwmbach ; Pontsionnnorton Road, Belgrave Terrace and Whiterock Close, Pontypridd ; Brook Street, Williamstown ; Harcombe Road, Llwynypia ; Plantation Road, Mountain Ash ; Taff Street, Pontypridd ; Vicarage Terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	24 - 48 properties
13	October 1998 Flooding reported at Cemetery Road, Graig Yr Helfa, Rockingstone Terrace and Pentrebach Road, Glyntaff ; Oakland Terrace, Heol Mynydd, Heol Gronfa, Silverhill Close, Howell Street and Albion Flats, Cilfynydd ; Cardiff Road, Gwawr Street, Lord Street, Curre Street, King Street, Abergwawr Place, Brook Street, Tudor Place, Holford Street, Mount Hill Street and Club Street, Aberaman ; Llys Corrwg, Sycamore Street, Acacia Street, Wordsworth Gardens, Masefield Way, Dynea Lane and Oak Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; John Street and Park Street, Treforest ; Volunteer Street, Pentre ; Wellfield, Beddau ; Abernant Road, Abernant ; Cwrt-Y-Goedwig, Llantwit Fardre ; Cemetery Road, Dumfries Street, Cadwgan Road, Prospect Place, Column Street, Stuart Street, Hermon Street, Pencai Terrace and Pentwyn Road, Treorchy ; Scales Row, Cwmbach ; Pontsionnorton Road, Hilltop Crescent and Taff Street, Pontypridd ; Heol Isaf, Ely Valley Road and Tylcha Ganol, Tonyrefail ; Nant Y Fedw, Ynysboeth ; Gwaelod Y Garth Road, Upper Boat ; A4059, Penywaun. Extreme weather event	Rhondda Cynon Taf County Borough	55 - 110 properties
14	December 1998. Flooding at Glyntaff Interchange, Cemetery Road and Pentrebach Road, Glyntaff ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Heol Isaf, Tonyrefail ; Dynea Close, Rhydyfelin ; A4059, Penywaun ; Cadwgan Road and Column Street, Treorchy ; Eirw Road, Porth ; Harcombe Road, Llwynypia ; Lewis Street and Trehafod Road, Trehafod ; Plantation Road, Mountain Ash ; Robert Street, Ynysybwl. Severe weather event	Rhondda Cynon Taf County Borough	15-30
15	January 1999. Flooding at Oakland Crescent and Cilfynydd Road, Cilfynydd ; Llys Corrwg, Dynea Close, Masefield Way and Oak Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Wellfield, Beddau ; Cwrt-y-Goedwig, Llantwit Fardre ; Cemetery Road and Pencai Terrace, Treorchy ; Brook Street, Wiilliamstown ; Plantation Road and Mountain Ash Road, Mountain Ash. Severe weather event	Rhondda Cynon Taf County Borough	17 - 34 properties
16	September 1999. Flooding at Brook Street, Gwawr Street and King Street, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Cwrt-Y-Goedwig, Llantwit Fardre ; Pontsionnnorton Road, Hilltop Crescent and Taff Street, Pontypridd ; Cilfynydd Road and William Street, Cilfynydd ; Sycamore Street, and Masefield Way, Rhydyfelin ; Brook Street, Williamstown ; Robert Street, Ynysybwl. Severe weather event	Rhondda Cynon Taf County Borough	15 - 30 properties
17	December 1999. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ;Oakland Terrace, Cilfynydd Road and Heol Mynydd, Cilfynydd ; Brook Street, Curre Street and Gwawr Street, Aberaman ; Maes Uchaf, Dynea Close, Masefield Way and Wordsworth Gardens, Rhydyfelin ; Park Street, Treforest ; Brynna Road, Brynna ; Regent Street, Treorchy ; Hillside Terrace, Wattstown ; Tallis Street, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	17 - 34 properties
18	September 2000. Flooding at Graig Yr Helfa Road and Pentrebach Road, Glyntaff ; Curre Street, Aberaman ; off Cwmbach Road, Cwmbach ; Pontsionnorton Road and Taff Street, Pontypridd ; Dynea Close and Wordsworth Gardes, Rhydyfelin ; A4059, Penywaun ;Brook Street, Williamstown ; Column Street, Treorchy ; Brook Street, Porth ; Vicarage terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	13 - 26 properties

Flood ID	Summary description	Name of Location	Human health consequences - residential properties
19	October 2000. Flooding at Glyntaff Interchange and Graig Yr Helfa Road, Glyntaff ; Oakland Terrace, Cilfynydd ; Rhos Nathan Wyn, Gwawr Street, Brook Street and Tanyard Place, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Abernant Road, Abernant ; Pontsionnorton Road and Taff Street, Pontypridd ; Tylcha Ganol, Tonyrefail ; Ton-Y-Felin, Shakespeare Rise, Poets Close and Dynea Close, Rhydyfelin ; A4059 Penywaun ; Column Street, Cadwgan Road and Dumfries Street, Treorchy ; Brook Street and Eirw Road, Porth ; Trehafod Road and Lewis Street, Trehafod ; Well Street and Mountain Ash Road, Mountain Ash ; Robert Street and Windsor Place, Ynysybwl. Extreme weather event	Rhondda Cynon Taf County Borough	29 - 58 properties
20	November 2000. Flooding at Graig Yr Helfa Road, Glyntaff ; Curre Street, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Mildred Street, Beddau ; Abernant Road, Abernant ; Tylcha Ganol, Tonyrefail ; Brook Street, Williamstown ; Gellifedi Road, Tan-Y-Bryn, Gellifedi Rise and Southall Street, Brynna ; Brook Street and Eirw Road, Porth ; Phillips Terrace, Lewis Street and Trehafod Road, Trehafod ; Plantation Road, Mountain Ash ; Robert Street, Ynysybwl ; Taff Street, Pontypridd ; Vicarage \terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	21 - 42 properties
21	July 2001. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Heol Mynydd, Brynderwen, Bodwenarth Road, Silverhill Close, Oakland Terrace, Cilfynydd Road and Richard Street, Cilfynydd ; Volunteer Street, Pentre ; Pontsionnorton Road, Pontypridd ; Wordsworth Gardens, Masefield Way and Shakespeare Rise, Rhydyfelin ; Phillips Terrace and Trehafod Road, Trehafod ; Pentwyn Road, Treorchy. Severe weather event.	Rhondda Cynon Taf County Borough	16 - 34 properties
22	August 2001. Flooding at Pentrebach Road, Glyntaff ; Park Street, Treforest ; Volunteer Street, Pentre ; Wellfield, Beddau ; Tylcha Fach, Tonyrefail ; Taff Street, Pontypridd ; Vicarage Terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	7 - 14 properties
23	October 2001. Flooding at Cemetery Road, Glyntaff ; Cardiff Road, Aberaman ; Cardiff Road, Nantgarw ; Wellfield, Beddau ; Tylcha Fach and Tylcha Ganol, Tonyrefail ; Gellifedi Road and Brynna Road, Brynna ; Prospect Place, Regent Street and Hermon Street, Park Crescent, Pencai terrace and Tan-Y-Fron, Treorchy ; Britannia Street, Porth ; Tallis Street, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	16 - 32 properties
34	November 2001. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Wood Street, Cilfynydd ; Wellfield, Beddau ; Tylcha Fach, Tonyrefail ; Hermon Street, Treorchy. Severe weather event	Rhondda Cynon Taf County Borough	6 - 12 properties
25	January 2002. Flooding at Oakland Terrace, Cilfynydd ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Abernant Road, Abernant ; Tylcha Fach and Ely Valley Road, Tonyrefail ; Tan Y Bryn, Maerdy ; William Street, Ynyshir. Severe weather event	Rhondda Cynon Taf County Borough	9 - 18 properties
26	February 2002. Flooding at Pentrebach Road, Glyntaff ; Gwawr Street, Aberaman ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Wellfield, Beddau ; Heol Isaf and Ely Valley Road, Tonyrefail ; Cilfynydd Road, Cilfynydd ; Abercynon Road, Ynysboeth ; Llys Corrwg, Rhydyfelin ; Eirw Road and Brook Street, Porth ; Regent Street, Treorchy ; Well Street, Anne Street and Plantation Road, Mountain Ash ; Taff Street, Pontypridd. Severe weather event	Rhondda Cynon Taf County Borough	17 - 34 properties
27	January 2004. Flooding at Brook Street, Aberaman ; Heol Isaf and Ely Valley Road, Tonyrefail ; Pant Ddu Road, Cilfynydd ; Abercynon Road and Nant Y Fedw, Ynysboeth. Severe weather event	Rhondda Cynon Taf County Borough	30 properties
28	September 2004. Flooding at Ffordd Catraeth, Cilfynydd ; Brook Street, Tanyard Place, Gwawr Street and Mount Hill Street, Aberaman ; Masefield Way and Poets Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	30 properties
29	January 2005. Flooding at Cardiff Road, Aberaman ; Volunteer Street, Pentre ; Heol Isaf, Tonyrefail ; Abercynon Road, Ynysboeth. Severe weather event	Rhondda Cynon Taf County Borough	8 properties
30	October 2005. Flooding at Pentrebach Road, Glyntaff ; Oakland Terrace and Cilfynydd Road. Cilfynydd; Tanyard Place, Underhill Villas and Cardiff Road, Aberaman. Severe weather event	Rhondda Cynon Taf County Borough	26 properties
31	November 2005. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Mount Hill Street, Brook Street, Regent Street and Tudor Place, Aberaman ; Oak Street, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	22 properties

