Draft Wexford County Development Plan 2013-2019
Volume 7: Strategic Flood Risk Assessment
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Abbreviations

AFA	Areas for Further Assessment
CFRAMS	Catchment Flood Risk Assessment and Management Study
DEHLG	Department of the Environment, Heritage and Local Government
JBA	JBA Consulting Engineers and Scientists
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
RFRA	Regional Flood Risk Appraisal
SERPGs	Regional Planning Guidelines for the South-East Region 2010-2022
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems

Section 1 Introduction

1.1 Introduction

Flooding is a natural process that can happen at any time in a wide variety of locations. Flooding from the sea and rivers is probably best known but prolonged, intense and localised rainfall can also cause sewer flooding, overland flow and groundwater flooding. Flooding has significant impacts on human activities. It can threaten people's lives and their property, and in addition to economic and social damage, floods can have severe environmental consequences.

Flood risk is the damage that may be expected to occur as a result of flooding at a given location. It is a combination of the likelihood, or probability, of flood occurrence, the degree of flooding and the impacts or damage that the flooding would cause. Flood risk is not the same as flood hazard. Flood hazard only describes the features of flooding which have harmful impacts on people, property or the environment such as the depth of water, speed of flow, rate of onset, duration, water quality[1].

Flood risk=Probability of flooding x Consequences of flooding

There is therefore a need to manage and minimise future flood risk. Land use management and spatial planning has a key role to play with respect to flood risk management, in particular in ensuring that future development avoids or minimise increases in flood risk.

The aim of flood risk management in the County is to minimise the level of flood risk to people, business, infrastructure and the environment through the identification and management of existing and potential future flood risks. Flood risk management will be incorporated into the decision-making processes for

[1] Department of the Environment, Heritage and Local Government and Office of Public Works (2009), The Planning System and Flood Risk Management-Guidelines for Planning Authorities, p.58.

future development in the County in an integrated, proactive and transparent manner and in line with evolving best practice.

1.2 Legislative and Policy Context

Flood risk management is set in an evolving framework of European and national legislation and guidance.

1.2.1 EU Floods Directive 2007/60/EC

This Directive on the assessment and management of flood risks entered into force on 26 November 2007. It aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to:

- Carry out a Preliminary Flood Risk Assessment of their river basins and associated coastal zones, to identify areas where potential significant flood risk exists by December 2011.
- Prepare flood hazard maps and flood risk maps for the identified areas by December 2013, and
- Prepare flood risk management plans for these zones by December 2015. These plans are to include measures to reduce the probability of flooding and its potential consequences.

The Directive requires that the above be carried out in coordination with the Water Framework Directive through the coordination of flood risk management plans and river basin management plans.

1.2.2 National Flood Risk Management Policy

CFRAM Programme

The Catchment Flood Risk Assessment and Management (CFRAM) Programme was developed to meet the requirements of the Floods Directive. The CFRAM programme includes these main stages:

- Stage 1 Preliminary Flood Risk Assessment 2011
- Stage 2 Flood Risk and Hazard Mapping 2013
- Stage 3 Flood Risk Management Plans 2015

The programme is being implemented through CFRAM studies. The country has been divided in six river basin districts and a CFRAM study is being carried out for each district.

Stage 1, which was a national screening exercise, identified areas where there might be a significant risk associated with flooding. Its intention was to identify communities (cities, towns, villages and townlands), facilities and sites (for example environmentally designated areas) around the country where the risk due to flooding might be potentially significant. These areas were identified as Areas for Further Assessment (AFA) which will be subject to more detailed assessment to establish the extent and degree of flood risk.

The PFRA identified nine AFA in County Wexford:

- Wexford Town
- New Ross Town
- North Slobs
- South Slobs
- Blackwater
- Gorey
- Courtown
- Bunclody
- Fairfield/Cherryorchard, Enniscorthy

South-Eastern CFRAM Study

County Wexford is located in the South-East River Basin District. The South-Eastern CFRAM study, which is being carried out by the OPW and RPS Consultants in conjunction with the constituent local authorities, commenced in

July 2011. Detailed survey work has begun on the above AFA with a view to developing flood risk and hazard maps for these areas by December 2013.

