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  4. Torfaen County Borough Council Local Development Plan Broad Level Assessment of flood Risk (2011)
- 6.5 Within Torfaen County Borough Council a significant Flood Risk Area has been identified within the PFRA, required under the Flood Risk Regulations 2009. The measures to be identified in the subsequent Flood Risk Management Plan will compliment and accord with those within this Local Strategy.
- 6.6 In order to identify the measures TCBC has engaged with the community to outline the risks now and in the future to the affected communities. Community engagement has involved the attendance at local Flood Forum meetings and an on-line survey accessible through the TCBC webpage. Discussions will continue in order to agree any proposed measures to mitigate against these risks and what communities and individuals can also do for themselves. Some measures will be introduced which will mitigate directly the flood risk to individual communities. Other measures proposed will not mitigate the risks directly, but improves the knowledge and understanding of those risks in a given area and these measures will be clearly communicated to the communities affected.
- 6.7 Management Authorities within its area including Dŵr Cymru – Welsh Water, and Natural Resources Wales in order to realise the benefits of collaborative working, e.g. shared solutions and funding, and also to ensure that there is a shared vision and agreed outcomes.
- 6.8 In developing objectives and measures TCBC has also considered the impacts of climate change to ensure that the measures are designed and are resilient to the changing climate. Sustainable development is a central core operating principle of the Welsh Government and has and will continue to be reflected through the work of the LLFA, in line with the statutory duty set out in Section 27 of the Act.
- 6.9 Climate change and its impact on flooding has and will be considered by each Risk Management Authority and will be a factor in any flood alleviation plans. LLFA adaptation programmes are be integral to the Local Strategy.
- 6.10 Climate change projections suggest that weather patterns will alter and that there will be an increase in the intensity of rainfall, the

frequency of sudden storms and sea level rises across Wales. Taken together these factors are likely to increase the *likelihood* of flooding and coastal erosion.

The UK Climate Projections 2009 show that the key findings for Wales are:

- 1 By 2050 average annual temperatures are projected to increase by 2.3°C
- 2 Summer daily maximum temperatures are projected to increase by 3.4°C
- 3 Winter minimum temperatures are projected to increase by 2.5°C
- 4 Rainfall is projected to increase in winter on average by 14 per cent and decrease in summer by 16 per cent
- 5 Sea levels around Wales are predicted to rise by approximately 20cm by 2050
- 6 Storm intensity in summer and winter will increase, leading to more severe storms and larger waves attacking our shores

The evidence of the increasing risks from flooding and is underpinned by a series of reports produced in the last few years including the *Foresight: Future Flooding Study*, the *Stern Review on the Economics of Climate Change* and most recently, *the Pitt Review into the Summer 2007 Floods*.

The Welsh Government is working with Natural Resources Wales to develop updated guidance on what Risk Management Authorities should plan for in relation to climate change when undertaking flood or coastal erosion risk management works. This guidance will be taken into account by TCBC in its preparation of Flood Risk Management Plans

Other guidance to aid the assessment of climate change is already available and these include the Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG), Planning Policy Wales (2011) Technical Advice Note 15 (Tan 15) and others which are listed within FCERM-AG.

- 6.9 Further information and advice on how to improve individual resilience to flooding is also available from Natural Resources Wales via their 'Floodline' service and this information has been considered in the preparation of this strategy.

6.10 Sustainable development is a central core operating principle of the Welsh Government and has and will continue to be reflected through the work of the LLFA, in line with the statutory duty set out in Section 27 of the Act. In May 2010 the Council formally signed up to the WG's Sustainability Charter and committed to making Sustainability its "central organising principle." Given the potentially significant implications of such a commitment, the issue was considered by full Council, and incorporated into the Council's Policy framework.

6.11 Welsh Commitment to Address Climate Change (2006) has been signed by all Local Authorities in Wales and commits us to work to adapt to the effects of climate change.

Under Part 4 of the Climate Change Act 2008, Welsh Government has provided guidance to public bodies in Wales on 'Preparing for Climate Change'. WG have indicated that they expect all key 'reporting authorities' to make continued progress in preparing for a changing climate.

Working with Natural Resources Wales, WG is also developing updated guidance outlining what Risk Management Authorities should plan for in relation to climate change when undertaking flood or coastal erosion risk management works. This guidance will be taken into account by TCBC in its preparation of Flood Risk Management Plans

Other guidance to aid the assessment of climate change risk is already available and includes the Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG), Technical Advice Note 15 (Tan 15) and others which are listed within FCERM-AG.

Climate change and its impact on flooding will be considered by each Risk Management Authority and will be a factor in any flood alleviation plans. LLFA adaptation programmes are integral to the Local Strategy.

In developing objectives and measures TCBC will consider the impacts of climate change to help us plan for the future and build local resilience. The Flood Risk Management Strategy will form an important part of the climate change adaptation response for Torfaen.

In 2011/12 the Council and the Local Service Board have begun to explore the risks associated with climate change to our communities and to service delivery. By taking early action to prepare we can identify vulnerable areas within the borough, identify cost effective actions that build resilience and improve our capacity to adapt to the impacts of climate change.

Climate change projections suggest that weather patterns will alter and that there will be an increase in the intensity of rainfall, the

frequency of sudden storms and sea level rises across Wales. Taken together these factors are likely to increase the *likelihood* of flooding and coastal erosion.

The UK Climate Projections 2009 show that the key findings for Wales are:

- 1 By 2050 average annual temperatures are projected to increase by 2.3°C
- 2 Summer daily maximum temperatures are projected to increase by 3.4°C
- 3 Winter minimum temperatures are projected to increase by 2.5°C
- 4 Rainfall is projected to increase in winter on average by 14 per cent and decrease in summer by 16 per cent
- 5 Sea levels around Wales are predicted to rise by approximately 20cm by 2050

The projections also suggest extreme weather events will happen more frequently. It is these severe, more frequent conditions, as well as wetter summers and winters that will increase the risk of flooding.

This means that in the future there is a greater chance that flood defences and drainage systems alone will not prevent flooding. We will also need to have preparations for when those systems reach maximum capacity.

The evidence of the increasing risks from flooding and is underpinned by a series of reports produced in the last few years including the *Foresight: Future Flooding Study*, the *Stern Review on the Economics of Climate Change* and most recently, *the Pitt Review into the Summer 2007 Floods*.

6.12 The Guidance document sets out numerous pieces of advice relating to the identification of measures proposed to achieve the objectives given in section 5 of this report, as set out below

6.12.1 Development Planning and Adaption

6.12.1.1 Strategic Land Use Planning Prevention  
Objectives 1, 2, 3, 4, 14

The Adopted Torfaen Local Plan (2000) is the development framework for the County Borough, setting out the Councils priorities for the development and use of land in the County Borough and the policies to implement them, and is the basis against which planning

applications will be determined. Policy G1 (D) will assess applications in respect of flood risk alongside national planning policy as contained in Planning Policy Wales and Technical Advice Note 15 (Development and Flood Risk) 2004.

### Local Development Plan

The emerging Local Development Plan will on adoption replace the existing Local Plan as is the development plan for the area. As part of the land use strategy for the emerging LDP a sustainable approach to development and flood risk has been adopted. New development allocations have avoided high risk flood areas (Zones C1 and C2) aside from the exceptions outlined in Flood Risk Paper below. The Deposit LDP contains policies to steer developments away from flood risk areas in line with national policy (Policies S3 and BW1).

Natural Resources Wales has defined the zones in Tan 15: Development and Flood Risk as follows:

- 1 Zone A – Considered to be at little or no risk of fluvial or tidal/coastal flooding
- 2 Zone B – Areas known to have been flooded in the past evidenced by sedimentary deposits
- 3 Zone C – Based on Natural Resources Wales extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)
- 4 Zone C1 – Areas of the floodplain which are developed and served by significant infrastructure, including flood defences
- 5 Zone C2 – Areas of the floodplain without significant flood defence infrastructure

### Benefits

- 1 Local Development Plan (LDP) provides a strategic policy framework which facilitates the effective management of flood risk by directing new development away from those areas which are at high risk of flooding.
- 2 New developments will be at low risk of flooding

### Time Scale for Implementation

2011--2021

Short Term 0-20 Years

### Broad Level Assessment of Flood Risk Background Paper

Flooding is an important factor that influences both development control decisions and development plan allocations. The natural process of flooding is often hard to predict, and although flooding events are infrequent within the County Borough, flooding can threaten human life as well as cause extensive damage to property, general disarray and trauma for those affected.



Flood risk is therefore a key issue that has been addressed as part of the LDP. The paper forms a Broad Level Assessment identifying the national policy context for flood risk and how the precautionary principle advocated in national planning guidance to avoid development in the flood plain has been embraced in the LDP site selection process. The paper identifies the information the Council has on a site specific basis identifying where the consequences of flooding can be managed as well as setting out the justification for the inclusion of a small number of sites within flood risk areas.

In preparing the Torfaen Local Development Plan a key objective is:

*3. To ensure that the location of development does not result in unacceptable risk from flooding, subsidence or health hazards.*

The principle of directing new development away from areas thought to be at high risk of flooding has been a key consideration throughout the candidate site assessment process. New development allocations, in general, have avoided high risk flood areas (Zones C1 and C2).

Due to the nature and extent of flooding areas in Torfaen and the potential development sites suggested through the candidate site assessment process the LDP has managed to avoid the identification of sites within high risk flood areas except in three areas. In relation to these sites individual detailed Site specific Flood Consequence Assessments (FCAs) have been prepared. These assessments are available as supporting information to the LDP.

A specific SFCA has not been required as Flood Risk has been effectively managed by avoiding sites that are identified as having a high risk of flooding. Where flooding has been identified as an issue an individual FCA has been prepared to support the allocation of this site. This approach has been detailed to Natural Resources Wales through the regular planning liaison meetings.

#### Benefits

1. The paper and the individual Flood Consequence Assessments has allowed the consequences of flooding to inform the location of new development in the LDP
2. The individual FCA's has enabled consideration of potential increases in surface water runoff arising from new development, including the potential application of sustainable drainage systems

Time scale for Implementation

2006-2021

Short term 0-20 years

Natural Resources Wales has defined the zones in Tan 15: Development and Flood Risk as follows:

- 1 Zone A – Considered to be at little or no risk of fluvial or tidal/coastal flooding
- 2 Zone B – Areas known to have been flooded in the past evidenced by sedimentary deposits
- 3 Zone C – Based on Natural Resources Wales extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)
- 4 Zone C1 – Areas of the floodplain which are developed and served by significant infrastructure, including flood defences
- 5 Zone C2 – Areas of the floodplain without significant flood defence infrastructure

#### Benefits

- 1 Local Development Plan (LDP) provides a strategic policy framework which facilitates the effective management of flood risk by directing new development away from those areas which are at high risk of flooding.
- 2 New developments will be at low risk of flooding

#### Time Scale for Implementation

2011--2021

Short Term 0-20 Years

#### 1.2 Strategic Flood Risk Assessment (SFRA) /Strategic Flood Consequences Assessment (SFCA)

Prevention

Objective 1, 2, 3, 4

Stage 1 of a Strategic Flood Consequence Assessment (SFCA) was undertaken as part of the LDP process (See Appendix 9 of LDP).

#### Benefits

- 1 SFCA allowed the consequences of flooding to inform the location of new development in the LDP.
- 2 SFCA also enabled consideration of potential increases in surface water runoff arising from new development, including the potential application of sustainable drainage systems.

#### Time Scale for Implementation

2006 – 2021

Short Term 0-20 Years

### 1.3 Water Cycle Strategies

#### Prevention

#### Objective 12, 14

A Water Cycle Strategy is an opportunity for TCBC and all our partner organisations to work together to identify the water services infrastructure needed to support and enable sustainable development in the Borough. The strategy identifies what infrastructure is needed, when it is required, how much it will cost, and who should pay.

The overall objective of a Water Cycle Strategy is to provide a sustainable approach to the provision of water services infrastructure. The following topics have been covered as part of this process:

Water Cycle Strategy covers the following elements:

- 1 Flood Risk Management: Identifying areas where development is likely to increase flood risk (both on-site and downstream) and to suggest necessary improvement measures.

This Local Flood Risk Management Strategy deals with this issue and the Flood Risk Management Plans will identify specific measures for individual sites.

- 2 Water Supply: Reviewing the existing water supply sources and identifying any required upgrades to ensure adequate water provision for new developments.

This will require ongoing dialogue with Dŵr Cymru/Welsh Water as one of our Risk Partners. They are required to take account of the Local FRM Strategy in what they propose

- 3 Drainage: Reviewing the underlying geology for growth sites to understand the possible SUDS (sustainable urban drainage systems) to help minimise the environmental impacts of growth. This involves future implementation of SUDS, for which consultation is not yet available. Currently there is a link to Planning applications where drainage implications are considered by the Drainage and Highways Department.

- 4 Waste Water: Understanding the current capacity of sewage works and the sewer network to identify whether any upgrades are required to accommodate new developments.

This requires dialogue with Dŵr Cymru/Welsh Water. They are required to take account of the Local Strategy in what

they propose and this will take place through dialogue and collaboration as part of the Local Strategy process of consultation

- 5 Ecology: Identifying the impact of growth relating to water quality, nature conservation areas and protected species, then suggesting possible mitigation measures where required.

The SEA as part of the FRM Strategy covers this.

- 6 Sustainable Infrastructure: Suggesting how water services infrastructure can contribute to sustainable development in terms of increased water efficiency and reduced water consumption in new developments.

There are obligations on the Planning process to consider sustainability. Dŵr Cymru/Welsh Water input will also be required as part of the dialogue between all parties.

