

APPENDIX  
3

STRATEGIC FLOOD RISK ASSESSMENT



Carrick on Suir Town Council

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## 1.0 Introduction

### 1.1 Requirement for Flood Risk Assessment

In accordance with Section 28 of the Planning and Development Act 2000 (as amended) in preparing a new Development Plan for Carrick on Suir the Planning Authority shall have regard to any guidelines issued by the Minister for Environment, Community and Local Government in the performance of their functions including “The Planning System and Flood Risk Management – Guidelines for Planning Authorities”. These Guidelines require Planning Authorities to introduce flood risk assessment as an integral and leading element of their development planning functions. This is achieved by ensuring that the various steps in the process of making a Development Plan, together with the associated Strategic Environmental Assessment (SEA), are supported by an appropriate Strategic Flood Risk Assessment (SFRA).

Carrick on Suir Town Council (COSTC) prepared this Flood Risk Assessment (FRA) as part of the review of the Development Plan and the preparation of a new Development Plan for the area.

### 1.2 The Planning Guidelines & Flood Risk Management Guidelines for Planning Authorities

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 development permitted in floodplains;
- ✓ Avoid unnecessary restriction of national, regional or local economic growth;
- ✓ Improve the understanding of flood risk among relevant stakeholders;
- ✓ Ensure that the requirements of the EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

These core objectives are achieved through the process of Flood Risk Assessments. The level of detail required for a Flood Risk Assessment depends on the purpose of the FRA. In the subject case of the Carrick on Suir Town Development Plan 2013, a Strategic FRA (SFRA) was required to inform that plan making process.

To achieve the objectives of the Guidelines, the following principles were applied:

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

### 1.3 Scales of Flood Risk Assessment

Flood Risk Assessments are undertaken at different scales by different organisations for many different purposes. The scales are as follows:

- Regional Flood Risk Appraisal (RFRA): A Regional Flood Risk Appraisal provides a broad overview of the source and significance of all types of flood risk across a region and highlights areas where more detailed study will be required. These appraisals are undertaken by regional authorities.
- SFRA: A SFRA provides a broad assessment of all types of flood risk to inform strategic land use planning decisions. The SFRA allows the Planning Authority to undertake the sequential approach (described below) and identify how flood risk can be reduced as part of the development plan process.
- Site Flood Risk Assessment (Site FRA): A Site FRA is undertaken to assess all types of flood risk for a new development. This requires identification of the sources of flood risk, the effects of climate change on the flood risk, the impact of the proposed development, the effectiveness of flood mitigation and management measures and the residual risks that then remain.

The preparation of a new Development Plan for the area requires that a SFRA be undertaken.

### 1.4 Structure of a Flood Risk Assessment

The Guidelines recommend that a staged approach is adopted when undertaking a FRA. The recommended stages are briefly described below:

- Stage 1 ~ Flood Risk Identification

To identify whether there may be any flooding or surface water management issues that will require further investigation. This stage mainly comprises a comprehensive desk study of available information to establish whether a flood risk issue exists or whether one may exist in the future.

- Stage 2 ~ Initial Flood Risk Assessment

If a flood risk issue is deemed to exist arising from the Stage 1 Flood Risk Identification process, the assessment proceeds to Stage 2 which confirms the sources of flooding, appraises the adequacy of existing information and determines the extent of additional surveys and the degree of modelling that will be required. Stage 2 must be sufficiently detailed to allow the application of the sequential approach within the flood risk zone.

- Stage 3 ~ Detailed Flood Risk Assessment

Where Stages 1 and 2 indicate that a proposed area of possible zoning or development may be subject to a significant flood risk, a Stage 3 Detailed Flood Risk Assessment must be undertaken.

Scale of Assessment	Flood Risk Identification	Initial Flood Risk Assessment	Detailed Flood Risk Assessment
Regional Flood Risk Appraisal	✓	U	U
Strategic Flood Risk Assessment - County	✓	P	U
Strategic Flood Risk Assessment - City	✓	✓	P
Site Specific Flood Risk Assessment	✓	✓	✓
<b>Key:</b> P = Probably needed to meet the requirements of the Justification Test U = Unlikely to be needed ✓ = Required to be undertaken			
Source: The Planning System and Flood Risk Management (Table A3)			

Table A2.1

This SFRA includes for a Stage 1 Flood Risk Identification and a Stage 2 Initial Flood Risk Assessment and it also sets out the instances whereby a developer/applicant will be required to undertake a Stage 3 Detailed Flood Risk Assessment.

### 1.5 The Sequential Approach and the Justification Test

The sequential approach in terms of flood risk management is based on the following principles:

AVOID - SUBSTITUTE - JUSTIFY - MITIGATE – PROCEED.

The primary objective of the sequential approach is that development is primarily directed towards land that is at low risk of flooding (AVOID). The next stage is to ensure that the type of development proposed is not especially vulnerable to the adverse impacts of flooding (SUBSTITUTION). The Justification Test is designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for various reasons, are being considered in areas of moderate or high flood risk (JUSTIFICATION). The test is comprised of two processes, namely The Plan-Making Justification Test and The Development Management Justification Test. Only the former (Plan-Making Justification Test) is relevant to a Strategic Flood Risk Assessment for a Development Plan, and this is described as follows.

#### *The Plan-Making Justification Test*

Where rezoning is not possible, exceptions to the development restrictions are provided for through the Justification Test. Many towns and cities have central areas that are affected by flood risk and have been targeted for growth. To allow the sustainable and compact development of these urban centres, development in areas of flood risk may be considered necessary. For development in such areas to be allowed, the Justification Test must be passed.

The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of such developments. The test is comprised of two processes; the Plan-making Justification Test, and the Development Management Justification Test. This is used at the planning application stage where it is intended to develop land that is at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be considered inappropriate for that land.