1.2.3 Section 28 Guidelines-The Planning System and Flood Risk Management for Planning Authorities

The Planning System and Flood Risk Management-Guidelines for Planning Authorities' (DEHLG and OPW, 2009) were issued by the Minister of the Environment, Heritage and Local Government under Section 28 of the Planning and Development Act (2000) as amended. Planning authorities and An Bord Pleanála are required to have regard to the guidelines when carrying out their functions under the Planning Acts.

The Guidelines set out government policy on development and flood risk management. The overall aim of the guidelines is to deliver sustainable development that minimises the risk of flooding to people and property by the avoidance of inappropriate development in areas at risk of flooding. Planning authorities are now required to incorporate flood risk management as a key consideration in the preparation of development plans, local area plans and the assessment of planning applications.

The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding.
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off.
- Ensure effective management of residual risks for developments permitted in floodplains.
- Avoid unnecessary restriction of national, regional or local economic and social growth.
- Improve understanding of flood risk among relevant stakeholders.

- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

The Guidelines outline three key principles that should be adopted by regional authorities, local authorities, developers and their agents when considering flood risk. These are:

- **Avoid** the risk, where possible.
- **Substitute** less vulnerable uses, where avoidance is not possible.
- **Mitigate** and manage the risk, where avoidance and substitution are not possible.

1.2.4 Regional Flood Risk Management Policy

The Regional Planning Guidelines for the South-East Region 2010-2022 (SERPGs) requires its constituent local authorities to take account of the issues raised in the Regional Flood Risk Assessment (RFRA) which was carried out during the preparation of the SERPGs. The SERPGs also requires the local authorities to undertake Strategic Flood Risk Assessment (SFRA) of future plans in line with Government's guidance on the planning system and flood risk management. It states that the local authorities should ensure they adhere to the principles of avoiding risks where possible in preparing future plans.

The RFRA examined major flood risk from river flooding and did not include an assessment of groundwater or artificial drainage flood events. The River Slaney is discussed in the appraisal, and it acknowledged that Enniscorthy Town, which developed along the Slaney, has suffered extreme flooding over the years. Flood risk management proposals for the town are being formulated. Future development in the town will be guided by the information available on the extent of the floodplain and the main measures required, ensuring that future development is sustainable.

The RFRA indicates that the coastline of County Wexford is experiencing both erosion and deposition and some flooding through normal coastal processes. However, it is cautioned that the coastline is at risk in the future from increased storm activity and sea level rise. Extensive parts of the coastline are low-lying and vulnerable to flooding in the long-term from sea level rise. The RFRA states that it is essential that current and future plans and development do not create significant problems in the future. It recommends that continued investment is required to research long term options for the protection of coastal towns and settlements from long term sea level rise and increased storm activity.

The RFRA acknowledges that a number of the county towns identified in the Regional Settlement Strategy are vulnerable to fluvial and coastal flooding. However, it is indicated that the management of flood risk, coupled with wider environmental, sustainability and economic considerations means that it is possible to facilitate the necessary growth of the centres of urban settlements in the Region.

1.3 What is Flood Risk Assessment

Flood risk assessment can be undertaken at any scale from national down to the individual site and comprises 3 stages: flood risk identification, initial flood risk assessment and detailed flood risk assessment[2]. Table 1 describes the stages, their purpose and their application at plan and project level.

[2] Department of the Environment, Heritage and Local Government and Office of Public Works (2009), The Planning System and Flood Risk Management-Guidelines for Planning Authorities, p.58.