#### Benefits

- 1 To ensure the management of water resources in a sustainable way
- 2 To manage and develop sewage systems for future developments

#### Time Scale for Implementation

Short term 0 – 20 years

#### 1.4 Relocation

##### Prevention

Objectives 1, 2, 3, 4

TCBC do not have a policy relating to the relocation of residents living in housing which is subject to flood risk and it is not anticipated that significant numbers of properties, if any, will be identified which will requiring the relocation of residents.

If houses are identified as being in areas of significant flood risk, which would endanger life, then the following procedure will be followed to endeavour to reduce flood risk:

- 1 Provide an early warning system to allow residents time to move to a safe area.
- 2 Encourage the residents to produce their own Flood Plan to reduce danger to themselves and damage to their property and its contents
- 3 Provide systems to prevent floodwater entering the property
- 4 Endeavour to reduce flood risk by reducing the volume of water being generated by the upstream catchment

- 5 Introduce new flood relief systems such as culverts or drainage ditches
- 6 Build new flood defences or raise the level of existing flood defences

If all these measures are impracticable for reasons of cost or engineering then TCBC will endeavour to relocate residents to the most convenient available vacant housing. If there are significant numbers of properties involved then TCBC will consider how alternative houses may be provided on locally available land which has been allocated for housing.

It is anticipated that the property owner would be responsible for the cost of relocation. As a final option TCBC may consider the compulsory purchase of only the highest risk properties where life and limb is threatened.

#### Benefits

- 1 Reduce the risk to residents by removing them from housing in areas which are subject to severe flood risk

#### Time Scale for Implementation

Long term 50 – 100 years

#### 1.5 Mineral and waste plans Prevention

##### 1 Minerals Objective 12

In respect of minerals, any proposals will be assessed against Policies M1 – M17 of the Gwent Structure Plan (1991 - 2006) and the requirements of national policy as contained in Mineral Planning Policy Wales and Minerals Technical Advice Notes. This policy framework requires mineral proposals to be acceptable and terms of hydrological and hydrogeological factors. Land reclamation schemes also need to incorporate restoration proposals which will need to address final landform and land uses.

In respect of the emerging Local Development Plan, Torfaen County Borough Council considers that on mineral issues national policy is sufficiently clear. Therefore, it will be relied upon in the determination of planning applications in relation to mineral extraction and related development with regard to hydrological and hydrogeological factors in conjunction with any policies contained within the Local Development Plan.

## Benefits

- 1 Policy framework contributes to managing flood risk and protecting the water environment.

### Time Scale for Implementation

2006 – 2021

Short term 0 – 20 years

## 2 Waste Objective 12

In respect of waste disposal proposals, these will be assessed against Adopted Local Plan Policies E10 and E11 and national policy contained in Planning Policy Wales and Technical Advice Note Z1: Waste, in respect of hydrological and hydrogeological issues.

In respect of the emerging Local Development Plan, Policy W1 (Waste Management / Resource Recovery Proposals) indicates that any outline proposals for new in-building strategic facilities will be directed toward B2 industrial land and premises or existing or previous waste facilities. Open air facilities will be directed away from any hydrological or hydrogeological sensitive locations.

All allocated sites that are in the emerging Local Development Plan are by definition, either outside the Zone C2 floodplain, or require a Flood Consequence Assessment to be carried out that identifies that employment use is acceptable under the advice of TAN 2.

For existing B2 sites which do not require planning permission it is expected that Natural Resources Wales will be encouraged to consult with TCBC as a LLFA about any flood risk issues under its site licencing powers. Where proposals are received on existing B2 sites for waste or waste transfer operations the application will be considered against policy W1 and national policy contained in TAN 15 to assess any flood plain issues. Developers are encouraged to consult the Local Planning Authority or Natural Resources Wales for further information on any site that is potentially at risk from flooding.

## Benefits

- 1 Policy framework contributes to managing flood risk and protecting the water environment.

### Time Scale for Implementation

2006-2021

## Short term 0 – 20 years

### 1.6 Sustainable Drainage (SuDS)

#### Prevention

Objective 1, 2, 3, 4, 12, 14

#### Engineering Issues

Within the Flood and Water Management Act 2010, Torfaen County Borough Council has been designated as a Lead Local Flood Authority for its administrative area.

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

TCBC have a commitment to promote the use of SuDS wherever new sites are developed or brown field sites are re-developed.

The philosophy of SUDS is to replicate, as closely as possible, the natural drainage from a site before development.

The objectives of sustainable drainage are quality, quantity and amenity and biodiversity.

It is anticipated that SUDS will achieve the following:

- 1 Reduce runoff rates, thus reducing the risk of downstream flooding
- 2 Reducing the additional runoff volumes and runoff frequencies that tend to be increased as a result of urbanisation, and which can exacerbate flood risk and damage receiving water quality
- 3 Encourage natural groundwater recharge to minimise the impact on aquifers and river base flows in the receiving catchment
- 4 Reducing pollutant concentration in stormwater, thus protecting the quality of the receiving water body
- 5 Acting as a buffer for the accidental spills by preventing direct discharge of high concentrations of contaminants to the receiving water body
- 6 Reducing the volume of surface water runoff discharging to combined sewer systems, thus reducing discharges of polluted water to watercourses via Combined Overflows (CSO) spills
- 7 Contributing to the enhanced amenity and aesthetic value of developed areas

## 8 Providing habitats for wildlife in urban areas and opportunities for biodiversity enhancement

The following techniques will be considered as part of SUDS – filter strips, swales, infiltration basins, wet ponds, extended detention basins, constructed wetlands, filter drains and perforated drainpipes, infiltration devices, pervious surfaces and green roofs.

Extracts above have been taken from The SUDS Manual prepared by CIRIA

### Planning Issues

Policy S3 (Climate Change) of the emerging Local Development Plan supports new developments where they reduce surface water run-off and flood risk through the use of suitable SUDs.

### Benefits

- 1 Policy framework contributes to managing flood risk, protecting water quality and reducing environmental damage.
- 2 Improve the quality of surface water

### Time Scale for Implementation

2006 – 2021

Short term 0 - 20 years

### Flood forecasting, warning and response

#### 2.1 Flood Awareness

##### Preparedness

##### Objective 5

Both the EA and TCBC (Neighbourhood Services & Emergency Management Service) have continually worked closely to raise awareness of flooding to communities within Torfaen County Borough. This includes the production of printed material such as leaflets, information packs and websites.

The Emergency Management pages on the TCBC website has built up a number of pages of information on flooding and links to the EA Flood Guides, Template Plans (targeted at the family and community levels as well as information on flooding incidents and links to support and health advice. The EA Wales Flood Warning Widget which displays current/live flooding information for Wales is also incorporated into this area of the TCBC website. TCBC is also embracing the increasing usage of



Social Media sites by its citizens. This is likely to be an important platform for providing flood awareness in the future.

In addition to the above Natural Resources Wales is also embarking on a specific awareness campaign with those residents at risk of flooding in the Ponthir area of Torfaen. This included the delivery of flood information packs and promotional activity to raise awareness and increase take up of the EA Flood Warning Service.

#### Benefits

- 1 Raise awareness of flood risk within the communities of TCBC

#### Time Scale for Implementation

Ongoing

Short term 0 - 20 years

## 2.2 Flood Warning

Preparedness

Objective 5

On Receipt of Severe Weather Warning via the Met Office an assessment is made and if necessary the warning is distributed to relevant officers and Service Areas within the Council. If the warning is received outside office hours the warning is received by the Council's Out of Hours Control Room who then contact the "on call" duty Engineers and the "on call" Emergency Management Officer.

The appetite for the Extended Floodline Service (EFS) was originally born out of the recommendation within the Lessons Learned Report (Autumn 2000) that Floodline should be developed to become a "one stop shop" to help with all flooding problems.

In response to this, a Pilot Study which involved 26 Local Authorities was undertaken in Devon, Cambridgeshire and Hertfordshire between April 2003 and September 2004. Due to budgetary and resource constraints during 2005 and 2006 implementation of the service was delayed. The pilot looked at the value of the extension, provided a variety of lessons learned, and helped to refine the objectives of the project and reduce the number of risks to delivery.

The motivation behind the pilot project was based upon the need to provide Floodline customers with more localised information previously not available through the service. Local authorities

were approached to provide contact numbers and information on commonly asked questions related to:

- 1 Roads affected by flooding
- 2 Local services and amenities affected by flooding
- 3 Local flooding information contact details
- 4 Flooding evacuation plans
- 5 Sandbag distribution schemes

The pilot study indicated that a scripted service and an optional call transfer facility could be implemented without compromising the existing quality of the Floodline service. The pilot study also highlighted the complications of maintaining correct information and the limited scope of the information provided.

The new EFS Project is focussing on extending the service to Local Authorities in England and Wales only. The EFS infrastructure will complement future expansion into other areas like Scotland and Northern Ireland but this will depend on the available infrastructure in these areas. Scotland will remain on the main Floodline Service only. The final number of English and Welsh Local Authorities included in the EFS will depend on their commitment to a set of minimum standards and their ability to handle call transfers from Floodline.

The project does not change Natural Resources Wales's remit to provide information about fluvial and coastal flooding only. The additional information listed above will be provided to Floodline by the Local Authorities. The project's overall objective will be to provide a vehicle for localised flood information and contact details to be given to Floodline callers

#### Benefits

- 1 To give local communities as much warning of potential flooding as possible to allow residents to take appropriate action.

#### Time Scale for Implementation

Currently in place and will be continued

Short term 0 – 20 years

### 2.3 Flood forecasting

Preparedness

Objective 5

It is unlikely that advance warning would be possible for flooding resulting from surface water drainage problems or a breach in a canal bank, reservoir dam or sea wall.

However, the Flood Guidance Statement is issued daily by the Flood Forecasting Centre which shows a rolling five day forecast of flood risk at county level for England and Wales. These are categorised into fluvial and coastal and/or surface water flooding risk. Awareness of this type of problem is dependent upon Local Authorities monitoring potential trouble spots together with information received from the general public.

#### Benefits

- 1 To give local communities and individuals the maximum amount of warning possible

Time Scale for Implementation  
Currently in place and ongoing  
Short term 0-20 years

#### 2.4 Emergency response plans Preparedness Objective 5

At present there are five response plans in place, all of which impinge of the Torfaen area;

- 1 Gwent LRF Flood Arrangements, Sept 2011
- 2 Gwent LRF Major Emergency Response Arrangements
- 3 Torfaen CBC Corporate Emergency Management Plan
- 4 Gwent LRF Severe Weather Plan
- 5 Gwent LRF Generic Reservoir Inundation Plan

#### Torfaen County Borough Council

As a Category 1 Responder under the Civil Contingencies Act 2004 Torfaen County Borough Council (the Council), has to recognise its responsibilities to all its communities when they suffer disruption which affects their social and economic well being. The Council is fully committed to its community leadership role in assisting members of the public to react to and cope with these disruptions. Implicate to the Community Leadership role is the identifications of and partnership working with other concerned or involved agencies.

In flooding incidents within its area the Council considers its partners to be:-

- 1 Natural Resources Wales
- 2 Welsh Water / Glas Cymru
- 3 Heddlu Gwent Police
- 4 The South Wales Fire and Rescue Service
- 5 The Welsh Ambulance Service NHS Trust.

## 6 Aneruin Bevan Local Health Board

### Benefits

- 1 To manage the response of TCBC and its Risk Partners to various emergencies including flooding
- 2 To give support to the communities during and after emergencies

### Time Scale for Implementation

Ongoing

Short term 0 – 20 years

## 2.5 Community flood plans

Preparedness

Objective 13

TCBC has only one Community Flood Plan in place covering the Ponthir community. This area was chosen by Natural Resources Wales as it is considered to be one of the communities at greatest risk of river flooding within Torfaen.

A Flood forum was set up by the EA bringing together representatives of the community of Ponthir, the Community Council, the Local Ward Councillor, Natural Resources Wales employees and staff members from TCBC Emergency Planning Group.

Although the forum was established to produce a Community Plan relating to a main river, in this case the Avon Lwyd river. it is considered as an appropriate grouping to consult as part of the preparation of the FRM Strategy as the same community is also subject to flooding from surface water, ordinary watercourses and their interface with the Afon Lwyd river . It is anticipated, therefore, that the Ponthir Flood Forum will be reconvened as part of the public consultation required to produce the LFRMS.

Short term 0-20 years

## 2.6 Multi-Agency Flood Plans

Preparedness

Objectives 13

Gwent Local Resilience Forum Multi Agency Flood Arrangements:

The plan details the arrangements in place for responding to a flood emergency in the Gwent Local Resilience Forum (LRF) Area. It is designed to dovetail with the Gwent Major Emergency

Response Arrangement (GMERA) document that details the generic arrangements in place to respond to emergencies. It also clarifies the responsibilities of organisations involved in the management of flood incidents.

This plan provides information on the flood hazard and takes into account the risks identified in the Gwent Community Risk Register (as illustrated below) produced by the Gwent LRF Risk Assessment Working Group.

