RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

LOCAL FLOOD RISK MANAGEMENT STRATEGY

January 2013

STRONG HERITAGE | STRONG FUTURE
RHONDDA CYNON TAF
TREFTADAETH GADARN | DYFODOL SICR

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FOREWORD

During recent years, communities in Rhondda Cynon Taf have experienced the severe impacts and consequences of flooding. We have also witnessed other areas of the United Kingdom being subjected to devastating flood events. It is widely held that floods such as these are likely to become more frequent as the effects of climate change develop. The consequences of this unchecked expected increase in flooding will likely see greater risks to life, the economy and the environment of Rhondda Cynon Taf. In response to the above, Rhondda Cynon Taf County Borough Council has developed a holistic response to managing flood risk in the form of its first Local Flood Risk Management Strategy.

The first Rhondda Cynon Taf County Borough Council Local Flood Risk Management Strategy is a key milestone in ensuring that the risk of flooding within Rhondda Cynon Taf is managed as a whole, integrating the work done by the Council, Government Bodies, Water Companies, communities and individuals. The Strategy considers how various activities can be used to manage flood risk, from better planning policy to ensure new development does not increase flood risk for its neighbours, through to the efficient management of the surrounding landscape to reduce flooding at source. It should be stressed that the activities outlined within this Strategy only contribute to the management of flood risk. Even if the economy as a whole were not experiencing times of austerity, it would be unrealistic to protect all property and infrastructure from the risk of flooding. This Strategy therefore encourages all involved to make efforts to reduce flood risk by concentrating not only on reducing the probability of flooding, but also the impact when it does occur.

This Strategy focuses on local flood risk, defined as flooding caused by surface runoff, groundwater and ordinary watercourses (streams, ditches etc.). This type of flooding was responsible for the highly publicised flooding of 2009, and is as an important mechanism of flooding within Rhondda Cynon Taf as is flooding from main rivers. However, it is appreciated that it is not the source of flooding that is of importance to those affected, but the effects. This Strategy therefore sets out how RCTCBC will work collaboratively with other key stakeholders to input into the management of all sources of flood risk and ensure that investment decisions are made according to levels of risk.

Measures within this Strategy outline how RCTCBC will attempt to gain a better understanding of the risks of flooding. By using modern modelling software it is possible to determine properties that are at risk from flooding, or are likely to be at risk of flooding in the future. It is appreciated that householders may have concerns about using models to determine areas of flood risk, but they are a significant and important tool in ensuring that limited resources are used in an effective manner to target flood risk measures to areas at the highest risk.

This Flood Risk Management Strategy presents Rhondda Cynon Taf County Borough Council's preferred methodology for dealing with flood risk and ensuring that communities, infrastructure and the wider environment are more resilient to the impacts of flooding and climate change.

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Councillor Andrew Morgan
Cabinet Member for Frontline Services

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GLOSSARY OF ACRONYMS

CAMS	Catchment Abstraction Management Strategy
CCW	Countryside Council for Wales *
CFMP	Catchment Flood Management Plan
CSO	Combined Sewer Overflows
DCWW	Dwr Cymru Welsh Water
DEFRA`	Department for Environment. Food and Rural Affairs
EA	Environment Agency *
FAWMA	Flood and Water Management Act 2010
HRA	Habitats Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
LDP	Local Development Plan
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserves
NFRMS	National Flood Risk Management Strategy
NRW	Natural Resources Wales
ODPM	Office of the Deputy Prime Minister
OWC	Ordinary Watercourse
PFRA	Preliminary Flood Risk Assessment
RCT	Rhondda Cynon Taf
RCTCBC	Rhondda Cynon Taf County Borough Council
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SINC	Sites of Importance for Nature Conservation
SLAs	Special Landscape Areas
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable Urban Drainage Systems
TAN	Technical Advice Note
WCH	Wales Centre for Health
WFD	Water Framework Directive
WIMD	Welsh Index of Multiple Deprivation
*	EA, CCW and the Forestry Commission were precursors to Natural Resources Wales

1.0 INTRODUCTION

Flooding can have serious consequences including loss of life, damage to the economy, social implications and environmental damage. Climate change is predicted to increase the frequency and the intensity of flooding, increasing the risk in Rhondda Cynon Taff (RCT) and across the UK. Though flooding is an inevitable natural process, through careful management and by implementing this Local Flood Risk Management Strategy (LFRMS), the probability of flooding along with its impact can be reduced.

Local flooding in particular, defined as flooding from surface water, ground water and ordinary watercourses, such as small rivers, ditches and streams, has become more frequent in recent years. Flood risk management was previously the responsibility of the Environment Agency (one of the precursors to Natural Resources Wales), focusing primarily on river and tidal flooding and did not adequately deal with local flooding; this LFRMS addresses this discrepancy and will become an important new tool to help understand and manage local flood risk within the County Borough.

1.1 Local Flood Risk Management Strategy

A two-tiered approach to flood risk management has now been applied in Wales, where main river and tidal flooding is managed by the Natural Resources Wales and local flooding is devolved to a local level through the creation of Lead Local Flood Authorities (LLFAs). LLFAs are required to develop, maintain, apply and monitor the LFRMS for their particular territory and publish a summary of the strategy. In RCT, the LFRMS has been assigned to the Land Reclamation & Engineering Section of the Environmental Services Group.

This LFRMS is required to define who the Risk Management Authorities are, what their function is and what their responsibilities are. It will undergo consultation with the public and any Risk Management Authorities that may be affected by the Local Strategy. It also must be consistent with the National Strategy for flood and Coastal Erosion Management; this has been achieved by working within the 4 objectives of the National Strategy (refer to Section 6.0).

There has been a shift from the traditional approach of constructing defences to the risk based management of flood risk. Simply constructing bigger and better defences is not always a sustainable option; the location of defences can have a detrimental effect on the wider environment, they are becoming more expensive to construct and maintain and leave communities with less finances.

In the "National Strategy for Flood and Coastal Erosion Risk Management in Wales" by the Welsh Government, reference is made to both "Foresight: Future Flooding Study" and the "Stern Review on the Economics of Climate Change". Both of these papers recommend a move towards flood risk management, which goes further than defence alone.

The LFRMS adopts a holistic approach to flood risk management, taking into account the geographical, socio-economic and political factors in RCT. It enables effective management of local flooding by improving collaboration and co-operation between key stakeholders. It will improve communication and present information to the public with regard to the risk of flooding and what can be done, regardless of its cause (from main rivers or local flooding). This will allow communities to have a greater say in flood management decisions. The benefits associated with the LFRMS are reiterated in Figure 1:

"In combination with the National Strategy, the Local Strategies will encourage more effective risk management by enabling people, communities, business and the public sector to work together to:

- *ensure a clear understanding of the risks of flooding and erosion, nationally and locally, so that investment in risk management can be prioritised more effectively;*
- *set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of residual risk;*
- *encourage innovative land management of flood and coastal erosion risks, taking account of the needs of communities and the environment;*
- *form links between the local flood risk management strategy and local spatial planning;*
- *ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond properly to flood warnings; and*
- *to help communities to recover more quickly and effectively after incidents".*

Local Flood Risk Management Strategies, Welsh Government

Figure 1 - Extract from Local Flood Risk Management Strategies, Welsh Government

1.2 Structure of the Local Strategy

In Section 2, the LFRMS begins by briefly summarising the domestic legislation that underpins local flood risk management. In Section 3, the geography of RCT is summarised, including the social and political background of the County Borough along with the physical location and designated sites. An assessment of the nature and level of flood risk in RCT is then presented in Section 4.

It is of great importance that the organisations involved in flood risk management can work well together and with the public. In Section 5, Risk Management Authorities, internal stakeholders and external stakeholders are listed with their contact details and the flood risk management functions that may be exercised by those authorities or stakeholders is described. Section 5 also includes the powers and responsibilities of homeowners and businesses.

In Section 6 the strategic and detailed objectives of this strategy can be found followed by measures proposed to achieve these objectives in Section 7. The Costs and Benefits of these measures are then analysed in Section 8.

In Section 9, the contribution the LFRMS has to wider environmental objectives is analysed and finally in Section 10, details of the review process are to be found. This Strategy does not state or detail specific projects to commence in the future. It will, however, state strategic actions along with principles to aid decision making for flood alleviation schemes in the future. In the coming years there will be significant changes to the planning system, the flood insurance sector as well as developments in funding and design of flood alleviation schemes. LLFAs will become responsible for both approving the original design of the SuDS and adopting and maintaining the finished system. The consenting of works in ordinary watercourses is also transferred to LLFAs from the former Environment Agency. In addition to this, it is likely that there will also be improvements in flood warning, prediction and knowledge of areas most at risk. Revisions or supplements may be required prior to the next scheduled review to account for these reasons.

2.0 LEGISLATIVE CONTEXT

The Flood Risk Regulations (2009) translates the EU Floods Directive into domestic law. The Regulations requires 'Preliminary Flood Risk Assessments' (PFRAs) to be produced to identify areas that have significant risk of local flooding. In RCT, the 'flood risk area' covers 50% of the total land area; this is the largest total flood risk area in Wales. The regulations require the production of 'Hazard and Risk Maps' and 'Flood Management Plans' for the areas highlighted from the PFRA. It is important to note that the LFRMS will look at all local flood risk, not just the areas highlighted by the PFRA.

The Flood and Water Management Act 2010 (herein referred to as the Act) implemented many of the recommendations from Sir Michael Pitt's Review of the widespread 2007 floods in the UK. It provides legislation for the sustainable management of risks associated with flooding and coastal erosion. It required a National Flood Risk Management Strategy to be written for Wales and also defines 'Risk Management Authorities' (see Section 5) and LLFAs. Under the Act, RCT became a LLFA and was given a set of new responsibilities for co-ordinating the management of local flood risk including: -

- The preparation of local flood risk management strategies;
- A duty to comply with the National Strategy;
- To co-operate with other authorities, including sharing data;
- A duty to investigate all flooding within its area, insofar as a LLFA consider it necessary or appropriate;
- A duty to maintain a register of structures and features likely to affect flood risk; and
- A duty to contribute to sustainable development.

Along with these duties, each LLFA has a number of permissive (or optional) powers, including: -

- Powers to request information;
- Powers to designate certain structures or features that affect flood or coastal erosion risk;
- The expansion of powers to undertake works to include broader risk management actions; and
- The ability to cause flooding or coastal erosion under certain conditions.

Flood Risk Management is affected by a range of guidance and legislation. Some of these include:

- The Climate Change Act (2008)
- The Conservation of Habitats and Species Regulations (2010)
- The Civil Contingencies Act (2004)
- Strategic Environmental Assessment (SEA) Directive (2001/42/EC)
- The Land Drainage Act (1991)
- The Water Framework Directive (2007)
- The Wildlife and Countryside Act (1981)
- Countryside and Rights of Way (CROW) Act (2000)
- The Public Health Act (1936)

3.0 SUMMARY OF RHONDDA CYNON TAF

Guidance from the Welsh assembly states that the LFRMS should "balance the needs of communities, the economy and the environment" and should "appreciate differing economic, social, political and geographical factors that affect decision making in Local Authorities". To ensure these requirements are met, a desktop assessment has been conducted of relevant issues. A more detailed analysis of social, economic and environmental factors in RCT can be found in the LFRMS Environmental Report.

3.1 Location of Rhondda Cynon Taf

The LFRMS will encompass the administrative boundary of RCTCBC as indicated in Figure 2.

This area is approximately 424km^2 with a population of 234,000 (mid 2010).

The area falls across the Taff and Ely catchment area that includes the catchments of the river Taff, Ely, Rhondda, Cynon and Clun.

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.

3.2 Social, Economic and Political Background

Flood risk is affected by changes in population levels, wealth and settlement patterns. In RCT, the population in 2010 was 234,000 and is expected to grow 5.1% from 2008 to 2033 (taken from ONS projections). Although the predicted increase is less than that of Wales and the Region, this increase in population could increase flood risk if not managed adequately and has therefore been considered in this LFRMS.

An increasing population, increased life expectancy and a growing number of one-person households is predicted to increase the number of houses required in RCT. Long term housing projections for RCT, the region and Wales can be found in Table 1.

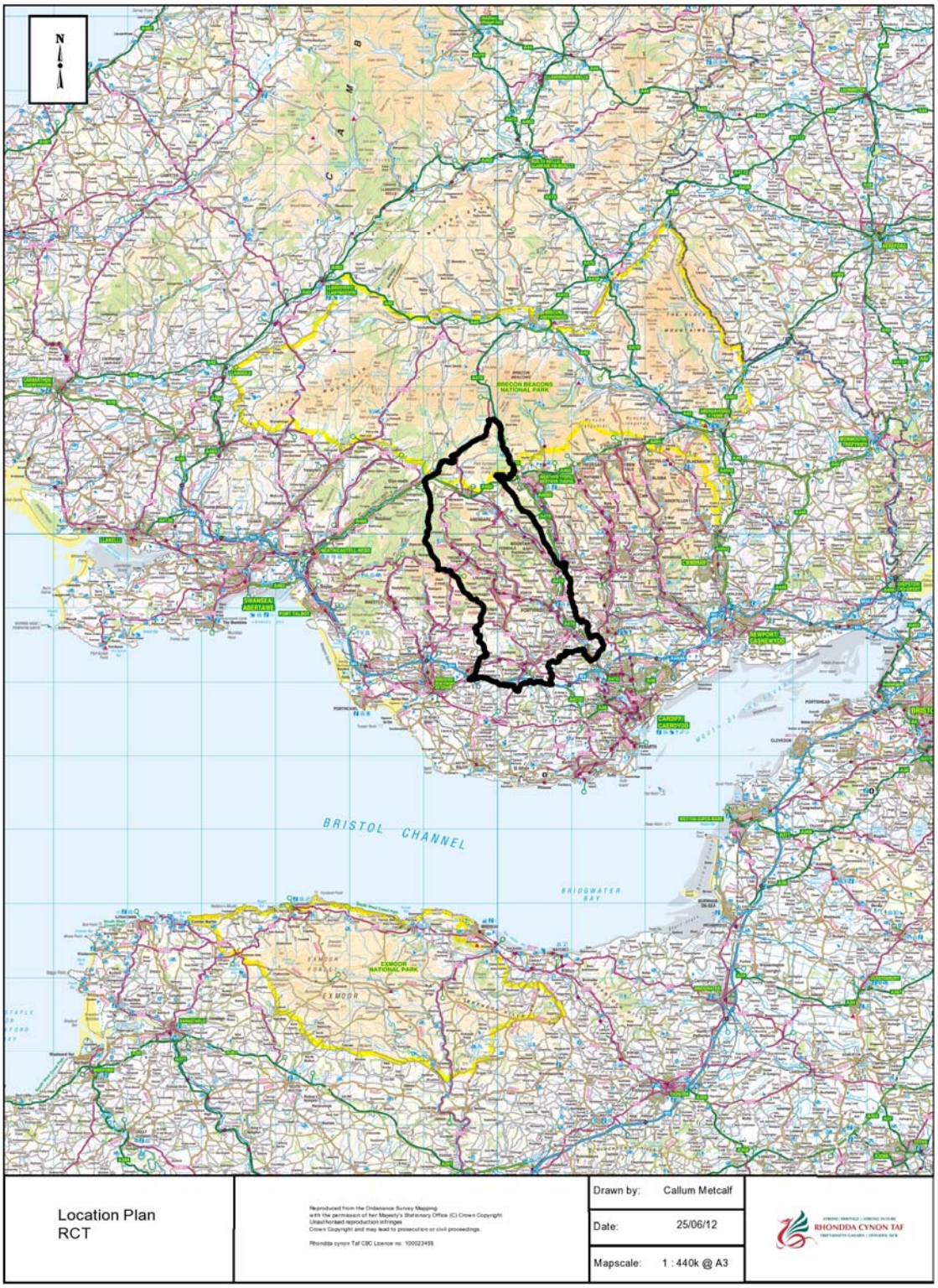

Figure 2 - Administrative Boundary of RCT
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Table 1 - 2006 Long Term Housing Projections in RCT, the region and Wales

Area	2006	2011	2016	2021	2026	% change
RCT	97,916	102,429	107,279	111,644	115,488	18%
S.E. Wales	602,900	633,500	665,200	692,600	713,400	18%
Wales	1,274,900	1,332,300	1,390,800	1,441,300	1,478,500	16%

Source: www.statswales.wales.gov.uk

Future housing projections have been used in the development of the RCT Local Development Plan (LDP) up to 2021. This includes proposals for significant new areas of housing, employment and commercial development.

