



Vale of Glamorgan Council

Local Flood Risk Management Strategy Volume 2 Strategic Environmental Assessment

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RELATED DOCUMENTS

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Vol 1	Local Flood Risk Management Strategy	Capita Symonds		
Vol 3	LFRMS – Habitats Regulation Assessment (HRA)	Capita Symonds		
Vol 4	LFRMS – Water Framework Directive Assessment (WFDA)	Capita Symonds		

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1. Introduction

1.1 BACKGROUND

The Vale of Glamorgan Council commissioned Capita Symonds in August 2012 to prepare the Councils Local Flood Risk Management Strategy and undertake a Strategic Environmental Assessment on the proposed Strategy.

The purpose of the Scoping Report is to outline the framework for the Strategic Environmental Assessment (SEA). This involves the identification of plans and programmes relevant to the study area; environmental, economic and social baseline information; and, environmental issues and problems. The framework consists of sustainability objectives, key questions and potential monitoring indicators that examine the overall impact of implementing the Local Flood Risk Management Strategy.

1.2 LOCAL FLOOD RISK MANAGEMENT STRATEGIES

The EC Floods Directive has been transposed into UK law through the Flood Risk Regulations (2009). The Flood and Water Management Act 2010 (FWMA) requires the Welsh Assembly Government to “develop, maintain and apply a strategy for flood and coastal erosion risk management in Wales”¹ and identifies each unitary authority as the Lead Local Flood Authority for their area.

Under the Flood Risk Regulations (2009), the Vale of Glamorgan Council must prepare a Local Flood Risk Management Strategy (LFRMS) to assess harmful consequences of past and potential future floods and to identify significant flood risk areas.

Each Lead Local Flood Authority (LLFA) has a responsibility to develop, maintain, apply and monitor a strategy for local flood risk management (Local Strategy). In the development of a Local Strategy, LLFAs should balance the needs of communities, the economy and the environment.

1.3 STRATEGIC ENVIRONMENTAL ASSESSMENT

It is a legal requirement in the UK for certain plans and programmes stipulated by the Strategic Environmental Assessment (SEA) Directive (2001/42/EC), to undergo SEA. The SEA Directive is implemented in Wales by the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (SI 2004 No. 1656, W170), hereafter referred to as the SEA Regulations.

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.

The aim of the SEA is therefore to identify potentially significant environmental effects created as a result of the implementation of the plan or programme on issues such as ‘*biodiversity, population, human health, fauna, flora, soil, water, air, climatic, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors*’ (Annex 1(f)).

¹ As defined under Part 1, Regulation 8(1) of the Flood and Water Management Act 2010.

1.4 AIM AND STRUCTURE OF THIS REPORT

The first stage of the SEA process is to identify other relevant plans, programmes and environmental protection objectives; collect baseline information, identify environmental problems and develop SEA objectives. This scoping report sets out the proposed structure and knowledge base for the assessment and will be the basis of consultation with the relevant statutory bodies to ensure the SEA covers the likely significant environmental effects of the plan.

Section 1 of this report has given a brief introduction to LFRMS and the SEA process with the remaining content:

Section 2 – SEA Process & Methodology of Scoping

Section 3 – Identification of other policies, plans etc. relevant to the LFRMS;

Section 4 – Baseline information (incorporating environmental, economic and social characteristics)

Section 5 – Identification of environmental issues and problems;

Section 6 – Development of the SEA objectives

Section 7 - Framework selected to assess the sustainability of the LFRMS

Section 8 – Proposed Environmental Report Structure

Section 9 – Details of Scoping Consultation

2. SEA Process and Methodology

2.1 SEA SCREENING

Before commencing the SEA process, a plan or programme would usually go through ‘screening’. This process determines whether the plan is subject to the SEA Directive and therefore requires a SEA.

With respect to Local Flood Risk Management Strategies, this question is answered within Article 3 of the SEA Directive where SEA is required for plans and programmes that are likely to have significant environmental effects and which are prepared for water management.

2.2 SEA GUIDANCE

This report follows the requirements of the SEA Directive and has been developed in accordance with the following guidance:

- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, August 2006);
- Towards a more efficient and effective use of Strategic Environmental Assessment and Sustainability Appraisal in spatial planning (DCLG, 2010).

2.3 SEA STAGES

The SEA of the LFRMS has five chronological stages as shown in Table 1.

Table 2 SEA Stages

SEA Stages	SEA Tasks
Stage A – Setting the context & objectives, establishing the baseline & deciding on the scope	A1: Identifying other relevant plans, programmes and environmental protection objectives
	A2: Collecting baseline information
	A3: Identifying environmental problems
	A4: Developing SEA objectives
	A5: Consulting on the scope of the SEA
Stage B – Developing & refining alternatives & assessing effects	B1: Testing the plan objective
	B2: Developing Strategic alternatives
	B3: Predicting the effects of the plan, including alternatives
	B4: Evaluating the effects of the plan, including alternatives
	B5: Mitigating adverse effects
	B6: Proposing measures to monitor
Stage C – Preparing the Environmental Report	C1 : Preparing the Environmental Report
Stage D – Consulting on the draft LFRMS and the SEA Report	D1: Consulting on the draft LFRMS and Environmental Report with the public & Consultation Bodies
	D2: Assessing significant changes
	D3: Making decisions and providing information
Stage E – Monitoring the significant effects of implementing the LFRMS	E1: Developing aims & methods for monitoring
	E2: Responding to adverse effects

3. Other Relevant Policies, Plans, Programmes and Environmental Protection Objectives

3.1 OVERVIEW

The SEA Directive requires information on:

'an outline of the plan and programmes relationship with other relevant plans and programmes' Annex 1(a) and:

'the environmental protection objectives, established at international, community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation'. Annex 1(e).

Accordingly, the LFRMS must comply with existing policies, plan and programmes and it is crucial that such plans and programmes from international to local level are identified and reviewed at the beginning of the process. Any discrepancies or limitations within the LFRMS should then be allowed to be addressed.