Community Risk register reference	Flood description	Risk rating
3.1 / H17	Storms & Gales	Medium
3.5 / H19	Flooding: Major Coastal - tidal flooding affecting more than two UK regions	Very High
3.6 / H16	Local Coastal - tidal flooding affecting more than one region	Very High
3.7 / HL17	Local Coastal – tidal flooding in one region	Very High
3.8 / H21	Flooding: Severe Inland – flooding affecting more than two UK regions	High
3.9 / HL18	Local Fluvial Flooding – fluvial or surface water run - off	High
3.10 / HL19	Local fluvial flooding	High
3.11 / HL20	Localised, extremely hazardous flash flooding	High
4.4 / H44	Major reservoir or dam failure / collapse	Medium

#### Benefits

- 1 To manage the response of TCBC and its Risk Partners to various emergencies including flooding
- 2 To give support to the communities during and after emergencies

#### Time Scale for Implementation

Ongoing  
Short term 0 – 20 years

- 2.7 Major Incident Plans  
Preparedness  
Objectives 13

## Torfaen County Borough Council Corporate Emergency Management Plan:-

Torfaen County Borough Council accepts its responsibility to “care for” the population in emergency situations. To this end it has prepared and will maintain a plan capable of dealing with all unusual peace time eventualities, ranging from Major Incidents to small but possibly unusual emergency situations. There are a wide variety of disaster situations but most natural disasters in this country take the form of flooding, severe snow conditions or freak storms accompanied by high winds. Hazards associated with the Gwent area include unstable coal and other waste tips, hillsides and disused mines adjacent to residential areas. Further hazards may include fire, explosion, the emission of toxic fumes, radiation, structural collapse, accidents arising from manufacturing processes or in the storage or conveyance of hazardous materials and in all forms of transport. The scale of casualties arising from a serious traffic accident or from an air crash involving a wide bodied jet airliner are such that it is easy to imagine a disaster situation happening at any moment.

Whilst there are no specific sites or installations in the Torfaen County Borough that require off site plans to deal with a major incident (though there are Major Accident Hazard gas pipelines). Consideration must be given to the hazards that exist in neighbouring Local Authorities which, in the event of a major incident, could have an impact on the population and the Authority.

Major Incidents are dealt with in three generally accepted phases;

- 1 Mitigation of the effects
- 2 Restoration to normality
- 3 Rehabilitation of those involved as soon as possible

The Local Authority role is initially to support the Emergency Services and later to take the lead to co-ordinate the recovery, restoration and rehabilitation phases.

Major Incident situations are mentioned above but it is fully recognised that other emergency situations could arise involving great damage to property or the environment but posing no apparent threat to life and limb. The plan is therefore intended to be sufficiently flexible to cope with these lesser situations since a lack of immediate attention could result in an escalation of an innocuous situation into something more serious.

Local Authorities have a general duty of care to maintain public services and to assist local residents in distress and they should play a major part in co-ordinating the response of the various organisations involved. The need for the co-ordination and integration of Local Authority, Emergency and Voluntary Services plans to deal with such eventualities is key to an effective response to any emergency situation.

In the application of this plan Torfaen County Borough Council will not discriminate against any persons regardless of sex, race, colour language, religion, political, or other opinion, national or social origin, association with national minority, property, birth or other national status as defined under Article 14, European Convention Human Rights (ECHR)

#### Benefits

- 1 To manage the response of TCBC and its Risk Partners to various emergencies including flooding
- 2 To give support to the communities during and after emergencies

#### Time Scale for Implementation

Ongoing

Short term 0 – 20 years

### 6.12.3 Land, cultural and environmental management

#### 3.1 Land management

Prevention

Objective 1, 2, 3, 4

#### Planning Issues

Land management across the Torfaen County Borough area is implemented by a wide range of individuals and organisations with no effective ability to strictly control these matters. The vast majority of land management will be influenced by European and national strategic decisions, particularly agricultural policy and funding.

Where there are opportunities to influence land managers, such as currently through grant funded initiatives, then it will be possible to encourage continuation or changes in land management where land managers are supportive.

Unfortunately there is little certainty on the future extent and direction of such grant schemes, however, wherever possible partner organisations and land managers will certainly be required to maximise the use of such grant funding so as to

integrate land management solutions to include consideration of contributions to flood minimisation.

The Local Authority will include the consideration of flooding and erosion matters in the emerging Open Spaces Strategy in order that these matters are encouraged to be considered by the relevant land manager.

### Engineering Issues

In order to reduce total runoff and/or control peak flows from catchments above areas identified as being subject to flood risk TCBC will consider introducing various methods of catchment management.

Where forestry planting has been introduced TCBC will enter into discussions with land owner to discuss felling and tree planting programmes to minimise increases in runoff after felling or reductions to peak flows in the medium term. It is anticipated that the Forestry Commission as one of the Risk Partners with TCBC will be engaged in consultation to control these processes.

Control over the construction of drainage systems within the forestry will also be discussed.

TCBC as the LLFA will also consult with Farm Unions and local farmers to discuss methods of farming, such as the direction of ploughing, which affects the nature of the runoff from farmland.

The use of fertiliser and other chemicals used in the farming industry will also be discussed in an attempt to limit contamination of downstream watercourses.

### Benefits

- 1 Integrated land management opportunities benefitting a range of themes simultaneously, theoretically broadening the scope and increasing the likelihood of funding for projects that will improve land water management.
- 2 Reduction of surface water runoff and peak flows
- 3 Reduction of contamination to surface water runoff

### Time Scale for Implementation

Short Term and medium term 0 – 50 years

## 3.2 Resilience

Preparedness

Objectives 9



Within TCBC a culture of resilience to flood will be adopted in relation to property and land subject to flood risk. This will entail the restoration of land and property as quickly as possible following a flood event. The standard of restoration will be set appropriately to return habitats to their previous condition without significant change.

Resilience relating to properties is covered in 5.4 below.

Where land contains Sites of Special Scientific Interest (SSSIs) or Sites of Importance for Nature Conservation (SINCs) measures will be adopted which will minimise the risk of flooding if flooding is considered to be of detriment to the habitat. It must be accepted, however, that total removal of risk may not be possible. As such the sites will be appropriately managed to increase the ability of the environments to cope with any changing conditions that may arise. This Strategy will assess all risk of flooding and so any actions to mitigate that risk are carried out in a consistent and measurable manner, however, the flood risk to life, property and environmental sites will be weighted in line with the guidance documents and the Water Framework Directive...

Where land containing SSSIs, SINCs LNRs, RIGs and SACs is identified as being subject to flood risk surveys and reports will be carried out to identify the potential damaging effects of flooding and what measures could be implemented to reduce the flood risk and/or increase the resilience to long-term changes.

Such measures may include the construction of swales, drainage ditches or small earth bunds to divert surface water from the most sensitive areas to areas of less environmental significance, or altering land management (3.1).

#### Benefits

- 1 To maintain, enhance and increase the resilience of existing habitats particularly SSSIs, SINCs, SACs, LNRs and RIGs
- 2 To restore habitats to their original condition as soon as possible

#### Time Scale for Implementation

Short term 0 – 20 years

### 3.3 Resistance Protection Objectives 9

Within TCBC a culture of resistance to flood risk will be adopted in relation to property and land subject to flood risk. This will entail the implementation of measure which will reduce the risk of flood water entering properties and land which would be adversely affected by flooding. Resistance relating to properties is covered in 5.5 below.

Where land contains Sites of Special Scientific Interest (SSSIs), Sites of Importance for Nature Conservation (SINCs), Special Areas of Conservation (SACs), Local Nature Reserves(LNRs) or Regionally Important Geological Sites (RIGs), measures will be adopted which will minimise the risk of flood water entering the site although it must be accepted that total removal of risk will not be possible As such the sites will be appropriately managed to increase the ability of the environments to cope with any changing conditions that may arise.

Where land containing SSSIs or SINCs is identified as being subject to flood risk surveys and reports will be carried out to identify the potential damaging effects of flooding and what measures could be implemented to reduce the flood risk and/or increase the resilience to long-term changes.

Such measures may include the construction of swales, drainage ditches or small earth bunds to divert surface water from the most sensitive areas to areas of less environmental significance, or altering land management (3.1).

#### Benefits

- 1 To maintain, enhance and increase the resilience of existing habitats particularly SSSIs, SINCs, SACs, LNRs and RIGs

#### Time Scale for Implementation

Short term 0 – 20 years

- 3.4 Restoration  
Prevention  
Objective 9, 10

#### Planning Issues

Most industrial land reclamation is envisaged to be dealt with via the Planning system; as such there will be opportunities for relevant statutory bodies to contribute. Notwithstanding this matter there will be a preference for using 'soft' engineering solutions (rather than 'hard') for the management of water on restoration sites. Only when there is clear evidence that such

solutions are not appropriate due to site specific or localised issues will 'hard' landscaping options be considered.

### Engineering Issues

Traditionally the western side of the Afon Lwyd river valley has been subject to extensive mining for coal and fire clay. Various forms of deep and drift mining have been used which has left large deposits of waste material on the surface in the form of tips. The majority of these have now been removed and the valley has only one drift coal mine in operation remaining.

In recent years coal extraction has been recovered by opencast mining and although significant excavations were carried out as part of the extraction process. There are two main areas that are still regarded and financially viable for this process: Pwll Ddu and The British. Both have significant environmental planning issues attached to them and TCBC will require a detailed reinstatement/redevelopment plan before any extraction takes place.

Drainage on these sites usually takes the form of drainage ditches, swales, French drains, surface water sewers and lined channels. These techniques usually restore the surface water runoff to a level similar to green field values once the vegetation has been established and the site matured.

It is the policy of TCBC to restore all post industrial land/derelict land, where appropriate, to beneficial use.

### Benefits

- 1 To create semi-natural environments
- 2 To restore land to prior use or sustainable communal use wherever possible.

### Time Scale for Implementation

Short and medium term 0- 50 years

## 3.5 Environmental Enhancement

### Prevention

#### Objective 10

Typically environmental enhancements schemes are either linked to development sites or are publicly funded grants to improve existing, predominantly urban, areas. As such there is a high potential impact that can be gained from careful consideration on such schemes. The Local Authority will:

- 1 Include improvements in surface water management in all publicly funded schemes

- 2 Request demonstration of water management techniques in all Landscaping Master plans submitted as part of Planning Conditions
- 3 Request the removal of invasive non-native species from/bordering enhancement/development sites followed by secondary planting to minimise re-growth and erosion

#### Benefits

- 1 Decreased surface water runoff on new developments and publicly funded environmental enhancements

#### Time Scale for Implementation

Short, Medium and Long term 0 – 100 years

### 3.6 Water Level Management Plans Protection

#### Objective 13

TCBC has 1 water body which is registered under the Reservoirs Act 1975 and this is listed below.

#### Water Bodies Registered under the Reservoirs Act 1975

- 1 Blaen Bran Reservoir – Registered under the Reservoir Act 1975 this reservoir has been classed as ‘sensitive’ by Natural Resources Wales and as of August 2012 is being administered by this body.  
Owner – Contact Natural Resources Wales  
Grid Reference – 326737,197083  
Area – 1.19 ha

#### Water Bodies over 2,000m<sup>2</sup> (0.2ha) in area (or bordering on) The Torfaen area

The following ponds have been identified as falling within this category:

1	Llantarnam Ponds	330312,192897	1.04 ha
2	Cwmbran Boating Lake	330475,193896	1.52 ha
3	Cwm Lickey Pond	327051,198687	0.69 ha
4	Deer Ponds Pontypool Park	328799,200873	0.21 ha
5	Cwmavon Reservoir	326900,207112	0.82 ha
6	Balls Pond Blaenavon	325439,209676	0.40 ha
7	Nant Llechan Pond Blaenavon	325580,209926	0.26 ha
8	Garn Pond Blaenavon	323990,209563	0.61 ha
9	Pwll Ddu Ponds	324110,210580	0.81 ha
10	Garn Lakes Blaenavon	323229,209971	4.01 ha
11	Coity Pond Blaenavon	323291,209038	2.23 ha

12	Garnyrerw Tip ponds	322675,210817	0.69 ha
13	Llandegfedd Reservoir	330090,199680	172.00 ha
14	Pant-Yr-Eos	325640,191530	6.44 ha

Water Bodies outside of Torfaen with possible impacts on Torfaen

#### Court Farm Reservoir

TCBC propose to prepare a database of all water bodies which may be man made or naturally formed depressions, within the Borough which have a surface area greater than 2,000m<sup>2</sup> (0.20 ha) and could therefore have a significant affect on surface water flooding. A survey will be carried out to identify these structures within the next two years

#### Benefits

- 1 To be prepared for any emergency resulting from a failure in any water retaining structure
- 2 Provides protection to local residents

#### Time Scale for Implementation

Short term 0 – 20 years

### 3.7 Habitat creation

Protection

Objective 10

#### Planning Issues

Habitat creation is inexorably linked to land management (see 3.1 above) and with the same issues and opportunities. In general most habitats created are those rare or in decline and have a net positive impact upon water management: by far the main broad types of habitat created locally are woodland, hedgerows, grasslands, ponds and wetlands. Habitat creation will be supported as a means of mitigation to off-set any negative effects from development.

#### Engineering Issues

In order to reduce total runoff and/or control peak flows from catchments above areas identified as being subject to flood risk TCBC will create new habitats having characteristics which will reduce the total runoff or reduce the peak level of surface water discharge from the site.

Where there is currently a catchment with high runoff characteristics such as open amenity grassland the following

broad habitats types may be created in the vicinity to control surface water flows:

- 1 Forestry
- 2 Wetland
- 3 Attenuation ponds
- 4 Hedgerows
- 5 Adaptation of grassland management

Where woodland planting is to be considered TCBC will enter into discussions with the Forestry Commission, Coed Cymru, Countryside Council for Wales, and the emerging National Environment Body as Risk Partners as well as the local land owner, Farming Unions and internal partners.

Where wetlands and storage ponds are considered consultation will also take place with Natural Resources Wales and Countryside Council for Wales; emerging Single Environment Body.

#### Benefits

- 1 Improvements to water management including reduced surface water runoff and increased water retentive capacity
- 2 Improve bio-diversity and creation of BAP habitats

#### Time Scale for Implementation

Short, Medium and long term 0 – 100 years

### 6.12.4 Asset Management and Maintenance (SAMPs)

#### 4.1 System Asset Management Plans

##### Protection

Objectives 6, 8

Under the Flood and Water management Act 2010 TCBC as a LLFA is required to maintain a register of structures or features, which in the opinion of the authority, are likely to have a significant effect on a flood risk in the borough. Information must be recorded about each of the structures and features including ownership and the state of repair.