Table 1: Types of Flood Risk Assessment

Stage	Type of Assessment	Purpose	Required for
1	Flood risk Identification	Identify whether there are any flooding or surface water management issues relating to the area that may warrant further investigation at the appropriate lower level plan or planning application level	Regional Planning Guidelines County Development Plan
2	Initial Flood Risk Assessment	Confirm the sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood maps.	County Development Plan (where zoning proposed) Town Development Plan Local Area Plan
3	Detailed Flood Risk Assessment	Assess flood risk issues in sufficient detail to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.	Town Development Plan Local Area Plan Planning applications

A Stage 1 Strategic Flood Risk Assessment, here on referred to as SFRA, was carried out for the Wexford County Development Plan 2013-2019. It will:

- identify the broad nature of flood risk in the County,
- outline the flood risk management objectives to be included in the Plan
- outline the development management standards to be included in the Plan

The Plan does not propose to zone any land for development or identify the location of future strategic infrastructure within flood risk areas. Therefore, in accordance with the Planning System and Flood Risk Management Guidelines (DEHLG and OPW, 2009), the SFRA is not required to produce flood risk maps for all watercourses or coastal frontage in the Plan area.

The Council has been proactive in area of the flood risk management and has acquired flood zone maps for the County. These maps are currently used as a screening tool for flood risk, and have been included in the SFRA for the purposes of identifying sources of flood hazard in the County. The maps, which are explained in further detail in Section 2, are included in Appendix A and B of the SFRA.

1.4 Advice Note

Flood hazard and flood risk information is an emerging dataset of information. The flood hazard maps used by the Council may be altered in light of future data and analysis. Therefore, all landowners and developers are advised that Wexford County Council accept no responsibility for losses or damages arising due to assessments of vulnerability to flooding of lands, uses and developments. Owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding.

The Council will screen for flood risk based on the flood zone maps contained in Appendix A and B and any future updated versions of these maps or any other future flood risk assessment information provided by the Office of Public Works.

The flood zone maps are from two different sources; JBA Consulting Engineers and Scientists and the Office of Public Works. Whilst the mapping methodologies are inherently different, both have produced indicative flood maps are based on robust methodologies and which correlate very well.

These maps are based on broad-scale modelling techniques. The maps and the identified flood zones will require verification at an individual site level where it appears that the indicative flood zone does not match the actual conditions or the topography of the site. The onus will be on the applicant to prove beyond reasonable doubt that the subject site is not vulnerable to flooding. This must be proved based on appropriate scientific data and assessment carried out by a suitably qualified and indemnified professional in line with the requirements of the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009).

Section 2 Flood Risk in County Wexford

2.1 Sources of flooding in County Wexford

Different types of flooding present different forms and degrees of danger to people, property, infrastructure and the environment. This is due to varying depth, velocity, duration, rate of onset and other hazards with flooding. With climate change the frequency, pattern and severity of flooding are expected to change, becoming more uncertain and more damaging.

The SFRA focuses on the risk from fluvial flooding and coastal flooding. The reasons for this are:

- Both are principle sources of flood risk in the County.
- There is more readily available information in relation to fluvial and coastal flooding, in particular the flood zone maps commissioned by the Council and the information recorded on the National Historical flood mapping website.

The National Flood Hazard mapping website, operated by the Office of Public Works, provides information on flood vulnerable locations in the County. This website www.floodmaps.ie has recorded 127 past flood events in County Wexford. Information is provided on the event; including whether it was a recurrent or extreme event.

2.1.1 Fluvial flooding

This type of flooding occurs when the capacity of a river is either exceeded or the flow of the river or river becomes blocked or restricted. The excess water spills out from the channel onto adjacent low-lying areas-the flood plain. Rivers have associated natural flood plains; the purpose of which is to hold this excess water until it can be released slowly back into the river or seep into the ground.

There is an extensive network of rivers and tributaries which traverse County Wexford; the principal rivers being:

- Slaney
- Barrow
- Bann
- Owenavorragh
- Blackwater
- Sow
- Boro
- Corrock
- Owenduff

The flood zone maps used by the Council identify fluvial flooding along all of these rivers, smaller rivers and all associated tributaries in the County.

Historically, the County's main towns developed around rivers: Wexford, New Ross, Enniscorthy, Bunclody and Gorey. These towns have all experienced flood events; and significant flood events have occurred in Enniscorthy Town.

The PFRA process completed by the OPW has concluded that some areas in these towns may be prone to significant flood risk, and has identified them as AFA to establish the extent and degree of this flood risk.