Table 3

International Plans & Programmes
EU Floods Directive – Directive 2007/60/EC on the assessment and management of flood risks, 2007
EU Water Framework Directive – Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy
National Plans & Programmes
Flood and Water Management Act 2010
The Flood Risk Regulations 2009
National Strategy for Flood and Coastal Erosion Risk Management in Wales (Nov 2011)
Water for People and the Environment: Water Resources Strategy for Wales (June 2009)
Environment Strategy for Wales, (Welsh Government, 2006)
Welsh Government Strategic Policy Position Statement on Water (2011)
The Impact for Flooding on Urban & Rural Communities (DEFRA/Environment Agency 2005)
Revised Draft Water Resource Management Plan (Welsh Water, 2011)
Land Drainage Act 1991 (as amended 2004)
Water Act 2003
Civil Contingencies Act 2004
People, Places, Future - The Wales Spatial Plan (2004)

National Plans & Programmes
Planning Policy Wales – Edition 4 (February 2011)
Welsh Government Technical Advice Note (TAN)15: Development and Flood Risk (2004)
Welsh Government Technical Advice Note (TAN)5: Nature Conservation & Planning (2009)
Welsh Government Technical Advice Note (TAN)8: Planning for Renewable Energy (2005)
Welsh Government Technical Advice Note (TAN)6: Planning for Sustainable Rural Communities (2010)
Welsh Government Technical Advice Note (TAN)14: Coastal Planning (1998)
Welsh Government Technical Advice Note (TAN)18: Transport (2007)
Minerals Planning Policy Wales (2001)
Minerals Technical Advice Note (MTAN) Wales 1: Aggregates (2004)
Sub-national Plans and Programmes
Severn Estuary Shoreline Management Plan Review (SMP2) 2010
Lavernock Point to St. Ann's Head Shoreline Management Plan SMP2 (January 2012)
Taff and Ely Catchment Flood Management Plan (Environment Agency, 2010)
Ogmore to Tawe (including Thaw and Cadoxton) Catchment Flood Management Plan (Environment Agency, 2010)
Regional Transport Plan (South East Wales Transport Alliance, 2010)
Cadoxton & Thaw Catchment Abstraction Management Strategy (Environment Agency, 2006)
Taff & Ely Catchment Abstraction Management Strategy (Environment Agency, 2006)
Local Plans & Programmes
Vale of Glamorgan Adopted Unitary Development Plan 1996 – 2011 (2005)
The Vale of Glamorgan Deposit Local Development Plan 2011-2026 (2012)
The Vale of Glamorgan Local Biodiversity Action Plan
Preliminary Flood Risk Assessment (Vale of Glamorgan, 2011)
Land to the South of Junction 34, M4, Hensol – Flood Consequences Assessment (Wallingford Hydro Solutions Ltd, June 2011)
Waterfront Barry – Strategic Level Flood Study (Arup, August 2009)
Defence Technical College & Aerospace Business Park – Flood Consequences Assessment (Entec, May 2009)

4. Baseline Information

4.1 OVERVIEW

Baseline data is required under Article 5(1) of the SEA Directive. In particular, the following is required:

The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;

The environmental characteristics of areas likely to be significantly affected; and,

Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.

The baseline information identifies current environmental issues and problems in the area that should be addressed within the LFRMS. This information then provided the starting point for predicting and monitoring the effects of implementing the strategy. It is possible that the baseline information will need to be updated during the SEA process as either new information becomes known or issues not already identified become apparent.

For clarity, the baseline information has been grouped under the eight topics referred to within Annex 1(f) of the SEA Directive.

4.2 WATER

The Environment Agency (EA) is responsible for managing water resources in England and Wales. One of the ways that this is done is through licensing water abstraction within catchment areas. The EA developed Catchment Abstraction Management Strategies (CAMS) to:

- inform the public on water resources and licensing practice
- provide a consistent approach to local water resources management
- help to balance the needs of water-users and the environment

Two river catchment areas include the Vale of Glamorgan, the majority of the Local Authority area lies within the Cadoxton & Thaw CAMS area with a smaller area to the east within the Taff & Ely CAMS areas (both produced in 2006).

The largest potable water supply abstraction within the Cadoxton & Thaw CAMS area authorises a water company to abstract from Biglis Wells on the Cadoxton Moors. At low flow the River Cadoxton is currently identified as over-abstracted.

Carboniferous Limestone is the main aquifer in the area and significant quantities of water can be abstracted from it. However, the limestone provides poor long-term storage and therefore provides little baseflow to the rivers. As a result both river systems can experience naturally occurring low river flows during prolonged dry periods. In very dry summers, some of the smaller tributaries can dry up completely.

Five Ground Water Source Protection Zones have been designated within the Vale of Glamorgan. These are centred upon: Ogmore, Dinas Powys, Llansannor, Llangan and Treoes.

In terms of water quality, the Cadoxton & Thaw CAMS biological reports are either good or very good whilst the biological quality of the upper and lower stretches of the River Ely is good.

4.2.1 *INFLUENCE OF LFRMS ON WATER*

The LFRMS options have the potential to affect water resources in terms of both flow and quality, dependent upon items such as culverting policy; maintenance schedules and potential works for publicly and privately owned assets; the implementation of property level flood protection.

4.3 FLOODING

4.3.1 *FLOOD RISK*

Flooding is an important consideration when planning development as it can place lives at risk and cause extensive damage and disruption to people and the economy. The Vale of Glamorgan is located within two catchment flood management areas. These are the Taff and Ely area and the Ogmore to Tawe area.

The Ogmore to Tawe (including Thaw and Cadoxton) Catchment Flood Management Plan (January 2010) identifies the main sources of flooding to vary from failure / overtopping of defences within the Cowbridge area, to lowland river flooding combined with surface water, sewer flooding and culvert blockages in the Barry and Penarth. Moorland run-off represents the main source of flooding in rural areas.