In order to satisfy this requirement TCBC will set up a database using Microsoft Access and layers within Mapinfo Geographic Information System (Mapinfo GIS), which have the following information recorded:

- 1 An Excel spreadsheet and GIS layer showing all Dŵr Cymru / Welsh Water surface water sewers and combined sewers above 400mm diameter and the associated manholes.
- 2 Records within the Access database and GIS layer showing all known culverted watercourses 300mm diameter and above and all associated manholes, intakes and outlets, owned by TCBC, Network Rail, SWTRA and other land owners.
- 3 Records within the Access database and GIS layer showing all significant open channels, ponds and reservoirs.

More recently TCBC has purchased three modules of a bespoke system for Asset Management from STM. It is this system, which will be used in the future for the management of drainage structures including the following:

- 1 Database of all pipes, culverts, channels, drainage ditches, manholes, intakes and outfalls.
- 2 GIS layers of all pipes, culverts, channels, drainage ditches, manholes, intakes and outfalls.
- 3 Records of all inspections carried out to grids or culverts and
- 4 Records of cleaning of grids and gullies

To date TCBC has used their Access database to keep the following information:

- 1 a register of those structures and features likely to have a significant effect on flooding
- 2 list of all grids

The system of database and GIS layers will be used by TCBC to manage drainage assets. Further information is required and the following surveys and calculations will be carried out:

- 1 Calculation of capacity of each culvert
- 2 Identification of intake structures below current EA standards, which will need to be upgraded
- 3 Identification of all owners and their contact details
- 4 Current condition of each significant culvert

Where areas are identified which are subject to a high level of flood risk one of the measures which will be considered in order to reduce flood risk will be the construction of new surface water culverts or channels.

## Benefits

- 1 Provide details of all existing drainage structures which are likely to affect flood risk
- 2 Give easy and efficient access to available information
- 3 Provide condition surveys and maintenance records for all drainage structures
- 4 Maintain records of cleaning and inspection of grids and gullies

### Time Scale for Implementation

Short term – 0 – 20 years

## 4.2 Defence/structure management

### Protection

#### Objective 6

TCBC has a number of formal flood defences, which have been plotted within the GIS system. These defences are largely earth formed embankments, which have been constructed by Natural Resources Wales.

A list of the defences is given below:

In addition TCBC has a number of informal flood defences, which may include items such as boundary walls to properties, embankments constructed for highway schemes, individual properties, or even kerb lines. Although these features were not constructed as flood defences, in some cases they defend properties against flooding and in others they affect the route of surface water during floods and therefore can significantly affect flood risk.

It is proposed that these informal structures will be identified as part of the Hazard and Risk Management Plans to be prepared by June 2012. This information will then be included in the TCBC database of drainage assets.

## Benefits

- 1 To exclude flood water from areas identified as subject to flood risk

### Time Scale for Implementation

Sort and Medium term 0 – 50 years

## 4.3 Channel maintenance

### Protection

#### Objectives 6



Channels, which have been identified as being significant to flood risk, have been included in the TCBC database of drainage structures and the GIS layers.

Where these structures are in the ownership of TCBC they are maintained by the TCBC Drainage Department. Channels may include ordinary watercourses, lined channels, drainage ditches and swales.

The condition of these culverts is unknown and maintenance is carried out on an “as required” basis and may include the following:

- 1 Cutting of grass and shrubs where this may impede flows and reduce channel capacity
- 2 Repairs to concrete inverts or bank protection where damage has occurred, which could undermine the integrity of the channel.
- 3 Construct new or improved intakes to culverts where existing structures are reducing the operational capacity of culverts or causing risk of flooding due to blockage, the new structures will be designed and built in accordance with Natural Resources Wales Code of Practice for intakes.

It is proposed as part of this strategy that surveys will be carried out of all channels, which are considered to be significant in terms of flood risk. The surveys will identify details of the construction materials, size and shape of the channel and its condition.

From this survey information a detailed programme of work will be drawn up for the maintenance and/or replacement of all existing channels.

Following the next round of surface water modelling and the preparation of Hazard and Risk Maps, the Flood Risk Management Plans will be written. These plans will identify individual measures to be implemented in each flood risk area, which may include the construction of additional channels to carry excess surface water from areas of high flood risk.

#### Benefits

- 1 To bring all channels on significant watercourses to be fit for purpose
- 2 To ensure that all channels are well maintained

Time Scale for Implementation  
Short term 0 – 20 years

#### 4.4 Culvert maintenance

##### Protection

##### Objectives 6

Culverts and pipes, which have been identified as being significant to flood risk, have been included in the TCBC database of drainage structures and on the GIS layers.

Where these structures are in the ownership of TCBC or have been classified as being of strategic importance they are maintained by the TCBC Drainage Department.

Where access inside the culverts is relatively easy and the culvert is regarded as being of strategic importance they are inspected on an annual basis.

The culverts classified in this category are listed below:

Most of the culverts, which are in TCBC ownership, do not fall into this category and therefore their condition is unknown and maintenance is carried out on an “as required” basis and may include the following:

- 1 Repairs to culvert inverts and walls where the construction is in masonry
- 2 Replacement of sections of culvert, which have collapsed using modern pipes
- 3 Replacement or repair of existing structures such as manholes, intakes and outlets.

It is proposed as part of this strategy that surveys will be carried out of all culverts, which are considered to be significant in terms of flood risk. The surveys will identify details of the construction materials, size and shape of the culvert and its condition.

From this survey information a detailed programme of work will be drawn up for the maintenance and/or replacement of all existing culverts.

Following the next round of surface water modelling and the preparation of Hazard and Risk Maps, the Flood Risk Management Plans will be written. These plans will identify individual measures to be implemented in each flood risk area, which may include the construction of additional culverts designed to modern standards to carry excess surface water from areas of high flood risk.

## Benefits

- 1 To bring all culverts on significant watercourses to be fit for purpose
- 2 To ensure that all culverts are well maintained

## Time Scale for Implementation

Short term 0 – 20 years

### 6.12.5 Studies, Assessments and Plans

#### 5.1 Investigation

##### Preparedness

Objective 6, 13

In the preparation of this strategy and identification of measures, which may be implemented as part of the Risk Management Plans a number of issues have been identified in terms of the lack of information currently available within TCBC. It is proposed that numerous surveys and investigations will be carried out in order to supplement the information already available.

A list of the surveys required is given below:

- 1 Where land containing SSSIs or SINCs is identified as being subject to flood risk surveys and reports will be carried out to identify the potential damaging effects of flooding and what measures could be implemented to reduce the flood risk.
- 2 Survey of water bodies with area greater than 2,500 m<sup>2</sup>
- 3 Additional information required for the database and GIS layers
  - 1 Calculation of capacity of each culvert
  - 2 Identification of intake structures below current EA standards, which will need to be upgraded
  - 3 Identification of all owners and their contact details
  - 4 Current condition of each significant culvert
- 4 Identify all features, which act as flood defence structures
- 5 Survey all channels, which are considered to be significant in terms of flood risk. The surveys will identify details of the construction materials, size and shape of the channel and its condition.
- 6 Survey all culverts, which are considered to be significant in terms of flood risk. The surveys will identify details of the construction materials, size and shape of the culvert and its condition.

## Benefits

- 1 To have information available to identify where measures may be required
- 2 To have information available to design new measures

## Time Scale for Implementation

Short term 0 – 20 years

### 5.2 Risk Assessment

#### Preparedness

#### Objective 13

A measure of the flood risk within TCBC was established at part of the PFRA Report. The report identified 27 “Blue Squares” where the level of risk was deemed to be significant and a Flood Risk Area of 63km<sup>2</sup>.

The Key Flood Risk Indicators for the TCBC Flood Risk Area have been calculated by the as follows:-

1	Human health consequences – Number of people (2.23 multiplier)	7,542
2	Other human health consequences – Number of critical services flooded	40
3	Economic consequences – number of non-residential properties flooded	852

As part of the requirements of the Flood Risk Regulations the Flood Risk in TCBC will be reassessed and the following time scale has been draw up.

- 1 Updated Flood Map for Surface Water to be prepared by Natural Resources Wales by December 2012
- 2 Flood Hazard and Risk maps to be delivered by June 2012
- 3 Flood Risk Management Plans to be delivered by June 2015

The process listed above will result in a more detailed and accurate picture of the flood risk in TCBC.

## Benefits

- 1 To provide a more accurate measure of the flood risk within TCBC
- 2 To set a benchmark of flood risk for the Borough, this will be used to establish the reduction of flood risk as a result of implementing additional measures

Time Scale for Implementation  
Sort and medium term 0 – 50 years

5.3 Strategy Plan  
Preparedness  
Objectives 13

This Local Flood Risk Management Strategy for TCBC will provide the framework for the preparation of the Flood Risk Management Plans to be delivered by June 2015. The strategy will ensure that the plans will all be prepared on an equitable basis and will govern the process which will establish what measures are to be implemented in order to achieve the goal of reducing flood risk in all of the areas within TCBC where significant flood risk has been identified.

The strategy will set in place a system for the prioritisation of measures to be implemented on the based on the highest level of flood risk and most appropriate results from the cost benefit analysis process.

Benefits

- 1 Ensure that Flood Risk management Plans are all prepared in a consistent way

Time Scale for Implementation  
Short term 0 – 20 years

5.4 Local property-level flood mitigation - resilience  
Preparedness  
Objective 7

TCBC do not own Council Houses as their housing stock was transferred to Bron Afon Community Housing in 2008  
They do however own offices, schools, health centres, sheltered accommodation and other council related buildings.

The buildings vary in age but none of them have been built to withstand flooding. It is proposed that once the detailed flood modelling has been completed all Council owned buildings at risk will be identified. When these properties are due for refurbishment two quotations will be obtained, one designed with flood resilience in mind and one designed to “normal” building standards. A cost benefit analysis will then be carried out to decide if the additional cost of building in flood resilience is deemed beneficial in that case. Funding will have to be identified to cover the additional cost.

Where new buildings are planned within areas at risk of flooding TCBC will adopt a policy of using building standards which resilient to water inundation.

Methods of achieving building resilience in flood risk areas may include the following:-

#### Use of flood resilient materials

Ceramic tiled floors, flood proof skirting, steel kitchens units. Replace chipboard kitchens and bathroom units with plastic, steel or solid wood. Fit water resistant door and window frames. Replace usual plaster with a more water-resistant version such as lime plaster or cement render. Always use waterproof sealant on external walls and water resistant paint on internal walls. Use denser concrete screeds on concrete floors. Replace insulation with cell insulation which will survive flooding. Install concrete floors instead of timber suspended. Wall joints to be protected by installing a chemical damp proof course below joist level.

#### Use of flood resilient building techniques

Walls re-plastered up to 1 metre above floor level with water resilient plaster, all main appliances on plinths, kitchens units with base units raised off the ground and raise electrical points and other services above flood level. Use tiled floors with rugs that can be removed easily. Buy airbricks with removable covers – put them on during flood, but remove afterwards to help drying process. Install expensive electric equipment such as boilers upstairs.

#### Benefits

- 1 Less damaged will be caused to properties subject to flooding
- 2 Buildings will be renovated and brought back into use more quickly.
- 3 The overall cost of the building life cycle will be reduced.

#### Time Scale for Implementation

Building in resilience to existing properties will take place as properties are programmed for refurbishment and will only be considered when it has been established that they are within an area subject to flood risk. The time scale therefore for all Council owned properties to be refurbished is likely to be up to 50 years  
Medium term 20-50 years

- 5.5 Local property-level flood mitigation - resistance  
Protection  
Objectives 7

Where areas of flood risk are identified giving flood water levels below 600mm in depth then measures will be considered which will prevent the ingress of water into individual properties.

Measures may include portable flood walls, flood guards to doors or the replacement of existing doors with doors with seals which will withstand the depth of water predicted by the modelling. These measures would need to be installed with non-return valves or double-check valves in the foul sewers to prevent flood water entering the properties through the sewer systems.

#### Benefits

- 1 To ensure that properties damaged by flooding will be brought back to a habitable state as quickly as possible

#### Time Scale for Implementation

Sort and medium term 0 – 50 years

### 5.6 Pre-feasibility studies, Feasibility studies

Preparedness

Objectives 13

When the Flood Risk Management Plans are being prepared various options will be identified of measures to be implemented. At this stage pre-feasibility plans will be carried out which will identify the measures most likely to achieve the desired reduction in flood risk at appropriate cost.

Following this process a much more limited number of measures will be selected for further more detailed feasibility studies.

#### Benefits

- 1 Ensure that the most appropriate measures are put forward for implementation

#### Time Scale for Implementation

This work will be carried out within the next four years to ensure that the Flood Risk Management Plans are all completed

### 5.7 Project plans

Preparedness

Objectives 13

On completion of the feasibility study referred to in 5.6 above each measure will be subjected to an appraisal based on the following criteria:

- 1 Does it contribute the TCBC high level strategy of reducing flood risk?
- 2 What measurable effect does the measure have on reducing flood risk?
- 3 Is the scheme within a high priority flood risk area?
- 4 Does the cost benefit analysis show the scheme to be value for money?
- 5 Is funding available to implement the scheme/

If the scheme satisfies these conditions then it will be forwarded to the Welsh Government for further appraisal.

#### Benefits

- 1 To identify flood risk in a more precise way
- 2 Allows the preparation of measures to reduce flood risk

#### Time Scale for Implementation

Sort and medium term 0 – 50 years

### 5.8 Surface Water Management Plans

#### Preparedness

#### Objectives 13

Following the delivery of the updated Flood Maps for Surface Water and the preparation of Flood Hazard and Flood Risk Maps TCBC will develop Flood Risk Management Plans for surface water, ordinary watercourses and ground water.