Where, as part of the preparation and adoption of a development / local area plan, a planning authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in the Guidelines, all of the criteria listed below, as stated in the Guidelines, must be satisfied. This is referred to as the "Justification Test for Development Plans".

The guidelines classify development types according to their vulnerability i.e. residential use is highly vulnerable, commercial use is less vulnerable and a marina is water compatible.

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (Including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

Source: The Planning System and Flood Risk Management (Table 3.2)

Table A2.2

The above Table A2.2 sets out the most appropriate type of development for each of the Flood Zones. Where the vulnerability of the land use proposed is not suitable for the Flood Zone in which the site is located the Justification Test must be satisfied.

## 1.6 Key outputs from the SFRA

The key outputs are:

- To provide for an improved understanding of flood risk issues within the development plan and development management process, and to communicate this to a wide range of stakeholders;
- To produce an assessment of existing flood defence infrastructure and the consequence of failure of that infrastructure and also identification of areas of natural floodplain to be safeguarded,
- To produce a suitably detailed flood risk assessment, drawing on and extending existing data and information, leading to a suite of flood risk maps that support the application of the sequential approach, in key areas where there may be tension between development pressures and avoidance of flood risk;
- To inform, where necessary, the application of the Justification Test;

- To conclude whether measures to deal with flood risks to the area proposed for development can satisfactorily reduce the risks to an acceptable level while not increasing flood risk elsewhere;
- To produce guidance on mitigation measures, how surface water should be managed and appropriate criteria.

Under Section 1.6 of the Technical Appendix Document it is stated that a SFRA should;

- Identify principal rivers, flood zones and key development areas in relation to same;
- The potential impacts of climate change should be assessed.
- Identify the location of any flood risk management infrastructure and the areas protected by it and the coverage of flood-warning systems;
- Consider, where additional development in Flood Zone A and B is planned within or adjacent to an existing community at risk, the implications of flood risk on critical infrastructure and services across a wider community-based area and how emergency planning needs of existing and new development will be managed;
- Identify areas of natural floodplain, which could merit protection to maintain their flood risk management function as well as for reasons of amenity and biodiversity;
- Assess the current condition of flood-defence infrastructure and of likely future policy with regard to its maintenance and upgrade;
- Assess the probability and consequences of overtopping or failure of flood risk management infrastructure, including an appropriate allowance for climate change;
- Assess, in broad terms, the potential impact of additional development on flood risk elsewhere and how any loss of floodplain could be compensated for;
- Assess the risks to the proposed development and its occupants using a range of extreme flood or tidal events;
- Identify areas where site-specific FRA will be required for new development or redevelopment;
- Identify drainage catchments where surface water or pluvial flooding could be exacerbated by new development and develop strategies for its management in areas of significant change;
- Provide guidance on the likely applicability of different Sustainable Drainage Systems (SUDS) techniques for managing surface water run-off at key development sites as determined by surface water and drainage strategies development within the SFRA;
- Identify where integrated and area based provision of SUDS and green infrastructure are appropriate in order to avoid reliance on individual site by site solutions; and,
- Provide guidance on appropriate development management criteria for zones and sites

## 2.0 Flood Risk

### 2.1 Components of Flood Risk

Flood Risk is defined as a combination of the likelihood of flooding occurring and the potential consequences arising from that flooding. The likelihood of flooding is defined in the Guidelines as follows:

*"Likelihood of flooding is normally defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year."*

The consequences of flooding depend on the following:

*"Consequences of flooding depend on the hazards associated with the flooding (e.g. depth of water, speed of flow, rate of onset, duration, wave action effects, water quality), and the vulnerability of people, property and the environment potentially affected by a flood (e.g. the age profile of the population, the type of development, presence and reliability of mitigation measures etc)."*

### 2.2 Source Pathway Receptor Model

The Source – Pathway – Receptor Model (SPR Model) is a widely applied model which is used to assess and inform the management of environmental risk.

- Source - The origin of a hazard (for example, heavy rainfall, strong winds, surge etc).
- Pathway - Route that a hazard takes to reach Receptors. A pathway must exist for a Hazard to be realised.
- Receptor - Receptor refers to the entity that may be harmed (a person, property, habitat etc.).

For example, in the event of heavy rainfall (the source) flood water may propagate across the flood plain (the pathway) and inundate housing (the receptor). The vulnerability of a receptor can be modified by increasing its resilience to flooding.

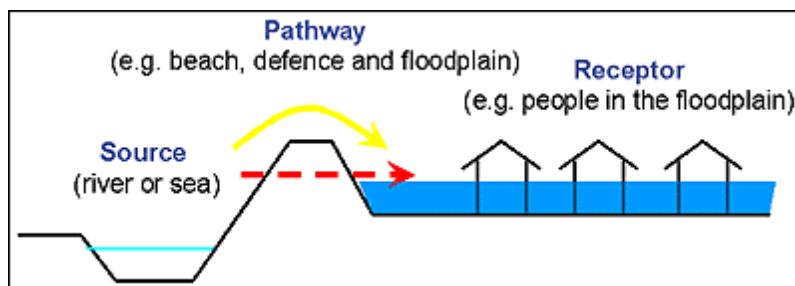


Figure A2.1: Source-Pathway-Receptor Model (adapted from [www.floodsite.net](http://www.floodsite.net))



## **3.0 European, National and Regional Policy**

### **3.1 European Policy**

#### **3.1.1 EU Floods Directive**

Directive 2007/60/EC on the assessment and management of flood risks became operative on 26th November 2007. This Directive requires Member States to assess the risks of flooding along all watercourses and coast lines. It also requires Member States to map the extent of potential flooding in each case, determine the assets and humans at risk in the areas and to take adequate and coordinated measures to reduce this flood risk. The aim of the Directive is to reduce and manage the risks posed by flooding to human health, the environment, cultural heritage and economic activity. Member States are required by 2011 to carry out a preliminary assessment identifying the river basins and the coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013 and Member States are required to establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters and to all coastal waters across the whole territory of the EU.