In comparison to the national statistic RCT has a relatively high population density. A high population density results in a higher risk; when a flood strikes more people are affected and an increased pressure is put on the Local Flood Risk Authorities.

Consideration has also been made to the wealth and economy in RCT. Poorer communities are often more affected by the fiscal implications of flooding. Table 2 compares percentage employment rates in RCT over the last decade.

Table 2 - Annual Employment Rates (age 16 to 64)

	% Employment				
Area	2001	2008	2009	2010	*2011*
RCT	*61.9*	*67.4*	*63.0*	*63.6*	*62.2*
Wales	*67.1*	*69.0*	*66.9*	*66.6*	*66.2*

Source: www.statswales.wales.gov.uk

3.3 Environmental Background

Figure 3 presents the location of statutory designated sites within RCT. Table 3 that follows lists more definitively the statutory designated sites and the number of sites located in RCT.

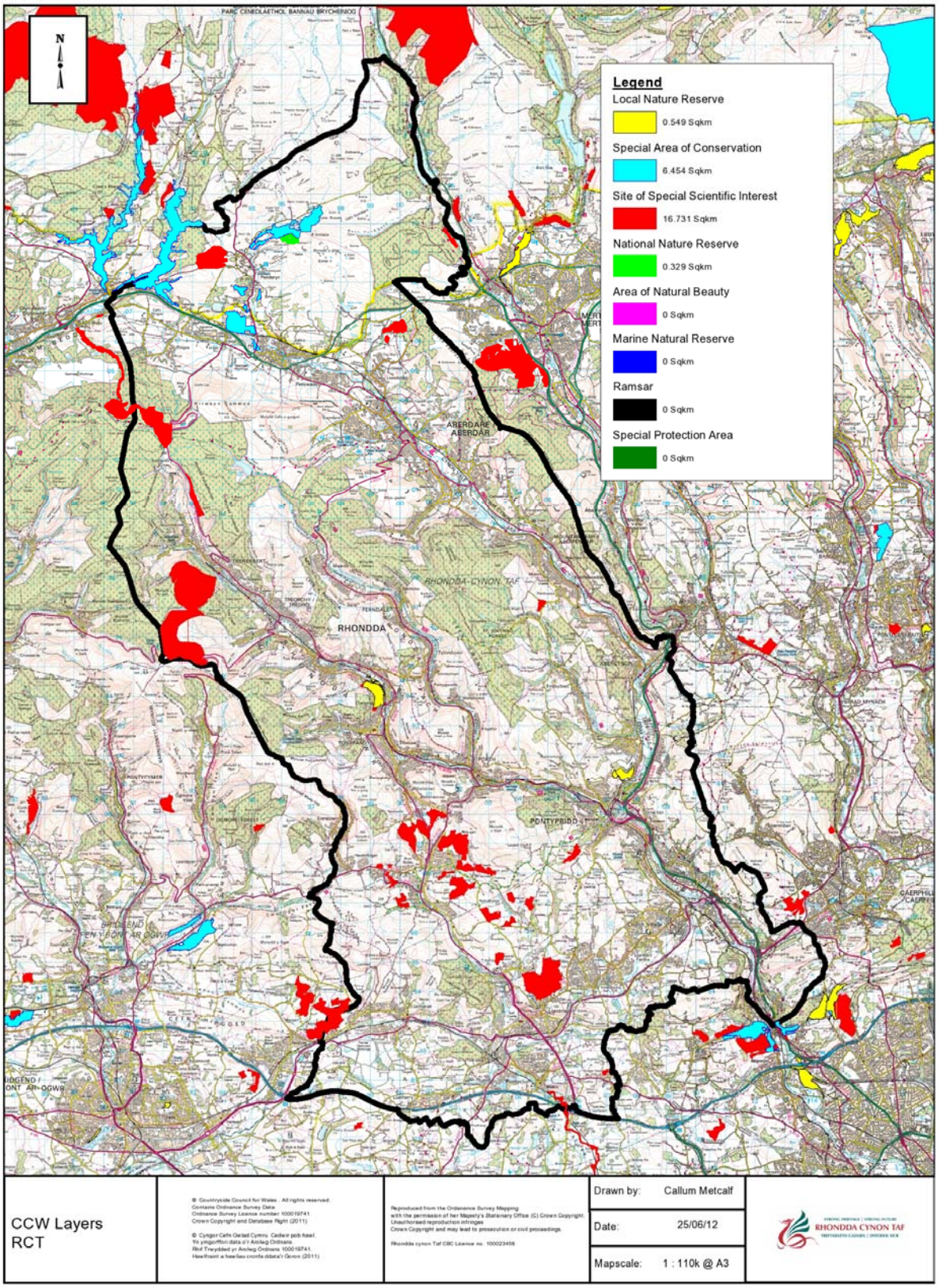

Figure 3 - Statutory Designated Sites in RCT
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Table 3 - Numbers of designated sites

Type of Designation	Number of sites in RCT
Special Area of Conservation (SAC)	3
Sites of Special Scientific Interest (SSSI)	14
Sites of Importance for Nature Conservation (SINC)	183
Special Historic Landscapes	2
Local Nature Reserve	2
National Nature Reserve	1
Wildlife Trust for South Wales and West Wales Nature Reserves	3
Historic Parks and Gardens	5
Regionally Important Geological Sites	44
Listed buildings	366
Designated scheduled Ancient Monuments	86
Special Landscape Areas (SLAs)	20

4.0 FLOOD RISK IN RHONDDA CYNON TAF

Preliminary Flood Risk Assessments (PFRAs) were completed by all LLFAs as required by the Flood Risk Regulations (2009). It provides a high level overview of flood risk from local sources within the County Borough. Historic records of local flooding were utilised to assess flood risk; almost 12,000 flood incidents have been collated in RCT from local sources.

The PFRA process also identifies 'Flood Risk Areas' defined by key risk indicators and threshold values as laid out by the Welsh Government. Eight Flood Risk Areas have been defined in Wales, one of which falls within RCT. This Flood Risk Area covers approximately 50% of RCT (largely encompassing the valley bottoms) and affects approximately 38,000 people, 2890 non-residential properties and 96 pieces of critical infrastructure.

4.1 History of Flooding

Table 4 separates flooding into surface water flooding, groundwater flooding and sewer flooding, and states the nature of the records collated.

Table 4 - History of flooding in RCT from groundwater, surface water and sewer water.

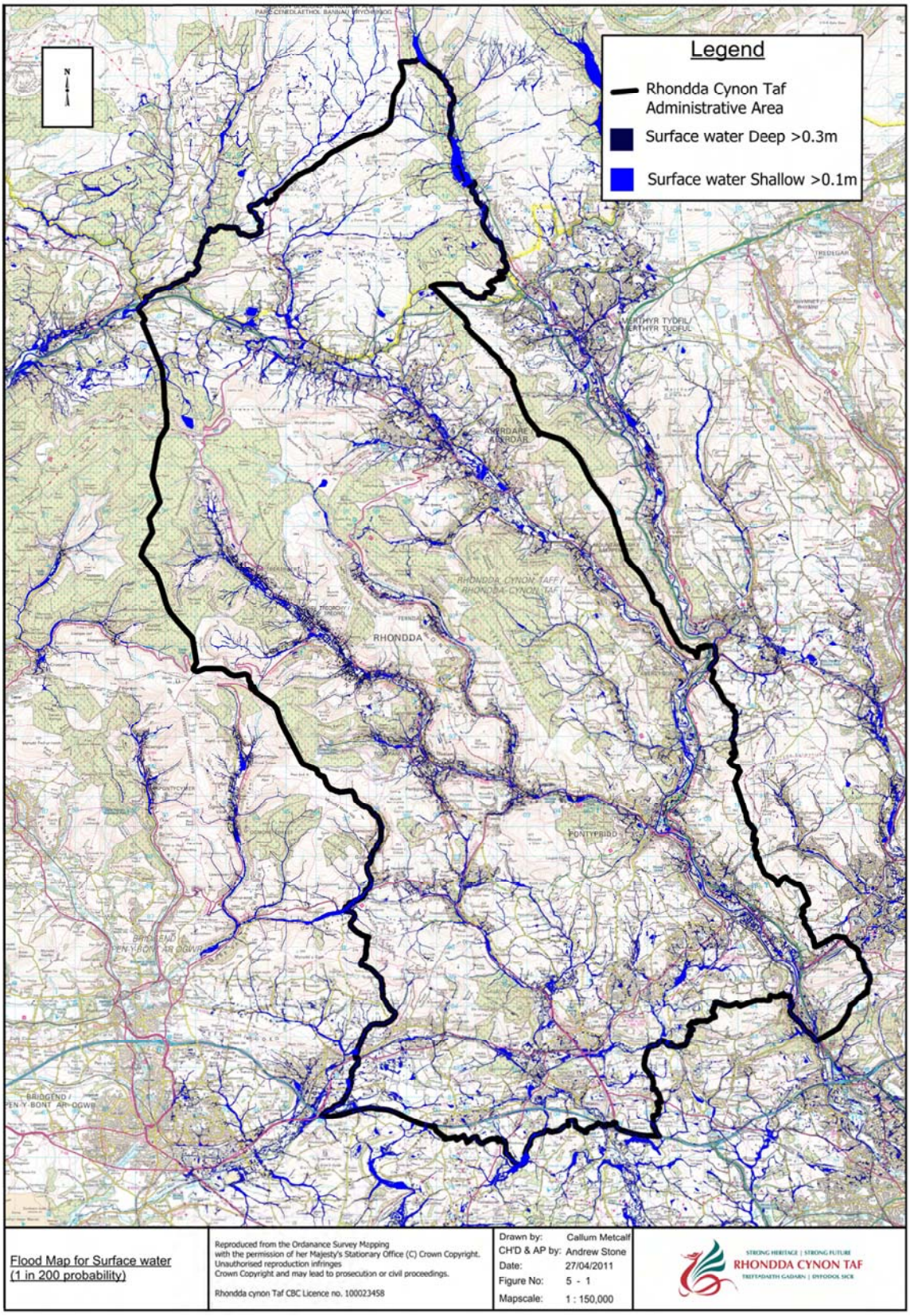
Type of flooding	Cause of flooding	Recorded Incidents in RCT
Surface water flooding (including Surface Runoff and OWC)	When rainfall exceeds the capacity of local drainage networks and water flows across the ground or water cannot enter the surface of the ground but has not yet entered a watercourse, drainage system or public sewer.	**RCTCBC Incidents (over last 10 years)** Internal Flooding 914 External Flooding 483 Highway Flooding 2215 Gullies and Drains 7650 **Fire & Rescue (over last 4 years)** Fire and rescue 412
Groundwater flooding	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.	There is little documented evidence of this kind of flooding in RCT.
Sewer flooding	Where excess surface water enters the network.	Welsh Water at risk sewers - 279

4.2 Assessment of Future Local Flood Risk

Table 5 below summarises information from the PFRA report in with regard to flood risk in RCT. Flood risk has been separated into surface, groundwater and sewer flooding.

Table 5 - Assessment of Flood Risk

Type of flooding	Assessment of Flood Risk in RCT
Surface water flooding	An overview on future surface water flood risk showed potentially 21,000 homes have a greater than 1 in 200 chance of flooding to a depth >0.3m. Figure 4 shows the areas that may be susceptible to flooding and Figure 5 gives an indication to a resolution of 1km^2 of the higher risk areas. Both figures are extracted from the PFRA which gives more detail on their derivation.
Groundwater flooding	There is no local information available which provides evidence on groundwater flood risk across Rhondda Cynon Taf. The former Environment Agency's national dataset '*areas susceptible to groundwater flooding'* indicates that RCT has certain areas which are at high risk of groundwater flooding. Figure 6 gives areas predicted to be susceptible to groundwater flooding. The figure has been extracted from the PFRA which gives more detail to its derivation.
Sewer flooding	It was found there are 279 sewers are currently at risk of flooding that have been recorded by Welsh Water. Of these, 93 had a 1 in 20 chance or greater of flooding.