#### Benefits

- 1 To identify flood risk in a more precise way
- 2 Allows the preparation of measures to reduce flood risk

#### Time Scale for Implementation

Sort and medium term 0 – 50 years

### 6.12.6 High level awareness and engagement

#### 6.1 Partnership working

#### Preparedness

#### Objective

Close working with the following partnerships will be implemented:

- 1 Torfaen Biodiversity Partnership
- 2 Torfaen Environment Partnership
- 3 Health, Social Care and Wellbeing Partnership?
- 4 Community Safety Partnership?



## 5. Torfaen Local Service Board Climate Adaptation Partnership

### Benefits

Collaborative working and integration to prioritise plan and implement projects that will positively impact upon aims of this strategy. These include not only the implementation of physical projects but education and awareness raising (a Torfaen County Borough Council Biodiversity Action Plan Theme).

### Time Scale for Implementation

Immediate & ongoing

Short term 0 – 20 years

## 6.12.7 Monitoring

### 7.1 Erosion monitoring

Preparedness

Objective 10

It is not anticipated that TCBC will be affected significantly by erosion. There may be some limited erosion in main river but that issue is not the subject of this report.

Minor erosion may take place in ordinary watercourses but the channels formed by streams within the Borough have been established over many years and therefore future erosion is not considered to be a significant problem. Erosion is more likely and prevalent on historic restoration sites. Where this is an ongoing issue further restoration or habitat creation or land management will be used to remedy/minimise erosion.

Erosion within steep stream beds does occur on a small scale which results in debris build up on screens at the entrance to culverts. This material would be noticed during the routine examination of the screens and arrangements made to remove the debris from the site.

In order to minimise the impact of debris restricting flows into culverts all new or improved grids will be constructed with additional grids upstream to collect the debris before it arrives at the culvert entrance.

### Benefits

- 1 To enable corrective action to be taken if the affect of flooding is causing restrictions in channels and water courses.

Time Scale for Implementation  
Short term 0 – 20 years

7.2 Habitats monitoring  
Preparedness  
Objective 9

The monitoring of Sites of Importance for Nature Conservation (SINCs) forms part of LDP monitoring. As SINCs contain the vast majority of quality natural habitats this monitoring strongly correlates with Torfaen Biodiversity Action Plan Habitat monitoring. Local BAP habitats of most relevance include: wetland, rivers and streams, (marshy) grassland; however other habitats will also have major impact such as hedgerow, broadleaved and coniferous woodland.

Benefits.

- 1 Monitoring of change (reduction, increase, improvement of natural habitats).

Time Scale for Implementation  
1year+ - ongoing  
Short term 0 – 20 years

7.3 Topographical survey  
Preparedness  
Objective

Topographical surveys will be carried out where required to allow construction schemes to be designed as part of the Flood Risk Management Plans

Benefits

- 1 To allow measures to be designed in detail for specific sites.

Time Scale for Implementation

7.4 Aerial photography  
Preparedness  
Objectives 13

Monitoring sites/habitats via aerial photography is possible. We receive aerial photographs from the Ordnance Survey of whole Borough once every 2- 3 years and are available for viewing on GIS. platform.

## Benefits

- 1 Ability to monitor certain changes without site visit.

Time Scale for Implementation

Ongoing

Short term 0 – 20 years

**TORFAEN COUNTY BOROUGH COUNCIL**  
**OBJECTIVES AND RELATED MEASURES**

	Objective	Measures
1	Reduce distress by reducing the number of people exposed to the risk of flooding.	1.1, 1.2, 1.4, 1.6, 3.1
2	Reduce community disruption by reducing the number of residential and commercial properties affected by the risk of flooding	1.1, 1.2, 1.4, 1.6, 3.1
3	Reduce risk to life by reducing the number of people exposed to risk of flooding of significant depth and velocity.	1.1, 1.2, 1.4, 1.6, 3.1
4	Reduce disruption to critical infrastructure or prepare plans to allow the operations to be maintained.	1.1, 1.2, 1.4, 1.6, 3.1
5	Provide systems to give early warning of potential flooding to individuals and communities.	2.1, 2.2, 2.3, 2.4
6	Provide efficient systems for the management and maintenance of surface water assets.	4.1, 4.2, 4.3, 4.4, 5.1
7	Reduce economic damage	5.4, 5.5
8	Reduce cost of management	4.1
9	Contribute to the climate change adaptation response for Torfaen.	
10	Protect and improve Sites of Special Scientific Interest (SSSIs) Sites of Importance for Nature Conservation (SINCs), Special Areas of Conservation (SAC) Local Nature Reserves (LNRs) and Regionally Important Geological Sites (RIGs).	3.2, 3.3, 3.4, 7.2
11	Contribute to the delivery of Torfaen Biodiversity Action Plan	3.4, 3.5, 3.7, 7.1
12	Create natural channels and water bodies with minimal modifications	
13	Protect and Improve water quality	1.3, 1.5, 1.6
14	Provide Flood Risk management Plans for each area subject to flood risk	2.5, 2.6, 2.7, 3.6, 5.1, 5.2, 5.3, 5.6, 5.7, 5.8, 7.3, 7.4
15	Ensure that measures are designed and constructed in a sustainable way	1.1, 1.3, 1.6
16	Ensure that TCBC works in partnership with all other Risk Partners and works collaboratively with adjacent Authorities	6.1
17	Ensure that investment decisions for the implementation of flood risk management	

	schemes are made on a consistent, defensible basis and are subject to cost benefit analysis.	
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## **7 How and when the measures are expected to be implemented**

7.1 Under Section 6 a list of measures have been identified to implement the objectives listed in section 5 of this strategy. Within each measure the time scale for implementation has been given which complies with those given in the Welsh Government Guidance as listed below:

- 1 short term (0-20 years)
- 2 medium term (20-50 years)  
and
- 3 longer term (50-100 years).

7.2 No measures have been identified for implementation as part of this Strategy. It is anticipated that detailed projects and construction scheme will be identified as part of the Flood Risk Management Plans which must be completed by June 2015.

7.3 Projects and construction schemes will be selected for detailed preparation and design on the basis of a prioritised system which will identify the level of flood risk based on a combination of social, economic and environmental issues. This system will be based on a series of priorities to be adopted by TCBC. Once a scheme has been prepared an estimated cost will be provided and a cost benefit analysis carried out to determine its priority for obtaining financial support. Input will be provided by the Finance Department to establish the financial resources available and whether the proposal is realistic in terms of finance and time scale. The availability of physical resources in terms of design staff and construction facilities will also be considered.

7.4 Where projects and construction schemes have been identified in partnership with other Risk Management Authorities TCBC will endeavour to agree how, by when and by whom these measures are expected to be implemented.

**8. The costs and benefits of those measures, and how they are to be paid for.**

- 8.1 For each of the measures identified within the Local Strategy the associated costs, benefits (be they tangible or intangible) and how they are to be paid for will be determined. These details cannot be incorporated within the Local Strategy as no specific measures have been identified for implementation at particular locations. These measures will be identified during the preparation of the Flood Risk Management Plans which will be completed by June 2015.

Before the measures can be detailed it will be necessary to complete the following processes as required by the Flood Risk Regulations 2009 Timetable published in the Guidance to Lead Local Flood Authorities – Selecting and reviewing Flood Risk Areas for local sources of flooding:-

- 1 Flood Hazard Plans to be completed by 22 June 2013
- 2 Flood Risk Plans to be completed by 22 June 2013
- 3 Flood Risk Management Plans to be completed by 22 June 2015

In addition the following procedures will have to be implemented to identify the measures which to be implemented at specific locations:

- 4 Modelling of individual areas identified as high risk
- 5 Prioritisation of areas based on magnitude of flood risk
- 6 Design of measures to be implemented

- 8.2 A cost/benefit analysis is ultimately dependant on the strategic priorities and the means of funding, which is why the Local Strategy addresses these issues together wherever possible. It is important to establish who is paying for and who is benefiting from any proposed measures, since the answers to these questions will largely determine the cost/benefit analysis process.

- 8.3 The Welsh Government will be undertaking a review of the appraisal guidance relating to the allocation of funding, and it is anticipated that this will be out for consultation in 2012. Until any revised guidance is published LLFA should continue to use the current PAG series supported by any specific additional or updating material provided by the Welsh Government.

The principles of a cost/benefit analysis as outlined in the Flood and Coastal Defence Project Appraisal Guidance FCDPAG3 “Economic Appraisal” should be employed.

It is acknowledged that measures, to date, have been based upon a cost/benefit ratio where the benefits are determined to be greater in the long term than the associated costs. Going forward, however, measures should retain the cost/benefit compliance, whilst ensuring that they are proportionate to the level of risk presented.

8.4 When considering the works required in delivering the Local Strategy, LLFA should be mindful of work ongoing to deliver the National Strategy, and also of works carried out by other organisations in the area, particularly other Risk Management Authorities. Early engagement with other Risk Management Authorities will assist with this by providing an opportunity to share and therefore gain a better understanding of the work program for each partner accordingly.

#### 8.5 Potential Sources of Funding

##### Public Funding

##### 8.5.1 Funding from Welsh Government

With less direct government funding available, it is clear that changes are needed to the traditional approaches to funding flood risk management. The current situation of government flood risk management funding is summarised below:

- 1 Under an agreement between LLFA and the Welsh Government, which expired on 31<sup>st</sup> March 2011 funding of £22,727 was awarded to each Unitary Authority in Wales to support LLFA in the pursuance of the requirement to prepare and provide a completed PFRA to Natural Resources Wales by their specified deadline of 22 June 2011.
- 2 Further funding has been provided to each Unitary Authority in Wales by the Welsh Government, in the sum of £90,000, for the fiscal years up to 31 March 2012 and 31<sup>st</sup> March 2013. This funding is to allow LLFA to resource the implementation of the requirements of the Flood Risk Regulations 2009 and in particular to fund the preparation of the Local Flood Risk Management Strategy and the provision of an Asset Register for items which have a significant effect on flood risk.
- 3 It is anticipated that funding will also be provided by Welsh government for the continued implementation of the responsibilities laid on LLFA under the Flood and Water Management Act. Details of this funding have not yet been decided.

### 8.5.2 Funding through the Community Infrastructure Levy

The Community Infrastructure Levy came into force in April 2010 and provides Torfaen County Borough Council with an alternative source of potential funding for flood defence schemes. It allows the borough to raise funds from new development in their area in order to pay for the impact that the development has on local infrastructure. The funds raised by the levy are matched against a charging schedule of agreed projects. The levy is based on the concept that almost all development has some impact on infrastructure and services, so it is fair that development should contribute towards the cost of maintaining or upgrading local infrastructure.

Local Authorities are required to use this funding for infrastructure needed to support the development; it can be used to construct new infrastructure, increase the capacity of existing infrastructure or repair failing existing infrastructure. The Planning Act 2008 includes a broad definition of the infrastructure that can be covered by this scheme including transport, flood defences, schools, hospitals and parks.

The decision to put flood defence schemes on the charging schedule is up to the relevant borough council. Councils should look to put it on where it is relevant for ensuring future development. Flood defence schemes which only affect current development cannot be put on the charging schedule.

### 8.5.3 Funding through the European Union

European Union funding is available through the Interreg scheme. The scheme will allow a major piece of work to go ahead and will enable land to be opened up to development. As surface water management plans are created across the study area, options proposals from these reports will be used to inform future proposals to the ERDF.

Private funding

### 8.5.4 Section 106 funding – Developer Contributions

Section 106 of the Town and Country Planning Act 1990 allows a local planning authority, such as Torfaen County Borough Council, to enter an agreement with a landowner or developer in association with the granting of planning permission. A Section 106 agreement is used to address issues that are necessary to make a development acceptable, such as supporting the provision of services and infrastructure.

One of the recommendations of 'Making Space for Water' was that local planning authorities should make more use of Section 106 agreements to ensure that there is a strong planning policy to manage flood risk. This means that any flood risk which is caused by,



or increased by, new development should be resolved and funded by the developer.

#### 8.5.5 Water Company Funding

Water companies invest money in flood alleviation schemes as part of their duties to remove properties from the DG05 register. Sometimes the most effective way to do this is to work in partnership with risk management authorities on flood alleviation schemes in other areas which can help reduce surface water pressure downstream.

Water companies are able to raise funds for flood alleviation schemes through the prices they charge their customers. However these prices are heavily regulated by OFWAT. When determining price limits OFWAT determines how much water companies can charge its customers to:

- 1 finance its day to day spending
- 2 finance its capital investment programme
- 3 reward outperformance in the previous five-year period
- 4 continue to finance previous capital investment through the return the company earns on its regulatory capital value (RCV)
- 5 pay tax it is liable for

#### 8.5.6 Local fundraising

In addition to contributions from developers, another important funding mechanism will come from local fundraising from the local communities and businesses that stand to benefit from the proposed flood defence Schemes. Fundraising may appear to be a daunting task but the best place to start is with who stands to benefit from the project. Some examples of success stories include:

#### 8.5.7 Other sources of funding

In areas prone to flooding, where potential mitigation schemes are identified, Torfaen County Borough Council will liaise with the local Federation of Small Businesses (FSB) to assist in putting together funding to support projects. While the FSB will not have a significant budget, its support can be used to raise local business support.

DEFRA is currently producing a good practice guide to support LLFA called 'Solutions for joint funding of surface water schemes'. This project will explain the funding mechanisms and time cycles, approval processes of key partners and benefits of joint funding of local flood risk management.

## **9. The assessment of local flood risk for the purpose of the strategy**

9.1 The PFRA completed by TCBC, as required by the Flood Risk Regulations 2009, has been used to inform the development of this Local Strategies. The identification of the areas potentially at risk of flooding and the assessment of that risk contained therein has been used to determine what further investigation or studies are required.