The main areas of flood risk are located in Dinas Powys and Barry. In the future there is a significant increase in risk to the Dow Corning chemical complex and around Barry Dock commercial areas. The Taff and Ely Catchment Flood Management Plan (January 2010) identifies that the large floodplain in Peterston Super Ely moors provides natural flood water storage and slows down the run-off from the steeper upstream reaches, north of the M4 motorway. This results in a natural reduction of flows and a reduction in flood risk downstream in Cardiff.

Two significant flood events of significant harmful consequences have occurred within the Vale of Glamorgan. In October 1998 16 properties and local roads were closed in Llanmaes whilst in July 2007 Barry, together with a number of other locations in the Vale of Glamorgan, was subjected to intense rainfall. Significant flooding of properties and roads was reported as watercourses and land drainage systems were unable to cope with the intensity of the event resulting in 100 residential properties, 4 schools and local roads being flooded. One of the most significant areas of flooding was along the route of the Coldbrook watercourse which runs from the Colcot area through the town's districts of Gibbonsdown, Cadoxton and Palmerston to the open stream adjacent to the A4231 Barry Docks Link Road.

The Preliminary Flood Risk Assessment (2011) has identified over 650 residential properties, 189 commercial properties, 5 schools, 1 emergency service and 4 electricity substations at future risk of flooding from surface water.

The number of planning permissions objected to by the Environment Agency Wales on flood risk grounds during 2010/2011 in the Vale of Glamorgan was four.

4.3.2 *FLOOD AND COASTAL DEFENCE INFRASTRUCTURE*

A Flood Alleviation Scheme (FAS) has reduced the level of flood risk within the main urban settlements of Cowbridge and Llanblethian. Elsewhere, informal defences provide protection where individual properties are at risk.

4.3.3 *INFLUENCE OF LFRMS ON FLOODING*

Options likely to identify local measures to minimise the risk of, or reduce the consequences of flooding, should ensure a closer relationship between national and local flood risk management.

4.4 POPULATION AND HUMAN HEALTH

The draft Local Development Plan states that the 2010 midyear estimates indicate that the population of the Vale of Glamorgan is now 124,976 approximately 50,000 of which live in Barry. 46,000 are then scattered amongst the larger towns of Penarth, Llantwit Major, Dinas Powys and Cowbridge. The remaining population is accommodated throughout the Vale of Glamorgan's smaller rural villages and hamlets. Population Projections (2008) indicate that the population of the Vale of Glamorgan is set to rise from 126,654 in 2011 to 139,729 by 2026. The age of the population shows a projected increase of 8% in children under 18 and 37% increase in people of retirement age. Conversely, many of the other towns and villages in the Vale of Glamorgan are prosperous. The Index of Multiple Deprivation (2010) shows that 71 of the LSOAs in the Vale of Glamorgan are the least deprived areas in Wales.

The Vale of Glamorgan experiences a wide socio-economic range with some of the most affluent and the most deprived communities in Wales. The Index of Multiple Deprivation (2008) shows that of the 78 lower super output areas (LSOA) in the Vale of Glamorgan, 5 LSOAs in Barry fall within the top 20% of most deprived areas in Wales. Particular areas of concern relate to high indices of deprivation in respect of employment, income, education, health and community safety. As a result of these socio economic factors the Welsh Government designated the town as a Strategic Regeneration Area in 2011.

The Vale of Glamorgan Community Strategy (2011-2021) finds that whilst 'the Vale of Glamorgan compares well against the national average for a variety of health outcomes, the figures from the Health Needs Assessment show that there are problems in some areas and these are of concern. For example, parts of Barry have some of the highest levels of deprivation in Wales and people living in the county's rural areas can have difficulty accessing services'.

'Health inequalities are the result of a complex and wide ranging network of factors. People who experience material disadvantage, poor housing, lower educational attainment, insecure employment or homelessness are the most likely to suffer poorer health outcomes and earlier death compared with the rest of the population. Children living in income deprived communities also suffer from a multitude of other forms of deprivation and poor educational attainment they become trapped in an intergenerational cycle of low achievement, and poor life outcomes, including poorer health and wellbeing'.

'Data shows that those living in deprived areas eat a less healthy diet, are more likely to have inactive lifestyles, have higher rates of smoking related illnesses and death from key diseases where smoking is a factor. The Health Needs Assessment shows that people living in the most deprived communities in the Vale of Glamorgan have a reduced life expectancy, higher rates of infant mortality and higher levels of Limiting Long Term Illness.'

4.4.1 INFLUENCE OF LFRMS ON POPULATION AND HUMAN HEALTH

The LFRMS options will seek to manage flood risk better within the Vale of Glamorgan and this will be a beneficial outcome for the residents of the area. Conversely, the LFRMS will raise awareness of flood issues and this may heighten the perceived risk of flood and affect stress levels and quality of life.

The LFRMS policies and measures will seek to improve the situation for access to services

4.5 BIODIVERSITY AND LANDSCAPE

4.5.1 NATURE CONSERVATION

The Vale of Glamorgan Biodiversity Action Plan (May 2002) identifies 53 species of conservation concern with species action plans from the UK Biodiversity Action Plan (BAP) 'short list'.

Two internationally designated sites are located within the Vale of Glamorgan:

The Severn Estuary is a wetland of international importance (RAMSAR), a Special Area of Conservation (SAC) and Special Protection Area (SPA).

The Severn Estuary comprises a large, classic, funnel-shaped estuary of a type which is unique in Britain and very rare world-wide.

The estuary is internationally important for its wintering wildfowl and waders, and lies on a major migratory bird route. The estuary also supports nationally important populations of migratory fish, including the rare and declining allis shad, twaite shad and river and sea lampreys.

Dunraven Bay SAC is part of the Southerndown Coast SSSI, and is so designated due to it being one of the best areas in the UK for *Rumex rupestris*, shore dock. This plant is thought to be one of the rarest docks, and one of the rarest plants in Europe. There are only a few other sites in the UK, in Wales or south-west England.