#### **3.1.2 EU Water Framework Directive**

The Water Framework Directive, which came into force on December 22<sup>nd</sup> 2000, established a new and integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwater. It impacts on the management of water quality and water resources and affects conservation, fisheries, flood defence, planning and environmental monitoring. The primary focus of the Directive is to achieve 'good' ecological status for all waters by 2015.

### **3.2 National Policy**

#### **3.2.1 The Planning System and Flood Risk Management Guidelines**

The Planning System and Flood Risk Management Guidelines were prepared in response to the recommendations of the National Flood Policy Review Group and focused on providing for comprehensive consideration of flood risk in preparing Regional Plans, Development Plans and Local Area Plans, and in determining applications for planning permission. The Guidelines generally require that development should not be permitted in flood risk areas, particularly floodplains, except where there are no alternative and appropriate sites available in lower risk areas that are consistent with the objectives of proper planning and sustainable development.

### **3.2.2 Transposition and Implementation of the EU Floods Directive**

On 19<sup>th</sup> March 2010, the Statutory Instrument transposing the EU 'Floods' Directive was signed into Irish law. The Statutory Instrument appointed the Commissioners of Public Works in Ireland as the Competent Authority under the Directive. The Statutory Instrument also identified roles for other organisations, such as the Local Authorities, Waterways Ireland and ESB, to undertake certain duties with respect to flood risk within their existing areas of responsibility.

### **3.2.3 Office of Public Works**

The Office of Public Works is the lead agency for flood risk management in Ireland and is responsible for the coordination and implementation of Government policy on this issue. It is the primary agency responsible for ensuring Ireland's compliance with the EU Floods Directive and particularly for the preparation of a preliminary assessment by 2011, preparation of flood risk mapping by 2013 and preparation of flood risk management plans by 2015. It is the principal agency involved in the preparation of Catchment Flood Risk Assessment and Management Studies.

## **3.3 Regional Policy**

### **3.3.1 Introduction**

The Regional Planning Guidelines for the South East Region 2010 - 2022 were published on the 26<sup>th</sup> July 2010. The guidelines contain a Flood Risk Assessment (Section 9), which is a high-level broad-brush appraisal of flood risk across an entire Regional Authority Area, based on existing readily available information.

The Regional Planning Guidelines recognise the need to protect, across the South-East Region, the natural flood plains and riparian corridors of all rivers in the region that have not already been built on, and seek that this is explicitly stated and spatially designated in all future Development Plans and Local Area Plans following the completion of CFRAMS for the River Suir and the South-East and South-West River Basins. In the absence of such data, Local Authorities should identify these areas using other data from the OPW and existing studies and historical information available and, where necessary, through additional studies or investigation. Land required for current and future floods management should be safeguarded from development. Allocation of future areas for development as extensions to existing built up areas, villages or towns should follow a sequential approach and be in the lowest risk sites appropriate for the development, and should include adequate provision for adaptation to, or protection against, the projected impacts of climate change.

It is also an objective of the Regional Planning Guidelines (Policy PPO 9.1) that in the preparation and review of future Development Plans Local Authorities will:

- Identify and consider at the earliest stages in the planning process flood hazard and potential risk.
- Identify flood risk areas on Development Plan maps.
- Review existing Development Plans to ensure that the issue of Flood Risk has been addressed in a manner consistent with the 2009 Planning and Flood Risk Management Guidelines.
- Where lands are already zoned for housing or other vulnerable development in the flood risk areas, Local Authorities should undertake a re-examination of the zoning in accordance with the sequential approach.
- Include policies which ensure that flood risk areas targeted for development following the sequential approach are planned, designed and constructed to reduce and manage flood risk and be adaptable to changes in climate.
- Include policies to ensure that flood risk and impact are considered as a key element in the assessment of future waste and mineral planning strategies and developments.
- Include policies that ensure that the location of key infrastructures will be subject to Flood Risk Assessment.
- Include policies for the inclusion of Sustainable Drainage Systems (SUDS) in future developments in accordance with the 2009 Department Guidelines on Planning and Flood Risk Management.

## **4.0 Strategic Flood Risk Assessment – Carrick on Suir Town Development Plan 2013**

### **4.1 Introduction**

The Strategic Flood Risk Assessment provided an appraisal and assessment of available flood risk data for the COSTDP area. This process identified flood risk indicators in each area and, where it was demonstrated that lands may be at risk of flooding, recommended modifications to land-use proposals or the carrying out of more detailed flood risk assessment as appropriate.