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Contains the former Environment Agency information © Environment Agency and database right

Figure 4 - Flood Map for Surface Water (1 in 200 Probability)

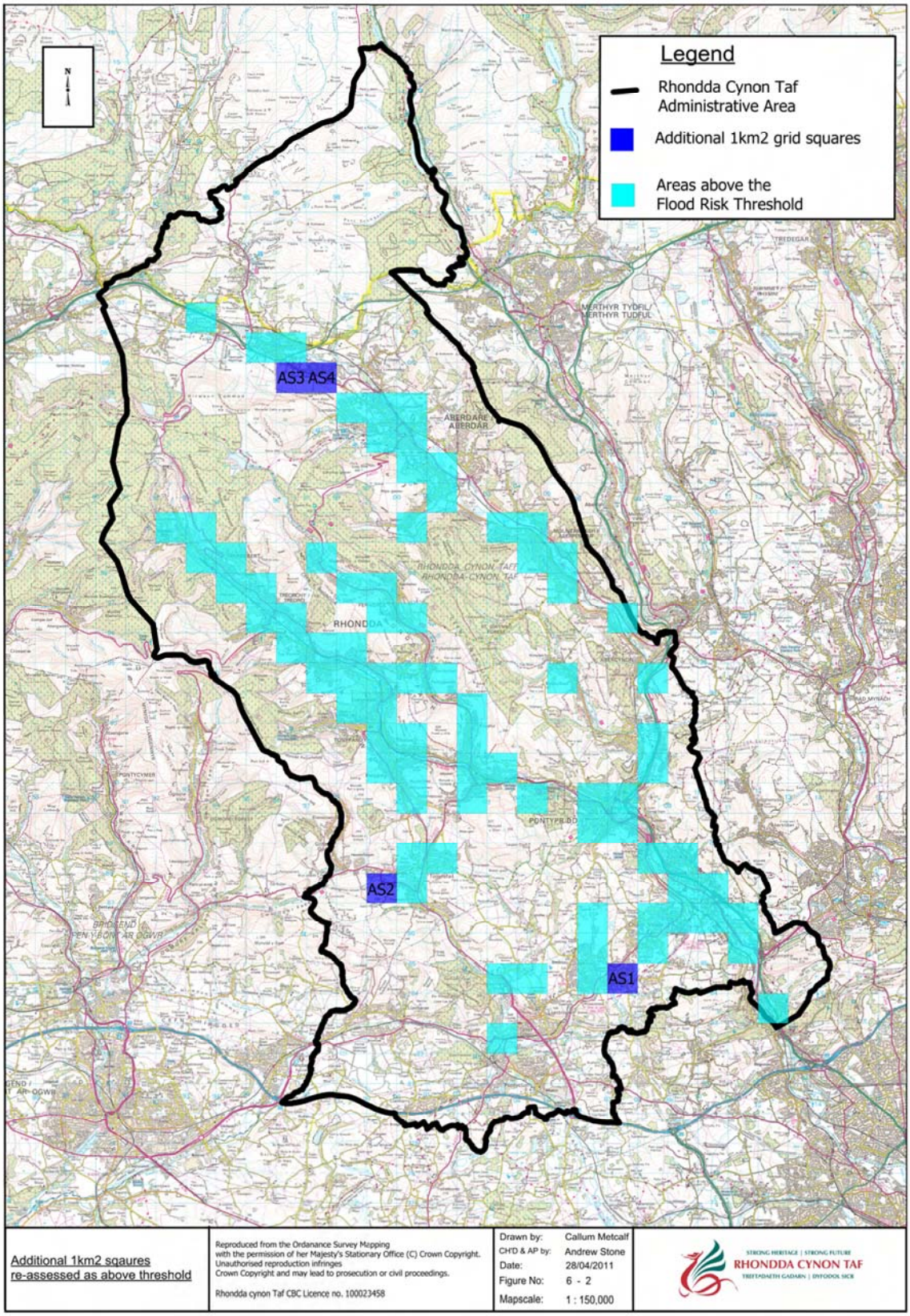

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Figure 5 - 1km^2 indicated as having a High Flood Risk in PFRA (Blue Squares)

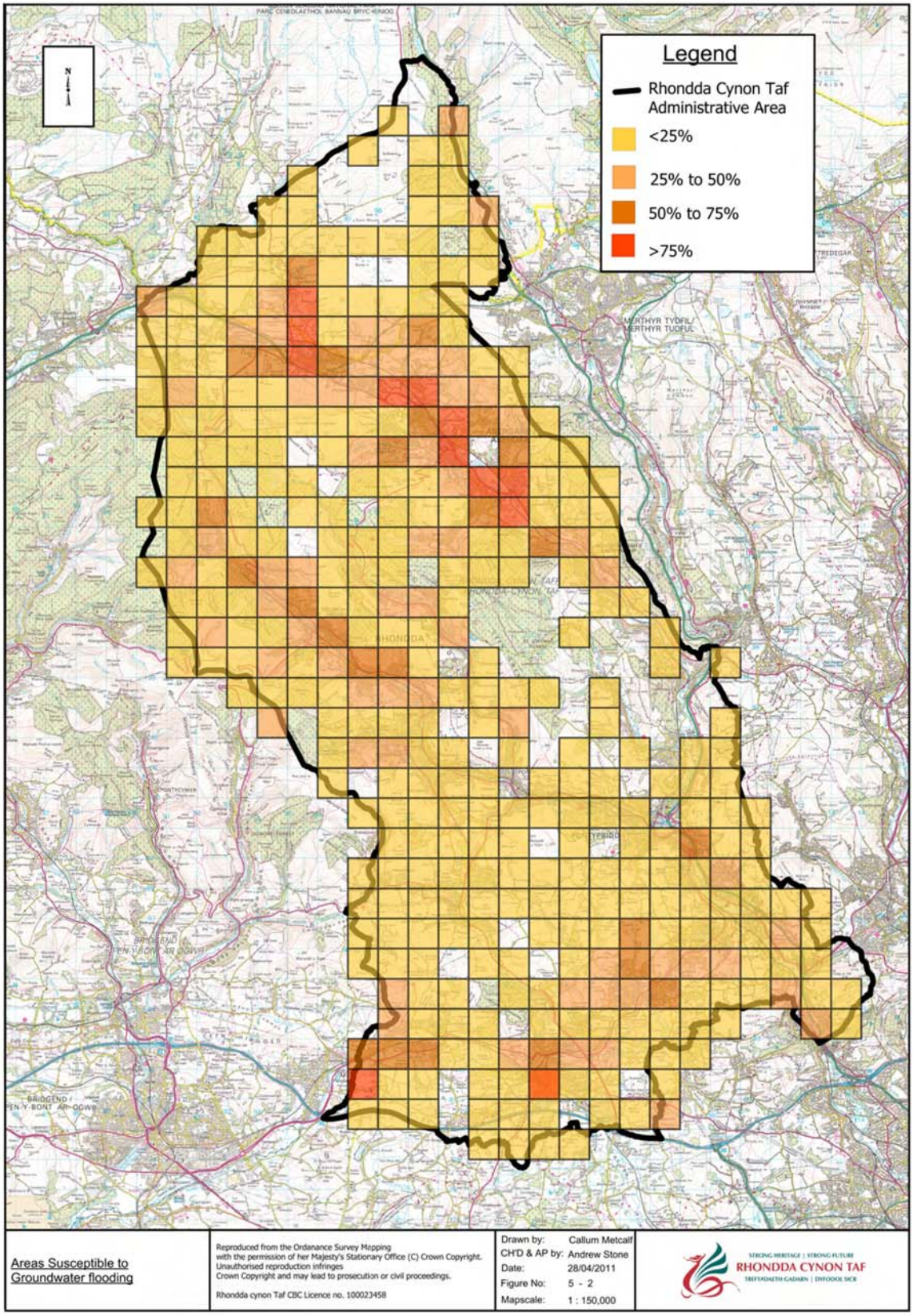

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Figure 6 - Areas Susceptible to Groundwater Flooding

5.0 RISK MANAGEMENT AUTHORITIES AND ADDITIONAL STAKEHOLDERS

Risk Management Authorities and additional stakeholders are listed in this Section, followed by an explanation of their powers with regard to managing flood risk in Rhondda Cynon Taf. Flood risk management should not be left solely to certain organisations; collaboration of all stakeholders, including residents and businesses is required to manage flood risk. It is therefore vital that stakeholders know of what they can do along with what they are expected to do to help manage flood risk.

5.1 The Risk Management Authorities

The Act states that the LFRMS must specify risk management authorities. 'Risk Management Authorities' are certain organisations which have responsibilities around flooding, both new ones from the Flood and Water Management and longstanding ones from previous legislation.

5.1.1 Natural Resources Wales

Natural Resources Wales Head Office

Cambria House
29 Newport Road
Cardiff
CF24 0TP

South East Area Office

South East Area Office
Rivers House
St Mellons Business Park
St Mellons
Cardiff
CF3 0EY

Tel No: 08708 506506

Floodline

Tel No: 0845 988 1188 (24 hour service)
Type Talk: 0845 602 6340

5.1.2 The Lead Local Flood Authority

Rhondda Cynon Taf County Borough Council

Headquarters
The Pavilions
Cambrian Park
Clydach Vale
Tonypandy
CF40 2XX

Rhondda Cynon Taf County Borough Council

Land Reclamation & Engineering
Sardis House
Sardis Road
Pontypridd
CF37 1DU

Tel No: 01443 494809
Email: FRM@rctcbc.gov.uk
Website: http://www.rctcbc.gov.uk/en/home.aspx

5.1.3 Water Company - Dŵr Cymru – Welsh Water

Welsh Water
Pentwyn Road
Nelson
Treharris
Mid Glamorgan
CF46 6LY

Head Office Tel No: 01443 452300
Customer Services: 0800 052 0140
Website: www.dwrcymru.co.uk

5.2 Additional Stakeholders - Internal Partners

It is important to recognise the aside from the 'Risk Management Authorities', the contribution of internal partners will be key. The key internal stakeholders in RCTCBC are:-

- Spatial Planning Department
- Development Control
- Highways Infrastructure
- Streetcare
- Emergency Planning
- Countryside
- Public Health & Protection
- Building Control
- ICT
- Corporate Estates
- Customer Services

5.3 Additional Stakeholders - External Partners

The engagement of external stakeholders is also of great importance. External stakeholders that could contribute to flood risk management in RCT are:-

- Flood Risk Management Wales (The Regional Flood and Coastal Committee [RFCC] in Wales)
- Emergency services
- Network Rail
- SWTRA – South Wales Trunk Road Agency
- CADW
- National Farmers Union
- Local Partnerships, forums and community groups
- Association of British Insurers
- Utility providers
- Land Owners/Estate Owners/Riparian Owners
- Country, Land and Business Association
- South East Wales Flood Risk Management Group (SEWFRMG)
- Housing Associations
- Natural Resources Wales (formerly Countryside Council for Wales, Forestry Commission Wales and Environment Agency)
- Brecon Beacons Park Authority
- National Flood Forum
- Local Resilience Forum
- SuDS Working Group for Wales
- Cardiff University/Cardiff Metropolitan University/University of Glamorgan
- Association of Drainage Authorities
- Professional Institutions

5.4 Powers and Responsibilities of Risk Management Authorities

All of the Risk Management Authorities have the following duties and power:

- Duty to be subject to scrutiny from lead local flood authorities' democratic processes.
- Duty to co-operate with other risk management authorities in the exercise of their flood and coastal erosion risk management functions, including sharing flood risk management data.
- Power to take on flood and coastal erosion functions from another risk management authority when agreed by both sides.
- Duty to be subject to scrutiny from the Lead Local Flood Authorities' democratic processes. The key committee is the Safer and Stronger Communities Policy and Scrutiny Committee.
- Duty to inform their own Cabinets and Committees about the progress and implications of flood risk management work in the area.

Co-operation with other risk management authorities includes the following:

- Discuss with other risk management authorities before designating structures and features to ensure consistency
- Report flood assets, as defined by agreed criteria, as and when they are revealed to officers
- Assist with Flood Investigation Reports where required
- Provide local knowledge to SuDS Approval Officers regarding applications in their area.
- Ensure that members of the public who are trying to contact another organisation are swiftly put through to the appropriate organisation
- Easy sharing of information and data

This list is not exhaustive but if there is any dispute about whether an activity can reasonably be expected from a Flood Risk Management Authority, the issue will be brought to 'Flood Risk Management Wales' (the RFCC).

5.4.1 Natural Resources Wales

Historically the Environment Agency (precursor to Natural Resources Wales) led on the management of the risks of flooding from main rivers and the sea. However, as a consequence of the Flood and Water Management Act 2010 certain changes have been made to their role and remit. In addition to flooding from rivers and the sea, Natural Resources Wales has new operational responsibilities in relation to coastal erosion and a wider oversight role for all flood and coastal erosion risk management in Wales.

This change means that Natural Resources Wales has a dual role:-

1 Operational responsibilities for flooding from main rivers, the sea and coastal erosion.

2 Oversight responsibilities in relation to all flood and coastal erosion risk management in Wales

The oversight change is integral to the delivery of national policy on flooding and coastal erosion risk management and has been taken forward to ensure that Natural Resources Wales has the remit to support the Welsh Government across the full range of flood and coastal erosion risks affecting Wales.

As part of their oversight role, Natural Resources Wales will lead on the provision of technical advice and support to other Risk Management Authorities. They will also lead on national initiatives such as Flood Awareness Wales, the national raising awareness programme, and be the single point of contact for enquiries and information on flood risk, currently being piloted via their new Floodline warning service.

The Flood and Water Management Act 2010 places a number of statutory duties on Natural Resources Wales including:

1 Co-operating with other authorities, including sharing data;
2 Reporting to the Minister on flood and coastal erosion risk in Wales including the application of the National Strategy; and
3 The establishment of Regional Flood and Coastal Committees.

In addition to their statutory duties, Natural Resources Wales has a number of what are called permissive powers. These are powers that allow them to do something, but do not compel them to and include:

1 Powers to request information
2 The ability to raise levies for local flood risk management works, via the Regional Flood and Coastal Committees
3 Powers to designate certain structures or features that affect flood or coastal erosion risk
4 The expansion of powers to undertake works to include broader risk management actions; and
5 The ability to cause flooding or coastal erosion under certain conditions.

This new allocation of responsibilities is also consistent with Natural Resources Wales' role in relation to the Flood Risk Regulations 2009, which allocates specific responsibility for conducting assessments in relation to mapping and planning the risks of flooding from main rivers, the sea and reservoirs to Natural Resources Wales, as well as providing guidance to Local Authorities on these matters for flooding from other sources.

Under the Regulations, Natural Resources Wales also takes on an assessment and coordination role at a national level, ensuring the correct information is passed back to the European Commission.

5.4.2 The Lead Local Flood Authority – Rhondda Cynon Taf County Borough Council

Within the Flood and Water Management Act 2010, Rhondda Cynon Taf County Borough Council has been established as the Lead Local Flood Risk Authority for its administrative area.

As defined in the Flood and Water Management Act 2010, RCT is responsible for managing what is termed, its 'local flood risk'. This includes the risk of flooding from ordinary watercourses, surface runoff and groundwater.

Local Authorities have always had certain responsibilities in relation to ordinary watercourses, and in practice most Local Authorities took the lead in dealing with surface water flooding incidents prior to the changes contained within the Flood and Water Management 2010. This is, however, the first time responsibility for the risk of flooding from surface runoff has been allocated to any body in law.

The Flood and Water Management Act 2010 places a number of statutory duties on Local Authorities in their new role as LLFAs including:

1 The preparation of local flood risk management strategies
2 A duty to comply with the National Strategy
3 To co-operate with other authorities, including sharing data
4 A duty to investigate all flooding within its area, insofar as a LLFA consider it necessary or appropriate
5 A duty to maintain a register of structures and features likely to affect flood risk;
6 A duty to contribute to sustainable development; and
7 Consenting powers on ordinary watercourses.

In addition to these each LLFA has a number of what are called permissive powers. These are powers that allow them to do something, but do not compel them to and include:

1 Powers to request information;
2 Powers to designate certain structures or features that affect flood or coastal erosion risk;
3 The expansion of powers to undertake works to include broader risk management actions; and
4 The ability to cause flooding or coastal erosion under certain conditions.

LLFA in Wales will also take on the role of the SuDS Adopting and Approving Body in relation to sustainable drainage systems. In this role they will be responsible for both approving the original design of the SuDS and adopting and maintaining the finished system.