Flood ID	Summary description	Name of Location	Human health consequences - residential properties
32	November 2006. Flooding at Cardiff Road and Gwawr Street, Aberaman ; Cilfynydd Road, Cilfynydd ; Abercynon Road, Ynysboeth ; Dynea Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	24 properties
33	December 2006. Flooding at Cardiff Road, Gwawr Street, Hillcrest Avenue, Rhos Dyfed and Brook Street, Aberaman; Bwllfa Road, Cwmdare; Abercynon Road, Ynysboeth; Sycamore Street, Masefield Way and Dynea Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	14 properties
34	January 2007. Flooding at Hillcrest Avenue and, Cardiff Road and Abergwawr Place, Aberaman; Pant Ddu Road, Cilfynydd; Sycamore Street, Masefield way and Dynea Lane, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	16 properties
35	July 2007. Flooding at Heol Gronfa and Pant Ddu Road, Cilfynydd ; King Street, Hill Street, Brook Street and Mount Hill Street, Aberaman ; Bwllfa Road, Cwmdare, Park Street, Treforest Severe weather event	Rhondda Cynon Taf County Borough	8 properties
36	December 2007. Flooding at Hilltop Avenue, Oakland Terrace and Trefechan Farm, Cilfynydd Road, Cilfynydd ; Gwawr Street, Cardiff Road and Tudor Place, Aberaman ; Bwllfa Road, Cwmdare ; Sycamore Street, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	56 properties
37	September 2008. Flooding at Rockingstone Terrace, Graig Yr Helfa, Cemetery Road and Pentrebach Road, Glyntaff ; Oakland Terrace, Albion Flats, Cilfynydd Road, Silverhill Close, Oakland Crescent, Cilfynydd ; Holford Street, Cardiff Road, Belmont Terrace, Blaengwawr Close, Tanyard Place, Penderyn Place, Mount Hill Street, Abergwawr Street, Hill Street, Gwawr Street, Curre Street, Club Street, Sunnybank Street, Brook Street and Greenhill Drive, Aberaman ; Bwllfa Road, Cwmdare ; Abercynon Road and Nant Y Fedw, Ynysboeth ; Sycamore Street and various addresses at Glyntaff Farm Estate, Rhydyfelin, John Street, Treforest Extreme weather event	Rhondda Cynon Taf County Borough	91 properties

Preliminary assessment report spreadsheet: instructions

Introduction:

This spreadsheet contains 3 sheets, for reporting details of a preliminary assessment report.
The sheets are labelled Annex 1, 2 and 3 and should remain so.
This Environment Agency's PFRA Guidance should be referred to when completing the Annexes.
Reporting information on past floods (Annex 1) is described in section 3.4 of the PFRA Guidance.
Reporting information on future floods (Annex 2) is described in section 3.5 of the PFRA Guidance.
Note that information might not be available for many of the optional fields in Annexes 1 and 2.
Reporting information on Flood Risk Areas (Annex 3) is described in section 4.4 of the PFRA Guidance.
If a PFRA does not identify a Flood Risk Area, Annex 3 does not have to be completed.

Please select a Lead Local Flood Authority from the following list:

Note that only one LLFA name can be selected. Where several LLFAs are working together, select one of the LLFAs, and then list the others below. If a particular LLFA is leading the exercise then it should be identified in the box in row 15. If there is no particular lead then it does not matter which one is selected; for example you might enter the LLFA that comes first among the group alphabetically.

Select here:	Rhondda, Cynon, Taff
Working with:	*(only complete this box where several LLFAs are working together to produce a PFRA)*

For Annexes 1, 2 & 3: Mandatory content to meet European Commission reporting requirements is shown in **red**.
If an optional field is not applicable, record "Not applicable" or "NA".
If an optional field is not known, record "Unknown".

For Annex 1:

Note that only past floods with significant consequences need to be reported in Annex 1.
Each past flood record must have significant consequences for at least one type of consequence (human health, economic, environment, or cultural).
Some information on past floods is optional, but only for this first PFRA cycle. In future cycles, the European Commission will require more information to be reported for floods that occur after 22 Dec 2011. This is shown by the fields labelled "Optional for first cycle".
LLFAs should record the following information from 22 Dec 2011: Start date, Days duration, Probability, Main source, Main mechanism, Main characteristics, and Significant consequences of flooding.

For Annex 2:

The mandatory fields in the pre-populated rows should be completed, and any local records described in additional rows.

ANNEX 1: Records of past floods and their significant consequences (preliminary assessment report spreadsheet)