The Kenfig SAC is located within Bridgend County Borough Council and lies adjacent to the Vale of Glamorgan. The Kenfig SAC is a largely intact dune system with extensive areas of fixed dune vegetation.

The Vale of Glamorgan supports 26 Sites of Special Scientific Interest (SSSIs) designated with some of these notified for their geological interest rather than for nature conservation reasons. Limited information is available on their condition.

There are 12 Regionally Important Geological sites including Sully Island and Wenvoe Quarry. There are 358 Sites Importance for Nature Conservation (SINCs) scattered across the county, 7 Wildlife Trust Managed sites that cover approximately 93 hectares of land, 2 Woodland Trust Reserves in the Dinas Powys area, 2 Country Parks at Comeston Lakes and Porthkerry and over 500 hectares of common land.

3 Local Nature Reserves are located at Birchgrove Wood, Barry, Cliff Wood, Porthkerry and Cwm Talwg in Barry.

Despite its relatively small area, the geology, coastal location, and land management of the Vale results in a great variety of habitats. Nineteen of the key UK BAP habitats for which costed habitat action plans have been prepared can be found in the Vale. Amongst these are habitats which are relatively rare in Wales, such as mesotrophic lakes (as at Pysgodlyn Mawr) and saline lagoons (such as at Aberthaw).

Whilst the extent of most of the key habitats (such as lowland heath, reedbeds, wet woodland) in the Vale is small, relative to other authorities, it is likely that ancient and species-rich hedgerows in the area make up a significant percentage of the all-Wales total. Similarly, as one of the main arable areas in Wales, the extent of cereal field margins is potentially significant.

Other locally important habitats in the Vale contributing to the characteristic local biodiversity, or supporting key biodiversity species include: former quarries, which provide habitats for birds of prey, butterflies, plants and lichens; road verges with their relict grassland species and which, like disused railway lines, can act as wildlife corridors; waste ground, such as former dockland, which is attractive to some bird species for nesting, and may include rare plants; parks and gardens.

There are large areas of identified ancient semi-natural woodland and ancient replanted woodland within the Vale of Glamorgan however there is no data on their quality or overall acreage.

There are also a number of Highway Verge Conservation Zones within the County these include a range of species-rich grassland types with associated ditches and hedgerows.

4.5.2 *INFLUENCE OF LFRMS ON BIODIVERSITY AND LANDSCAPE*

Measures within the LFRMS such as the adoption of SuDS, the implementation of a culverting/non-culverting policy, the implementation of local flood risk management schemes and the development of local planning control policies to ensure sustainable flood risk measures are delivered by development all have the potential to cause changes of land use, alterations to flood patterns and drainage characteristics that could impact biodiversity and landscape.

4.6 CLIMATIC FACTORS

It is generally accepted that climate change is largely caused by burning fossil fuels, deforestation and land use change.

Extrapolating that greenhouse gas emissions will continue to increase, Wales is likely to experience temperature increases of between 2.0 and 2.5°C by 2050. Annual average rainfall in Wales is predicted to remain roughly the same as present, but there is likely to be a large difference in the patterns of summer and winter rainfall in the future. Increased winter rainfall is expected as a result of increased storminess, leading to intense, but short-lived, rainfall events. The projected increases in winter average rainfalls in Wales are 7% by the 2020s, 11% by the 2040s, and 19% by the 2080s.

Key projections for Western Wales River Basin District by the 2050s predict that winter precipitation increases of around 15% (likely to be between 3 and 33%); precipitation on the wettest day in winter up by around 12% (unlikely to be more than 27%); relative sea level at Swansea very likely to be up between 10 and 40cm from 1990 levels (not including extra potential rises from polar ice sheet loss); and, peak river flows in a typical catchment likely to increase between 12 and 20%. Increases in rain are projected to be greater near the coast than inland.

Ecological footprints measure how much nature we have, how much we use, and who uses what. The Vale of Glamorgan's Ecological Footprint represents the amount of biologically productive land and water used by its residents.

The Welsh Government StatsWales website identifies that the ecological footprint for the Vale of Glamorgan to be 4.6gha (Global Hectares) and 4.4gha per capita in Wales in 2006. The United Kingdom as a whole compares at 4.6gha per capita.

StatsWales identifies that in 2010 the main source of greenhouse gas emissions in Wales was the energy sector, followed by manufacturing and construction. 'Transport' was estimated to be the third largest producer of greenhouse gas emissions in 2010 although 'public' and 'residential' sources also produced only a slightly lower amount. According to the ONS, August 2012, Wales reduced its total greenhouse gas emissions by 15 per cent between 1990 and 2010.

4.6.1 *INFLUENCE OF LFRMS ON CLIMATIC FACTORS*

Potential increase in greenhouse gases due to development or maintenance operations although options could result in more sustainable flood management practices.

4.7 MATERIAL ASSETS

4.7.1 HOUSING

The 2011 census identified 53,500 households within the Vale of Glamorgan.

The Preliminary Flood Risk Assessment (2011) has identified over 650 residential properties at future risk of flooding from surface water.

Local Planning Authorities have a duty to ensure that sufficient land is genuinely available or will become available to provide a 5-year supply of land for housing. In order to meet the housing land requirements for the period 2011-2026 provision for 10,945 new dwellings is made within the emerging Draft LDP.

4.7.2 ECONOMY

The economic profile of the Vale of Glamorgan is diverse. The Employment Land Study (2007) indicates the range of the employment sectors currently operating in the Vale. The employment sector is dominated by public administration, education and health, which accounts for nearly 36% of all employment distribution. Hotels and restaurants provide nearly 16% of the employment base, whilst banking, finance and insurance account for 14%. Agriculture and fishing, although once dominant in the Vale of Glamorgan now accounts for only 1% of the employment market.