### **4.2 Available Flood Risk Data**

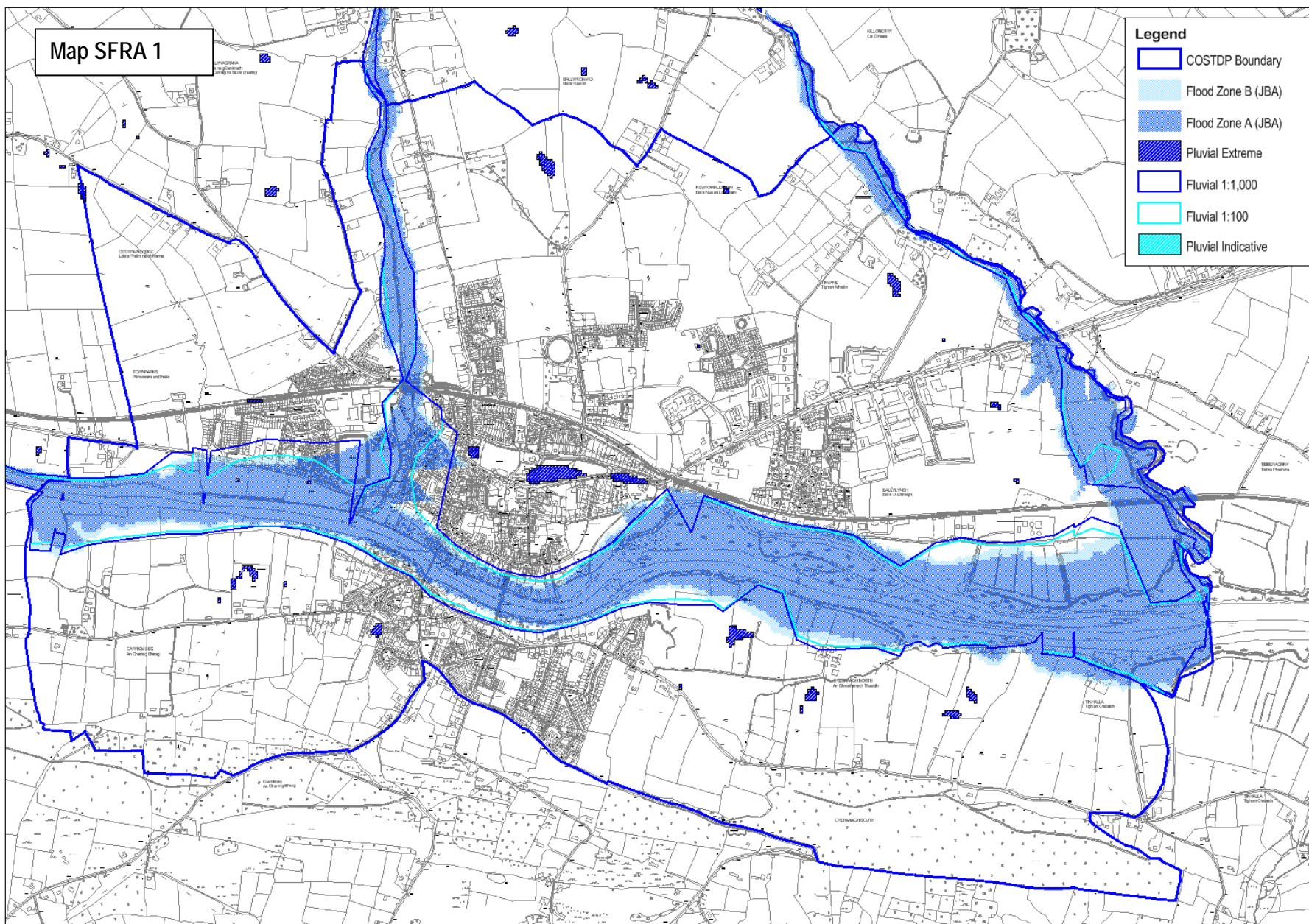
Most of the data utilised was historically derived, not prescriptive in relation to flood return periods and not yet predictive or inclusive for climate change analysis. The following sources of information have been investigated in order to determine flood risk potential;

1. OPW preliminary Flood Risk Assessment indicative fluvial flood maps
2. Predictive and historic flood maps, and benefiting land maps, such as those at [www.floodmaps.ie](http://www.floodmaps.ie).
3. Predictive flood maps produced under the CFRAM.
4. River Suir Flood Risk Management Plan
5. Flood Mapping produced for South Tipperary
6. Consultation with the Local Authority
7. Topographical maps.
8. GSI Alluvial deposit map.
9. Liable to flood markings on the old 6 inch maps.
10. Newspaper reports.

Each of these sources is addressed individually below:

#### ***OPW preliminary Flood Risk Assessment indicative fluvial flood maps***

The Preliminary Flood Risk Assessment (PFRA) is a national screening exercise, based on available and readily-derivable information, to identify areas where there may be a significant risk associated with flooding. The PFRA identifies areas where the risks associated with flooding might be significant. These areas are referred to as Areas for Further Assessment (AFA's). These are areas where more detailed assessment will be undertaken to accurately assess the extent and degree of flood risk and where the risk is found to be significant, to develop where possible measures to manage and reduce the risk. This more detailed assessment will be undertaken through a Catchment Flood Risk Assessment and Management Study (CFRAM). Carrick on Suir has been identified as a Probable AFA. The 1 in 100 and 1 in 1,000 flood extents set out under the PFRA have been incorporated into this SFRA and are set out in **Map SFRA 1** below.





***Predictive and historic flood maps, and benefiting land maps, such as those at [www.floodmaps.ie](http://www.floodmaps.ie)***

The OPW is currently undertaking flood risk assessment mapping showing Areas of Potential Significant Flood Risk in collaboration with local authorities and other key agencies. Upon completion, it will become an important and primary source of input into future flood risk assessment studies. As part of the National Flood Risk Management Policy, the OPW developed the [www.floodmaps.ie](http://www.floodmaps.ie) web based data set, which contains information concerning historical flood data and displays related mapped information and provides tools to search for and display information about selected flood events. Additional mapped information, such as the Ordnance Survey of Ireland background maps, rivers, hydrometric gauge stations, drainage districts and land benefiting from drainage schemes is included as additional contextual information. Map SFRA 2 below illustrates the locations of recorded flood events for the COSTDP area as shown on [www.floodmaps.ie](http://www.floodmaps.ie). Each flood event location is represented by a triangular symbol.