Field:	Flood ID	Summary description	Name of Location	National Grid Reference	Location Description	Start date	Days duration	Probability	Main source of flooding	Additional source(s) of flooding	Confidence in main source of flooding
Mandatory / optional:	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Optional for first cycle	Optional for first cycle	Optional for first cycle	Optional for first cycle	Optional	Optional
Format:	Unique number between 1-9999	Max 5,000 characters	Max 250 characters	12 characters: 2 letters, 10 numbers	Max 250 characters	'yyyy' or 'yyyy-mm' or 'yyyy-mm-dd'	Number with two decimal places	Max 25 characters	Pick from drop-down	Max 250 characters, same source terms	Pick from drop-down
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Description of the flood and its adverse or potentially adverse consequences. Where available, information from other fields Start date, Days duration, Probability, Main source, Main mechanism, Main characteristics, Significant consequences should be repeated here.	Name of the locality associated with the flood, using recognised postal address names such as streets, towns, counties. If the flood affected the whole LLFA, then record the name of the LLFA.	National Grid Reference of the centroid (centre point, falls within polygon) of the flood extent, or of the area affected if there is no extent information.	A description of the general location that was flooded.	The date when the flood commenced - when land not normally covered by water became covered by water.	The number of days (duration) of the flood that land not normally covered by water was covered by water. Values should be within the range 0.01 - 999.99 (permitting records to the nearest quarter of an hour, where appropriate).	The chance of the flood occuring in any given year - record X from "a 1 in X chance of occurring in any given year". Where this is difficult to estimate, a range can be recorded.	Pick the source from which the majority of flooding occurred. Refer to the PFRA guidance for definitions of sources.	If flooding occurred from, or interacted with, any other sources (other than the Main source of flooding), report the source(s) here, using the same source terms.	Pick a broad level of confidence in the Main source of flooding from; 'High' (compelling evidence of source - about 80% confident that source is correct), 'Medium' (some evidence of source but not compelling - about 50% confident that source is correct) 'Low' (source assumed - about 20% confident that source is correct) or 'Unknown'.
Example:	1	On the 14 April 1998 an intense storm system produced surface water flooding across Essex, concentrated in the west of the county. The flooding lasted about 6 hours, and 2 residential properties were recorded as suffering internal flooding, in Epping and North Weald. The surface runoff exceeded the drainage capacity in several places, and so probably had a 1 in 30 to 1 in 50 chance of occuring in any given year.	Essex	SX1234512345	Several towns and villages across west Essex	1998-04-15	0.25	20-50	Surface runoff		High
Records begin here:	1	On the 6th June 2009, Cilfynydd was subject to approximately 80 – 90mm of rainfall ov a 24 hour period. The flooding events at the above location are coincident with the deposition of large quantities of loose stone/debris within watercourse and on the trash screens protecting culvert entry points within the area. As such it is not conclusive that the flooding could be attributed to a lack of culvert capacity alone.	Cilfynydd, Pontypridd	ST087924	Locality of Cilfynydd, Pontypridd. Residential Street	06/06/2009	Unknown	Unknown	Ordinary watercourses	Unknown	High-Medium
	2	On the 05th September 2008, the Culvert inlet at the junction of Gwawr St and Cardiff Rd, Aberaman surcharged/overtopped causing flooding to several properties in the immediate vicinity. The circumstances at the time of the overtopping are unclear with no definitive cause being attributed to the failure. Possible causes are blocked trash screei a lack of capacity or a combination of both. The storm on the day in question has been broadly categorised as a 1 in 25 year event, however, it occurred after several days of sustained rainfall, which resulted in saturated ground conditions within the area.	Gwawr Street/ Cardiff Road, Aberaman	SO008015	Locality of Aberaman, residential streets	05/09/2008	Unknown	25-50	Ordinary watercourses	Unknown	High-Medium
	3	Following the flooding events of 5th September 2008, The storm on the day in question has been broadly categorised as a 1 in 25 year event, however, it occurred after several days of sustained rainfall, which resulted in saturated ground conditions within the area. This created a situation, which exacerbated the surface water run off rates on the landforms above Sunnybank Street and the surrounding area. Sunnybank relies upon natural drainage features in the fields above it to provide its flood defences, these features were believed to have been overwhelmed causing floodwaters to accumulate in the field adjacent to No 32 Sunnybank Street. The floodwaters were held back by the boundary wall of the garden which ultimately failed leading to the flooding of several properties.	Sunnybank Street, Aberdare	SO008019	Area to the rear of Sunnybank Street, Aberdare. Residential street	05/09/2008	Unknown	25-50	Surface runoff	Unknown	High-Medium
	4	On 6th June 2009, Glyntaff farm estate and surrounding area was subject to approximately 80 - 90 mm of rainfall over a sustained period. The flood events at the above location are coincident with the deposition of large quantities of loose stone/ debris within watercourse and on the trash screens protecting culvert entry points, resulting in over topped of the culvert defences. Approx 44 properties experience intern flood with a larger number experiencing external flooding. Closure of several highways resulted.	Glyntaff Farm Estate/ Taff Trail/ Area surrounding Sycamore Street, Rhydyfelin, Pontypridd	ST095885	Glyntaff Farm Estate/ Taff Trail/ Area surrounding Sycamore Street, Rhydyfelin, Pontypridd. Residential street/	06/06/2009	Unknown	Unknown	Ordinary watercourses	Highway/ Foul sewer	High-Medium
	5	On 12th August 2004 after period of sustained heavy rainfall Glyntaff farm estate and surrounding area was subject flooding. Internal and external flooding occurred to severa properties. It is suggested flooding occurring due to a lack of culvert capacity and the volume of debris washed down into culvert inlets.	Glyntaff Farm Estate and surround area, Rhydyfelin, Pontypridd	ST095885	Glyntaff Farm Estate and surround area, Rhydyfelin, Pontypridd. Residential properties	12/08/204	Unknown	Unknown	Ordinary watercourses	Highway/ Foul sewer	Medium
	6	During 1985 flooding event documented in Bingham Hall O'Hanlon report (2001) for Cadarn Housing Group refers to major flooding incident involving foul and surface water	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	ST095885	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
	7	On 18th December 1993, flooding event documented in Bay Associates Report (1994) for Newydd Housing Association refers to internal flooding of properties. 16 other properties recorded as suffering external flooding	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	ST095885	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd.	18/12/1993	Unknown	Unknown	Unknown	Unknown	Unknown
	8	On 6th July 2001, report of flooding to Glyntaff Farm Estate and surrounding area. Report referred to in Bingham Hall O'Hanlon report to Newydd Housing Association in August 2001. Flooding to properties arising from surcharge from a main culvert.	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd	ST095885	Glyntaff Farm, Estate, Rhydyfelin, Pontypridd.	06/07/2001	Unknown	Unknown	Unknown	Unknown	Unknown
	9	December 1979, Flooding at Pontypridd Town Centre, Glyntaff Farm Estate, Rhydyfelir and Trehafod. Extreme weather event and breach of flood defence at Trehafod	Glyntaff Farm, Estate, Rhydyfelin,	ST095885	Glyntaff Farm, Estate, Rhydyfelin,	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	10	February 1997, Flooding at Underhill Villas, Tanyard Place and Sunnybank Street, Aberaman ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Cemetery Road, Dumfries Street, Glyncoli Road and High Street, Treorchy ; Scales Row, Cwmbach ; Hilltop Crescent, Pontypridd ; Abercynon Road, Ynysboeth ; Eirw Road, Porth ; Plantation Road, Mountain Ash. Severe weather event.	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	11	January 1998, Flooding at Cemetery Road , Glyntaff ; Oakland Terrace, Cilfynydd Road and Ffordd Catraeth, Cilfynydd ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; Joh Street, Treforest ; Cwrt-y-Goedwig, Llantwit Fardre ; Cemetery Road and Glyncoli Roac Treorchy ; Abercynon Road and Nant Y Fedw, Ynysboeth ; Wordsworth gardens, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	12	March 1998, Flooding at Hillcrest Avenue, Aberaman ; Llys Corrwg and Sycamore Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; Park Street and John Street, Treforest ; Cemetery Road, Glyncoli Road, Dumfries Street, Column Street, Stuart Street and High Street, Treorchy ; Cwmbach Road, Cwmbach ; Pontsionnnorton Road, Belgrave Terrace and Whiterock Close, Pontypridd ; Brook Street, Williamstown ; Harcombe Road, Llwynypia ; Plantation Road, Mountain Ash ; Taff Street, Pontypridd ; Vicarage Terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	13	October 1998 Flooding reported at Cemetery Road, Graig Yr Helfa, Rockingstone Terrace and Pentrebach Road, Glyntaff ; Oakland Terrace, Heol Mynydd, Heol Gronfa, Silverhill Close, Howell Street and Albion Flats, Cilfynydd ; Cardiff Road, Gwawr Street, Lord Street, Curre Street, King Street, Abergwawr Place, Brook Street, Tudor Place, Holford Street, Mount Hill Street and Club Street, Aberaman ; Llys Corrwg, Sycamore Street, Acacia Street, Wordsworth Gardens, Masefield Way, Dynea Lane and Oak Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Cardiff Road, Nantgarw ; John Street and Park Street, Treforest ; Volunteer Street, Pentre ; Wellfield, Beddau ; Abernant Road, Abernant ; Cwrt-Y-Goedwig, Llantwit Fardre ; Cemetery Road, Dumfries Street, Cadwgan Road, Prospect Place, Column Street, Stuart Street, Hermon Street, Pencai Terrace and Pentwyn Road, Treorchy ; Scales Row, Cwmbach ; Pontsionnorton Road, Hilltop Crescent and Taff Street, Pontypridd ; Heol Isaf, Ely Valley Road and Tylcha	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	14	December 1998. Flooding at Glyntaff Interchange, Cemetery Road and Pentrebach Road, Glyntaff ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Heol Isaf, Tonyrefail ; Dynea Close, Rhydyfelin ; A4059, Penywaun ; Cadwgan Road and Column Street, Treorchy ; Eirw Road, Porth ; Harcombe Road, Llwynypia ; Lewis Street and Trehafod Road, Trehafod ; Plantation Road, Mountain Ash ; Robert Street, Ynysybwl. Severe	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	15	January 1999. Flooding at Oakland Crescent and Cilfynydd Road, Cilfynydd ; Llys Corrwg, Dynea Close, Masefield Way and Oak Street, Rhydyfelin ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Wellfield, Beddau ; Cwrt-y-Goedwig, Llantwit Fardre Cemetery Road and Pencai Terrace, Treorchy ; Brook Street, Wiiliamstown ; Plantation Road and Mountain Ash Road, Mountain Ash. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	16	September 1999. Flooding at Brook Street, Gwawr Street and King Street, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Cwrt-Y-Goedwig, Llantwit Fardre ; Pontsionnnorton Road, Hilltop Crescent and Taff Street, Pontypridd ; Cilfynydd Road and William Street, Cilfynydd ; Sycamore Street, and Masefield Way, Rhydyfelin ; Brool Street, Williamstown ; Robert Street, Ynysybwl. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	17	December 1999. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ;Oakland Terrace, Cilfynydd Road and Heol Mynydd, Cilfynydd ; Brook Street, Curre Street and Gwawr Street, Aberaman ; Maes Uchaf, Dynea Close, Masefield Way and Wordsworth Gardens, Rhydyfelin ; Park Street, Treforest ; Brynna Road, Brynna ; Regent Street, Treorchy ; Hillside Terrace, Wattstown ; Tallis Street, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	18	September 2000. Flooding at Graig Yr Helfa Road and Pentrebach Road, Glyntaff ; Curre Street, Aberaman ; off Cwmbach Road, Cwmbach ; Pontsionnorton Road and Taff Street, Pontypridd ; Dynea Close and Wordsworth Gardes, Rhydyfelin ; A4059, Penywaun ;Brook Street, Williamstown ; Column Street, Treorchy ; Brook Street, Porth ; Vicarage terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	19	October 2000. Flooding at Glyntaff Interchange and Graig Yr Helfa Road, Glyntaff ; Oakland Terrace, Cilfynydd ; Rhos Nathan Wyn, Gwawr Street, Brook Street and Tanyard Place, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Abernant Road, Abernant ; Pontsionnorton Road and Taff Street, Pontypridd ; Tylcha Ganol, Tonyrefail ; Ton-Y-Felin, Shakespeare Rise, Poets Close and Dynea Close, Rhydyfelin ; A4059 Penywaun ; Column Street, Cadwgan Road and Dumfries Street, Treorchy ; Brook Street and Eirw Road, Porth ; Trehafod Road and Lewis Street, Trehafod ; Well Street and Mountain Ash Road, Mountain Ash ; Robert Stree and Windsor Place,	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	20	November 2000. Flooding at Graig Yr Helfa Road, Glyntaff ; Curre Street, Aberaman ; Cardiff Road, Nantgarw ; Park Street, Treforest ; Mildred Street, Beddau ; Abernant Road, Abernant ; Tylcha Ganol, Tonyrefail ; Brook Street, Williamstown ; Gellifedi Road Tan-Y-Bryn, Gellifedi Rise and Southall Street, Brynna ; Brook Street and Eirw Road, Porth ; Phillips Terrace, Lewis Street and Trehafod Road, Trehafod ; Plantation Road, Mountain Ash ; Robert Street, Ynysybwl ; Taff Street, Pontypridd ; Vicarage \terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	21	July 2001. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Heol Mynydd, Brynderwen, Bodwenarth Road, Silverhill Close, Oakland Terrace, Cilfynydd Road and Richard Street, Cilfynydd ; Volunteer Street, Pentre ; Pontsionnorton Road, Pontypridd ; Wordsworth Gardens, Masefield Way and Shakespeare Rise, Rhydyfelin ; Phillips Terrace and Trehafod Road, Trehafod ; Pentwyn Road, Treorchy. Severe weather	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	22	August 2001. Flooding at Pentrebach Road, Glyntaff ; Park Street, Treforest ; Volunteer Street, Pentre ; Wellfield, Beddau ; Tylcha Fach, Tonyrefail ; Taff Street, Pontypridd ; Vicarage Terrace, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	23	October 2001. Flooding at Cemetery Road, Glyntaff ; Cardiff Road, Aberaman ; Cardiff Road, Nantgarw ; Wellfield, Beddau ; Tylcha Fach and Tylcha Ganol, Tonyrefail ; Gellifedi Road and Brynna Road, Brynna ; Prospect Place, Regent Street and Hermon Street, Park Crescent, Pencai terrace and Tan-Y-Fron, Treorchy ; Britannia Street, Port ; Tallis Street, Cwmparc. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	24	November 2001. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Wood Street, Cilfynydd ; Wellfield, Beddau ; Tylcha Fach, Tonyrefail ; Hermon Street, Treorchy. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	25	January 2002. Flooding at Oakland Terrace, Cilfynydd ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Abernant Road, Abernant ; Tylcha Fach and Ely Valley Road, Tonyrefail ; Tan Y Bryn, Maerdy ; William Street, Ynyshir. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	26	February 2002. Flooding at Pentrebach Road, Glyntaff ; Gwawr Street, Aberaman ; Bwllfa Road, Cwmdare ; Park Street, Treforest ; Wellfield, Beddau ; Heol Isaf and Ely Valley Road, Tonyrefail ; Cilfynydd Road, Cilfynydd ; Abercynon Road, Ynysboeth ; Llys Corrwg, Rhydyfelin ; Eirw Road and Brook Street, Porth ; Regent Street, Treorchy ; We Street, Anne Street and Plantation Road, Mountain Ash ; Taff Street, Pontypridd. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	27	January 2004. Flooding at Brook Street, Aberaman ; Heol Isaf and Ely Valley Road, Tonyrefail ; Pant Ddu Road, Cilfynydd ; Abercynon Road and Nant Y Fedw, Ynysboeth. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	28	September 2004. Flooding at Ffordd Catraeth, Cilfynydd ; Brook Street, Tanyard Place, Gwawr Street and Mount Hill Street, Aberaman ; Masefield Way and Poets Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	29	January 2005. Flooding at Cardiff Road, Aberaman ; Volunteer Street, Pentre ; Heol Isaf, Tonyrefail ; Abercynon Road, Ynysboeth. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	30	October 2005. Flooding at Pentrebach Road, Glyntaff ; Oakland Terrace and Cilfynydd Road. Cilfynydd; Tanyard Place, Underhill Villas and Cardiff Road, Aberaman. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	31	November 2005. Flooding at Cemetery Road and Pentrebach Road, Glyntaff ; Mount Hill Street, Brook Street, Regent Street and Tudor Place, Aberaman ; Oak Street, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	32	November 2006. Flooding at Cardiff Road and Gwawr Street, Aberaman ; Cilfynydd Road, Cilfynydd ; Abercynon Road, Ynysboeth ; Dynea Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	33	December 2006. Flooding at Cardiff Road, Gwawr Street, Hillcrest Avenue, Rhos Dyfed and Brook Street, Aberaman; Bwllfa Road, Cwmdare; Abercynon Road, Ynysboeth; Sycamore Street, Masefield Way and Dynea Close, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	34	January 2007. Flooding at Hillcrest Avenue and, Cardiff Road and Abergwawr Place, Aberaman; Pant Ddu Road, Cilfynydd; Sycamore Street, Masefield way and Dynea Lane, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	35	July 2007. Flooding at Heol Gronfa and Pant Ddu Road, Cilfynydd ; King Street, Hill Street, Brook Street and Mount Hill Street, Aberaman ; Bwllfa Road, Cwmdare, Park Street, Treforest Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	36	December 2007. Flooding at Hilltop Avenue, Oakland Terrace and Trefechan Farm, Cilfynydd Road, Cilfynydd ; Gwawr Street, Cardiff Road and Tudor Place, Aberaman ; Bwllfa Road, Cwmdare ; Sycamore Street, Rhydyfelin. Severe weather event	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data
	37	September 2008. Flooding at Rockingstone Terrace, Graig Yr Helfa, Cemetery Road and Pentrebach Road, Glyntaff ; Oakland Terrace, Albion Flats, Cilfynydd Road, Silverhill Close, Oakland Crescent, Cilfynydd ; Holford Street, Cardiff Road, Belmont Terrace, Blaengwawr Close, Tanyard Place, Penderyn Place, Mount Hill Street, Abergwawr Street, Hill Street, Gwawr Street, Curre Street, Club Street, Sunnybank Street, Brook Street and Greenhill Drive, Aberaman ; Bwllfa Road, Cwmdare ; Abercynon Road and Nant Y Fedw, Ynysboeth ; Sycamore Street and various addresses at Glyntaff Farm Estate, Rhydyfelin, John Street, Treforest Extreme weather	Rhondda Cynon Taf County Borough	ST012955 (Central RCT)	Rhondda Cynon Taf County Borough Wide	Unknown	Unknown	Unknown	Unknown	Unknown	No data