2.1.2 Coastal Flooding

Coastal flooding is caused by higher sea levels than normal, which in turn, results in the sea overflowing onto the land. The County has approximately 246 k.m of coastline: 125 k.m of which is considered 'soft shoreline' (shoreline prone to erosion).

The coastline is home to some of the County's most important economic and environmental assets. There are many established uses along the coastline including ports, harbours, fishing and aquaculture, residential, leisure and amenity. The coastline is a popular destination for tourists and there has always been a demand for holiday home accommodation in coastal areas: mobile homes, caravans, holiday chalets and houses. Residential developments are highly vulnerable to flooding and therefore this issue accommodation/holiday homes need to be carefully managed.

The Irish Coastal Protection Strategy Studies Phases 2 and 3 were published by the Office of Public Works in 2010 and 2011 respectively. These studies provide strategic assessments of the extent of coastal erosion and coastal flooding along the South-East Coast (Phase 2) and along the South Coast (Phase 3). The studies identify the hazard and potential risk from coastal flooding at a strategic level. The predictive coastal flood extent and flood depth maps show that coastal flood risk exists predominately in or near coastal settlements. The primary areas of potential coastal flood risk are: Cahore Point to Morriscastle, Castlebridge, Curracloe, Wexford, Rosslare, Tacumshin, Kilmore Quay to Cullenstown and Wellingtonbridge. The impacts of climate change will increase the risks posed by coastal flooding. Therefore, similar to coastal erosion, these risks need to be carefully managed.

2.1.3 Pluvial Flooding

The PFRA provides a preliminary assessment of pluvial flooding the County. This type of flooding is a result of rainfall-generated overland flows which arise before run-off enters any watercourse or sewer. The intensity of rainfall can be such that the run-off totally overwhelms surface water and underground drainage systems.

2.1.4 Groundwater Flooding

The PFRA also provides a preliminary assessment of groundwater flooding the County. Groundwater flooding occurs where the level of water stored in the ground rises as a result of prolonged rainfall and flows out over the ground.

2.2 The impacts of flooding

Flooding can have many impacts on people, property, infrastructure and the environment:

People

Flooding can cause physical injury, illness and loss of life. There is stress associated with being flooded.

Property

Flooding can cause severe damage to properties by damaging the contents of a building, its services and it may in some cases, causing structural damage.

Infrastructure

Flooding can have serious impacts on infrastructure such as transport routes, electricity and water supply. The impact of flooding on transport routes is two-fold: it can restrict access to and from areas and the flood waters can damage the structural condition of roads, footpaths, cycleways and railway lines.

Flooding of water supply infrastructure such as pumping stations or of electricity sub-stations, can result in the loss of water or power supply. All of the above can have a detrimental impact on local economies.

Environment

Flooding can have both positive and negative impacts on the environment. Wetland habitats are dependent on flooding for their sustainability and can store

waters to reduce flood risk elsewhere. Flooding can however cause soil and bank erosion, damage vegetation, impact on water quality, habitats and flora.
The flooding of wastewater treatment plants could have serious adverse impacts on the receiving environment.

2.3 Screening for Flood Risk

The Council will use all available sources of information when screening for flood hazard and flood risk. These sources include:

- Flood Zone maps
- Office of Public Works National Flood Hazard Mapping recorded on www.floodmaps.ie
- Office of Public Works Benefitting Land Maps
- Mineral Alluvial Soil mapping
- Ordnance Survey of Ireland “Lands liable to floods” mapping (6” OS maps)
- Flood studies, reports and flood relief schemes
- Working knowledge from Town Engineers and Area Engineers.

2.3.1 Flood Zone Maps

Flood zones are geographical areas within which the likelihood of flooding is in a particular range. There are three types or levels of flood zones defined for the purposes of the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009). Table 2 defines the three flood zones.

Table 2: Definition of Flood Zones

Zone	Description
Zone A High probability of flooding	This zone defines areas with the highest risk of flooding from rivers (i.e. more than 1% probability or more than 1 in 100) and the coast (i.e. more than 0.5% probability or more than 1 in 200).
Zone B Moderate probability of flooding	This zone defines areas with a moderate risk of flooding from rivers (i.e. 0.1% to 1% probability or between 1 in 100 and 1 in 1000) and the coast (i.e. 0.1% to 0.5% probability or between 1 in 200 and 1 in 1000).
Zone C Low probability of flooding	This zone defines areas with a low risk of flooding from rivers and the coast (i.e. less than 0.1% probability or less than 1 in 1000).