The screenshot displays the OPW National Flood Hazard Mapping web application in a Windows Internet Explorer browser. The main map shows the Carrick-on-Suir area with several flood event locations marked by triangular symbols. The search results on the right side of the page are as follows:

**Search Results: Location Search**  
(5-6) of 6 Results Listed.

- 5. Flood Event: Carrick-on-Suir Recurring**  
 Start Date: -  
 County: Tipperary  
 Flood Quality Code: 2  
**Additional Information**  
[Reports \(5\)](#) [Press Archive \(73\)](#) [More Mapped Information](#)
- 6. Flood Event: Carrick on Suir Toberagattabrack recurring**  
 Start Date: -  
 County: Tipperary  
 Flood Quality Code: 4  
**Additional Information**  
[Reports \(1\)](#) [More Mapped Information](#)

(5-6) of 6 Results Listed.

Map SFRA 2

These events have been recorded at Carrick on Suir, Ballylynch and Toberagattabrack.

***Predicative flood maps produced under the CFRAM.***

The Suir Catchment CFRAM is due to be completed and published in 2015. Carrick on Suir is identified as a priority study area under the Suir CFRAM. The predicative flood maps to be prepared under this project are not yet available although it was a target to have same completed by the end of 2013.

***River Suir Flood Risk Management Plans***

The River Suir Flood Risk Management Plan is being prepared concurrently with the Suir Catchment CFRAM. The SEA Scoping Report for the River Suir Flood Risk Management Plan was consulted. Section 3.3.5 deals with the River Suir Catchment and states;

*“This section comprises everything downstream of Ballycamus, to the Multeen confluence, through the Comeragh Mountains and continues on through Waterford City until it enters the sea at Waterford Harbour. The river is tidal to a point at the Salmon Weir upstream of “Old Bridge”. The dominant geology type is Carboniferous Limestone with lesser areas of Old Red Sandstone. Several of the major sub-catchments enter the main channel of the Suir within this section. These include the Multeen, the Aherlow/Ara, the Tar and the Nier Systems. While the surrounding land use within this section is mainly pasture there are four urban areas within the catchment, namely Golden, Cashel, Carrick and Clonmel. Landuse along the Suir Lower Main Channel contains a number of marshes including Kilbarry, Portlaw and Coolfinn Marshes. This area of the Suir is the most important section of the River for trout and salmon angling”.*

***Flood Mapping produced for South Tipperary***

South Tipperary County Council commissioned JBA, to produce an indicative flood zone map for the County in 2010. The flood zones are indicative of river and coastal flooding only and should be used as an information source when matching appropriate land use with the level of flood risk. The indicative flood risk zones should not be used to suggest that any areas are free from flood risk, since they do not include the effects of other forms of flooding such as from groundwater or artificial drainage systems and because of the methodology used.

There are three indicative flood risk zones based on international standards. The Flood Mapping for the County is available for download at the link below;

[www.southtippcoco.ie](http://www.southtippcoco.ie)

Using the JBA data the Flood Zone A within Carrick on Suir includes areas at Coolnamuck and along the Clonmel Road to Sean Tracey Park, within the town centre, along the Glen River, at Ballylynch and along the Lingaun River.

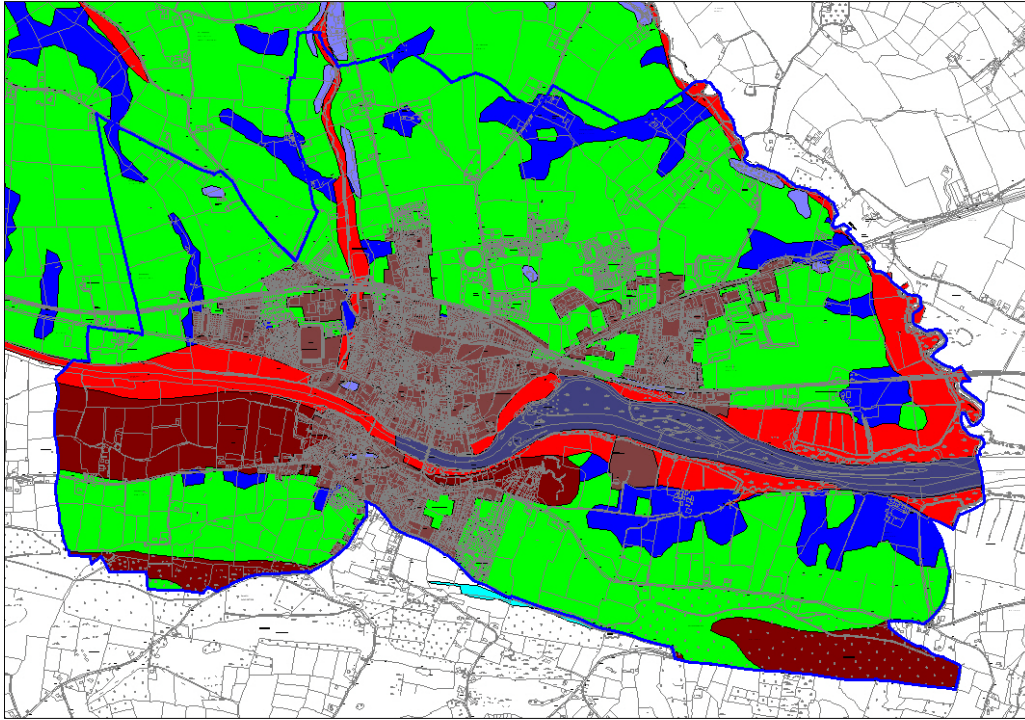
### ***Consultation with Local Authority***

The Town Engineer (Mr. Eoin Powell) was consulted regarding Flood Risk in the area.

### ***Topographical Maps***

County topographical maps do not adequately address the local Carrick on Suir area as they are based on the topography of the county.