Field / Flood ID	Main mechanism of flooding	Main characteristic of flooding	Significant consequences to human health	Human health consequences - residential properties	Property count method	Other human health consequences	Significant economic consequences	Number of non-residential properties flooded	Property count method	Other economic consequences	Significant consequences to the environment	Environment consequences	Significant consequences to cultural heritage	Cultural heritage consequences
Mandatory / optional:	Optional for first cycle	Optional for first cycle	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Mandatory	Optional
Format:	Pick from drop-down	Pick from drop-down	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters
Notes:	Pick a mechanism from; 'Natural exceedance' (of capacity), 'Defence exceedance' (floodwater overtopping defences), 'Failure' (of natural or artificial defences or infrastructure, or of pumping), 'Blockage or restriction' (natural or artificial blockage or restriction of a conveyance channel or system), or 'No data'.	Pick a characteristic from; 'Flash flood' (rises and falls quite rapidly with little or no advance warning), 'Natural flood' (due to significant precipitation, at a slower rate than a flash flood), 'Snow melt flood' (due to rapid snow melt), 'Debris flow' (conveying a high degree of debris), or 'No data'. Most UK floods are 'Natural floods'.	Were there any significant consequences to human health when the flood occurred, or would there be if it were to re-occur?	Record the number of residential properties where the building structure was affected either internally or externally by the flood, or that would be so affected if the flood were to re-occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there were other Significant consequences to human health describe them including information such as the number of critical services flooded.	Were there any significant economic consequences when the flood occurred, or would there be if it were to re-occur?	Record the number of non-residential properties where the building structure was affected either internally or externally by the flood, or that would be so affected if the flood were to re-occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there were other Significant economic consequences describe them including information such as the area of agricultural land flooded, length of roads and rail flooded.	Were there any significant consequences to the environment when the flood occurred, or would there be if it were to re-occur?	If there were Significant consequences to the environment describe them including information such as national and international designated sites flooded, and pollution sources flooded.	Were there any significant consequences to cultural heritage when the flood occurred, or would there be if it were to re-occur?	If there were Significant consequences to cultural heritage describe them including information such as the number and type of heritage assets flooded.
Example: 1	Natural exceedance	Natural flood	Yes	23	Observed number		No				No		No	
1	Defence exceedance	Natural flood	No	14 properties	Observed number	Unknown	No	Unknown	Unknown	Flooding to carriageways, surface water present on A470	No	Unknown	No	Unknown
2	Defence exceedance	Natural flood	No	10 - 20 properties	Estimate from map	Unknown	No	Unknown	Unknown	Flooding to carriageways	No	Unknown	No	Unknown
3	Natural exceedance	Natural flood	No	7 - 13 properties	Estimate from map	Unknown	No	Unknown	Unknown	Flooding to carriageways	No	Unknown	No	Unknown
4	Defence exceedance	Natural flood	No	44 properties with internal flooding	Observed number	Flooding to foul combined sewers	No	Unknown	Unknown	Evacuation of several properties. Including closure of carriageways	No	Unknown	No	Unknown
5	Defence exceedance	Natural flood	Yes	119 properties affected by internal/ external flooding	Unknown	Unknown	No	Unknown	Unknown	Evacuation of several properties. Including closure of carriageways	No	Unknown	No	Unknown
6	No data	No data	Yes	8 - 100 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
7	No data	No data	No	16 properties	Observed number	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
8	Defence exceedance	No data	Yes	8 - 100 properties	Unknown	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
9	No data	No data	Yes	> 100	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
10	No data	No data	No	13 - 26 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
11	No data	No data	Yes	> 100	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
12	No data	No data	No	24 - 48 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
13	No data	No data	Yes	55 - 110 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
14	No data	No data	No	15-30	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
15	No data	No data	No	17 - 34 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
16	No data	No data	No	15 - 30 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
17	No data	No data	No	17 - 34 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
18	No data	No data	No	13 - 26 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
19	No data	No data	No	29 - 58 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
20	No data	No data	No	21 - 42 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
21	No data	No data	No	16 - 34 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
22	No data	No data	No	7 - 14 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
23	No data	No data	No	16 - 32 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
24	No data	No data	No	6 - 12 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
25	No data	No data	No	9 - 18 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
26	No data	No data	No	17 - 34 properties	Estimate from map	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
27	No data	No data	No	30 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
28	No data	No data	No	30 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
29	No data	No data	No	8 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
30	No data	No data	No	26 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
31	No data	No data	No	22 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
32	No data	No data	No	24 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
33	No data	No data	No	14 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
34	No data	No data	No	16 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
35	No data	No data	No	8 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
36	No data	No data	No	56 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown
37	No data	No data	Yes	91 properties	Simple GIS	Unknown	No	Unknown	Unknown	Unknown	No	Unknown	No	Unknown