9.2 TCBC who have areas identified as being at significant flood risk (as defined by the Welsh Government) will be completing further specific analysis of these areas, providing Flood Hazard and Flood Risk Maps by 2013 and a full risk management plan for the relevant areas by June 2015.

Although these significant flood risk areas and the further analysis do not cover the whole of an LLFA area, the information has been considered and addressed within this Local Strategy.

9.3 As part of the PFRA exercise TCBC, using their own records and liaising with other Risk Management Authorities may have accumulated a considerable information resource relating to historic flooding events. With the new responsibilities provided under the Act for LLFA to investigate all flooding incidences it is expected that this resource will be enhanced and has therefore been considered by TCBC to inform their assessment of the local flood risk.

9.4 Natural Resources Wales has developed a number of surface water flooding related maps, which are available from their 'DataShare' data download website, which can be very beneficial in considering this area. A listing of all the data sets available on the DataShare website, as at September 2011, has been provided at Annex D

DataShare allows users to view and download the available data in a number of different electronic formats (such as GIS data formats). The data is 'cookie-cut' to a user' area of interest, such as Local Authority operational area. Use of the data is subject to the licence supplied alongside the download.

The data hosted on DataShare is updated as necessary to ensure that the most up to date information is available to download. For example Flood Map, Historic Flood Map and Main River data are updated quarterly and end users are emailed to confirm that the data has been refreshed.

A listing of the maps and all other data used by TCBC in the preparation of the PFRA and this Local Strategy is given below:

	Data	Description
Natural Resources Wales - Wales	Areas Susceptible to Surface Water Flooding	First generation national mapping, outlining areas of risk from surface water flooding with three susceptibility bandings - less, intermediate and more
	Flood Map for Surface Water	Second generation national surface water flood mapping which includes two sets of data - 1 in 30 and 1 in 200 year rain fall events with two bandings for each - greater than 0.1m and greater than 0.3m
	Flood Zones	Maps showing flood zones 2 and 3
	Areas Susceptible to Groundwater Flooding	Coarse scale mapping showing areas susceptible to groundwater flooding
	Historic Flood Map 22	Showing locations of areas of past flooding
	National Receptor Dataset	This data set gives details of social, economic, environmental and cultural receptors including residential properties, schools, hospitals, and electrical substations
	EAW Blue Square	Squares which the EAW have identified as being susceptible to flooding of significant consequences
	Indicative Flood Risk Area	Nationally identified flood risk area based on the DEFRA documentation
	River network	Map of main rivers
	Flood defences	Location of existing flood defences and land protected
	Historic Sewer Flooding	Location of incidents of fould sewer flooding
	Historic Surface Water Flooding	Location of incidents of surface water flooding
	Cultural	Coarse scale map of listed buildings and scheduled monuments at risk of flooding
	Environmental	Coarse scale maps of PPC sites with potential risk of flooding,
Utilities	Historic landfill	Areas used for land fill
	Welsh Water DG5 Register	Incidents of flooding within properties and severe external
	Welsh Water Services	Location of pumping stations, service reservoirs and treatment works
	Western Power	Location of substations
Emergency Services	British Telecom	Location of telephone exchanges
	Fire Service	Incidents of flooding
Torfaen CB Council	Police	Incidents of flooding
	Highway Asset Manager	Incidents of flooding to property Areas of historic flooding
	Regeneration Section - cultural	Listed buildings, ancient monuments,
	Planning Section - environmental	SSSI, nature reserve, SINC, landscape of historic interest
	IT Section - GIS	Contours at 5m intervals
	Emergency Planning Section	Incidents of flooding to property
	Emergency Planning Section	Location of schools, care homes, doctors surgeries, fire stations, police stations, ambulance stations

- 9.5 To decide on the significance of an individual flood DEFRA/WAG/EA have set key flood risk indicator which define a Flood Risk Area in Wales as having 5,000 people at risk or an individual 1km square where at least 200 people or 20 businesses or more than 1 critical service might be flooded to a depth of 0.3 metres and above by a rainfall event with a chance of 1 in 200 of occurring in any given year.

TCBC as a LLFA has set the key flood risk indicator of people at risk of flood at a threshold of 200 (equivalent to 85 properties) to decide if a flood is of local significance.

A flood event of this magnitude is at least one level of consequence down from the national threshold but still represents a flood of considerable magnitude. Such a flood could occur as a very intense localised area such as a 1km square or cover the whole of the borough in a less intense rainfall event.

The data readily available has been analysed to give the number of properties flooded in each incident and there are no records of flooding which affects 85 or more residential properties. And therefore no floods have been recorded as a result of this process.

One flood has been identified as being locally significant within Torfaen County Borough Council. This was identified from reports prepared following the floods, and occurred in 1989 in Ponthir.

- 9.6 TCBC has no information currently available relating to future flooding other than that provided by the EAW. It is the intension of TCBC to carry out electronic modelling within the Flood Risk Area and including other all other areas at risk of flooding with the Borough, as part of the preparation of Flood Hazard and Flood Risk Maps and the Flood Risk Management Plan for the borough.

Natural Resources Wales has produced two sets of flood maps giving an assessment of flood risk for the whole of England and Wales. The first generation mapping referred to as Areas Susceptible to Surface Water Flooding (AStSWF) containing three levels of banding with a 1 in 200 chance of occurring. A second generation of maps have since been prepared and issued by the EAW referred to as the Flood Map for Surface Water (FMfSW). This revised model contains two flood events 1) 1 in 30 and 2) 1 in 200 annual chance of occurring. Each data set is further subdivided to give areas likely to flood to a depth greater than 0.1m and greater than 0.3m.

The EAW have carried out validation checks on the two mapping system and for the type of terrain within TCBC, which is mostly steeply sloping hillsides it is considered that the Flood Maps for Surface Water are the most appropriate to use for this PFRA.

At this stage TCBC does not have details of the capacity of the local drainage but this information will be calculated as part of the preparation work for the Flood Hazard and Flood Risk Maps and the Flood Risk Management Plans.

As no other information is available the second generation of maps prepared and issued by the EAW referred to as the Flood Map for Surface Water (FMfSW). Have been accepted as the locally agreed surface water information.

- 9.7 In order to ensure consistence of approach, DEFRA and WAG have identified a number of key risk indicators and their thresholds to establish significant to determine the existence of indicative Flood Risk Areas.

The methodology is based on using the flood maps produced by the EAW to identify 1km squares where flood risk exceeds a defined threshold. These squares are known as Areas above Flood Risk Threshold (Blue Squares). The key flood risk indicators and their thresholds are as follows:-

- 1 a minimum of 200 people
- 2 a minimum of 20 businesses
- 3 2 or more critical services

The EAW has identified 20 blue squares within TCBC which are Areas above the Flood Risk Threshold.

A cluster of these blue squares is an indication that an area of concentrated flood risk has been identified. Where there are four or more touching blue squares within a 3km x 3km square the whole 3km x 3km square has been considered as an area which could form part of an indicative Flood Risk Area.

The key flood risk indicator for establishing an indicative Flood Risk Area is numbers of people at risk of being affected by flooding. If there is a minimum of 5,000 people within a series of connecting 3km x 3km grids, as identified above, then an indicative Flood Risk Area has been established.

- 9.8 A total of 30 blue squares have been identified by TCBC and using the methodology given and 27 of these squares are contained within the Flood Risk Area of 63 km<sup>2</sup>.

See Fig 1 TCBC Flood Risk Area and Blue Squares

The Key Flood Risk Indicators for the TCBC Flood Risk Area have been calculated by the as follows:-

1	Human health consequences – Number of people (2.23 multiplier)	7,542
2	Other human health consequences – Number of critical services flooded	40
3	Economic consequences – number of non-residential properties flooded	852

A part of this LFRS the whole of the flood risk area has been considered.

- 9.9 An list of all the blue squares within Torfaen County Borough Council will be compiled using the parameters set out below and will then form the a commencement point for this strategy.

The blue squares will be ranked in accordance with their calculated flood risk. The calculation has been based on the criteria set out in the PFRA Guidance as given in 9.7 above.

One point has been allocated to each person affected, 10 points for a business and 100 for a critical service. This sets the number of points to be above the threshold for the establishment of significant risk as 200 in all three cases for any 1km grid square.

This prioritised system will be used in order to establish the order in which areas will be studied in detail for the development of Flood Risk Management Plans. This order may change as more information is obtained from the surface water modelling and the preparation of Hazard and Risk Maps.

As the plans are risk management are prepared it may be appropriate to group numerous blue squares together where they are within the same catchment or community.

**TORFAEN COUNTY BOROUGH COUNCIL**

“BLUE SQUARE” – Ranked in order of Calculated Flood Risk  
 (to be completed after production of Hazard and Flood Risk Plans)

Point rating for risk to people 1 per person  
 Point rating for risk to critical services 100 per unit  
 Point rating for risk to businesses 10 per unit

	Grid Sq.	No. People	No. Critical Services	No. Non Residential Properties	Location	Indicative Flood Risk Area	Prioritised Risk

## **10. How and when the strategy will be reviewed**

- 10.1 The National Strategy will be formally reviewed on a six-yearly cycle, mirroring the requirements of the Flood Risk Regulations 2009. This will enable the Welsh Government to consider the information being produced from the mapping and planning exercises that Natural Resources Wales and LLFA will complete.

This information will also continue to inform the development of Local Strategies ongoing and so it seems logical for the Local Strategies to reflect this six yearly review cycle.

However, Local Strategies should be subject to continuous improvement and not be completed as one off exercises. Regular reviews should be built in to allow an alternative approach to be adopted with all of the relevant data being taken into consideration.

TCBC have therefore decided that a review of this strategy will take place every 6 years the first being in January 2019



## **11. How the strategy contributes to the achievement of wider environmental objectives**

Each LLFA must consider and record how their Local Strategies contributes to the achievement of wider environmental objectives. How some have been considered within the National Strategy has been recorded below, with the relevant policy, regulations and legislation clarified within Annex E.

### **11.1 Water Framework Directive**

In keeping with the requirements of the Water Framework Directive (WFD) and the National Strategy, considering sustainable development and working with natural processes to provide solutions to flood risks will help to mitigate the effects on biodiversity. Risk management measures can significantly benefit biodiversity in protecting designated sites and contributing to improving and maintaining these in a favourable condition. The National Strategy encourages the provision of biodiversity enhancements and minimising any adverse affects and so must also be considered with Local Strategies.

### **11.2 Strategic Environmental Assessment (SEA)**

The Welsh Government has determined that the National Strategy requires a Strategic Environmental Assessment (SEA) to be undertaken. Given the nature, content and legal requirement to produce Local Strategies, we anticipate that LLFA may also be required to undertake and SEA.

It is a legal requirement in the UK for certain plans and programmes stipulated by the SEA Directive (2001/42/EC), to undergo Strategic Environmental Assessment (SEA). The SEA Directive is implemented in Wales by the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

The purpose of SEA is to provide for a high level of protection of the environment, by ensuring the integration of environmental considerations into the preparation of the Local Strategy and to contribute to the promotion of sustainable development and environmental protection.

The environmental report produced as a result will detail the findings of the SEA, providing a description of the SEA process that was followed and the decisions taken; the consideration given to other policies and legislation that should be taken into account; identifying key environmental issues and trends to provide a context for the Local Strategies. It should clearly set out the assessment of the

effects of the Local Strategy together with relevant mitigation and enhancement measures, and should provide proposals for the monitoring and use of the resultant information to develop Local Strategies and influence future reviews.

Guidance entitled “*A Practical Guide to the Strategic Environmental Assessment Directive*” is available, which provides information on how the SEA should be undertaken. Please note that this guidance was originally produced by the Office of the Deputy Prime Minister (ODPM), which then became the Communities and Local Government (CLG) and so any references in the text to ODPM now refer to the CLG.

### 11.3 Habitats Regulations Assessment

The Welsh Government also determined that the National Strategy required a Habitats Regulations Assessment (HRA) to be undertaken. Given the nature, content and legal requirement to produce Local Strategies, LLFA may also be required to undertake a HRA for their Local Strategies.

In Wales, the Conservation of Habitats and Species Regulations (SI 490, 2010), often known as the ‘Habitats Regulations’, implements the EU ‘Habitats Directive’ (Directive 92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna) and certain elements of the ‘Birds Directive’ (2009/147/EC). This legislation provides the legal framework for the protection of habitats and species of European importance in Wales and England.

Regulation 9(5) of the Habitats Regulations requires that a competent authority must consider the requirements of Habitats Directive in exercising any of its functions. Article 6(3) of the Habitats Directive defines the requirements for assessment of plans and projects potentially affecting European sites.

This requires that a competent national authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project, which is likely to have a significant effect on a European site, and is not directly connected with or necessary to the management of that site, must make an Appropriate Assessment of the implications for that site in view of that site’s conservation objectives.

European Commission guidance on the Habitats Directive and guidance on the Habitats Regulations sets out several stages to the carrying out of assessments required under Article 6(3) and (4) of the Habitats Directive. The diagram, Fig. 3 overleaf, presents an overview of the HRA process for each LLFA to consider when developing their Local Strategies.

The SEA, HRA and their associated documents relating to the National Strategy are available on the Welsh Government Website

## 11.4 Partnership Working

Partnership working and collaboration is an integral part of managing flood risk and is reflected in the duty to co-operate within Act.

Stronger links with the local community groups is encouraged, enabling local expertise to assist in both the identification of the risks and their mitigation or resolution.

In 2007, in recognition of the need to change the way in which flood risks were managed, the Welsh Government applied the principles of the New Approaches programme (NAP) to three pilot studies being supported at that time. The primary aim of the NAP initiative was to facilitate the required change in the management of flood and coastal erosion risk across Wales, moving away from the defence dominated approaches of the past to a more holistic risk management approach.