### ***GSI Alluvial Deposit Map***



**Map SFRA 3: GSI Soils for Carrick on Suir**

The GSI Soils Map (2006) is set out above for Carrick on Suir (Map SFRA 3). The red area represents that area where alluvial soils have been historically deposited. Alluvial soil mapping alone is not a definitive gauge of areas at flood risk, however, it a useful indicator of areas where flood events have occurred historically. The GSI Soils Map will inform the COSTDP Zoning Map.

### ***Liabile to Flood markings on the old 6 inch maps***

6" Ordnance Survey maps include areas which are marked as being "Liable to Floods". The exact areas are not delineated but give an indicative location of areas which have undergone flooding in the past. In addition, the maps indicate areas of wet or hummocky ground, bog, marsh, springs, rises and wells as well as surface water features including rivers, streams, bridges, weirs and dams. Lands in the vicinity of Coolnamuck, Castle Park (Strand) and Ballylynch are identified as being liable to flooding on the 6-inch maps.





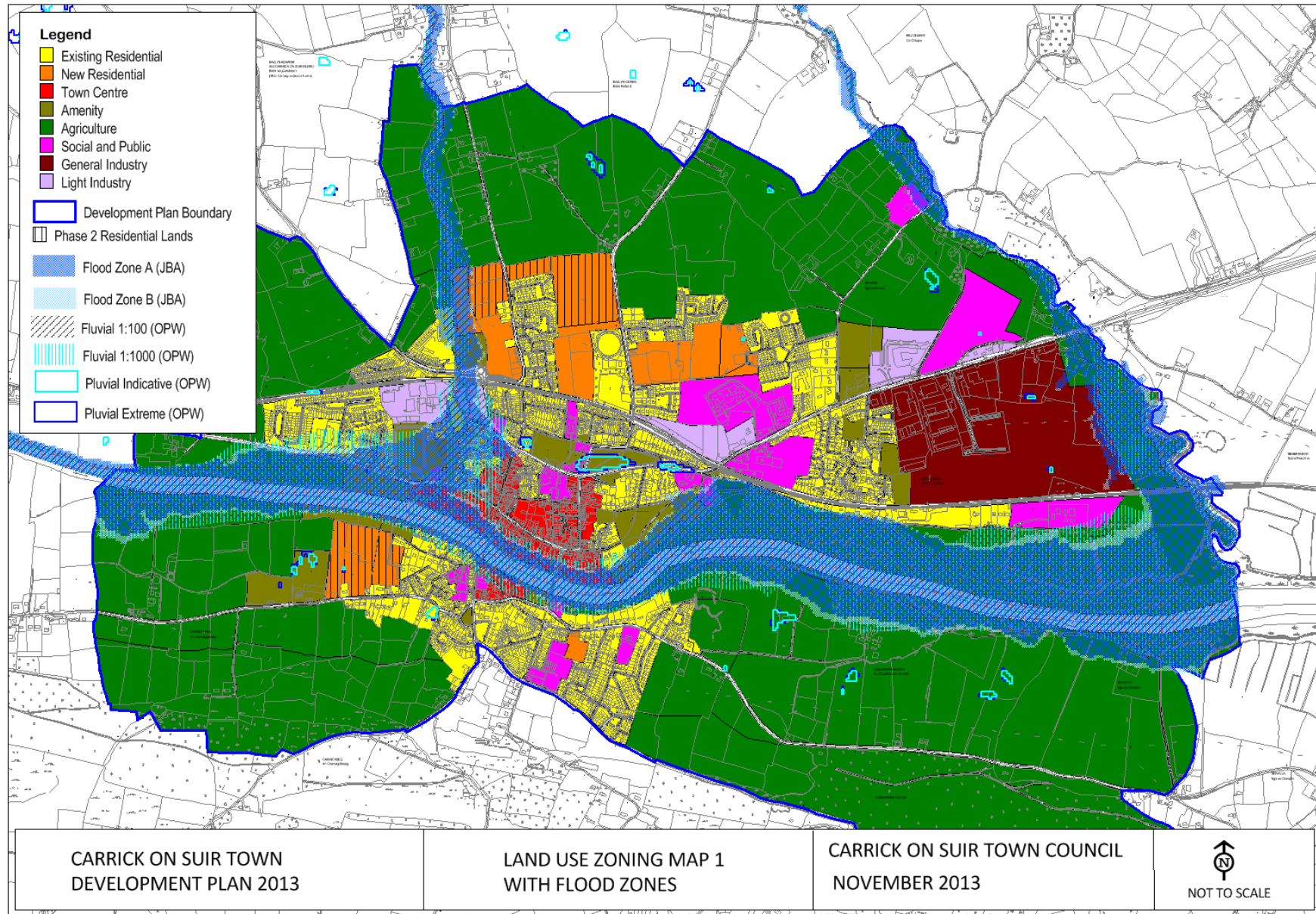
### ***Newspaper Reports***

The 74 Newspaper Reports available at [www.floodmaps.ie](http://www.floodmaps.ie) dating from the late 1800's to 2000 were consulted as part of this Stage 1 Flood Risk Identification. As referred to above the most recent newspaper articles were published in 2000 and there is limited information in the articles relating to the actual causes and sources of the flooding.