Field / Flood ID	Comments	Data owner	Area flooded	Flood event outline confidence	Flood event outline source	Survey date	Photo ID	Lineage	Sensitive data	Protective marking descriptor	European Flood Event Code
Mandatory / optional:	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Auto-populated
Format:	Max 1,000 characters	Max 250 characters	Number with two decimal places	Pick from drop-down	Pick from drop-down	'yyyy' or 'yyyy-mm' or 'yyyy-mm-dd'	Max 50 characters	Max 250 characters	Pick from drop-down	Max 50 characters	Max 42 characters
Notes:	Any additional comments about the past flood record.		The total area of the land flooded, in km^2	Choose from; 'High' (data includes one of: Aerial video, Aerial photos, Professional survey, Flood level information, EA flood data recording staff notes), 'Medium' (data includes one of: EA/LA ground video, EA/LA ground photos, EA/LA flood event outline map, LA/professional partner officer site records, Public ground video), 'Low' (not confident) or 'Unknown'.			Provide references to relevant specific photographs, or to a set of relevant photographs. It may not be practical to reference all relevant photographs for each flood event.	Lineage is how and what the data is made from. Has this data been created by using data owned or derived from data owned by 3rd party (external) organisations? If yes please give details.	Has the information been classified under the Government's Protective Marking Scheme? Include protective marking time limit where known. Note: If "Approved for Access" then report "Unmarked".	For use where organisations apply the Government's Protective Marking Scheme.	This field will autopopulate using the LLFA name provided on the "Instructions" tab, and the Flood ID. It is an EU-wide unique identifier and will be used to report the flood information. Format: UK<ONS Code><P or F><LLFA Flood ID>. "ONS Code" is a unique reference for each LLFA. "P or F" indicates if the event is past or future. "LLFA Flood ID" is a sequential number beginning with 0001.
Example: 1		Epping Forest District Council		Medium	Site survey	1998-04-20		Ordnance Survey AddressPoint; CEH 1:50k River Centreline; NextMap DTM.	Unmarked	Private	UKE10000012P0001
1	Report submitted by RCT drainage engineer (BW/RP/SB). Staff deployed to deal with	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Professional staff notes	06/06/2009	Photographs included with event report	First hand	Unmarked	None	UKW06000016P0001
2	Report submitted by RCT drainage engineer (BW)	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Professional staff notes	05/09/2008	Photographs included with event report	First hand	Unmarked	None	UKW06000016P0002
3	Report submitted by RCT drainage engineer (BW)	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Professional staff notes	05/09/2008	Photographs included with event report	First hand	Unmarked	None	UKW06000016P0003
4	Staff deployed to deal with flooding incident. Data collected 24 hours following main flooding event	Rhondda Cynon Taf County Borough Council	Unknown	High-Medium	Professional staff notes	07/09/2009	Photographs / interview data and maps stored electronically	First hand	Confidential	None	UKW06000016P0004
5	Report extracted from Rhydyfelin Flood Alleviation Scheme Project Appraisal Report/ customer	Rhondda Cynon Taf County Borough Council	Unknown	Medium	Unknown	Unknown	Photographs contained with Rhydyfelin Flooding Alleviation Scheme Project Appraisal	Rhondda Cynon Taf Customer care data records / first hand accounts/ public/ external agencies	Unknown	None	
6	Report extracted from Rhydyfelin Flood Alleviation Scheme	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0006
7	Report extracted from Rhydyfelin Flood Alleviation Scheme	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0007
8	Report extracted from Rhydyfelin Flood Alleviation Scheme	Rhondda Cynon Taf County Borough Council	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0008
9	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0009
10	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0010
11	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0011
12	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0012
13	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0013
14	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0014
15	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0015
16	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0016
17	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0017
18	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0018
19	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0019
20	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0020
21	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0021
22	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0022
23	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0023
24	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0024
25	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0025
26	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0026
27	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0027
28	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0028
29	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0029
30	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0030
31	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0031
32	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0032
33	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0033
34	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0034
35	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0035
36	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0036
37	Extracted from customer care database information	Rhondda Cynon Taf County Borough Council	Unknown	Low	Public	Unknown	Unknown	Unknown	Unknown	None	UKW06000016P0037