The Office of National Statistics Unemployment Briefing (2010) indicates that unemployment in the Vale of Glamorgan is 6.8%, significantly below the Welsh average of 9.2%. The Office of National Statistics Survey of Hours and Earnings indicates that the average salary in the area is £30,676, significantly above the Welsh average of £26,838.

4.7.3 AGRICULTURE

There are estimated to be more than 400 farms in the Vale of Glamorgan. Agriculture is a major land-use in the Vale of Glamorgan (see Environmental data).

There is approximately 28,000 hectares of agricultural land within the Vale of Glamorgan, accounting for 85% of the land within the Local Authority area. The majority of agricultural land within the Vale of Glamorgan is classified as Grade 2 or Grade 3.

4.7.4 MINERAL RESOURCES

The Vale of Glamorgan is an important regional supplier of Carboniferous limestone for general aggregates use and Carboniferous and Liassic limestone for cement manufacture.

There are operational Limestone Quarries located at Pantyffynnon Quarry, Lithalun Quarry, Wenvoe Quarry, Forest Wood Quarry, Pant Quarry, Ewenny, Longlands, Aberthaw, Ruthin, and Garwa Farm. Land to the south of Pantyffynnon Quarry, to the north west of Pant Quarry and land to the south of Ruthin Quarry is safeguarded from permanent built development. Although there is no history of sand and gravel extraction in the Vale of Glamorgan, several areas have been identified as containing resources that may be of value as aggregates in future and these are also safeguarded from permanent built development.

4.7.5 WASTE MANAGEMENT

Every home, business and industry produces waste.

There are two civic amenity/recycling centres in the Vale of Glamorgan located at Barry and Llandow and over 40 local recycling points.

At national level the SEA for the Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales (Welsh Government, May 2011) scoped out waste management stating that it was unlikely that the strategy would have significant impacts upon this environmental discipline.

4.7.6 *TRANSPORT INFRASTRUCTURE*

The M4 runs along part of the northern boundary of the Vale of Glamorgan whilst various A roads cross the county including the A48 (running east to west), A4222, A4050, A4231, A4226 and A4055.

The main railway line crossing South Wales runs through a northern portion of the Vale between Cardiff and Bridgend whilst the Vale of Glamorgan railway line serves passengers for Llantwit Major, Rhoose, Barry, Dinas Powys, Eastbrook, Cogan and Penarth.

Cardiff Airport welcomes over a million passengers a year, serving scheduled airlines and charter tour operators. The airport has over 50 direct destinations and more than 800 one-stop destinations around the world (source: <http://www.tbicardiffairport.com/en/content/8/84/key-facts.html>)

The Port of Barry is a key facility for the region's chemical industry, handling liquid bulks for major companies including Dow Corning. The Port handled 281,000 tonnes in 2010 according to www.abports.co.uk.

4.7.7 *INFLUENCE OF LFRMS ON MATERIAL ASSETS*

The LFRMS will seek to manage flood risk to essential / critical infrastructure & assets within the Vale of Glamorgan and so provide a benefit.

The establishment of maintenance schedules for assets, both publicly and privately owned and the implementation of such measures is likely to have a beneficial effect on the asset in the vast majority of cases. There could be negative effects on assets of cultural heritage interest dependent upon the actual measures chosen.

The adoption of SuDs has the potential to affect land use such as agriculture as does the provision of guidance on local flood risk management requirements for developers.

4.8 CULTURAL HERITAGE

There is a large resource of buildings, architecture and structures of cultural and historic importance within the Vale of Glamorgan and these can be susceptible to disturbance, from land management and drainage.

Thirty nine Conservation Areas are located across the Vale with 740 listed buildings, including one in Penarth which is specially protected under Article 4 of the Town and Country Planning Act 1990 (as Amended).

Over 100 Scheduled Ancient Monuments are present within the Vale and 18 Historic Parks & Gardens.

The Vale of Glamorgan also recognises locally important cultural and historic assets as 'County Treasures'. These are non-statutory designations but recognise architecture and buildings that have an important local history.

The Vale of Glamorgan also has a rich and diverse archaeological landscape. The regional Historic Environment Records (HERs) for the area is compiled and maintained by the Glamorgan – Gwent Archaeological Trust.

4.8.1 *INFLUENCE OF LFRMS ON CULTURAL HERITAGE*

Cultural heritage features have the potential to be impacted by measures such as: the designation of significant structures and features which could influence local flood risk; the implementation of scheduled maintenance works or; the adoption of local property flood resilience measures.

The influence of climate change may exacerbate problems and risks to heritage assets and features.

4.9 AIR QUALITY

At national level the SEA for the Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales (Welsh Government, May 2011) scoped out air quality stating that it was unlikely that the strategy would have significant impacts upon air quality.

Reviewing the options and objectives of the LFRMS it has also been concluded that significant effects on air quality as a result of the local strategy would be unlikely and the environmental discipline has been scoped out.

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5. Environmental Issues and Problems

Table 5

Key Issues	Description	Source
Water Resource & Quality	<p>Limestone aquifers in the area where significant quantities of water can be abstracted however this provides poor long-term storage with little baseflow to the rivers. As a result both river systems can experience naturally occurring low river flows during prolonged dry periods. In very dry summers, some of the smaller tributaries can dry up completely.</p> <p>Five Ground Water Source Protection Zones designated due to their high vulnerability to contamination centred on Ogmore, Dinas Powys, Llansannor, Llangan and Treoes.</p> <p>Biological Reports of local rivers generally good or very good.</p>	Catchment Abstraction Management Strategies (CAMS)
Flood Risk	<p>The main sources of flooding vary from failure / overtopping of defences within the Cowbridge area, to lowland river flooding combined with surface water, sewer flooding and culvert blockages in the Barry and Penarth. Moorland run-off represents the main source of flooding in rural areas.</p> <p>The main areas of flood risk are located in Dinas Powys and Barry. In the future there is a significant increase in risk to the Dow Corning chemical complex and around Barry Dock commercial areas.</p> <p>The large floodplain in Peterston Super Ely moors provides natural flood water storage and slows down the run-off from the steeper upstream reaches, north of the M4 motorway. This results in a natural reduction of flows and a reduction in flood risk downstream in Cardiff.</p>	Ogmore to Tawe Catchment Flood Management Plan Taff and Ely Catchment Flood Management Plan
Incidences of Flooding	<p>2 x significant flood events within the Vale of Glamorgan of significant harmful consequences have occurred within the Vale of Glamorgan. In October 1998 16 properties and local roads were closed in Llanmaes whilst in July 2007 100 properties, 4 schools and local roads were affected.</p>	Vale of Glamorgan Preliminary Flood Risk Assessment
Flood & Coastal Defence	<p>Flood Alleviation Scheme constructed in Cowbridge.</p>	CAMS Severn Estuary Shoreline Management Plan Review

Table 5 cont...