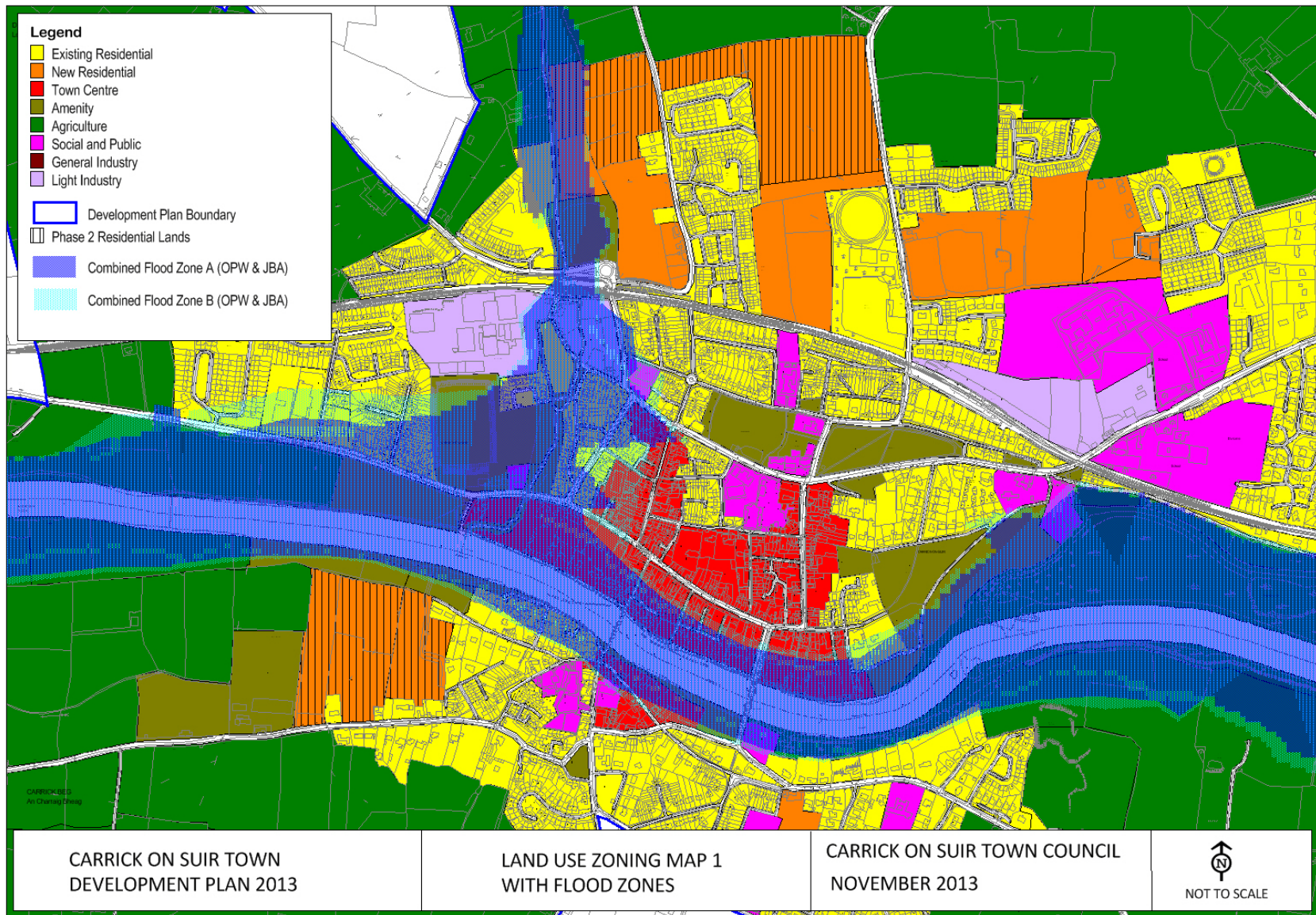
### ***Implications of Data for Land Use***

Arising from the above assessment of data sources various areas were identified which may be at risk of flooding but which are being considered for types of development which are not generally compatible with flood risk areas (i.e. developments which are classed as vulnerable in accordance with the criteria set out in the Planning System and Flood Risk Management Guidelines). The land-use zonings of the Development Plan together with the location and extent of those areas for which additional assessment was recommended (i.e. Flood Zone A and Flood Zone B) are indicated on Map SFRA 4 & Map SFRA 5 below. Map SFRA 4 is for the purposes of indicating where lands zoned for agricultural land use are within Flood Zone A and B. Map SFRA 5 should be consulted for town centre sites.