The three pilot studies were in Barry, which focused on the floods experienced within the Coldbrook Catchment in 2007, Prestatyn, which focused on the flooding experienced in 2007, and Pwllheli, which looked at a combination of issues including coastal and inland flooding and drainage issues. The NAP principles were applied to ensure that these studies not only considered the measures relating to the defences against flood and coastal erosion risks, but also managed the causes, raised awareness amongst the local community, provided emergency support and enhanced community and infrastructure resilience against those risks.

Three separate reviews were undertaken to learn from this new approach and reports produced on each, which are available from the Welsh Government website.

The feedback received from the pilot study representatives suggested that there are strong benefits to adopting a partnership approach to flood and coastal erosion risk management in Wales, and that these are further enhanced where communities are fully engaged with the process. It was also suggested that whilst developing partnership groups was not without its difficulties the benefits outweighed the disadvantages in all areas.

In late 2010, the Welsh Government commissioned a formal evaluation of flood risk management activities of the three 'New Approaches Programme' pilot studies and a sample of the European Regional Development Funded capital programme. This evaluation formed the basis of a Flood Risk Management toolkit, which aims to provide guidance on how Risk Management Authorities can effectively engage with communities to raise awareness of flooding. The toolkit is available from the Welsh Government website.

The purpose of the 'toolkit' is to provide a guide that can be used by anyone who is interested in engaging with communities about flood risk. It is designed to assist those responsible for flood risk management schemes or those who may be involved in wider flood risk management activities, and provides guidance on how to approach community engagement and partnership working. It is based on an evaluation of the effectiveness of recent schemes including the three pilot flood alleviation studies that have been implemented in Prestatyn, Barry and Pwllheli and a sample of the European Structural Funded Programme Schemes. It provides good practice guidance, which has been derived from these experiences.

Working with communities in managing flood risk will help:

- 1 Understand the needs of individuals, communities and businesses;
- 2 Make better informed plans, decisions and policies;
- 3 Communities to understand what flood risk means for them, including what they should do in a flood;
- 4 Communities to recover more quickly after a flood;
- 5 Meet goals (including timescales);
- 6 Increase local support;
- 7 Increase trust in government; and
- 8 Improve the reputation of LLFA (and other partners)

Further information relating to this has been provided at Annex F.

Section 13 of the Flood and Water Management Act 2010 provides that Risk Management Authorities must co-operate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions. Enabling the sharing of information between authorities in order to discharge this function.

It also allows for Risk Management Authorities to arrange for a flood risk management function to be exercised on its behalf by:

- 1 another Risk Management Authority; or
- 2 a Navigation Authority.

However, this does not apply to the production of Local Strategies with responsibility for preparing these remaining with the LLFA.

Section 14 of the Act provides the Welsh Ministers, LLFA and Natural Resources Wales with the power to also request a person to provide information in connection with their flood and coastal erosion risk management functions.

The information requested must be provided within the period and in the form or manner specified in the request.

LLFA in Wales are also supported by the commencement of the provisions relating to Section 15 of the Act, which provides an opportunity to issue enforcement notices for non-compliance to a request for information made under Section 14. The enforcement notices must specify the information that has been requested, state that the authority may impose a penalty if that information is not provided within a specified period (at least 28 days from date of issue) and stating that the person may make representations to the Authority about the notice within this period.

The Authority may then impose a penalty (by way of a penalty notice) on any persons failing to comply with an enforcement notice by the specified date.

This is envisaged as being a last resort as steps are already being taken to establish a more cohesive, partner based approach to managing flood and coastal erosion risk in Wales.

Natural Resources Wales is currently piloting the provision of a single point of contact for queries and information on flood risk, with a view to rolling the service out across Wales. This would mean the public only need to call one number to report flooding incidents, regardless of the source or who is responsible for the water.

Each LLFA worked closely with Natural Resources Wales to prepare their Preliminary Flood Risk Assessments under the Flood Risk Regulations 2009, sharing information and best practice by establishing invaluable partnership arrangements.

The European Regional Development Fund investment in Flood and Coastal Erosion Risk Management has also been used by the Welsh Government to encourage robust partnership working and public engagement.

## Annex A - National Strategy

The Welsh Government is responsible for developing, maintaining and applying a flood and coastal erosion risk management strategy for Wales; a National Strategy.

The National Strategy will give effect to the requirements of the Flood and Water Management Act 2010, providing a framework for more specific actions to be implemented by the Welsh Risk Management Authorities. It will create a framework for delivering effective flood and coastal erosion risk management in Wales both now and in the future.

Under Section 8 of the Act the National Strategy is required to include details of:

- 1 the Risk Management Authorities in Wales;
- 2 the flood and coastal erosion risk management functions that may be exercised by those Authorities in relation to Wales;
- 3 the objectives from managing flood and coastal erosion risk;
- 4 the measures proposed to achieve those objectives;
- 5 how and when the measures are to be implemented;
- 6 the costs and benefits of those measures, and how they are to be paid for;
- 7 the assessment of flood and coastal erosion risk for the purpose of the strategy;
- 8 how and when the strategy is to be reviewed;
- 9 the current and predicted impact of climate change on flood and coastal erosion risk management; and
- 10 how the strategy contributes towards the achievement of wider environmental objectives.

The Welsh Government is committed to ensuring that the Risk Management Authorities manage the risks of flooding and coastal erosion in Wales and reduce their impacts by adopting a broader range of responses that encompass not only traditional defences and protection against flooding and coastal erosion, but a wider group of interventions and using the full range of risk management tools.

An effective flood and coastal risk management system must focus on protecting people and key assets and managing the impacts of the risk on the natural environment.

It is the Welsh Government's intention to develop a system that:

- 1 embeds sustainable development as the key principle informing decisions and which is reflected in an approach that promotes the wellbeing of people in Wales and addresses the needs of the economy and the environment;
- 2 is focussed on the needs of individuals, communities and businesses and which recognises that different groups have different needs and

- varying capacity to deal with flood risk and that the service they receive must be tailored accordingly
- 3 promote equality and does not exacerbate poverty;
  - 4 is based upon a holistic understanding of the risks and consequences;
  - 5 considers the full range of risk management responses;
  - 6 facilities long term resource planning; and
  - 7 allows prioritisation of investment, resources and actions.

To support the development of this system the Welsh Government is committed to delivering the four overarching objectives for flood and coastal erosion risk management in Wales as follows:

- 1 reducing the impacts on individuals, communities, businesses and the environment from flooding and coastal erosion;
- 2 raising awareness of and engaging people in the response to flood and coastal erosion risk;
- 3 providing an effective and sustained response to flood and coastal erosion events; and
- 4 prioritising investment in communities most at risk.

The National Strategy will set out the expectations on the Risk Management Authorities in order to achieve these objectives.

A public consultation exercise on the Draft National Strategy was completed in 2010 and the consultation responses received along with the *formal Assembly Government Response to the Public Consultation* is available on the Welsh Government website.

Following comments received during the consultation and in light of subsequent discussions with Natural Resources Wales, Countryside Council for Wales and Cadw it was determined that a Strategic Environmental Assessment (SEA) and a Habitats Regulations Assessment should be completed. The completed assessments are available from the Welsh Government website.

The findings of these assessments has fed into the development of the National Strategy ensuring that the environment is afforded a high level of protection by ensuring the integration of environmental considerations into the preparation and adoption of the National Strategy and contributing to the promotion of sustainable development and environmental protection.



Annex B – Datasets available on the EA DataShare website.

As at September 2011, the following datasets were available to Local Authorities via Natural Resources Wales DataShare website

(<http://www.geostore.com/environment-agency/>):

- 1 Areas Susceptible to Surface Water Flooding
- 2 Areas Susceptible to Groundwater Flooding
- 3 Detailed River Network
- 4 Flood Zones 2
- 5 Flood Zones 3
- 6 Flood Defences
- 7 Flood Storage Areas
- 8 Areas Benefiting from Flood Defences
- 9 Flood Map for Surface Water 1:200 Rainfall
- 10 Flood Map for Surface Water 1:30 Rainfall
- 11 Flood Map for Surface Water DTM
- 12 Historic Flood Map
- 13 Historic Landfill
- 14 National Receptor Dataset – Property Points
- 15 National Receptor Dataset – Social, cultural and environmental (part 1)
- 16 National Receptor Dataset – Social, cultural and environmental (part 2)
- 17 Sealed Main Rivers
- 18 WFD Classification Data
- 19 WFD Risk Assessment Data
- 20 WFD Environmental objectives
- 21 WFD Measures/Actions
- 22 WFD River Water bodies (River\_Waterbodies\_fRBMP)
- 23 WFD River Water body Catchments (River\_Water body\_Catchments\_fRBMP)
- 24 WFD River Basin Districts (RBD\_fRBMP)
- 25 WFD Lake Water bodies (Lakes\_fRBMP)
- 26 WFD Coastal Water bodies (Coastal\_fRBMP)
- 27 WFD Transitional (Estuarine) Water bodies (Transitional\_fRBMP)
- 28 WFD Groundwater bodies (Groundwaters\_fRBMP)
- 29 WFD Monitoring Network (Monitoring Network\_fRBMP)
- 30 WFD Artificial Water bodies: Canals (AWB\_Canals\_fRBMP)
- 31 WFD Artificial Water bodies: Surface Water Transfer Channels (AWB\_SWT\_fRBMP)
- 32 SSSI Ditches (AWB\_SSSI\_Ditches\_fRBMP)

## Annex C – Relevant Policy, Regulations and Legislation

### Water Framework Directive

1. The Water Framework Directive (WFD) is the most substantial piece of EC water legislation to date and is designed to improve and integrate the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003 via the Water Environment (Water Framework Directives) (England and Wales) Regulations 2003. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015. It is designed to:
  - 1 Prevent deterioration in the classification status of aquatic ecosystems, protect them and improve the ecological condition of waters;
  - 2 Aim to achieve at least good status for all waters. Where this is not possible, good status should be achieved by 2021 or 2027;
  - 3 Promote sustainable use of water as a natural resource;
  - 4 Conserve habitats and species that depend directly on water;
  - 5 Progressively reduce or phase out releases individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
  - 6 Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
  - 7 Contribute to mitigating the effects of floods and droughts.
2. The Water Framework Directive establishes new and better ways of protecting and improving rivers, lakes, groundwater, transitional (where freshwater and seawater mix) and coastal waters. In order to achieve this, in 2009 Natural Resources Wales produced 3 River Basin Management Plans in Wales setting out measures to protect and improve the water environment. These are currently being implemented and will be revisited in 2015, 2021 and 2027, to ensure that the water bodies' status does not deteriorate from standards set in 2009 as part of the initial River Basin Management Plans.
3. It is important that measures to manage local flood risk do not cause deterioration of water bodies and should consider opportunities to improve water bodies in conjunction with local flood risk management.

### TAN 15 – Development and Flood Risk (2004)

4. Technical Advice Note 15 (TAN15) sets out the Welsh Government's policy on development and flood risk. It identifies that flood risk should be taken into account at all stages of the planning process. It sets out a precautionary approach that seeks to avoid inappropriate development in areas at risk of flooding and to direct new development away from the areas of highest risk shown on Development Advice Maps. Where new development is,

exceptionally, necessary in such areas, the policy objective is to mitigate flood risk to an acceptable level for the lifetime of the development without increasing flood risk elsewhere, taking into account the impacts of climate change.

#### Climate Change Act 2008

5. The Climate Change Act 2008 requires a UK-wide climate change risk assessment every five years, accompanied by a national adaptation programme for England-only and non-devolved matters that is also reviewed every five years. The Act has given the UK and Welsh Governments powers to require public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.

#### Conservation of Habitats and Species Regulations 2010

6. The Conservation of habitats and Species Regulations 2010 transpose the Habitats Directive into UK law. The Regulations aim to help maintain and enhance biodiversity in the UK and throughout the EU, by conserving natural habitats and protecting priority species and their habitats. The requirement to identify and designate sites of Community importance for habitat type and species, known as Special Areas of Conservation is a key aspect of the regulations. In addition, the Regulations provide strict protection measures for particularly rare and threatened species and require that assessments are undertaken before permission or consents are granted within European sites.

#### Environmental Assessment of Plans and programmes (Wales) Regulations 2004

7. The Environmental Assessment of Plans and Programmes (Wales) Regulations transpose into law European Directive 2001/42 /EC “on the assessment of the effects of certain plans and programmes on the environment”, commonly known as the Strategic Environmental (SEA) Directive. The aim of the Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development. The SEA process identifies the likely significant environmental effects that are likely to result from a plan of programme and should show how the results of the environmental assessment have been taken into account in the implementation of the plan of programme. Guidance is available on the Welsh Government website.

### The Land Drainage Act 1991

8. The Land Drainage Act 1991 outlines the duties and powers to manage land drainage for a number of bodies including the Environmental Agency, Internal Drainage Boards, Local Authorities, Navigation Authorities and riparian owners.