Key Issues	Description	Source
Population	<p>2010 midyear estimates indicate that the population of the Vale of Glamorgan is now 124,976.</p> <p>Population Projections (2008) indicate that the population of the Vale of Glamorgan is set to rise from 126,654 in 2011 to 139,729 by 2026.</p>	ONS population estimates & projections
Deprivation & Health	<p>The Vale of Glamorgan experiences a wide socio-economic range with some of the most affluent and the most deprived communities in Wales.</p> <p>The Index of Multiple Deprivation (2008) shows that of the 78 lower super output areas (LSOA) in the Vale of Glamorgan, 5 LSOAs in Barry fall within the top 20% of most deprived areas in Wales.</p>	Index of Multiple Deprivation
Nature Conservation	<p>The Vale of Glamorgan Biodiversity Action Plan (May 2002) identifies 53 species of conservation concern with species action plans from the UK Biodiversity Action Plan (BAP) 'short list'.</p> <p>2 internationally designated sites are located within the Vale of Glamorgan, The Severn Estuary is a wetland of international importance (RAMSAR), a Special Area of Conservation (SAC) and Special Protection Area (SPA) whilst Dunraven Bay is a SAC. The Kenfig SAC is located adjacent to the Vale of Glamorgan</p>	Local Biodiversity Action Plan
	<p>26 Sites of Special Scientific Interest (SSSIs)</p> <p>12 Regionally Important Geological sites</p>	
Landscape	<p>19km of Heritage Coast stretches from Ogmores-on-Sea to West Aberthaw.</p> <p>Six Special Landscape Areas (SLA's) have been designated within the Vale of Glamorgan.</p>	
Resource & Consumption	<p>There are 10 operational Limestone Quarries located at Pantyffynnon Quarry, Lithalun Quarry, Wenvoe Quarry, Forest Wood Quarry, Pant Quarry, Ewenny, Longlands, Aberthaw, Ruthin, and Garwa Farm.</p> <p>There is approximately 28,000 hectares of agricultural land within the Vale of Glamorgan, accounting for 85% of the land within the Local Authority area.</p> <p>The main source of greenhouse gas emissions in Wales was the energy sector, followed by manufacturing and construction. 'Transport' was estimated to be the third largest producer of greenhouse gas emissions in 2010 although 'public' and 'residential' sources also produced only a slightly lower amount.</p>	South Wales Regional Aggregates Working Party Stats Wales

Table 5 cont...

Key Issues	Description	Source
Climate Change	Key projections for Western Wales River Basin District by the 2050s predict that winter precipitation increases of around 15% (likely to be between 3 and 33%); precipitation on the wettest day in winter up by around 12% (unlikely to be more than 27%); relative sea level at Swansea very likely to be up between 10 and 40cm from 1990 levels (not including extra potential rises from polar ice sheet loss); and, peak river flows in a typical catchment likely to increase between 12 and 20%. Increases in rain are projected to be greater near the coast than inland.	UK Climate Change Predictions StatsWales
	The Vale of Glamorgan's ecological footprint shows that the Vale has a slightly lower ecological footprint than the Wales average at 5.02g/ha/capita.	
Housing	No of houses	Housing Tables by Welsh Government & ONS projections
Transport Infrastructure	Nationally important M4 route at north of Vale of Glamorgan. Major Local Roads including A48, A4222, A4050, A4231, A4226 and A4055. Main railway line Vale of Glamorgan Railway line Cardiff Airport Barry Dock	Regional Transport Plan
Cultural Heritage	Numerous assets' of cultural and historic importance throughout the Vale of Glamorgan: <ul style="list-style-type: none"> • 39 Conservation Areas • Approximately 740 Listed Buildings • Over 100 Scheduled Ancient Monuments • 18 Historic Parks & Gardens 	VOG Conservation & Design Team Cadw

6. Developing SEA Objectives

The SEA Objectives will be derived from the baseline information detailed above including the environmental issues which can be influenced by the LFRMS.

Objectives and measures set out in the Local Flood Risk Management Strategy (the Plan), are derived from the National objectives