ANNEX 2: Records of future floods and their consequences (preliminary assessment report spreadsheet)

Field:	Flood ID	Description of assessment method	Name of Location	National Grid Reference	Location Description	Name	Flood modelled	Probability	Main source of flooding	Additional source(s) of flooding	Confidence in main source of flooding	Main mechanism of flooding	Main characteristic of flooding
Mandatory / optional:	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Optional	Optional	Mandatory	Mandatory	Optional	Optional	Mandatory	Mandatory
Format:	Unique number between 1-9999	Max 1,000 characters	Max 250 characters	12 characters: 2 letters, 10 numbers	Max 250 characters	Max 250 characters	Max 250 characters	Max 25 characters	Pick from drop-down	Max 250 characters, same source terms	Pick from drop-down	Pick from drop-down	Pick from drop-down
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Description of the future flood information and how it has been produced. Cover Regulation 12(6) requirements of (a) topography, (b) the location of watercourses, (c) the location of flood plains that retain flood water, (d) the characteristics of watercourses, and (e) the effectiveness of any works constructed for the purpose of flood risk management. Information from other relevant fields (Probability, Main source, Name) should be repeated here.	Name of the locality associated with the flood, using recognised postal address names such as streets, towns, counties. If the flood affects the whole LLFA, then record the name of the LLFA.	National Grid Reference of the centroid (centre point, falls within polygon) of the flood extent, or of the area affected if there is no extent information. If the flood affects the whole LLFA, then record the centroid of the LLFA.	A description of the general location that could be flooded.	Name of the model or map product or project which produced the future flood information	Background, or additional information on the probability of the flood modelled - such as whether Probability refers to probability of rainfall or water on the ground.	The chance of the flood occuring in any given year - record X from "a 1 in X chance of occurring in any given year".	Pick the source which generates the majority of flooding. Refer to the PFRA guidance for definitions of sources.	If the flood is generated by, or interacts with, any other sources (other than the Main source of flooding), report the source(s) here, using the same source terms.	Pick a broad level of confidence in the Main source of flooding from; 'High' (compelling evidence of source - about 80% confident that source is correct), 'Medium' (some evidence of source but not compelling - about 50% confident that source is correct) 'Low' (source assumed - about 20% confident that source is correct) or 'Unknown'.	Pick a mechanism from; 'Natural exceedance' (of capacity), 'Defence exceedance' (floodwater overtopping defences), 'Failure' (of natural or artificial defences or infrastructure, or of pumping), 'Blockage or restriction' (natural or artificial blockage or restriction of a conveyance channel or system), or 'No data'.	Pick a characteristic from; 'Flash flood' (rises and falls quite rapidly with little or no advance warning), 'Natural flood' (due to significant precipitation, at a slower rate than a flash flood), 'Snow melt flood' (due to rapid snow melt), 'Debris flow' (conveying a high degree of debris), or 'No data'. Most UK floods are 'Natural floods'.
Example:	1	See records below for examples of description of assessment method.	Essex	SX1234512345		Flood Map for Surface Water - 1 in 200 deep	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.3m depth.	200	Surface runoff		High	Natural exceedance	Natural flood
Records begin here:	1	• Topography is derived from LIDAR (in larger urban areas, on 1, 2 and 3m grids; original accuracy ± 0.15m) and Geoperspective data (original accuracy ± 1.5m), processed to remove buildings and vegetation, then degraded to a composite 5m DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; no allowance made for manmade drainage. The DTM may miss flow paths below bridges. • Areas that may flood are defined by dynamically routing a 6.5 hour duration storm with 1 in 200 chance of occurring in any year, over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 is used throughout, to allow broad scale effects of buildings and other obstructions to be approximated. • No allowance made for drainage, pumping or other works constructed for the purpose of flood risk management. • The 'less susceptible' layer shows where modelled flooding is 0.1-0.3m deep; you mu	Rhondda Cynon Taf	ST0220994587		Areas Susceptible to Surface Water Flooding (AStSWF) - Less	Probability refers to the probability of the rainfall event. This identifies areas which are 'less susceptible' to surface water flooding. For more information refer to "What are Areas Susceptible to Surface Water Flooding" Environment Agency December 2010.	200	Surface runoff		High	Natural exceedance	Natural flood
	2	• Topography is derived from LIDAR (in larger urban areas, on 1, 2 and 3m grids; original accuracy ± 0.15m) and Geoperspective data (original accuracy ± 1.5m), processed to remove buildings and vegetation, then degraded to a composite 5m DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; no allowance made for manmade drainage. The DTM may miss flow paths below bridges. • Areas that may flood are defined by dynamically routing a 6.5 hour duration storm with 1 in 200 chance of occurring in any year, over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 is used throughout, to allow broad scale effects of buildings and other obstructions to be approximated. • No allowance made for drainage, pumping or other works constructed for the purpose of flood risk management. • The 'intermediate susceptibility' layer shows where modelled flooding is 0.3-1.0m dee	Rhondda Cynon Taf	ST0220994587		Areas Susceptible to Surface Water Flooding (AStSWF) - Intermediate	Probability refers to the probability of the rainfall event. This identifies areas with 'intermediate susceptibility' to surface water flooding.	200	Surface runoff		High	Natural exceedance	Natural flood
	3	• Topography is derived from LIDAR (in larger urban areas, on 1, 2 and 3m grids; original accuracy ± 0.15m) and Geoperspective data (original accuracy ± 1.5m), processed to remove buildings and vegetation, then degraded to a composite 5m DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; no allowance made for manmade drainage. The DTM may miss flow paths below bridges. • Areas that may flood are defined by dynamically routing a 6.5 hour duration storm with 1 in 200 chance of occurring in any year, over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 is used throughout, to allow broad scale effects of buildings and other obstructions to be approximated. • No allowance made for drainage, pumping or other works constructed for the purpose of flood risk management. • The 'more susceptible' layer shows where modelled flooding is >1.0m deep; you must	Rhondda Cynon Taf	ST0220994587		Areas Susceptible to Surface Water Flooding (AStSWF) - More	Probability refers to the probability of the rainfall event. This identifies areas which are 'more susceptible' to surface water flooding.	200	Surface runoff		High	Natural exceedance	Natural flood
	4	• Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas. • Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 30 chance of occurring in any year over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas. • No allowance made for local variations in drainage, pumping or other works	Rhondda Cynon Taf	ST0220994587		Flood Map for Surface Water (FMfSW) - 1 in 30	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.1m depth.	30	Surface runoff		High	Natural exceedance	Natural flood
	5	• Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas. • Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 30 chance of occurring in any year over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas. • No allowance made for local variations in drainage, pumping or other works	Rhondda Cynon Taf	ST0220994587		Flood Map for Surface Water (FMfSW) - 1 in 30 deep	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.3m depth.	30	Surface runoff		High	Natural exceedance	Natural flood
	6	• Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas. • Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.	Rhondda Cynon Taf	ST0220994587		Flood Map for Surface Water (FMfSW) - 1 in 200	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.1m depth.	200	Surface runoff		High	Natural exceedance	Natural flood
	7	• Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges. • Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas. • Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW–GPU model. • Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.	Rhondda Cynon Taf	ST0220994587		Flood Map for Surface Water (FMfSW) - 1 in 200 deep	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.3m depth.	200	Surface runoff		High	Natural exceedance	Natural flood
	8	• Areas Susceptible to Groundwater Flooding (AStGWF) is a strategic scale map showing groundwater flood areas on a 1km square grid • This data has used the top two susceptibility bands of the British Geological Society (BGS) 1:50,000 Groundwater Flood Susceptibility Map, which was developed on a 50m grid from: • NEXTMap 5m grid DTM. • National Groundwater Level data on a 50m grid • BGS 1:50 000 geological mapping, with classifications of permeability • It covers consolidated aquifers (chalk, limestone, sandstone etc.) and superficial deposits. • Flood plains are not explicitly identified; the mapping identifies where groundwater is likely to emerge, and not where the water is subsequently likely to flow or pond. • No allowance is made for engineering works, or for groundwater rebound or abstraction to prevent groundwater rebound. • Shows the proportion of each 1km grid square which is susceptible to groundwater	Rhondda Cynon Taf	ST0220994587		Areas Susceptible to Groundwater Flooding (AStGWF)	Does not describe a probability, but shows places where groundwater emergence more likely to occur.	Unknown	Groundwater		High	Natural exceedance	Natural flood
	9	• Modelling developed from combination of national (2004) and local (generally 1998-2010) modelling. • Topography derived from LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m), NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation. For local modelling, topography may include ground survey. • Location of watercourses and tidal flow routes dictated by topographic survey. • Areas that may flood are defined for catchments >3km² by routing appropriate flows for that catchment through the model to ascertain water level and thus depth and extent. • Manning's n of 0.1 used for national fluvial modelling; variable (calibrated) values for national tidal modelling; appropriate values selected for local modelling. Channel capacity assumed as QMED for national fluvial modelling; local survey methods used fc local modelling. • For the purpose of flood risk management, models assume that there are no raised defences.	Rhondda Cynon Taf	ST0220994587		Flood Map (for rivers and sea) - flood zone 3	Fluvial 1 in 100, tidal 1 in 200	100	Main rivers	Sea, ordinary watercourses	Medium	Natural exceedance	Natural flood
	10	• Modelling developed from combination of national (2004) and local (generally 2004-2010) modelling. • Topography derived from LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m), NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings & vegetation. For local modelling, topography may include ground survey. • Location of watercourses and tidal flow routes dictated by topographic survey. • Areas that may flood are defined for catchments >3km² by routing appropriate flows for that catchment through the model to ascertain water level and thus depth and extent. • Manning's n of 0.1 used for national fluvial modelling; variable (calibrated) values for national tidal modelling; appropriate values selected for local modelling. Channel capacity assumed as QMED for national fluvial modelling; local survey methods used fc local modelling. • For the purpose of flood risk management, models assume that there are no raised defences.	Rhondda Cynon Taf	ST0220994587		Flood Map (for rivers and sea) - flood zone 2	Extreme flood outline is 1 in 1000, and includes some historic where judged that this gives an indication of areas at risk of future flooding.	1000	Main rivers	Sea, ordinary watercourses	Medium	Natural exceedance	Natural flood