It should be noted that the definitions of these zones do not take account of the potential for flooding from other sources, such as ground water or artificial drainage systems. Flooding from these sources could occur in any of the zones and as such should always be considered, regardless of the zone.

The Council currently utilises two sets of flood zone maps when screening for flood risk: JBA Consulting Engineers and Scientists and the Office of Public Works. The Council will screen for flood risk based on both sets of maps, and any other future updated versions of these map datasets or other map datasets that may emerge during the lifetime of the Plan. Whilst the mapping methodologies are inherently different, both have produced indicative flood maps are based on robust methodologies and which correlate very well.

The flood maps will be used a screening tool rather than a site-specific model. These maps have not been independently verified. Therefore, an applicant when preparing a detailed Flood Risk Assessment should seek professional advice from a suitably qualified person to verify the maps. If during this process of

independent verification it is submitted that the subject lands are not located within an area vulnerable to flooding (either Flood Zone A and Flood Zone B), the onus will be on the applicant to objectively demonstrate this based on the best scientific information available at the time of the planning application.

Both sets of maps are included in Appendix A and B.

JBA Flood Zone Maps

JBA Consulting Engineers and Scientists were commissioned by Wexford County Council in 2010 to prepare flood zone maps for the County. These maps show Flood Zone A and Flood Zone B for fluvial and coastal flood hazards.

Office of Public Works Preliminary Flood Risk Maps

These maps were prepared by the Office of Public Works as part of the National Preliminary Flood Risk Assessment (PFRA) and were published in 2011. The PFRA maps delineate areas potentially prone to flooding from fluvial, coastal, pluvial, groundwater and lakes.

The PFRA maps identify indicative and extreme events for fluvial, coastal and pluvial flood hazard and based on the information provided are assumed to identify Flood Zone A and Flood Zone B as indicated in Table 2.

Table 3: Preliminary Flood Risk Assessment Maps (PFRA) Flood Zones

Flood Hazard	Flood Extent	Flood Zone	Colour on [3]Maps
Fluvial	Indicative 1% AEP (100-yr)	A	Dark Blue
	Extreme Event Indicative 0.1% AEP (1000-yr)	B	Light Blue
Coastal	Indicative 0.5% AEP (200-yr)	A	Dark Green
	Extreme Event Indicative 0.1% AEP (1000-yr)	B	Light Green
Pluvial	Indicative 1% AEP (100-yr)	A	Orange
	Extreme Event Indicative 0.1% AEP(1000-yr)	B	Pale Orange
Lakes/Turloughs	Not defined		Hatched Blue

Mapping Methodology

The mapping methodologies are inherently different. Both datasets have produced indicative flood maps which are based on robust methodologies and which correlate very well. In accordance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009) both sets of maps were developed without regard for any form of flood defence and do not specifically model interaction with anything other than the land surface, stripped of all manmade features. This approach is required to take into account the risk of defence failure or overtopping.

[3] Table 3 shall be read in conjunction with the OPW Preliminary Flood Risk Assessment maps in Appendix A of this document.

Section 3 Flood Risk Management in County Wexford

3.1 Flood Risk Management

The Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009) recommend that planning authorities must strike a fair balance between avoiding flood risk and facilitating necessary development, enabling future development to avoid areas of highest risk and ensuring that appropriate measures are taken to reduce flood risk to an acceptable level for those developments that have to take place, for reasons of proper planning and sustainable development, in areas at risk of flooding[4].

Flood risk management, through this SFRA, was fully incorporated into the preparation of the County Development Plan. It will also play a key role in the:

- review and preparation of future town development plans and local area plans in the County and
- the assessment of all planning applications

3.2 Objectives for inclusion in the County Development Plan

The aim of flood risk management in the County is to minimise the level of flood risk to people, business, infrastructure and the environment through the identification and management of existing and potential future flood risks. Flood risk management will be incorporated into the decision-making processes for future development in the County in an integrated, proactive and transparent manner and in line with evolving best practice. The following objectives should be included to ensure this aim is achieved:

- To avoid development in areas of flood risk, and to require the application of the Justification Test where necessary.