Table 6 Reducing the Consequences – Local Objectives

No.	Local Objectives	Measures
1	Provide leadership and direction at a local level	<p>Lead and maintain a 'Local Partnership for Flood Risk Management' to discuss local flood risk issues and share information.</p> <p>Establish collaborative working relationships with neighbouring LLFA officers to manage cross-boundary flood risks</p> <p>To provide clear guidance on responsibility on management of all sources of flood risk and support stakeholders to carry out their responsibilities</p> <p>Create and implement a Local Flood Risk Management Strategy</p>
2	Develop local planning control policies to ensure sustainable flood and coastal erosion risk management measures are delivered by development	<p>Develop and regularly update specific local planning policies based the best available local flood risk information</p> <p>Provide clear guidance on local flood risk management requirements for developers by working with the EA and other relevant partners to develop a comprehensive understanding of all sources of flood risks.</p> <p>Establish a SUDS Approval Body (SAB) to review development proposals, adopt SUDS from developers and ensure sustainable flood management practices are implemented</p> <p>Develop and implement a planning process for identifying and 'designating' significant structures or features that have a 'significant influence on local flood risk'</p> <p>Establish clear links between local flood risk and significant environmental sites² to understand the impacts and opportunities presented by their interaction</p> <p>Finalise and implement a clear policy on culverting of watercourses that is aligned with the national Environment Agency policy and promotes positive environmental impacts.</p> <p>Ensure that local flood risk management policy created by the Council is consistent with other existing Council policy and does not conflict with the policy of other local Risk Management Authorities</p>
4	Seek to reduce flood risks & consequences to identified high risk areas	<p>Undertake detailed studies to identify the causes and consequences of flooding in these areas, both now and in the future</p> <p>Undertake a feasibility study to investigate options for improving the capacity of the Cold Brook, through channel improvements and / or deculverting</p> <p>Promote deculverting of the Coldbrook, particularly as land comes up for redevelopment, through implementation of the culverting policy and LDF policies</p> <p>Undertake a feasibility study to investigate options for upstream storage to reduce flooding through the town</p> <p>Seek to reduce runoff from existing developed areas through robust LDF policies and implementation of the SAB</p> <p>Secure funding and community "buy-in" to implement property level flood protection to existing properties at risk.</p>

² Significant environmental sites include Special Areas of Conservation, Sites of Special Scientific Interest, Special Protection Areas, RAMSAR Sites and sites that contribute to the Biodiversity Action Plan

Table 6.2 Raising Awareness – Local Objectives

No.	Local Objectives	Measures	Comment
1	Identify communities and businesses that are at risk from flooding and coastal erosion	<p>Use national flood risk maps to identify high risk areas</p> <p>Undertake detailed studies in areas of uncertain flood risk to confirm level of risk and who may be affected</p>	<ul style="list-style-type: none"> Refer Preliminary Flood Risk Assessment Refer Section 2 (Local Flood Risk) Surface Water Management Plan (SWMP) Technical Guidance (2010) provides a clear methodology for detailed assessment of local flood risks
2	Work with at risk communities and businesses to collectively understand local flood risks and how they can be managed	<p>Develop effective methods for communicating and sharing flood risk information with at risk communities</p> <p>Undertake regular community liaison in identified risk areas to discuss risks and how they can be managed</p> <p>Work with at risk businesses to develop risk management and business continuity plans that are proportional to the local risks</p> <p>Work with other RMAs to establish areas that may see increased risk through the implementation of CFMP & SMP policies and develop a strategy to communicate this to affected communities and raise awareness.</p>	<ul style="list-style-type: none"> Aligns with the Local Development Plan Vision – <i>“The Vale of Glamorgan is a place...where there is a strong sense of community in which local groups and individuals have the capacity and incentive to make an effective contribution to the future sustainability of the area”</i>
3	Promote property and community level flood resilience	<p>Proactively seek national funding to support local community and property level resilience measures</p> <p>Build a robust knowledge base within the council to assist the community in implementation of flood resilience measures</p>	<ul style="list-style-type: none"> Link with overall council officer capacity building in relation to management of flood risk
1	Ensure the preparation and testing of Emergency Plans	<p>Prepare community specific emergency plans in relation to local flood risk</p> <p>Regularly review and update emergency plans using the best available local flood risk information</p> <p>Organise and participate in regular community level emergency exercises in areas identified as at high risk of flooding – including communication procedures, location / deployment of resources and coordination with other services.</p> <p>Contribute to and participate in any national or regional emergency exercise programmes related to flood risk</p>	<ul style="list-style-type: none"> Links with current activities of Emergency Planning Unit Exercises should be based on predicted flood extents (not arbitrary scenarios)

Table 6.2 Raising Awareness – Local Objectives Contd.....

No.	Local Objectives	Measures	Comment
2	Respond to flood events in a timely and appropriate manner	Utilise the resources available to the Council to provide support for the Emergency Services	<ul style="list-style-type: none"> Links with current activities of Emergency Planning Unit
		Coordinate the Voluntary Agencies to mitigate the effects of the incident as it occurs	
		Investigate and publically report on significant flood incidents within two months of their occurrence (including identification of responsible parties for mitigation)	<ul style="list-style-type: none"> LLFA duty under the FWMA Identified as a 'next step' in PFRA: Create system based on PFRA annexes and implement an online form for Council website.

Table 6.3 Providing an Effective and Sustained Response – Local Objectives

No.	Local Objectives	Measures	Comment
3	Facilitate recovery from flooding within the shortest possible timescales	Take the lead role in facilitating the rehabilitation of the community and the restoration of the environment	<ul style="list-style-type: none"> Links with current activities of Emergency Planning Unit.
		Provide support to local businesses through implementation of business continuity planning	
		Use local flood risk knowledge to identify vulnerable individuals / communities and assess potential level of flood impact based on risk maps in advance of incident.	

Table 6.4 Prioritising Investment – Local Objectives

No.	Local Objectives	Measures	Comment
1	Utilise a risk based approach to managing flood risk to ensure structural and non-structural measures are considered to arrive at a cost-effective solutions that are proportional to local flood risk	Develop a comprehensive understanding of local flood risk management tools that are practical for use in the Vale of Glamorgan (based on local ground conditions and existing infrastructure)	<ul style="list-style-type: none"> Link with overall council officer capacity building in relation to management of flood risk
		Establish a clear and transparent risk based hierarchy for decision making on flood risk mitigation prioritisation and investment	<ul style="list-style-type: none"> Link with definitions of 'significant influence on local flood risk' and 'significant flood incident'
		Maintain an up to date knowledge of significant environmental sites and how they interact with flood risk areas to ensure that multi-benefit flood risk mitigation solutions are identified and improve the status of their classification.	<ul style="list-style-type: none"> The HRA, SEA and WFD assessments will highlight these links

Table 6.4 Prioritising Investment – Local Objectives cont...