Field:	Flood ID	Adverse consequences to human health	Human health consequences - residential properties	Property count method	Other human health consequences	Adverse economic consequences	Number of non-residential properties flooded	Property count method	Other economic consequences	Adverse consequences to the environment	Environment consequences	Adverse consequences to cultural heritage	Cultural heritage consequences
Mandatory / optional:	Mandatory	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Mandatory	Optional
Format:	Unique number between 1-9999	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Would there be any significant consequences to human health if the future flood were to occur?	Record the number of residential properties where the building structure would be affected either internally or externally if the flood were to occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there would be other Significant consequences to human health describe them including information such as the number of critical services flooded.	Would there be any significant economic consequences if the future flood were to occur?	Record the number of non-residential properties where the building structure would be affected either internally or externally if the flood were to occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there would be other Significant economic consequences describe them including information such as the area of agricultural land flooded, length of roads and rail flooded.	Would there be any significant consequences to the environment if the future flood were to occur?	If there would be Significant consequences to the environment describe them including information such as national and international designated sites flooded, and pollution sources flooded.	Would there be any significant consequences to cultural heritage if the future flood were to occur?	If there would be Significant consequences to cultural heritage describe them including information such as the number and type of heritage assets flooded.
Example:	1	Yes	12000	Detailed GIS		No				No		No	
Records begin here:	1	Yes	19500	Detailed GIS		Yes	5000	Detailed GIS		No		Yes	
	2	Yes	8400	Detailed GIS		Yes	2700	Detailed GIS		No		Yes	
	3	Yes				Yes				No		Yes	
	4	Yes				Yes				No		Yes	
	5	Yes				Yes				No		Yes	
	6	Yes	43,600	Detailed GIS		Yes	7300	Detailed GIS		No		Yes	
	7	Yes	17,738	Detailed GIS	117	Yes	3425	Detailed GIS	Road or Rail >83.3km, >171ha of agricultural land	No	2Nr PPC sites potentially at risk of flooding	Yes	32 Listed Buildings
	8	No				No				No		Yes	
	9	Yes				Yes				No		No	
	10	Yes				Yes				No		No	

Field:	Flood ID	Comments	Data owner	Area flooded	Confidence in modelled outline	Model date	Model Type	Hydrology Type	Lineage	Sensitive data	Protective marking descriptor	European Flood Event Code
Mandatory / optional:	Mandatory	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Auto-populated
Format:	Unique number between 1-9999	Max 1,000 characters	Max 250 characters	Number with two decimal places	Pick from drop-down	'yyyy' or 'yyyy-mm' or 'yyyy-mm-dd'	Max 250 characters	Max 250 characters	Max 250 characters	Pick from drop-down	Max 50 characters	Max 42 characters
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Any additional comments about the future flood record.		The total area of the land flooded, in km²	Pick a broad level of confidence in the modelled flood outline from; 'High' (good match to past flood extents - about 80% confident that outline is correct), 'Medium' (reasonable match - about 50% confident that outline is correct), 'Low' (poor match, sparse data - about 20% confident that outline is correct) or 'Unknown'.		Type of software used to create future flood information.	Type of hydrology method used to create future flood information.	Lineage is how and what the data is made from. Has this data been created by using data owned or derived from data owned by 3rd party (external) organisations? If yes please give details.	Has the information been classified under the Government's Protective Marking Scheme? Include protective marking time limit where known. Note: If "Approved for Access" then report "Unmarked".	For use where organisations apply the Government's Protective Marking Scheme.	This field will autopopulate using the LLFA name provided on the "Instructions" tab, and the Flood ID. It is an EU-wide unique identifier and will be used to report the flood information. Format: UK<ONS Code><P or F><LLFA Flood ID>. "ONS Code" is a unique reference for each LLFA. "P or F" indicates if the event is past or future. "LLFA Flood ID" is a sequential number beginning with 0001.
Example:	1		Epping Forest District Council		Medium-Low	2008-08	2D-TuFlow	FEH (Revised Rainfall Runoff)	Ordnance Survey AddressPoint; CEH 1:50k River Centreline; NextMap DTM.	Unmarked	Private	UKE10000012F0001
Records begin here:	1		JBA Consulting (distributed by Environment Agency under licence)		Low	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.		Protect	Commercial	UKW06000016F0001
	2		JBA Consulting (distributed by Environment Agency under licence)		Low	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.		Protect	Commercial	UKW06000016F0002
	3		JBA Consulting (distributed by Environment Agency under licence)		Low	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.		Protect		UKW06000016F0003
	4		Environment Agency		Medium-Low	2010-11	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 1.1 hr, 1:30 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile. See "Description of assessment method" for allowances for infiltration and drainage.	Rainfall Hyetograph, EA 2m Composite DTM, OSMM Topography	Unmarked		UKW06000016F0004
	5		Environment Agency		Medium-Low	2010-11	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 1.1 hr, 1:30 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile. See "Description of assessment method" for allowances for infiltration and drainage.	Rainfall Hyetograph, EA 2m Composite DTM, OSMM Topography	Unmarked		UKW06000016F0005
	6		Environment Agency		Medium-Low	2010-11	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 1.1 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile. See "Description of assessment method" for allowances for infiltration and drainage.	Rainfall Hyetograph, EA 2m Composite DTM, OSMM Topography	Unmarked		UKW06000016F0006
	7		Environment Agency	12	Medium-Low	2010-11	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 1.1 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile. See "Description of assessment method" for allowances for infiltration and drainage.	Rainfall Hyetograph, EA 2m Composite DTM, OSMM Topography	Unmarked		UKW06000016F0007
	8	Data developed specifically for PFRA, and is unlikely to be suitable for any other purposes.	Environment Agency		Low	2010-11	ArcGIS	Uses data which is developed from published BGS groundwater level contours, groundwater levels in BGS WellMaster database and some river levels. No probability is associated with this data.	British Geological Society (BGS) DiGMapGB-50 [Susceptibility to Groundwater Flooding].	Unmarked		UKW06000016F0008
	9	Data updated quarterly. To understand the likelihood of future flooding, taking account of defences, refer to Areas Benefitting from Defences and National Flood Risk Assessment (NaFRA) data. Marked 'Protect' for complete national dataset only.	Environment Agency		Medium	2010-11	Varies but mainly JFLOW, ISIS, HEC-RAS, TUFLOW for fluvial, and HYDROF for tidal.	National methodology described in "National Generalised Modelling for Flood Zones - Fluvial & Tidal Modelling Methods - Methodology, Strengths and Limitations". A national dataset (for England and Wales) of fluvial flood peak estimates was derived from the Flood Estimation Handbook (FEH) to generate a 1 in 100 chance fluvial flood. Local fluvial modelling uses FEH methods. Peak tidal water levels from either Dixon & Tawn (DT3) or local data sets to derive 1 in 200 chance tide levels including surge from POL CSX model.	NextMap SAR DTMe, UKHO Admiralty Charts, 1:50K CEH River Centre Line, CEH FEH Q(T) Grids, POL CSX Peak Extreme Water Levels, POL CS3 Astronomical Tides, UKHO Admiralty Tide Time-Series Calibration Locations, OS 1:10 Boundary Line MHW	Protect	Commercial	UKW06000016F0009
	10	Data updated quarterly. To understand the likelihood of future flooding, taking account of defences, refer to National Flood Risk Assessment (NaFRA) data. Marked 'Protect' for complete national dataset only.	Environment Agency		Medium	2010-11	Varies but mainly JFLOW, ISIS, HEC-RAS, TUFLOW for fluvial, and HYDROF for tidal.	National methodology described in "National Generalised Modelling for Flood Zones - Fluvial & Tidal Modelling Methods - Methodology, Strengths and Limitations". A national dataset (for England and Wales) of fluvial flood peak estimates was derived from the Flood Estimation Handbook (FEH) to generate a 1 in 1000 chance fluvial flood. Local fluvial modelling uses FEH methods. Peak tidal water levels from either Dixon & Tawn (DT3) or local data sets to derive 1 in 1000 chance tide levels including surge from POL CSX model.	NextMap SAR DTMe, UKHO Admiralty Charts, 1:50K CEH River Centre Line, CEH FEH Q(T) Grids, POL CSX Peak Extreme Water Levels, POL CS3 Astronomical Tides, UKHO Admiralty Tide Time-Series Calibration Locations, OS 1:10 Boundary Line MHW, Historic	Protect	Commercial	UKW06000016F0010