### Civic Contingencies Act (2004)

9. The Civil Contingencies Act 2004, and accompanying non-legislative measures, delivers a single framework for civil protection in the United Kingdom capable of meeting a full range of challenges such as flooding. The Act is separated into two substantive parts: local arrangements for civil protection (Part 1) and emergency powers (Part 2)

## Annex D – Communicating with the public, raising awareness and encouraging local leadership

1. Communities offer a wide range of perspective and experiences relating to flooding that can be invaluable in helping to create the vision and response for flood risk management.
2. By encouraging their participation, Local Authorities can achieve a more complete picture of flood risk and better understand and promote solutions. In return, it is incumbent on all to understand the effects and limitations of flood risk management actions and to act responsibly to help themselves and others.
3. Ensuring people are well informed about flood risk management services is crucial to building trust and a strong reputation for local authorities.
4. There are some communities that are acutely aware of the importance of flood risk management and have taken action in their own local areas. These communities are typically those that have experienced at first hand the effects of flooding.
5. There will always be the handful of enthusiastic people in any community who are keen to tackle the threat of flooding, however, it is the task of the LLFAs to encourage all the others to do something. In order to make real progress in reducing the risk of flooding, communities will need to be involved and collective action will need to be seen as both desirable and normal.
6. LLFAs are vitally important in setting the local leadership. Communities are more likely to respond to local leadership who share their concerns and interests. Community leaders can have direct access to people, understand local issues and sensitivities and can sustain activity over time.
7. It should be recognised that a consistent message needs to be conveyed when engaging with communities. Likewise, in setting levels of service and service standards, there is a need for all Risk Management Authorities to ‘buy-in’ to the overall aims of the LLFA.
8. The key to success will be the attitude Local Authorities have and approach taken in engaging communities, developing a two-way dialogue, recognising that local people’s views are important and can influence the decisions which affect them.
9. This will involve working with communities early on to understand their concerns, interests and priorities. The LLFA may still make the final decision but they will have worked with others in developing the

solution. Through this process the communities will understand the role of the LLFA and why certain decisions have been made.

10. In deciding how best to engage with the community, to meet both the needs of the LLFA and the needs of the community, you will need to consider and agree: what do you want to do?; why do you want to work with the community and why do they want to work with you?; who do you need to work with?
11. Natural Resources Wales has experience of engaging with communities and has a national Stakeholder and Community Relations Team which can be accessed through Natural Resources Wales regional offices, who should be contacted for further details and information.
12. The Welsh Government Flood Risk Management toolkit is also available, which aims to provide guidance on how Risk Management Authorities can effectively engage with communities to raise awareness of flooding. The toolkit is available from the Welsh Government website.

## Annex E – Glossary of Terms used within this Guidance

### A

Act – a Bill approved by both the House of Commons and the House of Lords and formally agreed to by the reigning monarch (known as Royal Assent).

### B

Bill – a proposal for a new law, or a proposal to change an existing law that is presented for debate before Parliament.

### C

Catchment – An area that serves a river with rainwater that is every part of land where the rainfall drains to a single watercourse is in the same catchment.

CCW – Countryside Council for Wales

CFMP – Catchment Flood Management Plans – plans that provide an overview of the flood risk across each river catchment and estuary. They recommend ways of managing those risks now and over the next 50 – 100 years.

Climate Change – the change in average conditions of the atmosphere near the Earth's surface over a long period of time.

Coastal erosion – the wearing away of coastline, usually by wind and/or wave action.

Coastal erosion risk – measures the significance of potential coastal erosion in terms of likelihood and impact.

Coastal erosion risk management – anything done for the purpose of analysing, assessing and reducing a risk of the wearing away of coastline.

Coastal Flooding – Occurs when coastal defences are unable to contain the normal predicted high tides that can cause flooding, possible when a high tide combines with a storm surge (created by high winds or very low atmospheric pressure).

Culvert – a covered structure under road, embankment etc, to direct the flow of water.

### D

Defences – A structure that is used to reduce the probability of floodwater or coastal erosion affecting a particular area.

Draft Bill – a Bill published in draft before introduction before Parliament.

Drainage Authorities – Organisations involved in water level management, including IDBs, Natural Resources Wales and RFCCs.

## E

NRW /EA – Natural Resources Wales and Environment Agency – a Welsh Government sponsored Public Body responsible to the Welsh Ministers and an Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs.

## F

FCERM – Flood and Coastal Erosion Risk Management.

FCERM Function – defined by Sections 4 and 5 of the Flood and Water Management Act 2010 as being a function, which may be exercised by a risk management authority for a purpose connected with either flood risk management or coastal erosion.

Flood – any case where land not normally covered with water becomes covered by water.

Flood and Water Management Act 2010 – an Act of Parliament updating and amending legislation to address the threat of flooding and water scarcity, both of which are predicted to increase with climate change.

Flood risk – product of the probability of flooding occurring and the consequences when flooding happens.

Flood risk management – the activity of understanding the probability and consequences of flooding, and seeking to modify these factors to reduce flood risk to people, property and the environment. This should take account of other water level management and environmental requirements, and opportunities and constraints.

Flood Risk Management measures – The way in which flood risks are to be managed.

Flood Risk Management Wales (FRMW) – The Regional Flood and Coastal Committee (RFCC) for Wales.

Flood Risk Regulations 2009 – Regulations which transpose the EC Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) into domestic law and to implement its provisions.

Floodline Warnings Direct – is a free service that provides flood warnings direct to you by telephone, mobile, email, SMS text message and fax.

## G

Groundwater – water held underground in the soil or in pores and crevices in rock.

Groundwater Flooding – Occurs when water levels in the ground rise above the natural surface. Low lying areas underlain by permeable strata are particularly susceptible.



## H

Habitats Regulation Assessment (HRA) – the Conservation of Habitats and Species Regulations (SI 490, 2010), Termed the ‘Habitats Regulations’, implements the EU ‘Habitats Directive’ (Directive 92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna) and certain elements of the ‘Birds Directive’ (2009/147/EC). This legislation provides the legal framework for the protection of habitats and species of European importance in Wales.

## I

IDB – Internal Drainage Board – Independent statutory bodies responsible for land drainage in areas of special drainage need in Wales and England. They are long established bodies operating predominantly under the Land Drainage Act 1991 and have permissive powers to undertake work to secure drainage and water level management of their districts.

## L

LLFA – Lead Local Flood Authority – (Local Authority) the County Council or the County Borough Council for the area.

Local Flood Risk: defined within the Flood and Water Management Act 2010 as including surface runoff, groundwater and ordinary watercourses.

Local Flood Risk Strategy: required in relation to Wales by Section 10 of the Flood and Water Management Act 2010 local flood risk strategies are to be prepared by lead local flood authorities and must set out how they will manage local flood risks within their areas.

## M

Main River – A watercourse shown as such on the Main River Map and for which Natural Resources Wales has responsibilities and powers.

Main River Map – the definitive map showing which watercourses have been classified as a Main River.

## N

National Strategy – the “National Strategy for Flood and Coastal Erosion Risk Management: Wales” produced by the Welsh Government in response to the requirement under Section 8 of the Flood and Water Management Act.

## O

Ordinary Watercourse – all watercourses that are not designated Main River, and which are the responsibility of Local Authorities or, where they exist, Internal Drainage Boards.

## P

PFRA – Preliminary Flood Risk Assessment as required by the Flood Risk Regulations 2009.

## R

Reservoir – an artificial lake where water is collected and stored until needed. Reservoirs can be used for irrigation, recreation, providing water for municipal needs, hydroelectric power or controlling water flow.

Resilience – The ability of the community, services, area or infrastructure to avoid being flooded, lost to erosion or to withstand the consequences of flooding or erosion taking place.

RFCC – Regional Flood and Coastal Committee – a Natural Resources Wales committee, responsible for consenting medium and long term plans and operational plans to the Agency’s Board and Head Office. Monitors and reports on progress. In Wales there is only one RFCC and this is the FRMW (Flood Risk Management Wales) group.

Risk – measures the significance of a potential event in terms of likelihood and impact. In the context of the Civil Contingencies Act 2004, the events in question are emergencies.

Risk Assessment – A structured and auditable process of identifying potential significant events, assessing their likelihood and impacts and then combining these to provide an overall assessment of risk to inform further decisions and actions.

.Risk Management – anything done for the purpose of analysing, assessing and reducing a risk.

.Risk Management Authority – A Welsh risk management authority is defined in Section 6 of the Flood and Water Management Act 2010 as Natural Resources Wales, a lead local flood authority, a district council for an area for which there is no unitary authority, an IDB for an internal drainage district that is wholly or mainly in Wales and a water company that exercises functions in relation to an area in Wales.

Risk Management Schemes – a range of actions to reduce flood frequency and/or the consequences of flooding to acceptable or agreed levels.

River flooding – occurs when water levels in a channel overwhelms the capacity of the channel.

## S

SEA – Strategic Environmental Assessment – A legal requirement in the UK for certain plans and programmes stipulated by the SEA Directive (2001/42/EC), to undergo Strategic Environmental Assessment (SEA). The SEA Directive is implemented in Wales by the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (SI 2004No. 1656, W170). The purpose of SEA is to provide for a high level of protection of the environment, to ensure the integration of environmental considerations into the preparation and adoption of plans and programmes, and to contribute to the promotion of sustainable development and environmental protection.

Sewer – An artificial conduit, usually underground, for carrying off sewage off sewage (a foul sewer) or rainwater (a storm sewer) or both (a combined sewer).

SMPs – Shoreline Management Plans – A large-scale assessment of the risks associated with coastal processes and helps reduce these risks to people and the developed, historic and natural environments.

Squeeze – In relation to coastal squeeze, is the term used to describe what happens to coastal habitats that are trapped between a fixed landward boundary, such as a sea wall and rising sea levels and/or increased storminess. The habitat is effectively ‘squeezed’ between the two forces and can diminish in quantity and or quality.

Surface Water Flooding – In the urban context, usually means that surface water runoff rates exceed the capacity of drainage systems to remove it. In the rural context, it is where surface water runoff floods something or someone.

Surface water runoff – This occurs when the rate of rainfall exceeds the rate that water can infiltrate the ground or soil.

Sustainable Drainage systems (SuDS) – Helps to deal with excesses of water by mimicking natural drainage patterns.

T

Technical Advice Note 15: Development and Flood Risk – TAN 15 supports Planning Policy Wales and makes it clear how local authorities should make decisions about different types of development on flood plains, providing clear tests for justification and acceptability of flooding consequences, and enabling the consideration of risks over the lifetime of the new development.

W

Watercourse – A channel natural or otherwise along which water flows.

Water Company – a company which hold an appointment under Chapter 1 of Part 2 of the Water Industry Act 1991 or a licence under Chapter 1A of Part 2 of that Act.

Welsh Local Government Association (WLGA) – represents the interests of Local Authorities in Wales. The three fire and rescue authorities, four police authorities and three national park authorities are associate members.

WFD – Water Framework Directive

## Appendix 1 List of Documents Consulted

### 1 TCBC Information

1. Torfaen County Borough Council Local Development Plan (to 2021) Deposit Plan Written Statement March 2011
2. Torfaen Local Development Plan Habitat Regulations Assessment Report (Feb 2011)
3. Torfaen County Borough Council Local Development Plan (to 2021) Deposit Plan Written Statement March 2011 – Sustainability Appraisal (SA) incorporating Strategic Environmental Assessment (SEA) – Sustainability Appraisal Report March 2010 – Atkins Appendices A – K
4. Torfaen County Borough Council Local Development Plan Broad Level Assessment of flood Risk (2011)

### 2 Natural Resources Wales Information

- 1 Land Management CFMP Tool – Development of a software tool to investigate the potential impact of changes in rural land use and land management on flood generation – Natural Resources Wales
- 2 Improving the flood performance of new buildings Flood resilience construction – May 2007 – Consortium managed by CIRIA – Department for Communities and Local Government: London – Communities and Local Government, Natural Resources Wales, DEFRA
- 3 Wye and Usk Catchment Flood Management Plan Summary Report - January 2010 Managing Flood Risk – Natural Resources Wales
- 4 Preparing your property for flooding – A guide for householders and small businesses – Natural Resources Wales
- 5 Personal Flood Plan – Natural Resources Wales
- 6 Flooding from groundwater – Practical advice to help reduce the impact of flooding from groundwater – Local Government Association – Natural Resources Wales
- 7 Flood and Coastal Risk Management Appraisal Guidance (FCERM-AG)

- 8 Water for life and livelihoods – River Basin Management Plan Severn River Basin District – DEFRA – Welsh Assembly Government and Natural Resources Wales

### 3 Welsh Government Information

- 1 National Strategy for Flood and Coastal Risk Management in Wales - November 2011 – Welsh Government
- 2 Local Flood Risk Management Strategies – Local Strategy – November 2011 – Welsh Government
- 3 Strategic Environmental Assessment – Statement of Environmental Particulars – Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales – June 2011 – Welsh Government
- 4 Flood Risk Management – Community Engagement Toolkit – October 2011 – Welsh Government
- 5 Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales – December 2011 – Welsh Government
- 6 Sustainable Development: Guidance to Risk Management Authorities Section 27 – Sustainable Development – November 2011 – Welsh Government
- 7 Planning Policy Wales Technical Advice Note 15: DEVELOPMENT AND FLOOD RISK – July 2004 – Welsh Assembly Government
- 8 Habitat Regulations Assessment: Flood and coastal Erosion Risk Management: Development of National Strategy for Wales – June 2011
- 9 Strategic Environmental Assessment – Environmental Report – Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales – Welsh Assembly Government – 10 May 2011
- 10 National Principles of Public Engagement in Wales – Participation Cymru – Welsh Government
- 11 Practitioner’s Manual for Public Engagement - Participation Cymru – Welsh Government – March 2012

4 Legislation

- 1 Land Drainage Act 1991
- 2 Flood Risk Regulations 2009
- 3 Flood and Water Management Act 2010

5 Other

- 1 The Effects of Flooding on Mental Health – December 2011 – Health Protection Agency
- 2 Codes for Sustainable Homes – Technical Guide – November 2010 – Department for Communities and Local Government

## Appendix G Consultation

### Flood Risk Management Authorities

Natural Resources Wales

Water Company - Dŵr Cymru – Welsh Water

CADW

Countryside Council for Wales (CCW)

Internal Risk Partners

Planning Department

Torfaen Emergency Management

Environmental Health

External Risk Partners

Forestry Commission

Public Consultation

Our on-line survey was put onto our webpage on December 2012

Collaborative Working

Regular contact with our adjacent authorities

Participation in the Gwent LRF Severe Weather Group

Support Group

An informal support group has been set up of which TCBC is a member

1 June 2012 – To discuss programme for LFRMS, SEA and HRA