No.	Local Objectives	Measures	Comment
2	Identify and prioritise local risk mitigation works for feeding into the National Investment Programme	Identify and prioritise areas of flood and coastal erosion risk	<ul style="list-style-type: none"> The PFRA identifies two areas of significant historic flood risk and three areas of significant future flood risk: <ul style="list-style-type: none"> Historic: Coldbrook and Llanmaes Future: Dineas Powys, Llantwit Major and Cowbridge
		Prepare feasibility studies for mitigation of risk in high priority areas and submit to National Programme for consideration	<ul style="list-style-type: none"> Link with overall council officer capacity building in relation to management of flood risk
3	Promote the use of alternative funding sources through delivery of multi-benefit risk mitigation projects using multiple funding sources	Clearly identify all beneficiaries of proposed risk mitigation schemes	<ul style="list-style-type: none"> Local Development Plan (2011 – 2026) allows Community Infrastructure Levy to be used for 'Flood Defence' Link with Vale of Glamorgan Flood Forum
		Proactively maintain a high level of understanding of available funding sources and how to access them	<ul style="list-style-type: none"> Link with overall council officer capacity building in relation to management of flood risk
		Proactively maintain a high level of flood risk management resource and skills within the council to ensure local risk management schemes can be investigated, designed and implemented using available funding sources.	

With reference to the environmental baseline conditions, the issues and problems highlighted and the objectives of the Plan, the following objectives are suggested for the SEA:

Table 6.5 SEA Objectives

SEA Objective	Key Sustainability Issues
1. To minimise the risk of flooding	> 650 residential properties, 189 commercial properties, 5 schools, 1 emergency service and 4 electricity substations at future risk of flooding from surface water.
2. To maintain and enhance water resources and quality	Water resource issues. Quality of water bodies, particularly their ecological status
3. To protect and enhance human health and wellbeing	Increasing population. 5 LSOAs in Barry fall within the top 20% of most deprived areas in Wales.
4. To ensure the impact of flood on existing and future critical infrastructure is minimised	International travel. Cardiff Airport, Barry Docks, M4 National and regional transport links – M4, A48, Swansea to London Railway

Table 6.5 SEA Objectives Contd...

SEA Objective	Key Sustainability Issues
5. To ensure that new development is located with respect to the Sequential Test	Flood Risk Zones Various sources of flood risk including river flooding, surface water flooding, sewer flooding, tidal flooding and groundwater flooding.
6. To protect and enhance biodiversity and geodiversity across the Vale of Glamorgan	Protection of internationally, nationally and locally sites designated for habitats, species and geological conservation.
7. To maintain and/or enhance the character of the townscape and cultural heritage features and assets throughout the Vale of Glamorgan	Large number of historic sites and buildings within the Vale. Protection of SAM, listed buildings, conservation areas and historic parks and gardens.
8. To protect best quality soil and preserve and/or enhance the landscape character of the Vale of Glamorgan	High grade soils Protection of Heritage Coast Distinct characteristics for each landscape area Ability of local landscape to accept change
9. To adapt development to the impacts of climate change	Future climate change predictions Ecological footprint Energy consumption

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7. Assessment of the LFRMS

The key environmental issues to be addressed within the SEA are: water resource and quality; flood risk, flooding and coastal defence; population and health; biodiversity, geodiversity, cultural heritage and landscape; resource and consumption and; climate change. The table below shows SEA Objectives that have been developed based on the key environmental issues and the LFRMS objectives and measures. The LFRMS objectives and measures will be tested against the SEA objectives following initial consultation with the Flood Forum and the consultee responses, to ensure all issues have been addressed.

The methodology for the environmental assessment will comprise the testing of the plan’s individual objectives/measures against the SEA objectives identified in Section 6 of this report.

The appraisal will consider secondary, cumulative, synergistic, short, medium and long term effects both temporary and permanent in accordance with Annex 1 of the SEA Directive. The assessment will discuss alternatives and provide mitigation measures where appropriate.

An appraisal matrix such as the example set out below will be used to supplement the findings of the environmental assessment

Table 7.1

SEA Objectives	1	2	3	4	5	6	7	8	9
Local Objectives									
Measure 1									
Measure 2									

Table 7.2

+	Major positive
+	Positive
/	Uncertain
-	Negative
--	Major negative
0	No impact

8. The Environmental Report

Following the agreement of the baseline evidence, methodology and framework for the assessment as set out in this Scoping Report, the environmental assessment of the plan will be undertaken using the above as its basis. The findings will be set out in the Environmental Report. This report will then be subject to wider public consultation. The style of consultation will be agreed with the client (Vale of Glamorgan Council) in due course.

The Environmental Report will be structured as follows:

Table 8.1

Structure of Report	Information to include
Components of the Environmental Report	Components of Environmental report and purpose of SEA Directive
Introduction	Purpose of SEA SEA process and legislation Structure of the Environmental Report
Background	Summary of the LFRMS Key aims and objectives of the LFRMS
SEA objectives, baseline and context	Relationship with other policies, plans and programmes and environmental protection objectives Baseline characteristics Key issues and problems identified Limitations The SEA Framework
LFRMS issues and options	Main strategic options considered Comparison of the environmental, social and economic effects of the options The preferred option and reasons for its choice
LFRMS objectives and measures	Environmental, social and economic effects of the local policies and measures adopted for the LFRMS
Conclusions and recommendations	Significant effects Proposed mitigation measures Monitoring proposals

9. Consultation Arrangements

9.1 CONSULTATION

This draft Scoping Report is subject to a 5-week consultation period and will be submitted to the 3 Consultation Bodies with environmental responsibilities in Wales – Environment Agency Wales, the Countryside Council for Wales and CADW – for their comments.

Comments on the following are requested in particular, though all other comments are welcome:

Have all relevant policies and plans been listed as appropriate to this appraisal?

Are the SEA objectives appropriate?

Does your organisation hold information that would add to the assessment of the local objectives and measures within the LFRMS or increase the robustness of the baseline data?

The consultation period will run from November to December 2012.

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