[4] Department of the Environment, Heritage and Local Government and Office of Public Works, 2009, Flood Risk Management-Guidelines for Planning Authorities. p. 55

- To improve and/or restore natural flood risk management functions of flood plains, where appropriate.
- To preserve riparian strips alongside river channels free of development and to ensure these strips are adequate in width to permit access for river maintenance.
- To align natural flood risk management with recreation and amenity functions, habitat protection and protecting water quality.
- To ensure the use of Sustainable Drainage Systems (SuDS) in developments.
- To improve existing flood management infrastructure and the provision of new infrastructure, where required.
- To provide for emergency planning.
- To ensure that proposals for development in areas where there is a risk of flooding regard to the Planning System and Flood Risk Management- Guidelines for Planning Authorities and any future OPW flood assessment information, and such proposals must also demonstrate that appropriate mitigation measures can be put in place.

3.3 Town Development Plans and Local Area Plans

The respective planning authorities in the County will carry out Stage Two Strategic Flood Risk Assessments when reviewing and preparing new town development plans and local area plans. The purpose of the SFRA will be to provide a broad assessment of the types of flood risk in the relevant plan area, which in turn will inform strategic land-use planning decisions. The SFRA will:

- Identify whether and the degree to which flood risk is an issue in the Plan area.
- Identify flood zones within and adjoining the plan area.
- Apply the sequential approach to land use zoning by directing new development towards land that is at low risk of flooding.

- Apply the Development Plan Justification Test where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding for use that is vulnerable to flooding.
- Outline the key requirements for the management of development in areas at risk of flooding.

Where major development is proposed in areas covered by existing development plans or local area plans which have not yet taken account of the Planning System and Flood Risk Management–Guidelines for Planning Authorities (DEHLG and OPW, 2009), the applicant will be required to prepare, in consultation with the Council, an appropriate SFRA and to meet the criteria for the Justification Test as it is applies development plan preparation. The Council will then assess the proposal against the Justification Test as it applies to the development management process.

3.4 Flood Risk Management and Development Management

3.4.1 General requirements

The Council shall have regard to the requirements of The Planning System and Flood Risk Management Guidelines for Planning Authorities (DEHLG and OPW, 2009) when assessing development proposals where flood risk may be an issue.

The following key requirements for the management of development in areas at risk of flooding shall be adhered to:

- Development proposals within, or incorporating, areas at moderate to high risk of flooding will require a site-specific and appropriately detailed flood risk assessment.
- Development proposals within, or incorporating, areas at moderate to high risk of flooding will require the application of the development management Justification Test in accordance with The Planning System

and Flood Risk Management (and Technical Appendices) Guidelines for Planning Authorities (DEHLG and OPW, 2009).

- Any proposal that is considered acceptable in principle shall demonstrate the use of the sequential approach to inform the site layout and design of development. Proposals shall demonstrate that appropriate mitigation and management measures can be put in place and that development will not increase flood risk elsewghere.

Minor proposals for development, for example small extensions to existing houses of change is use, in areas at moderate to high risk of flooding should be assessed in accordance with Planning Guidelines: The Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009).

It should be noted that in many instances available information on historic and predictive flood events is not adequate or sufficient for the area covered by the development proposal. Where the information is not sufficient to fully assess the issues involved, the development should not be approved on the basis of flood risk and/or on grounds of prematurity prior to addressing flood risk as part of the normal review of the development plan/local area plan for the area.

Where flood risk constitutes a significant environmental effect of a proposal, a sub-threshold Environmental Impact Statement may be triggered. Screening for Environmental Impact Assessment should be an integral part of the planning applications in areas at risk of flooding.