5.4.3 Water Company - Dŵr Cymru

Water companies, when exercising their flood or coastal erosion risk management functions in relation to an area within Wales, must have regard to the relevant Local Strategies and any associated guidance.

Water and sewerage companies are responsible not only for the provision of water, but also for making appropriate arrangements for the drainage of foul water, the treatment of waste, surface water sewers and combined sewers. They have primary responsibility for floods from water and sewerage systems, which can include sewer flooding, burst pipes or water mains or floods caused by system failures.

No changes have been made to the operational arrangements for water and sewerage companies in respect of flood risk.

The Flood and Water Management Act 2010 places a number of statutory duties on Water and Sewerage Companies including:

1 A duty to act consistently with the National Strategy;
2 A duty to have regard to the content of the relevant Local Strategy; and
3 Co-operation with other Authorities, including sharing data.

Water and sewerage companies often hold valuable information which could greatly aid the understanding of flood risks faced by communities across Wales.

6.0 OBJECTIVES FOR MANAGING FLOOD RISK

6.1 Summary

RCTCBC have developed a series of flood risk management objectives which outline, at a high-level, how the Authority intends to manage flood risk within the life of this particular strategy cycle.

As mentioned previously, the LFRMS must be consistent with the National Strategy for Wales. The National Strategy has the following four overarching objectives, shown below in Figure 7.

Figure 7 - Extract from National Strategy for Flood and Coastal Risk Management

"Objectives for Managing Flood and Coastal Risk":

- ***Reducing the consequences for individuals, communities, businesses and the environment from flooding and Coastal Erosion***
- ***Raising awareness of and engaging people in the response to flood and coastal erosion risk***
- ***Providing an effective and sustained response to flood and coastal erosion events***
- ***Prioritising investment in the most at risk communities"***

National Strategy for Flood and Coastal Erosion Risk Management in Wales, Welsh Government (2011)

6.2 High Level Strategic Position

At the highest flood risk management level, there are essentially four strategic options: -

1. **Do Nothing** - acknowledging that flood risk will increase with climate change, increasing the risk of social, economic and environmental damage;
2. **Maintain Flood Risk Management at Current Levels** - acknowledging the social, economic and environmental risks;
3. **Maintain Current Level of Flooding by Improving Flood Risk Management** - keep at pace with climate change by improving flood risk management to maintain current level of protection; or
4. **Reduce the Consequences of Flood Risk** - take action to reduce social, environmental and economic damage due to flooding.

In order to act in accordance with the requirements stated in the National Strategy, RCT County Borough Councils high level strategy decision is option 4, to **'Reduce the Consequences of Flood Risk'**.

6.3 Core Objectives of the RCT LFRMS

As an attempt to summarise RCTCBC's strategic position with regard to the management of flood risk, four *core objectives* have been developed:-

1. **To utilise a risk based approach to managing flood risk, recognising that drainage and structural defences may not always be the most appropriate solution.**

2. **To develop a greater strategic understanding of flood risk from all sources within RCT and at a wider 'catchment scale.**

3. **To raise community awareness of, and actively engage communities in the response to flood risk.**

4. **Use of local planning policy to ensure that no new flood risk is created and where possible, opportunities to reduce flood risk are taken.**

6.4 Detailed Objectives of the RCT LFRMS

The four core flood risk management objectives will be delivered through a series of detailed objectives. These detailed objectives have due regard principally to the following higher tier strategies:

- *National Strategy for Flood and Coastal Erosion Risk Management in Wales* (Welsh Government, 2011);

- *Live. Grow. Aspire. Achieve. 2010-2020 Rhonnda Cynon Taf Community Strategy* (Rhondda Cynon Taf County Borough Council, 2010).

Additionally, detailed objectives attempt to embed sustainable development principles with the aim of enhancing the social, economic and environmental wellbeing of people and communities within RCT.

Table 6 presents RCTCBC's core flood risk management objectives and their relationship to the detailed objectives by which they will be delivered. Table 7 highlights the inter-relationship between detailed objectives and the aforementioned overarching strategies.

Table 6 – RCTCBC Core & Detailed Flood Risk Management Objectives

RCTCBC Core Objectives				RCTCBC Detailed Objective
1) Risk Based Approach	2) Develop Understanding	3) Raise Awareness	4) Planning Policy	
■			■	1 Reduce distress by decreasing the population exposed to flood risk.
■			■	2 Reduce community disruption by reducing the amount of residential and commercial property exposed to flood risk.
■			■	3 Reduce risk to life by reducing the number of people exposed to risk of flooding of significant depth and velocity.
■				4 Reduce disruption to critical infrastructure or support the preparation of plans to allow their operation to be maintained.
■				5 Improve or not detrimentally affect water quality
■				6 Where possible, improve naturalness - reducing modifications to channels, water bodies and, where appropriate, create or enhance natural floodplain storage linked to nature conservation and landscape initiatives.
■				7 Ensure projects are designed and constructed in a sustainable way.
■				8 Maintain, or where possible, improve the status of Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), Sites of Importance for Nature and Conservation (SINC) sites and contribute to the RCT biodiversity action plan.
■			■	9 Explore the potential benefits of reducing flood risk through the use of innovative land management techniques.
■		■		10 Provide clarity of stakeholder's responsibilities with regard to flooding and, where possible, seek to support stakeholders in carrying out their responsibilities.
	■			11 Develop a better understanding of the risks of flooding from surface runoff, groundwater and ordinary watercourses and plan how best to communicate and share information with communities and businesses on all forms of flooding.
■		■		12 Promote resilience at property/community level
		■		13 Ensure that emergency plans are prepared at local and community levels as required and that response to and recovery from flood incidents is effective.
	■			14 Ensure that RCT works in partnership with other Risk Partners and works collaboratively with adjacent authorities
■	■			15 Provide flood risk management plans for each area subject to flood risk.
■				16 Ensure that investment decisions for the implementation of flood risk management schemes are made on a consistent prioritised basis subject to cost benefit analysis.

Table 7 - RCT Objectives – comparison to NFRMS/RCTCBC Community Strategy/Sustainable Development objectives

RCTCBC Detailed Objective		National Flood Risk Management Strategy Objectives	RCTCBC Community Strategy Ambitions				Sustainable Development		
			Improve waste management	Improve housing conditions and access	Tackle basic environmental problems	Encourage public awareness and responsibility	Social	Economic	Environmental
1	Reduce distress….	Reducing consequences			✓		✓	✓	
2	Reduce community disruption….		✓	✓			✓	✓	
3	Reduce risk to life….				✓		✓		
4	Reduce disruption to critical infrastructure….		✓	✓			✓	✓	✓
5	Improve/no detriment to water quality….				✓		✓	✓	✓
6	Improve naturalness….			✓	✓				✓
7	Sustainable projects….		✓		✓		✓	✓	✓
8	Maintain/enhance SACs, SSSIs, etc….			✓	✓	✓	✓	✓	✓
9	Land management….			✓	✓		✓	✓	✓
10	Clarity of stakeholder responsibilities….	Raising awareness				✓	✓	✓	✓
11	Increased understanding of local flood risk….				✓	✓	✓	✓	
12	Property/community resilience….					✓	✓	✓	
13	Local and community emergency plans….	Provide effective response				✓	✓	✓	✓
14	Partnership working….		✓			✓	✓	✓	
15	Flood risk management plans….	Prioritising investment	✓	✓	✓	✓	✓	✓	✓
16	Prioritised investment….			✓	✓			✓	

7.0 ACTIONS AND MEASURES TO IMPROVE FLOOD RISK MANAGEMENT

7.1 Overview

The detailed objectives outlined in Section 6.0 will be delivered through the implementation of a wide range of measures which will be considered in the short (0-20 years), medium (20-50 years) and long term (50-100 years). The measures can be both structural and non-structural activities.

7.2 Themes

Measures will be categorised under the following seven high level themes:-

- development planning and adaptation (encompassing both new and adaptations to existing developments/landscapes);
- flood forecasting, warning and response;
- land, cultural and environmental management;
- asset management and maintenance;
- studies, assessments and plans;
- high level awareness and engagement (to increase individual and community resilience); and
- monitoring (of the local flood risk issue).

The following sections outline the proposed measures, categorising them according to the high level theme under which they sit.

7.3 Development Planning and Adaptation

MEASURE 1	Establish SuDS Approval Body
The Flood and Water Management Act 2010 assigns RCTCBC the role of a Sustainable Urban Drainage System (SuDS) Approval Body (SAB). A SAB will be responsible for: • assessing and approving the drainage design for all construction work which has drainage implications, and • adoption and maintenance of SuDS schemes which connect more than one property. The Welsh Government is at present developing National Standards for SuDS. RCTCBC will be reviewing this measure upon publication of the National Standards.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	New function with cost recovery – potential revenue implication
BENEFITS	• Reduction of runoff rates which will reduce downstream flooding; • Encourage natural groundwater recharge; • Enhancement of amenity, environmental and aesthetic value of open spaces
TIMESCALE	The legislation governing this measure has not yet been enacted, but is likely to be so during the lifetime of the LFRMS. This measure will be updated once the relevant legislation has been commenced.
LINK TO LFRMS OBJECTIVE	1, 2, 5, 6, 7, 8
LINK TO WG NFRMS	Sub-Objective 3 - *Approval and adoption of SuDS drainage systems by the SuDS Approving Body and Adopting Body*
DEPENDENCIES	Publication of National Standards for SuDS by the Welsh Government
LINK TO ACTION PLAN	**Action 3** – Establish SuDS Approval Body

MEASURE 2	Water Cycle Strategy
To bring together all the elements of the water cycle relevant to the development and infrastructure planning process. This would include: • water supply to meet current and future demands; • water management within existing developments; • water management in new developments; • waste water treatment and disposal; and • the impact of all of these on the movement of water through the catchment (including flood risk), water quality, natural hydrological processes and ecology.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• The study is a partnership document involving the planning authority, water company and Natural Resources Wales. Joint working ensures that the study provides benefits to all stakeholders. • Welsh Water benefits include timely input to water infrastructure planning regarding future development, strategic needs, environmental constraints, Water Framework Directive management requirements, reduced flood risk and enhanced water quality. • Natural Resources Wales benefits include a framework for water and nature conservation policy compliance, for detailed development control observations and Local Development Plan consideration. • Developers benefit from clear guidance regarding water efficiency targets, SuDS, infrastructure timescales and costs, and environmental constraints. • The public will benefit from reliable infrastructure for supply and water treatment, good planning for climate change and flood risk management and potential savings from a strategic approach. • For the Planning Authority evidence is provided for the Local Development Plan for site allocation and infrastructure planning and for implementation through development control, Community Infrastructure Levy / S106 etc.
TIMESCALE	RCTCBC LDP Review in 2015
LINK TO LFRMS OBJECTIVE	1, 2,3 ,4 ,5 ,6 ,7 ,8 ,9 ,10
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** – Flood Risk Management Plans & **Action 6** – LDP Review Process

MEASURE 3	Rhondda Cynon Taf Local Development Plan, Strategic Flood Consequences Assessment and Supplementary Planning Guidance

The Rhondda Cynon Taf Local Development Plan (LDP) was adopted in March 2011. This statutory document allocates significant areas of land for development, including land for over 14,000 new homes, 98 hectares for employment purposes and land for over 34,000m^2 of new retail floorspace. Other allocations include strategic highway improvements, education facilities and minerals and waste operations.

All of the allocations were identified following a comprehensive assessment process which considered nationally identified fluvial floodrisk zones through the advice maps and a surface water floodrisk assessment. As a consequence, only a limited number of sites in the LDP are subject to any level of flood risk. Where the floodrisk is known, the LDP identifies the need for further consideration and assessment of flooding issues.

A Strategic Flood Consequences Assessment (SFCA) was also undertaken as part of the LDP. This study focussed on the 8 Strategic Sites (mixed development sites over 20 hectares) and the Treforest Industrial Estate. The primary intention of the SFCA was to assess flood risk at the key development sites at a strategic level. The secondary focus of the SFCA was to assess the potential flood risk from drainage “hotspots” throughout Rhondda Cynon Taf CBC.

The LDP includes specific policies which set out how all other development proposals should be considered in relation to floodrisk. Policy AW2 includes criteria which aim to ensure that highly vulnerable development or emergency services are not permitted within C2 floodrisk zones. It then gives some specific allowances for development in zone C.

Policy AW10 then sets out how development proposals would not be permitted where they would cause or result in a risk of unacceptable harm to health and/or local amenity. Flooding as well as water pollution is included in the list of identified risks in this policy.

Policy NSA 26 relates specifically to development within, and the protection of, the Cynon Valley River Park area and floodplain. It aims to encourage management of the floodplain to provide space for natural river processes, wildlife and people.

The council is considering preparing additional guidance on Sustainable Drainage Systems (SuDS). This may then be used when designing all new development proposals, from individual dwellings to strategic sites of hundreds of homes or retail parks etc. The Supplementary Planning Guidance (SPG) will be formulated by the authority once national guidance and legislation on national standards for sustainable drainage is agreed and implemented.

STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Existing Function – No implication

MEASURE 3 (cont'd)	**Rhondda Cynon Taf Local Development Plan, Strategic Flood Consequences Assessment and Supplementary Planning Guidance**
BENEFITS	• There are many clear benefits associated with the LDP, including the allocation process, its principles and policies. • The majority of allocated sites contained in the LDP should all come forward for development in the knowledge that they are free from flooding constraint. • All other development proposals that come forward to be considered by the Council in Rhondda Cynon Taf will also are assessed against policy framework provided by the plan and national floodrisk data. • The LDP also aims to ensure that all existing urban areas as well as other developed, or even undeveloped, land and property are protected from flooding that may be created by new development. • The future SPG on SuDS will ensure that surface water drainage is seen as integral in the design of all new developments.
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	1, 2, 5, 6, 7, 8, 12,
LINK TO WG NFRMS	Sub-Objective 3 – *Development of Local Development Plans that include adequate provisions in respect of flood and coastal erosion risk & appropriate undertaking of Strategic Flood Consequence Assessments and their use to inform Local Development Plan*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 6** – LDP Review Process

MEASURE 4	Planning Policy Wales and TAN 15
	Planning Policy Wales (PPW) sets out the Welsh Government's land use planning policies. It is supplemented by a series of Technical Advice Notes (TAN's). Key policy objectives as identified in Section 4.4 of PPW include the need *to minimise the risks posed by, or to, development on, or adjacent to, land liable to flooding.* Section 9 requires local planning authorities to promote sustainable residential environments, giving regard to biodiversity, nature conservation and flood risk. Chapter 13 sets out the broader objectives for planning and environmental management. This is to control where development can take place and what operations may be carried out, to ensure the avoidance of, or minimising, the adverse effects of any environmental risks associated with flooding on present or future land use. TAN 15 provides technical guidance which supplements the policy set out in Planning Policy Wales. It advises on development and flood risk and provides a framework within which risks arising from both river and coastal flooding, and from additional run-off from development in any location, can be assessed. Development advice maps have been prepared and are based on the best available information considered sufficient to determine when flood risk issues need to be taken into account in planning future development. Three development advice zones are described on the maps, to which are attributed different planning actions – zones A, B and C. All types of development are also divided into three categories in accordance with their vulnerability to and the consequences of flooding. Surface Water Run-Off is also identified as a major potential impact that needs to be considered in determining new developments. Need for consultation with necessary bodies is identified as well as the discussion of preparing Sustainable Drainage Systems in the design of new development. Considerable guidance is then given on how justification, assessments and evidence need to be prepared in allowing and allocating development in certain floodrisk zones. This includes the need for site specific Flood Consequence Assessments or Broader Level assessments.
STATUS	Statutory Requirement

MEASURE 4 (cont'd)	Planning Policy Wales and TAN 15
FINANCIAL IMPLICATIONS	Existing Function – No implication
BENEFITS	• The strategic policy and guidance from Welsh Government on flood risk should enable a consistent approach to the issue across Wales. • The benefits of PPW and Tan 15 are that they provide a clear guidance intended to ensure that all new development is located away from land that is subject to floodrisk, or otherwise provide an identification process of where further consideration and assessment is required before development can take place.
TIMESCALE	RCTCBC LDP Review in 2015
LINK TO LFRMS OBJECTIVE	1, 2, 3, 5, 6, 7, 8, 10, 11, 15,
LINK TO WG NFRMS	Sub-Objective 3 – *Compliance with the requirements of Planning Policy Wales and relevant Technical Advice Notes*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 6** – LDP Review Process

7.4 Flood Forecasting, Warning and Response

MEASURE 5	Flood Awareness
The Council has a duty under the Civil Contingencies Act (2004) to warn and inform its residents of the risks and implications of those risks before, during and after any incidents. As part of this the Councils website holds information and links to further sources of information in relation to flooding incidents. On occasion, when significant flooding does occur, staff from the Council attend areas/properties to provide advice to the affected residents. Additionally a guide for elected members on their role has been produced. This can be extended further under the general requirements of the FAWMA 2010.	
STATUS	Statutory Requirement extended via best practice
FINANCIAL IMPLICATION	Existing Function – No implication New Function – Revenue Implication
BENEFITS	• The Government believes a well-informed public is better able to respond to an emergency and to minimise the impact of the emergency on the community. Informing the public as best we can will build their trust. It will also help minimise disruption and improve/ease the response to any flooding incidents. • An aware population has the ability to understand and prepare for the impact of a flooding situation and to take remedial measures prior to a situation, for example purchasing flood gates.
TIMESCALE	The website is reviewed at least annually and information is provided directly to the public using the most appropriate means when flooding occurs.
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 10, 11, 12
LINK TO WG NFRMS	Sub-Objective 5 – *Programme of community based awareness and engagement activities, utilising the Flood Risk Management Community Engagement Toolkit*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

MEASURE 6	**Flood Warning**
The Council has a duty under the Civil Contingencies Act (2004) to warn and inform its residents of the risks and implications of those risks before, during and after any incidents. Taking into account the demands of responding to the incident and available resources, where possible information will be provided on the impact and actions to take. This will either be single agency or multi agency dependent on the circumstances of the flooding situation. Natural Resources Wales are responsible for providing information via their flood forecasting systems on main river flooding for registered properties. A number of methods of communication will be used, for example use of local media or door knocking. Additionally, the Council's Call Centre will be used to receive calls from concerned or affected residents. They are also part of a tripartite SPOC system where the Council, Natural Resources Wales and Welsh Water are able to transfer calls based on the type of flooding. Warning and informing is not a stand alone function, its need is included within response plans. It must also link in to flood awareness. This can be extended further under the general requirements of the FAWMA 2010.	
STATUS	Statutory Requirement extended via best practice
FINANCIAL IMPLICATION	Existing Function – No implication New Function – Revenue Implication
BENEFITS	• The benefit of warning systems are that they allow informed residents to act to prevent/minimise the effects of flooding. This area is constantly reviewed as knowledge and risk changes.
TIMESCALE	As necessary, however further development needed for non main river issues
LINK TO LFRMS OBJECTIVE	1, 2, 3.
LINK TO WG NFRMS	Sub-Objective 6 – *Provision of appropriate warnings in relation to all sources of flooding*.
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

MEASURE 7	**Emergency Response Plans**
Emergency planning should aim where possible to prevent emergencies occurring and when they do occur, good planning should reduce, control or mitigate the effects of the emergency. It is a systematic and ongoing process which should evolve as lessons are learnt and circumstances change. Multi agency plans will concentrate on different agencies responsibilities as well as command and control. Within the Council we will also have Service and Team specific plans that look at responsibilities in a more detailed way which will include mobilisation as well as specific actions and known risks. It will be more prescriptive on actions before, during and after flooding. An example would be priority culvert inspections The main bulk of planning should consider how to minimise the effects of an emergency, starting with the impact of the event (e.g. alerting procedures) and looking at remedial actions that can be taken to reduce effects.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• Actions clear; • Defined responsibilities; • Prior planning, not reactive; • Flexibility; • Ability to plan and train; • Clear Command and Control; • Links to other plans/agencies clear; • Transparency
TIMESCALE	Short term, ongoing.
LINK TO LFRMS OBJECTIVE	4, 10, 11, 13, 14.
LINK TO WG NFRMS	Sub-Objective 7 – *Complete emergency plans for all sources of flood risk*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

MEASURE 8	**Community Flood Plans**
Natural Resources Wales are the lead agency on the development of community flood planning in Wales. Rhondda Cynon Taf have worked closely with them in the development of plans for designated communities within the Borough. The communities chosen are based on an assessment of risk from main river flooding, however when planning begins, it takes into account all forms of flooding. The aim of the community flood plans is to develop resilient, aware and organised communities, when faced with flooding in their areas.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• The first people to respond to any flooding incidents are the communities themselves. A prepared structured response will improve the speed and quality and hopefully reduce the risk and impact. Knowing what to do and who is to do it in advance improves the response. • Working together as a community or group has multiple benefits on the ground. It can improve communication before, during and after a flood incident, making sure the right people are involved at the right time. Local people know their risks and the vulnerable in their communities better than any responder agency and will be best placed to react and support. They will also be able to provide information to agencies if they attend the incident. • Flooding incidents can be widespread and external support may be slow or unavailable. Where communities are involved with flood planning it will enable the community or group to take control and help during a flood, when other organisations could be overstretched or unable to reach them. • Involving local people helps their community become more flood resilient
TIMESCALE	Currently plans are developed based on a rolling annual programme developed by Natural Resources Wales. Once complete plans are in the ownership of the relevant communities, with support provided as necessary. This area will need further consideration if RCT develop their own programmes
LINK TO LFRMS OBJECTIVE	10, 11, 12, 13, 14.
LINK TO WG NFRMS	Sub-Objective 5 – *Programme of community based awareness and engagement activities, utilising the Flood Risk Management Community Engagement Toolkit*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

MEASURE 9	**Multi-Agency Flood Plans**
Local Authorities and other organisations are responsible under the Civil Contingencies Act (2004) for developing emergency plans to help reduce, control or ease the effects of an emergency. In order to fulfil its responsibilities and to follow Cabinet Office advice, the Council has established a joint multi agency forum which is intended to manage the planning for and response to flooding in its area. The forum is known as The Rhondda Cynon Taf Flood Review Group. The Group is jointly Chaired by an officer of the Council and an officer from Natural Resources Wales. The Flood Review Group will: • Examine the Risk Assessments provided under the Flood Risk Regulations to assess the flood risks to the Borough from all sources; • Consider flood prevention schemes; • Arrange joint training and exercising as necessary; • Act as a focal point for debate and public interaction; • Consider the roles and responsibilities of all bodies who have a role in flood management and response; • Review flood incidents, identify lessons and share information; • Review flood response plans; and • Promote flood awareness to the public.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• Greater understanding of partners' roles and responsibilities; • Reduction in duplication; • Improved command and control; • Jointly defines risks and priorities
TIMESCALE	The plan is reviewed annually or following any changes to legislation. It is also reviewed using lessons learned from incidents of exercises.
LINK TO LFRMS OBJECTIVE	4, 10, 11, 12, 13, 14.
LINK TO WG NFRMS	Sub-Objective 7 – *Complete emergency plans for all sources of flood risk*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

7.5 Land, Cultural and Environmental Management

MEASURE 10	Land Management
There is the potential for surface water runoff to be reduced via the implementation of certain land management techniques, whether solely for the purpose of flood risk management or as by-products of other land management schemes. RCTCBC proposes to undertake further assessment of the viability of implementing such measures as a means of reducing flood risk in RCT. Where feasible, RCTCBC proposes to use land management techniques ahead of structural measures when setting measures for and implementing local flood risk management plans	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• Greater understanding of where land management techniques can be used within RCT; • Implementation of land management techniques would offer a 'sustainable' flood risk management solution, particularly when compared to structural measures; • Potential wider environmental/amenity benefits of using land management techniques; • Potential for greater engagement of land use owners and other stakeholders in local flood risk management and the ability to work collaboratively with neighbouring Local Authorities.
TIMESCALE	Implemented by Dec 2015 as part of the production of Flood Risk Management Plans.
LINK TO LFRMS OBJECTIVE	1, 2, 5, 6, 7, 8, 9, 10, 11, 15.
LINK TO WG NFRMS	Sub-Objective 3 – *Provision of advice and guidance on appropriate land use management*
DEPENDENCIES	Publication of Welsh Government guidance into the costs and benefits of softer engineering processes/natural processes for flood and coastal erosion risk management.
LINK TO ACTION PLAN	**Action 1** - Flood Risk Management Plans. **Action 9** - Undertake research project into the likely effectiveness of land management techniques

MEASURE 11	Environmental Enhancement
Implementing the array of measures contained within this Strategy affords a significant opportunity to enhance the wider environment of RCT.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue/Capital – Potential External Funding
BENEFITS	• Maintain or where possible enhance biodiversity and habitat creation in accordance with RCTs Biodiversity Action Plan; • Protect and enhance the water environment; • Provides opportunities to improve human health; • Protect and enhance land quality; and • Mitigate impacts from climate change
TIMESCALE	Medium to Long Term (5 years +)
LINK TO LFRMS OBJECTIVE	5, 6, 7, 8, 9
LINK TO WG NFRMS	Sub-Objective 2 – *Development of the National Habitats Creation Programme as part of the delivery of the Natural Environment Framework*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** - Flood Risk Management Plans

MEASURE 12	Water Level Management Plan
	WLMPs are required in conservation areas where the control of water levels is important. They set out ways to balance the water level requirements of different activities such as agriculture, flood defence and conservation. The current focus is on water level management within SACs and SSSIs, but the process could be extended to include other important wetland Sites (particularly those which contribute to habitat connectivity).
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• For Natural Resources Wales plans ensure that proposed flood risk management operations are compliant with environmental legislation
TIMESCALE	Medium to long term (5 years +)
LINK TO LFRMS OBJECTIVE	5, 6, 7, 8, 9, 11
LINK TO WG NFRMS	Sub-Objective 2 – *Development of the National Habitats Creation Programme as part of the delivery of the Natural Environment Framework*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** - Flood Risk Management Plans

MEASURE 13	**Habitat Creation**
Habitat creation describes the intentional process of changing the character and/or management of land to create a different habitat.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue/Capital – Potential External Funding
BENEFITS	• Habitat creation is only beneficial if the pre-existing habitat is of significantly lower nature conservation value than the proposed creation. Specific benefits from habitat creation (and restoration of pre-existing habitat) can include greater water retention, reduced water flow speeds, and increased groundwater infiltration, providing connections between existing habitat patches and biodiversity gain.
TIMESCALE	Medium to long term (5 years +)
LINK TO LFRMS OBJECTIVE	3, 4, 5, 6, 7, 8, 9
LINK TO WG NFRMS	Sub-Objective 2 – *Development of the National Habitats Creation Programme as part of the delivery of the Natural Environment Framework*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** - Flood Risk Management Plans

7.6 Asset Management and Maintenance

MEASURE 14	System Asset Management Plans
RCTCBC will be creating its own asset database of structures deemed significant to flood risk. Where these assets are RCTCBC's, asset management plans for inspection and maintenance will be created (if none already exists). Further asset management plans will also be implemented for third party structures where there is a requirement to inspect.	
STATUS	Best Practice
FINANCIAL IMPLICATION	New Function – Revenue
BENEFITS	• Maintenance regimes will be able to take into account assets important for managing flood risk, particularly in high risk areas; • Greater awareness of critical flood risk infrastructure within RCT and the implementation of a co-ordinated regime of inspection and maintenance.
TIMESCALE	Medium (5-20 years)
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4
LINK TO WG NFRMS	Sub-Objective 9 – *Development of procedures for the effective clearance of debris & Development of repair schedules including provision for the installation of resilient measures by 2015.*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 4** - Create Asset Register of Structures and Features

MEASURE 15	Enforcement on Private Surface Water Sewers
RCTCBC has powers under the Public Health Act to undertake enforcement duties on private surface water sewers.	
STATUS	Permissive Power – currently administered by RCTCBC's Public Health and Protection Division
FINANCIAL IMPLICATIONS	Existing function – no implication
BENEFITS	• The powers, as required, provide a general level of protection for members of the public from assets not in the ownership of RCTCBC.
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	N/A - Existing Function

MEASURE 16	Power to request information and civil sanctions
The Flood and Water Management Act provides RCTCB with the power to request information from third parties to provide information in connection with RCTCBC's flood risk management functions. Failure to provide such information to the Authority may result in a financial penalty.	
STATUS	Permissive Power
FINANCIAL IMPLICATIONS	New Function – Revenue Implication
BENEFITS	• RCTCBC now has the ability to ensure that it has all relevant information from third parties such that it can build and maintain its register of structures/features which are likely to have a significant effect on flood risk.
TIMESCALE	Medium (5-20 years)
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 11
LINK TO WG NFRMS	Sub-Objective 4 – *Development of a register of natural and man-made structures or features likely to have an effect on flood risk by 2014*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 4** – Asset Register of Structures and Features

MEASURE 17	**Asset Register and Records**
RCTCBC is required to keep both asset registers (for public use) and asset records (for use by risk management authorities) for structures and features which are considered to have a significant effect on flood risk. There is no formal definition of when an asset has a 'significant effect' but will largely be determined on the flood history of the site and the vulnerability of any infrastructure likely to be affected by a failure of the asset. RCTCBC proposes to be pro-active in the recording of flood risk assets, using the mechanisms of Ordinary Watercourse Consenting, investigation of flooding incidents, the Planning Application Process, and, in future, its role as SAB to expand its asset record.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	New Function – revenue implication
BENEFITS	• Confusion over ownership of flood risk assets will be lessened; • Maintenance regimes will be able to take into account assets important for managing flood risk, particularly in high risk areas; • RCTCBC will be able to establish where all assets are, allowing for quicker identification of the responsible authority in flooding incidences; and • RCTCBC would be able to produce/refine their own asset maintenance schedule in addition to potentially providing guidance to riparian owners as to how they should maintain their assets.
TIMESCALE	Medium (5-20 years)
LINK TO LFRMS OBJECTIVE	4, 10, 11
LINK TO WG NFRMS	Sub-Objective 2 – *Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations* Sub-Objective 4 – *Development of a register of natural and manmade structures or features likely to have an effect on flood risk by 2014*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 4** – Asset Register of Structures and Features