ANNEX 3: Records of Flood Risk Areas and their rationale (preliminary assessment report spreadsheet)

Field:	Flood Risk Area ID	Name of Flood Risk Area	National Grid Reference	Main source of flooding	Additional source(s) of flooding	Confidence in main source of flooding	Main mechanism of flooding	Main characteristic of flooding	Significant consequences to human health	Human health consequences - residential properties	Property count method	Other human health consequences	Significant economic consequences	Number of non-residential properties flooded	Property count method	Other economic consequences	Significant consequences to the environment	Environment consequences	Significant consequences to cultural heritage	Cultural heritage consequences	Origin of Flood Risk Area	Amended Flood Risk Area rationale	New Flood Risk Area rationale	Rationale detail	European Flood Risk Area Code
Mandatory / optional:	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Optional	Mandatory	Mandatory	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Optional	Optional	Mandatory	Optional	Mandatory	Optional	Mandatory	Mandatory	Mandatory	Mandatory	Auto-populated
Format:	Unique number between 1-9999	Max 250 characters	12 characters: 2 letters, 10 numbers	Pick from drop-down	Max 250 characters, same source terms	Pick from drop-down	Pick from drop-down	Pick from drop-down	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Number between 1-10,000,000	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters	Pick from drop-down	Max 250 characters	Pick from drop-down	Pick from drop-down	Pick from drop-down	Max 1,000 characters	Max 42 characters
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Name of the locality associated with the Flood Risk Area; a town, city, or county.	National Grid Reference of the centroid (centre point, falls within polygon) of the Flood Risk Area.	Pick the source from which there is a significant flood risk. Refer to the PFRA guidance for definitions of sources.	If there is also significant flood risk generated by another source (other than the Main source of flooding), report the source(s) here, using the same source terms.	Pick a broad level of confidence in the Main source of flooding from; 'High' (compelling evidence of source - about 80% confident that source is correct), 'Medium' (some evidence of source but not compelling - about 50% confident that source is correct) 'Low' (source assumed - about 20% confident that source is correct) or 'Unknown'.	Pick a mechanism from; 'Natural exceedance' (of capacity), 'Defence exceedance' (floodwater overtopping defences), 'Failure' (of natural or artificial defences or infrastructure, or of pumping), 'Blockage or restriction' (natural or artificial blockage or restriction of a conveyance channel or system), or 'No data'.	Pick a characteristic from; 'Flash flood' (rises and falls quite rapidly with little or no advance warning), 'Natural flood' (due to significant precipitation, at a slower rate than a flash flood), 'Snow melt flood' (due to rapid snow melt), 'Debris flow' (conveying a high degree of debris), or 'No data'. Most UK floods are 'Natural floods'.	Has the Flood Risk Area been identified as a result of significant consequences to human health?	Record the number of residential properties where the building structure would be affected either internally or externally by the flood.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If the Flood Risk Area has been identified as a result of other Significant consequences to human health, describe them (such as information about the number of critical services flooded).	Has the Flood Risk Area been identified as a result of significant economic consequences?	Record the number of non-residential properties where the building structure would be affected either internally or externally by the flood.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If the Flood Risk Area has been identified as a result of other Significant economic consequences, describe them (such as information about the area of agricultural land flooded, length of roads and rail flooded).	Has the Flood Risk Area been identified as a result of significant consequences to the environment?	If the Flood Risk Area has been identified as a result of Significant consequences to the environment, describe them (such as information about national and international designated sites flooded, and pollution sources flooded).	Has the Flood Risk Area been identified as a result of significant consequences to cultural heritage?	If the Flood Risk Area has been identified as a result of Significant consequences to cultural heritage, describe them (such as information about the number and type of heritage assets flooded).	Pick the origin from either; 'Indicative' Flood Risk Area, 'Amended' Flood Risk Area (in which case Amended Flood Risk Area rationale is mandatory), or 'New' Flood Risk Area (in which case New Flood Risk Area rationale is mandatory).	Pick the main rationale from either; 'Geography', 'Past floods', or 'Future floods'. Then provide further detail in Rationale detail. This is not mandatory if the Flood Risk Area was an indicative Flood Risk Area.	Pick the main rationale from either 'Past floods', or 'Future floods'. Then provide further detail in Rationale detail. This is not mandatory if the Flood Risk Area was an indicative Flood Risk Area.	Summarise the rationale for amending an indicative Flood Risk Area, or identifying a new Flood Risk Area. Refer to Defra & WAG guidance to LLFAs on "Selecting and reviewing Flood Risk Areas for local sources of flooding". If the Flood Risk Area was an indicative Flood Risk Area and has not been amended, record "indicative Flood Risk Area".	This field will autopopulate using the LLFA name provided on the "Instructions" tab, and the Flood Risk Area ID. It is an EU-wide unique identifier and will be used to report the Flood Risk Area information. Format: UK<ONS Code><A><LLFA Flood ID>. "ONS Code" is a unique reference for each LLFA. "A" indicates it is a Flood Risk Area. "LLFA Flood ID" is a sequential number beginning with 0001.
Example:	1	London	SX1234512345	Surface runoff	NA	High	Natural exceedance	Natural flood	Yes	50000	Detailed GIS		No				No		No		Indicative	NA	NA	indicative Flood Risk Area	UKE10000012A0001
Records begin here:	1	Rhondda Cynon Taf	ST0220994587	Surface runoff	NA	High	Natural exceedance	Natural flood	Yes	16,156	Detailed GIS	96	No	2890	Detailed GIS	Road or Rail >83.3km, >171ha of agricultural land	No	2Nr PPC sites potentially at risk of flooding	No	32 Listed Buildings	Amended	Past floods		Increase in flood risk area "blue" squares just outside indicative flood risk areas. Squares in vicinity compared to local flood risk information and some squares appear in the top 15% of all squares in LA. Reassessment of 4 squares causes a number of other squares above threshold to enter the flood risk area. FRA now estimated covers 91% of people at risk in RCT	UKW06000016A0001