3.4.2 The role of the applicant and their agent

The applicant and their agent is primarily responsible for assessing whether there is a flood risk issue and how it will be addressed in the development they propose. In accordance with the recommendations of the Planning System and

Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009), the applicant and their agents will be required to:

- carefully examine their development proposals to ensure consistency with the requirements of the Guidelines, including researching whether there have been instances of flooding or there is the potential for flooding on the site and declare any know flood history on the planning application form as required by the Planning and Development Regulations 2001 (as amended).
- engage with the Council at the earliest stage through the pre-planning consultation process with regard to any flood risk assessment issues that may arise.
- carry out a site-specific flood risk assessment, as appropriate, and comply with the terms and conditions of any grant of planning permission with regard to the minimisation of flood risk.

3.4.3 Pre-application discussions

Pre-application discussions will be important in identifying the broad range of issues affecting a site and present an opportunity for the Council to make clear to the applicant that an appropriate flood risk assessment should be carried out as part of the application preparation process. It is recommended that where flood issues are present, the Council should highlight the objectives of the development plan in relation to flood risk and the available information on flood zones.

3.4.4 Site-specific Flood Risk Assessment

Flood risk assessment at site-specific level in areas at risk of flooding is required. The detail required in the assessment will depend on the level of risk and scale of development and the flood risk.

The detailed site-specific flood risk assessment should quantify the risks and the effects of any necessary mitigation, together with the measures needed or

proposed to manage residual risks. Information in relation to, and the requirements of site-specific flood risk assessment and potential sources of information, is contained in the Technical Appendices of the Planning System and Flood Risk Management Guidelines for Planning Authorities (DEHLG, OPW, 2009).

3.4.5 Development Management Justification Test

Where the Council is considering proposals for new development in areas at high or moderate risk of flooding that include types of development that are vulnerable to flooding and that would generally be inappropriate, the Council must be satisfied that the development satisfies all of the criteria of the Development Management Justification test as set out in Section 5.15 of the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009).

3.4.6 Mitigation and Management

Any proposal in an area at moderate or high risk of flooding that is considered acceptable in principle must demonstrate that appropriate mitigation measures can be put in place and that residual risks can be managed to acceptable levels. Addressing flood risk in the design of new development should consider the following:

- Locating development away from areas at risk of flooding, where possible.
- Substituting more vulnerable land uses with less vulnerable uses.
- Identifying and protecting land required for current and future flood risk management, such as conveyance routes, flood storage areas and flood protection schemes etc.
- Addressing the need for effective emergency response planning for flood events in areas of new development.

Site layout, landscape planning and drainage of new development must be closely integrated to play an effective role in flood-reduction. As such, proposals should clearly indicate:

- The use of Sustainable Drainage Systems (SuDS) to manage surface water run-off.
- Water conveyancing routes free of barriers such as walls or buildings.
- The signing of floodplain areas to indicate the shared use of the land and to identify safe access routes.

To ensure that adequate measures are put in place to deal with residual risks, proposals should demonstrate the use of flood-resistant construction measures that are aimed at preventing water from entering a building and that mitigate the damage floodwater causes to buildings. Alternatively, designs for flood resilient construction may be adopted where it can be demonstrated that entry of floodwater into buildings is preferable to limit damage caused by floodwater and allow relatively quick recovery. Such measures include the design and specification of internal building services and finishes. Further detail on flood resilience and flood resistance are included in the Technical Appendices of the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DEHLG and OPW, 2009)

Section 4 Conclusion

4.1 Conclusion

Land use management and spatial planning is a key tool in flood risk management. The Flooding Guidelines aim to deliver sustainable development that minimises the risk of flooding to people and property by the avoidance of inappropriate development in areas at risk of flooding.

The Strategic Flood Risk Assessment was prepared in accordance with the guidelines and formed an intrinsic part of the plan preparation process. It is considered that the flooding objectives in the Plan and the application of the Guidelines in the preparation of future town development plans and local area plans and in the assessment of planning applications, will allow for fair balance to be struck between avoiding flood risk and facilitating necessary development. The flood risk management objectives will ensure that developments avoids areas of highest risk and that appropriate measures will be taken to reduce flood risk to an acceptable level for those developments that have to take place, for reasons of proper planning and sustainable development, in areas at risk of flooding.