MEASURE 18	Designation of Structures
The Flood and Water Management Act makes RCTCBC the 'Designating Authority' with the power to designate a structure (either man-made or a natural feature of the environment in private ownership) if RCTCBC believes the structure or feature affects flood risk. A person may then not alter, remove or replace the designated structure or feature without the permission of RCTCBC.	
STATUS	Permissive Power
FINANCIAL IMPLICATION	New Function – Revenue Implication
BENEFITS	• Overcomes the risk of a person damaging or removing a structure or feature on private land which is relied upon for flood risk management; • Ensures that records of significant flood risk structures/features are formally recorded and monitored; • Designated structures or features will be registered in the Local Land Charges Register.
TIMESCALE	Medium (5-20 years)
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 10
LINK TO WG NFRMS	Sub-Objective 4 – *Development of a register of natural and man-made structures or features likely to have an effect on flood risk by 2014.*
DEPENDENCIES	N/A
LINK TO PLAN	**Action 2** – Production of Flood Hazard and Risk Maps. **Action 4** – Asset Register of Structures and Features

MEASURE 19	SuDS Adoption
Once the relevant legislation has been enacted, RCTCBC will have a duty to adopt SuDS systems that have met the requirements for approval. RCTCBC will hence be responsible for the maintenance of the adopted drainage system.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	New Function with cost recovery – potential revenue implication.
BENEFITS	• Ensures appropriate maintenance of SuDS features is undertaken throughout product life cycle. • Appropriate supervision of SuDS construction will be undertaken prior to adoption to ensure 'as constructed' standard is 'as approved'.
TIMESCALE	Short (0–5 years)
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 5, 6, 7,
LINK TO WG NFRMS	Sub-Objective 3 - *Approval and adoption of SuDS drainage systems by the SuDS Approving Body and Adopting Body*
DEPENDENCIES	Publication of National Standards for SuDS by the Welsh Government
LINK TO PLAN	**Action 3** – Establish SuDS Approval Body

MEASURE 20	**Consenting of Structures to Ordinary Watercourses**
RCTCBC intend, in general, to oppose any culverting/obstruction of watercourses because of adverse ecological, flood risk and other effects that are likely to arise. Wherever practical, RCTCBC will also seek to have culverted watercourses restored to open channels. Any culverting of a watercourse, or the alteration of an existing culvert, will require an ordinary watercourse consent from RCTCBC under Section 23 of the Land Drainage Act. If a culvert is constructed (or altered) on a watercourse without consent, RCTCBC may serve an abatement notice on the person having the power to remove it. If the notice is not complied with, the person responsible may be prosecuted and RCTCBC will be entitled to carry out the necessary works and recover reasonable costs incurred in doing so.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	New Function with Cost Recovery – Potential Revenue Implication.
BENEFITS	• Decrease the loss of environmental features - prohibiting the culverting of watercourses will mitigate against the detrimental environmental impact caused by culverting e.g. removal of species and watercourse features such as pools, riffles, gravel, cobble, sand, silt, marginal/aquatic vegetation, earth banks with associated vegetation, invertebrate communities and fish; • Decrease the likelihood of blockages – compared with an open watercourse, there is an increased risk of blockage once a culvert is installed. If the blockage is within the culvert, there is much greater difficulty in removing it; • Decrease the impact of flooding – Having a non-culvert policy will reduce the effect of overland flooding that will occur when a culvert cannot cope with all the flow reaching it; • Increase floodwater storage – open watercourses generally provide more storage capacity than a culvert; • Increase the ease of providing drainage connections – drainage can be provided more easily within open watercourses into which drain connections can readily be made and the performance of the drainage system visually monitored;

MEASURE 20 (cont'd)	Consenting of Structures to Ordinary Watercourses
BENEFITS (cont'd)	• Reduction of health and safety hazards – Culverts are perceived to be more dangerous than open watercourses. There have been many cases in the past where persons have died or suffered injury after entering culverts and they therefore represent a safety hazard. Additionally water levels can rise suddenly and without notice, and there can be a lack of oxygen or build-up of potentially toxic or explosive gases in culverts; • Improve/maintain recharge to groundwater – culverting creates an impermeable bed to a watercourse and increases the speed of flow, so reducing recharge to groundwater.
TIMESCALE	Short Term (0-5 years)
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 5, 6, 7
LINK TO WG NFRMS	Sub-Objective 2 – *Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A

MEASURE 21	Enforcement to maintain flow in watercourses
As Lead Local Flood Authority, RCTCBC has permissive powers to serve notices on riparian owners to remedy the condition of a watercourse where the flow is impeded.	
STATUS	Permissive Power
FINANCIAL IMPLICATION	Existing Function – No Implication
BENEFITS	• The powers, as required, provide a general level of protection for members of the public from watercourses not in RCTCBC ownership.
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4
LINK TO WG NFRMS	Sub-Objective 9 – *Development of procedures for the effective clearance of debris*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	Existing Function

MEASURE 22	**Enactment of Land Drainage Byelaws**
As Lead Local Flood Risk Authority, RCTCBC has the ability to enact land drainage byelaws to:- • secure the efficient working of a drainage system; • to regulate the effects on the environment; • to secure the effectiveness of flood risk management work; and • to secure the effectiveness of works done to cause incidental flooding. RCTCBC intends to work with other LLFA's to enact, where possible, a standard set of byelaws.	
STATUS	Permissive Power
FINANCIAL IMPLICATION	New Function – Revenue Implication
BENEFITS	• Measure allows for the implementation of specific measures and constraints which will assist RCTCBC in implementing elements of FRMP.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – Dec 2015.
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 11** - Enactment of Byelaws

MEASURE 23	Cause incidental flooding for purposes of flood risk management
RCTCBC has powers to manage flooding and water levels in the interests of wider flood risk management, nature conservation, the preservation of cultural heritage or people's enjoyment of the environment or of cultural heritage. The use of this option will be explored in more detail via Flood Risk Management Plans.	
STATUS	Permissive Power
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• Measure provides a potential additional flood risk management option and method of co-ordinating a flood risk management measure with potential environmental enhancements.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – Dec 2015.
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4
LINK TO WG NFRMS	Sub-Objective 10 – *Undertake Research into the costs and benefits of softer engineering approaches including the use of natural processes for flood and coastal erosion risk management*
DEPENDENCIES	Publication of Welsh Government guidance/research into soft engineering/natural processes for use in flood risk management.
LINK TO ACTION PLAN	**Action 1** - Local Flood Risk Management Plans

MEASURE 24	**Construction of Flood Defences**
Outline requirements for capital flood defence works will be identified initially through Flood Risk Management Plans. The technical and economic feasibility of such projects will subsequently be assessed via the Project Appraisal process and current Welsh Government Guidance.	
STATUS`	Best Practice
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• The identification of potential capital flood defence schemes via the process of developing Flood Risk Management Plans will, for the first time, place constructing capital works within the context of RCTCBCs wider flood risk management measures.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – Dec 2015.
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 7
LINK TO WG NFRMS	Sub-Objective 2 – *Development of Local Flood Risk Management Strategies*
DEPENDENCIES	Publication of Welsh Government guidance on the production of Flood Risk Management Plans
LINK TO ACTION PLAN	**Action 1** - Local Flood Risk Management Plans

7.7 Studies, Assessment and Plans

MEASURE 25	Investigation of Flooding Incidents
RCTCBC will record and investigate significant flooding incidents and subsequently publish the details in accordance with Section 19 of the FAWMA 2010. The investigation must identify which risk management authorities have relevant flood risk management functions and whether they have exercised those functions appropriately in response to the incident. The following criteria will be used in assessing whether an incident is significant and whether an investigation of a flooding incident should be undertaken:- • Where internal flooding has occurred at one property on more than once occasion; • Where internal flooding of five or more properties has occurred during one flooding incident; • Where internal flooding of a commercial property has occurred during one flooding incident; • Where external flooding to land adjacent to a property has occurred more than five times; • Where a critical service has been affected by flooding; • Where a transport link has been rendered impassable for in excess of 10 hours; • Where flooding has potentially posed an immediate and direct threat to life.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	New Function – Revenue Implication
BENEFITS	• Measure will enable a greater understanding of flood risk within RCT. • A higher standard of flood event data will be available which can be utilised in subsequent studies and assessments.
TIMESCALE	Medium to long term (5-20 years)
LINK TO LFRMS OBJECTIVE	11
LINK TO WG NFRMS	Sub-Objective 2 – *Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 7** – Implement investigation and reporting of flood incidents.

MEASURE 26	Local property-level flood mitigation – resilience
Increasing flood resilience will reduce damages caused by any water that gets into a property. This measure will attempt to raise awareness of the techniques that could be utilised when repairing properties subject to repeated flooding in order to reduce future damages. Initial awareness campaigns will be targeted at areas identified as being at high risk of surface water flooding from surface water flood modelling.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue – potential external funding
BENEFITS	• Implementing awareness campaigns where most applicable will place such actions within the context of wider flood risk management measures.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – Dec 2015.
LINK TO LFRMS OBJECTIVE	12
LINK TO WG NFRMS	Sub-Objective 6 – *Enhanced awareness of property level resilience measures and guidance on their use*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** - Development of Local Flood Risk Management Plans **Action 8** - Raising awareness of and engaging people in the response to flood risk management

MEASURE 27	Local property-level flood mitigation - resistance
A general approach to improving property level flood resistance will be adopted across RCT. This could include encouraging property owners to install individual property measures, as well as the implementation of schemes to raise general awareness and preparedness. Initial awareness campaigns will be targeted at areas identified as being at high risk of surface water flooding from surface water flood modelling.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue – potential external funding
BENEFITS	• Implementing awareness campaigns where most applicable will place such actions within the context of wider flood risk management measures.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – Dec 2015
LINK TO LFRMS OBJECTIVE	12
LINK TO WG NFRMS	Sub-Objective 6 – *Enhanced awareness of property level resilience measures and guidance on their use*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 1** - Development of Local Flood Risk Management Plans **Action 8** - Raising awareness of and engaging people in the response to flood risk management.

MEASURE 28	**Pre-Feasibility Studies/Project Appraisals**
Pre-Feasibility Studies/Project Appraisals are likely to be products of flood risk management plans, which will identify the requirement for specific flood risk management projects. Pre-Feasibility/Project Appraisals are used to assess the viability of a range of project options and ensure that future investment decisions are made on a consistent, prioritised basis.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• The investment in potential flood risk management projects can be effectively prioritised; • Appraisal of future flood risk management projects will be undertaken inclusive of the wider assessment of economic, environmental and social costs and benefits.
TIMESCALE	Initial deadline corresponding to the production of Flood Risk Management Plans – June 2015
LINK TO LFRMS OBJECTIVE	1, 2, 3, 4, 7, 9, 16
LINK TO WG NFRMS	Sub-Objective 2 – *Development of Local Flood Risk Management Strategies* Sub-Objective 1 – *Development of a national funding policy and prioritisation methodology for the assessment of applications for funding of all flood and coastal erosion risk management activities from the Welsh Government.*
DEPENDENCIES	Publication of Welsh Government guidance on the production of Flood Risk Management Plans & updated guidance on funding prioritisation.
LINK TO ACTION PLAN	**Action 1** - Local Flood Risk Management Plans

MEASURE 29	Catchment Flood Risk Management Plan
The Taff and Ely Catchment Flood Management Plan has been produced by Natural Resources Wales to help risk management authorities to work together to identify and agree long-term policies for sustainable flood risk management.	
STATUS	Statutory (third party)
FINANCIAL IMPLICATION	Existing (third party) function – No implication
BENEFITS	• By incorporating relevant CFMP policies into the LFRMS, a holistic appreciation of wider, catchment scale, flooding issues will be embedded into the LFRMS; • Synergies between LFRMS measures and actions and those contained within the CFMP could be used to realise multiple benefits.
TIMESCALE	N/A
LINK TO LFRMS OBJECTIVE	11,14
LINK TO WG NFRMS	Sub-Objective 2- *Proportionate implementation of the Catchment Flood Management Plans over the life of the Strategy*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	N/A – Existing third-party function

MEASURE 30	Surface Water Flood Modelling
Surface Water Flood Modelling will be undertaken in RCTs administrative boundary to enable the production of flood hazard and flood risk maps. These will include information about water depth or level, and water flow or velocity. Additional surface water modelling may be required during the preparation of flood risk management plans or an action within the plan.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• Measure will afford an increased understanding of the probability and consequences of surface water flooding; • Increases the understanding of where surface water flooding will occur.
TIMESCALE	Dec 2013 (for production of hazard and risk maps) – Dec 2015 (for Flood Risk Management Plans)
LINK TO LFRMS OBJECTIVE	11
LINK TO WG NFRMS	Sub-Objective 2 – Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations
DEPENDENCIES	Provision of surface water flood maps from the Welsh Government.
LINK TO ACTION PLAN	**Action 1** - Development of Local Flood Risk Management Plans; and **Action 2** - Production of Flood Hazard and Risk Maps

MEASURE 31	Reservoir Flood Plans

Following the summer floods of 2007, Sir Michael Pitt was asked by UK Government ministers to carry out a review of the flood-related emergencies which had occurred that year. He made a number of recommendations aimed at improving the UK's ability to withstand flooding. The UK Government agreed all of his recommendations about reservoir safety.

Whilst there is no perceived increase in risk, the Welsh Government made funding available for the preparation of offsite plans for 10 reservoirs. The South Wales Local Resilience Forum were tasked with producing an offsite plan for 2 of these which are outside the area but should they breach would have the potential (however unlikely) to impact severely on the Council Areas of Merthyr, Rhondda Cynon Taf, Cardiff and the Vale of Glamorgan.

The work currently being done on planning for reservoir emergencies involves large raised reservoirs that can hold at least 25,000 cubic metres (approximately 5 million gallons) of water above natural ground level. Work has also commenced by the Local resilience Forum on preparation of a multi agency plan to respond to failure of any reservoirs both within the Borough or that could affect the Borough.

Reservoir flood maps are available to everyone on Natural Resources Wales' website. These maps can be viewed by entering a postcode on the website, which will then display the flood maps and provide information about the reservoirs that could cause flooding at that location.

STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Existing Function – No implication
BENEFITS	• Reservoir flooding can take the same form as normal main river or surface water flooding, but it also has the potential to cause much more widespread disruption and more severe impact. • Prior planning will allow responding agencies to be better informed and better prepared. Communities at highest risk will also be made aware of the potential and advised on the initial actions to take should an incident occur.
TIMESCALE	Short term (0–2 years)
LINK TO LFRMS OBJECTIVE	4, 10, 12, 13, 14.
LINK TO WG NFRMS	Sub-Objective 7 – *Complete emergency plans for all sources of flood risk.*
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	N/A

MEASURE 32	Flood Risk Management Plans

The Flood Risk Regulations (2009) require Lead Local Flood Authorities to prepare and publish Flood Risk Management Plans by December 2015 where the risk of flooding from local flood risk is significant as identified in the Preliminary Flood Risk Assessment (PFRA). Flood Risk Management Plans attempt to assess, map and develop action plans to manage flood risk.

The statutory requirement is only to produce a Flood Risk Management Plan for the flood risk area identified as part of the PFRA. However, the PFRA assessment excluded some areas of high risk due to the national constraints, estimated at 10% of properties at risk. RCT feel that all areas of high flood risk should be included in the Flood Risk Management Plan and therefore propose to carry out the plan for its administrative boundary.

Flood Risk Management Plans will include the following:

- Objectives for the purpose of managing flood risk;
- The proposed measures for achieving those objectives;
- A map showing the boundary of the Flood Risk area;
- A summary of the conclusions drawn from the flood hazard and risk maps;
- Descriptions of proposed timings and manner of implementing the measures including details of bodies responsible for implementation; and
- A description of how the measures will be monitored.

In essence the flood risk management plan will set out RCTCBC's recommendations for managing flood risk within its administrative area. It should be stressed that the plan will consider a holistic approach to flood risk management and will not be solely reliant on traditional structural flood risk solutions. Indeed, in line with the objectives of this LFRMS, RCTCBC proposed to seek out opportunities to use innovative land management techniques, in addition to identifying synergies with plans and strategies that aim to incorporate natural flood risk management processes that promote nature conservation or landscape enhancements.

STATUS	Statutory Requirement (with expanded area)
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• The production of a Flood Risk Management Plan will focus and direct the future work on flood risk management within RCT. • It will inform the work and strategies of RCTCBC's flood risk management partners enabling a co-ordinated multi-agency approach to flood risk management within RCT and at a higher level regional/catchment scale; • It will raise awareness of and improve the knowledge of local flood risk within RCT and provide an insight into its inter-relationship with river and sewer flooding. • It will allow for move innovative techniques at a catchment/regional level

MEASURE 32 (cont'd)	Flood Risk Management Plans
TIMESCALE	Short term – Statutory requirement to publish by December 2015
LINK TO LFRMS OBJECTIVE	1, 2, 3. 4, 5, 6, 8, 9, 15
LINK TO WG NFRMS	Sub-Objective 2 – Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations & Development of Local Flood Risk Management Strategies
DEPENDENCIES	Provision of surface water flood maps from the Welsh Government.
LINK TO ACTION PLAN	**Action 1** – Flood Risk Management Plans

MEASURE 33	Flood Risk and Hazard Maps
The Flood Risk Regulations (2009) require all Local Lead Flood Authorities to produce Flood Risk and Hazard Maps by 2013. These maps will be used to identify the level of hazard and risk of flooding within RCT. These maps will subsequently inform the content of Flood Risk Management Plans.	
STATUS	Statutory Requirement
FINANCIAL IMPLICATION	Project Revenue – Potential External Funding
BENEFITS	• Measure will afford an increased understanding of the probability and consequences of surface water flooding; • Increase the understanding of where surface water flooding will occur and how it is likely to affect the local population and infrastructure; • Enable flood risk management options to be targeted and prioritised based on a quantified risk measurement.
TIMESCALE	Short term – Statutory requirement to publish by Dec 2013
LINK TO LFRMS OBJECTIVE	11, 15
LINK TO WG NFRMS	Sub-Objective 2 – Implementation of statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations & Appropriate mapping of all sources of flood risk Sub-Objective 5 – *Identification of at risk groups within communities including vulnerable individuals*
DEPENDENCIES	Provision of surface water flood maps from the Welsh Government
LINK TO ACTION PLAN	**Action 2** – Flood Risk and Hazard Maps

7.8 High Level Awareness and Engagement

MEASURE 34	Partnership Working
RCT will endeavour to co-operate with other risk management authorities and stakeholders on new functions and potential future projects that are products of the LFRMS. The South East Wales Flood Risk Management Group has been established to facilitate best practice, consistency in interpretation and collaborative working.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing Function – No Implication
BENEFITS	• Partnership working avoids duplication of effort and investment amongst RMAs; • Enables a better understanding of regional risks and the actions required to manage them.
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	14
LINK TO WG NFRMS	Sub-Objective 1 – *Raising awareness of the implications of flood and erosion risk across all business sectors over the life of this Strategy.*
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	**Action 1** – Flood Risk Management Plans **Action 10** – Active Participation in SEWFRMG

MEASURE 35	Community/Public Engagement/Consultation
Raising community awareness and communicating effectively with local communities will enable RCTCBC to set realistic expectations and achievable outcomes for local flood risk management. RCTCBC proposes to proactively inform those that are at risk of local flooding and advise them on what steps to take.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing Function/New Function – Potential revenue implication
BENEFITS	• Effective communication of the risk of flooding to those affected can encourage people to be more pro-active at community level. • Community and public engagement will result in greater 'buy in' of the LFRMS by those affected by flooding.
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	10,11
LINK TO WG NFRMS	Sub-Objective 1 – *Raising awareness of the implications of flood and erosion risk across all business sectors over the life of this Strategy.*
DEPENDENCIES	N/A
LINK TO ACTION PLAN	**Action 8 –** Raising awareness of and engaging people in the response to flood risk management

7.9 Monitoring

MEASURE 36	Habitats Monitoring
Special Areas of Conservation and Sites of Special Scientific Interest are monitored by Natural Resources Wales. Sites of Importance for Nature Conservation are monitored on a rolling programme for the Local Development Plan.	
STATUS	Best Practice
FINANCIAL IMPLICATION	Existing (third party) function – no implication
BENEFITS	• Understanding of change in the extent and condition of habitats
TIMESCALE	Ongoing
LINK TO LFRMS OBJECTIVE	5, 6, 7, 8, 9
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	N/A

MEASURE 37	Weather Pattern Monitoring
Monitoring of metrological parameters will assist in the calibration and effective development of surface water flood modelling. Additional information will also assist in the study of catchment level flood risk management measures.	
STATUS	Best Practice
FINANCIAL IMPLICATION	New Function – Revenue implications
BENEFITS	• Assists in the accurate production of hydrodynamic models.
TIMESCALE	Medium to long term (5-20 years)
LINK TO LFRMS OBJECTIVE	11
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	**Action 1** – Flood Risk Management Plans

MEASURE 38	**Flow Monitoring**
Flow monitoring of watercourses will provide information for the calibration of surface water flood models. Flow monitoring could be used to provide flood warning if this is found to a suitable flood risk management measure.	
STATUS	Best practice
FINANCIAL IMPLICATION	New Function – Revenue implication
BENEFITS	• Assists in the accurate production of hydrodynamic models.
TIMESCALE	Medium to long term (5-20 years)
LINK TO LFRMS OBJECTIVE	11
LINK TO WG NFRMS	N/A
DEPENDENCIES	N/A
LINKS TO ACTION PLAN	**Action 1** – Flood Risk Management Plans

7.10 Action Plan for Implementation of LFRMS

Table 8 indicates the high level actions required to implement the measures outlined in RCTCBCs Local Flood Risk Management Strategy.

Table 8 – LFRMS Action Plan

Action	Summary	Timetable
Action 1	Development of Local Flood Risk Management Plans	Completion by Dec 2015
Action 2	Production of Flood Hazard and Risk Maps	Completion by Dec 2013
Action 3	Establish SuDS Approval Body	Dependent on the enactment of legislation and guidance from the Welsh Government
Action 4	Create Asset Register of Structures and Features	Set up 2013 then ongoing
Action 5	Update Flood Risk Assessment	Completion by June 2017
Action 6	LDP Review Process	LDP review to commence in 2015
Action 7	Implement Investigation and Reporting of Flood Incidents	Set up 2013 then ongoing
Action 8	Raising awareness of and engaging people in the response to flood risk management	Set up 2013 then ongoing
Action 9	Undertake research project into the likely effectiveness of land management techniques	Set up by 2013 then completion by 2014 for input into LFRMPs
Action 10	Active participation in Regional Working groups such as the SEWFRMG.	Set up in 2012 then ongoing
Action 11	Enactment of Land Drainage Byelaws	Completion by December 2015

8.0 COST AND BENEFITS OF PROPOSED MEASURES WITH FUNDING DETAILS

8.1 Overview

It is essential that the Local Flood Risk Management Strategy sets out how the proposed measures will be funded and resourced. Additionally, it is also of importance that RCTCBC identify available funding mechanisms to pay for measures set out in the strategy, whether they be for capital projects or the management and response activities undertaken by Lead Local Flood Risk Authorities.

8.2 Costs and Benefits of Proposed Measures

One of the stated requirements of what should be included in a Local Flood Risk Management Strategy is the provision of the costs and benefits of any proposed measures. At this stage in the Strategy process, it is difficult to ascertain and quantify costs and benefits as it is difficult to ascertain the precise cost of any measures without knowing the exact scope of any required works. Secondly, quantification of benefits is difficult without knowing the accurate extent to which measures are able to reduce flood risk. It is felt that costs and benefits of detailed measures are better placed within the Flood Risk Management Plans.

8.3 Funding Mechanisms

The majority of funding for flood and coastal erosion risk management in Wales comes from the Welsh Government. *As the level and nature of risk changes in the future, Welsh Risk Management Authorities will need to find other sources of funding to ensure that communities across Wales receive the levels of funding they need to manage the risks they face* (Welsh Government, 2011).

Due to increasing funding constraints the Welsh Government has proposed a number of actions within its NFRMS to enable more efficient and effective spending on flood and coastal erosion risk management in Wales, namely:-

- Prioritisation of investment and the funding of projects set out in a long term investment plan;
- Joint funding for multiple benefits (particularly with regard to regeneration and transport investment) will be maximised;
- Beyond 2015, other sources of European funding will be sought;
- Contributions from the private sector will be expected to contribute to project costs where private assets are being protected;
- The levy raising powers of Flood Risk Management Wales (Natural Resources Wales' Regional Flood and Coastal Committee for Wales) may need to be exercised; and
- When setting future budgets, Local Authorities may need to factor in additional expenditure on flood risk management within their area.

The following sections outline the current and future potential funding streams which could be utilised to pay for measures contained within the LFRMS.

8.3.1 Flood Defence Grant in Aid (FDGiA)

Traditionally, flood risk management projects in Wales have been largely funded via the Welsh Governments Flood Defence Grant in Aid mechanism. However, given the likely pressures upon Welsh Government spending as a whole given the reduction in available funding (as implemented via the UK Government Comprehensive Spending Review) it is likely that there will be a reduction in capital programme spend over the lifetime of the this LFRMS cycle.

8.3.2 Community Infrastructure Levy

The Community Infrastructure Levy (CIL) allows Local Planning Authorities to raise funds from certain types of development to pay for the strategic infrastructure required to support the delivery of the Local Development Plan.

CIL could support infrastructure including transport, schools, libraries and flood defences (amongst others). The Council will determine in due course through the CIL process what infrastructure will be funded through CIL.

8.3.3 European Funding

Funding from the European Union is designed to align the economic prosperity of the various regions of Europe. Of particular relevance to RCT is the European Regional Development Fund (ERDF). This fund has/will in the period 2007-2013 provide/d nearly £50m to support a flood and coastal erosion risk management programme of just over £100m. This includes funding of flood alleviation schemes

in RCT. Wales may benefit from another round of funding from European funding. It is unclear whether there will be a mechanism for use of these funds for Flood Risk Management activities.

8.3.4 Section 106 Funding – Developer Contributions

Local Authorities can potentially require developers to carry out works on sites (including flood and coastal erosion risk management works) under Section 106 of the Town and Country Planning Act 1990.

8.3.5 Local Fundraising

Partnership funding between public and private sectors and local communities could be adopted as a means of funding projects which are mutually beneficial to all groups.

8.3.6 Other Possible Sources of Funding

Partnership working/funding between Risk Management Authorities will also be considered as a way of achieving flood risk management objectives which are of mutual interest to parties.

8.4 Prioritisation

The Welsh Government has indicated that in future years investment in flood risk management will need to be rigorously prioritised. A range of factors will need to be taken into consideration when determining the extent to which the Welsh Government is likely to invest in flood risk management schemes:-

- Risk to life;
- Longer term sustainability of the community, the approach taken and the wider environment;
- Economic impacts, costs and benefits;
- Impacts of flooding on the operational capacity of critical infrastructure;
- Social impacts, costs and benefits;
- Frequency of flooding;
- Environmental costs and benefits derived from the work;
- Availability of appropriate compensation sites where work impacts designated habitats;
- Impacts on the wider cultural heritage; and
- Multiple benefits in relation to human health and wellbeing.

The Welsh Government is currently in the process of establishing a clearer funding prioritisation methodology for Wales, which may eventually lead to a single Welsh Government funding scheme for flood and coastal erosion risk management projects in Wales. It is intended that the prioritisation of flood risk management projects within RCT will adhere to any guidance issued by the Welsh Government in the future. It is RCT's intention to work with the Welsh Government in its development to ensure a fair prioritisation system which takes into considering local factors.

9.0 CONTRIBUTION TO WIDER ENVIRONMENTAL OBJECTIVES

9.1 Overview

The implementation of the Local Flood Risk Management Strategy will, in addition to reducing flood risk within RCT, also provide an opportunity to improve the natural, rural and built environment within the County Borough by enhancing the environment for both residents and businesses along with improving biodiversity and habitats.

The Flood and Water Management Act (2010) states that each LLFA should consider and record how the LFRMS contributes to the achievement of wider environmental objectives. Potential environmental enhancements that can be incorporated into the LFRMS, or occur as a by-product of proposed policies and measures are summarised in the following sections.

9.2 Wider Environmental Issues in RCT

RCTCBC has undertaken a Strategic Environmental Assessment (SEA) in parallel with the development of this Local Flood Risk Management Strategy. Table 9 provides an appraisal of the key environmental issues identified during the SEA process and how these provide opportunities/constraints with regard to the LFRMS.

Table 9 – Key Environmental Issues in RCT

Key Issues and/or Trend	Opportunities and Constraints for the LFRMS
Sites Designated for Nature Conservation (SINCs), Sites of Special Scientific Interest (SSSI) & Special Areas of Conservation (SAC) The study area contains numerous locally, nationally and internationally important sites designated for their importance to wildlife conservation.	A Habitats Regulations Assessment was conducted on the LFRMS to ensure no adverse affect on European Designated Sites (this is defined as any SAC, SPA, cSAC, pSPA or Ramsar Site). The screening exercise identified six objectives and measures that could affect the integrity of eight European Designated Sites. The Appropriate Assessment concluded that at Strategy level, these objectives and measures provide no indication which, if any, sites will be affected or if the effects will be significant with regard to the conservation objectives of the European Designated Sites. Significant effects are also unlikely, as the LFRMS aims to improve or not detrimentally affect European Designated Sites. Due to this conclusion, there was no requirement to progress to the next stage of the HRA, the Assessment of Alternative Solutions. The Assessment concluded that subsequent HRAs are required for any plans, programmes or polices related to, or that arise from the LFRMS that have the potential to affect any European Designated Site.
Protected, BAP or Notable Species Several rare and protected species and habitats (including those identified in BAPs) are found within the study area. Climate change will have implications for the habitats and species for which sites are designated. eg. evidence shows that British birds are extending their breeding range northwards.	The LFRMS has considered the potential effects of policy options and strategic measures on designated sites. The potential impacts of the LFRMS on features for which sites are designated will need to be considered within the context of a changing baseline. The effect of the LFRMS on species designated under the EU Habitats Directive and the EU Birds Directive have been considered via the Habitats Regulations Assessment.
Population Growth Population growth, principally in urban areas, placing pressure on greenfield sites, water quality and resources, transport infrastructure and natural flood plains.	The LFRMS has attempted to take into consideration predicted population growth within RCT.

(Cont'd)

Table 9 (cont'd) – Key Environmental Issues in RCT

Key Issues and/or Trend	Opportunities and Constraints for the LFRMS
Deprivation and Regeneration Areas within the study area experience high levels of deprivation and economic inactivity.	Decisions made as part of the LFRMS have considered wider economic development and regeneration strategies
Human Health The perceived risk of flooding can cause anxiety for local residents and businesses. Property owners in flood risk areas have to consider additional insurance liability and the effects on property values. Flood events can additionally result in human injury and illness.	The LFRMS has taken into consideration the wider implications for human health in terms of both stress and anxiety, as well as injury, illness and resulting potential hospital admissions.
Accessible Natural Greenspace The study area has generally low levels of accessible natural greenspace, particularly with regard to access within local communities.	The LFRMS will seek to maintain and where possible enhance the potential accessibility of natural greenspace
Soil Quality Rhondda Cynon Taf has generally low grades of agricultural land. Poor land management techniques can also exacerbate flooding, both at catchment and local scale.	The LFRMS will seek to maintain and where possible enhance soils whilst simultaneously considering complimentary measures to reduce flooding.
Water Quality There are a number of surface water bodies within the study area that are monitored for water quality.	The LFRMS has considered the impact of policy options and strategic measures on water quality, maintaining and where possible contributing to the enhancement of water quality.
Water Resources The sandstone and limestone aquifers underlying a substantial area of RCT are designated as principal aquifers. However these groundwater resources are under-used. There is a single source protection zone in the north of the County Borough. The resource availability of the main rivers show that they are mainly *over licensed*.	The LFRMS will aim to maintain and where possible enhance water resource availability.

(Cont'd)

Table 9 (cont'd) – Key Environmental Issues in RCT

Key Issues and/or Trend	Opportunities and Constraints for the LFRMS
Flood Risk Surface water flood risk in RCT is relatively high in comparison to neighbouring local authorities. The are estimated to be approximately 21,200 properties at risk of flooding from a 1 in 200 year rainfall event within RCT	The LFRMS will have a positive impact upon reducing flood risk in Rhondda Cynon Taf by utilising a broad range of risk management techniques. The LFRMS compliments higher level plans and strategies, namely the National Strategy for Flood and Coastal Erosion Risk Management in Wales and the Taff and Ely Catchment Flood Management Plan
Necessity for increase in housing stock to meet requirements of growing population The number of households required in RCT is likely to increase by approximately 16% in the period to 2023.	The LFRMS has been developed with the development needs of RCT taken fully into consideration.
Transport Infrastructure The economy of RCT is heavily reliant upon the primary transport infrastructure network. Given the topological characteristics of the County Borough, key elements of this network are particularly vulnerable to disruption from flooding.	The LFRMS has take into account the importance of the principal transport routes within RCT.
Cultural Heritage Numerous listed buildings, conservation areas and scheduled monuments within RCT.	The LFRMS will endeavour to maintain, protect and/or where possible enhance the status of RCTs cultural heritage.
Landscape Pressure on urban fringes from the requirement to develop land could affect the landscape character of RCT	The LFRMS will endeavour to maintain, protect and/or where possible enhance the status of RCTs landscape

As part of the SEA process each of RCTCBCs sixteen high level LFRMS objectives was assessed against a suite of SEA Objectives to assess the likely wider environmental effects of the LFRMS. A summary of this assessment is presented in Table 10.

Table 10 – Summary assessment of the likely environmental effects of LFRMS objectives

LFRMS Objective		Summary of Environmental Effects
1	Reduce distress by decreasing the population exposed to flood risk	This objective has a particularly strong, positive effect on the *protection and enhancement of human health and well being*. Due to the direct effect on reducing the risk of flooding, there is a positive influence on a wide range of environmental issues.
2	Reduce community disruption by reducing the amount of residential and commercial property exposed to flood risk	As an objective which results in a direct reduction if flood risk, it has multiple positive effects across multiple SEA objectives. This positive impact is likely to increase over time as the predicted effects of climate change materialise.
3	Reduce risk to life by reducing the number of people exposed to risk of flooding of significant depth and velocity	This objective has significant positive impacts upon the health and well being of the population of RCT in addition to minimising the potential impact of flooding on infrastructure. Secondary positive impacts on biodiversity water resources, cultural heritage and landscape are also likely to materialise.
4	Reduce disruption to critical infrastructure or support the preparation of plans to allow their operation to be maintained	Significant, positive impacts on managing disruption to infrastructure, minimising the risk of flooding and protecting and enhancing human health and well being will likely result as a consequence of this LFRMS objective.
5	Improve or not detrimentally affect water quality	This objective will likely result in strong, positive impacts on the protection and enhancements of human health, the maintenance and enhancement of water resources and the protection and enhancement of landscape within RCT. Additional positive impacts upon biodiversity may also result.
6	Where possible, improve naturalness – reducing modifications to channels, water bodies and where appropriate, create or enhance natural floodplain storage linked to nature conservation and landscape initiatives	Strong, positive impacts relating to the *protection and enhancement of biodiversity* and *enhancement of landscape* will result from this LFRMS objective.
7	Ensure projects are designed and constructed in a sustainable way	Likely positive impacts on *landscape features* within RCT. Likely secondary positive impacts on *the protection and enhancement of biodiversity*, *the protection of land quality and the minimisation of risk to flooding*.
8	Maintain, or where possible improve the status of Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), Sites of Importance for Nature Conservation (SINC) and contribute to the RCTCBC Biodiversity Action Plan (BAP)	The most prominent positive impacts are on *biodiversity* and *landscape* features. There will likely be secondary positive impacts on *human health* and the *maintenance and enhancement of water resources and quality*.

Table 10 (cont'd) – Summary assessment of the likely environmental effects of LFRMS objectives

LFRMS Objective		Summary of Environmental Effects
9	Explore the potential benefits of reducing flood risk through using innovative land management techniques	Positive impacts across a wide range of environmental topics are likely to result as a consequence of implementing innovative land management techniques. Prominent impacts occur to *the protection of land quality* and the protection/enhancement of landscapes which is a function of the largely agricultural focus of land management techniques which will enhance the characteristics of land/soils.
10	Provide clarity of stakeholder's responsibilities with regard to flooding and where possible seek to support stakeholders in carrying out their responsibilities	Ensuring that everyone is aware of their roles on flood risk management will assist in the minimisation of flood risk. Hence, the primary positive impact is on *minimising the risk of flooding*.
11	Develop better understanding of the risks of flooding from surface runoff , groundwater and ordinary watercourses and plan how best to communicate and share information on all forms of flooding	Increasing understanding of the risks from local flood risk will assist in reducing the impacts of flooding by enabling more informed decision making to be undertaken with regard to flood risk management.
12	Promote resilience at property/community level	The principle positive impacts result to the *protection and enhancement of human health and well being* and the *minimisation of flood risk*.
13	Ensure that emergency plans are prepared at local and community levels as required	The principle positive impacts results to the *protection and enhancement of human health and well being* and the *minimisation of the impact of flooding on infrastructure.*
14	Ensure that RCT works in partnership with other Risk Partners work collaboratively with adjacent authorities	The majority of positive environmental impacts are secondary in nature due to the indirect impact that this measure is likely to have. But it should be anticipated that by working collaboratively with neighbouring local authorities will, to a certain extent, extend the scope possible when undertaking flood risk management projects on catchment/regional scales.
15	Provide flood risk management plans for each area subject to flood risk	Strong, positive influence across a broad range of environmental issues reflecting the fact that FRMPs will be one of the primary means of implementing measures and policies.
16	To ensure that investment decisions for the implementation of flood risk management schemes are made on a consistent, prioritised basis subject to cost-benefit analysis	It is assumed that if current best practice cost-benefit guidelines are used to assess and prioritise potential flood risk management schemes that appropriate consideration will be given to the benefits arising from social and environmental enhancements arising. It is therefore likely that properly valuing the benefits of various environmental enhancements will bring about positive benefits across a wide range of environmental themes.

9.3 Water Cycle Management Opportunities

Improvements to overall water management within RCT are likely to be enhanced by certain measures contained within the LFRMS. For instance, implementing *source control* measures (via, for example, the implementation of SuDS or land management techniques) will enhance the infiltration of rainwater into the ground. This will have a positive effect by reducing the load placed on surface water sewers, enhance the recharging of groundwater aquifers and improve the retention of water in the catchment which will reduce flood peaks and provide secondary biodiversity and recreational enhancement.

9.4 Potential Enhancement of the Human Environment

The RCT Local Development Plan (LDP) up to 2021 includes details of proposals for significant new areas of housing, employment, commercial development, highway schemes and retail allocations.

Other planned programmes such as the RCT Community Strategy (2010-2020) highlights social issues to be tackled including: poor and unpopular housing, significant differences in health and life expectancy, low educational achievement and anti-social behaviour. The ways in which the LFRMS reinforces the ambitions of the RCT Community Strategy as well as the Health, Social Care and Wellbeing Strategies is further explained in Table 11.

Table 11 - Link between Community Strategy ambitions and the LFRMS

Community Strategy Ambitions	Link to the LFRMS
Continuing to improve the maintenance and management of local streets and public spaces	Aims to improve the management and maintenance of local streets and public spaces with regard to flooding.
Promote a Civic Pride campaign to encourage community Action and Partnership in improving our environment	Aims to encourage and improve community involvement in flood risk management decisions
At least maintain the access to parks and open spaces for all residents and visitors	Aims to protect designated sites from the adverse effects of flooding
Encourage public awareness and responsibility	One of the four overarching objectives of the National Strategy is 'raising awareness of and engaging people in the response to flood risk'. Three detailed objectives have been developed under this (see Section 6).
Health, Social Care and Wellbeing Strategies Priority Goals	**Link to the LFRMS**
Environmental quality - Working together to provide a clean, safe physical environment which is of high quality and promotes civic pride.	Many of the objectives of the LFRMS involve improving environmental quality.
Injury prevention - Reduce the number of injuries and deaths caused by accidents in RCT, with an initial focus on older people.	One of the detailed objectives of the LFRMS is to reduce risk to life by reducing the number of people exposed to risk of flooding of significant depth and velocity.

9.5 Potential Enhancement of the Natural Environment

Water availability is a critical component in maintaining and enhancing certain water dependent habitats/biodiversity. Certain measures outlined within the LFRMS have the potential to incorporate habitat enhancement or work in synergy with other environmental strategies in order to create or improve the natural environment.

9.6 Reduction in Carbon Use

It is likely that the implementation of the LFRMS will bring about reductions in carbon footprint. This can be brought about in a number of ways:

- by implementing objectives that encourage schemes to be constructed in a sustainable manner, and indeed the possible promotion of non-structural schemes, there will be a reduction in embedded carbon in *soft engineered* flood risk reduction measures as opposed to more traditional measures which use reinforced concrete, quarried raw materials etc.
- the reduced energy requirement needed for water treatment by reducing the amount of surface water runoff entering foul/combined sewer systems;
- water storage areas and wetlands used for flood storage areas also act as natural areas of carbon capture;
- potential innovative land management techniques, such as the restoration of degraded peat bogs, will additionally create natural carbon sinks.

9.7 Water Framework Directive

The Severn River Basin Management Plan outlines the pressures facing the water environment in the wider south-east Wales region and the actions required to address them.

The objectives which are relevant to this strategy are to:

- prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- aim to achieve at least good status for all water bodies by 2015. Where this is not possible and subject to criteria set out in the Directive, aim to achieve good status by 2021 or 2027;
- meet the requirements of Water Framework Protected Areas;
- promote sustainable use of water as a natural resource;
- conserve habitats and species that depend directly on water;
- progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;

- progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants;
- contribute to mitigating the effects of floods and droughts.

Certain flood risk management activities have the potential to assist in meeting the objectives listed above. For instance:

Pollution prevention – The use of SuDS and the correct regulation of water courses can assist in the prevention of watercourses from industrial and domestic pollution.

Reduction of sediment in water courses – this can be achieved via implementing best-practice land management techniques and the use of SuDS particularly where soils are prone to erosion.

Protection and enhancement of wildlife – measures to protect and enhance wildlife and their habitat can be embedded within potential flood risk management schemes. This is particularly the case where flood risk management measures are implemented in synergy with complimentary environmental strategies.

Preservation of water resources – by looking at flood risk management in a holistic manner, the whole water cycle will be considered as a key element of scheme appraisal.

10.0 HOW AND WHEN THE STRATEGY IS TO BE REVIEWED

Reviews are planned to take place in 2013 to coincide with the 'Flood Hazard and Flood Risk Maps' and in 2015 to coincide with the 'Flood Risk Management Plans' required by the Flood Risk Regulations (2009). In 2016 another review will take place due to new information from the updated Flood Risk Assessment. A formal review will take place in 2017 and every following six years to run alongside the production of the 'National Strategy for Flood and Coastal Erosion Risk Management in Wales', as suggested by the Welsh Government and summarised in Table 12.

This LFRMS will be subject to continuous improvement and not be completed as one-off exercises. The regular reviews described above have been built in to allow an alternative approach to be adopted with all of the relevant data being taken into consideration. RCT will follow the schedule detailed above and will also review the strategy whenever new information becomes available that deems it necessary. The review process will be overseen by the RCT Environmental Services Group and scrutinised by the Welsh Government.

Table 12 - Timetable for LFRMS Review

Stage	Date
Publication of Flood Hazard and Risk Maps	Winter 2013/14
Publication of Flood Risk Management Plans and completion of the first cycle of the Flood Risk Regulations	Winter 2015/16
Publication of the second National Flood Risk Management Strategy by the Welsh Government	Spring/Summer 2017
Update of Preliminary Flood Risk Assessment	
Publication of Flood Risk Management Plans and completion of the second cycle of the Flood Risk Regulations	Winter 2021/22
Publication of the third National Flood Risk Management Strategy by the Welsh Government	Spring/Summer 2023

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