Map SFRA 4: Land Use Zonings and OPW and JBA Flood Zone A & B

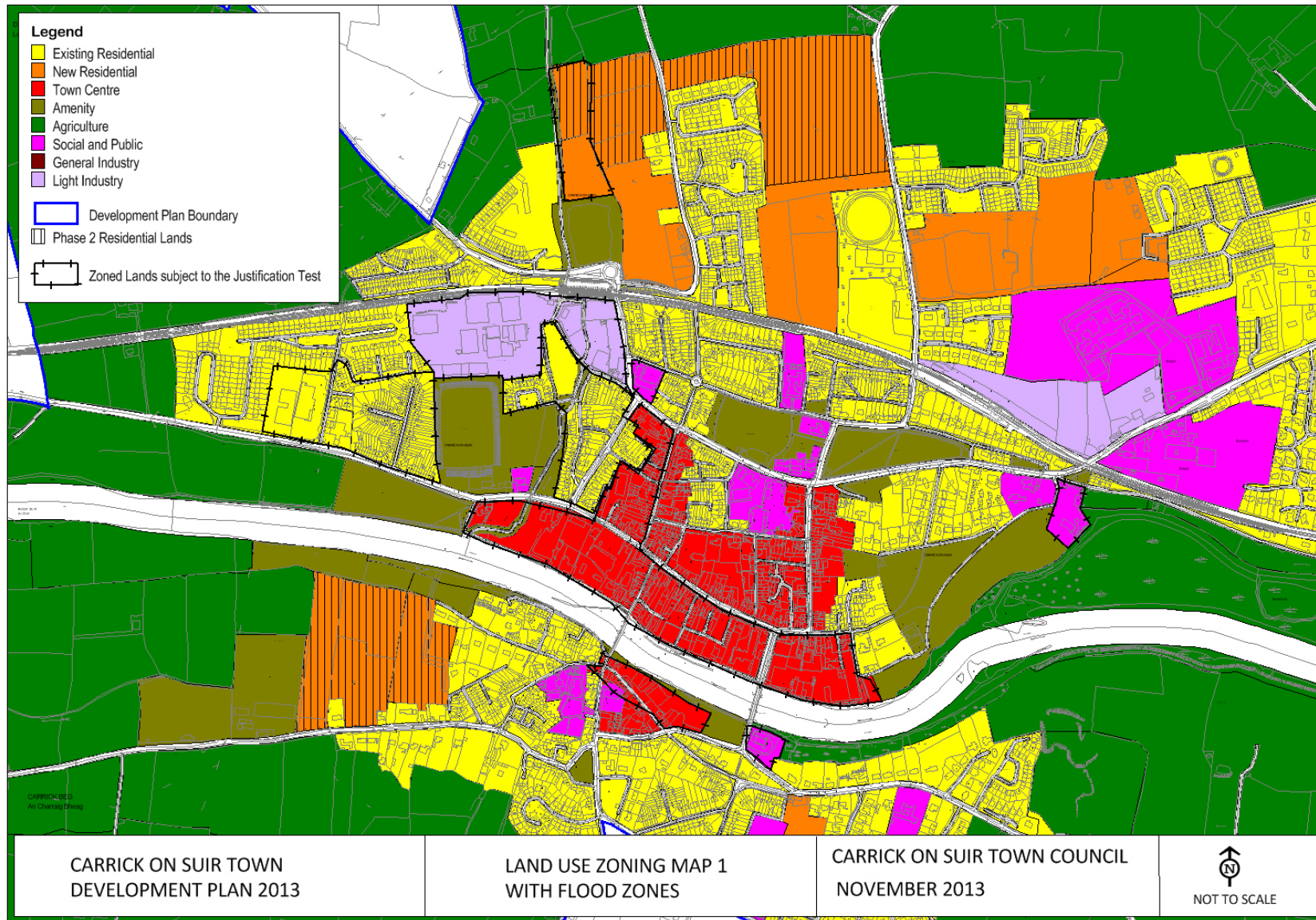






Map SFRA 5: Land Use Zonings & central sites located within Flood Zones A & B





Map SFRA: Zoned Subject to Justification Test

A number of land with existing established types of development which are not generally compatible with flood risk were found to be located within Flood Zones A and B. In accordance with the Guidelines, the Justification Test was carried out for each land parcel where there was a degree of encroachment on Flood Zones A and B. These Justifications Tests are reproduced in Section 5.3 below.

## **5.0 Flood Risk on Zoned Lands**

### **5.1 Land Use Zoning Objectives**

The vulnerability of the uses which are generally permitted or open to consideration on the various land use zonings (as per Land Use Zoning Matrix) considered in conjunction with the Flood Zone in which the particular area of land is located guides the need for the application of the Justification Test.

Table A2.2 set out the various land use zoning objectives and the respective vulnerabilities of each zone having regard to the land uses which are generally permitted and open for consideration as per the Land Use Zoning Matrix.

There were a number of areas which were located within Flood Zone A and Flood Zone B which had been zoned at the Draft Stage to accommodate highly vulnerable and less vulnerable land uses having regard to existing patterns of development and existing land uses.

These areas were subjected to the Justification Test, where development did not pass the Justification Test responses which had to be considered included;

- Removal of the zoning objective
- Rezoning to a less vulnerable or water compatible uses
- Development of specific objectives to address the issues
- Phasing of development within zoned areas

### **5.2 Justification Test**

Where as part of the preparation and adoption of a Development Plan, a Planning Authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in the Guidelines, the "Justification Test for Development Plans" must be satisfied.

<b>Table A2.3 SITE SUBJECT TO THIS ASSESSMENT: Lands zoned for Town Centre use along the North Quay (See Map SFRA 5)</b>		
Justification Test Criteria	Criteria Satisfied	Comments
1. The urban settlement is targeted for growth under the National Spatial Strategy, Regional Planning Guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000 (as amended)	✓	Under the provisions of the NSS Carrick on Suir is located on a National Transport Corridor and it is stated that Carrick on Suir and similar towns offer good bases for population and services which will attract investment and employment activities additional to those that need to be located in or near a gateway. There are development opportunities for Carrick-on-Suir, placed strategically between Waterford and Limerick/Shannon. Under the Regional Planning Guidelines it is stated that the strategic role of Carrick on Suir needs to be developed. The town has been targeted for growth having regard to its strategic location, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development. Carrick on Suir is identified as a Secondary Service Centre under the Settlement Strategy included in the County Development Plan 2009 – 2015 and is to accommodate a population of 7,042 by 2019.
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		It is proposed to zone the lands subject to this assessment for Town Centre Land Use. The lands are located within the administrative area of COSTC to the south of and immediately adjoining the Main Street and to the north of the River Suir on the North Quays. Much of the lands are currently occupied by town centre uses and brownfield sites. Whilst there are other alternative lands available these are located at a remove from the town centre and would therefore be unsuitable for the proposed land use zoning. Consideration was also given to the need to accommodate town centre development in a sequential manner avoiding town centre gap sites etc. Any proposed developments on the subject site shall only be permitted where it is considered Policy INF 21 has been fully complied with.
(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	✓	
(ii) Comprises significant previously developed and/or under-utilised lands;	✓	
(iii) Is within or adjoining the core of an established or designated urban settlement;	✓	
(iv) Will be essential in achieving compact or sustainable urban growth;	✓	
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	✓	
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	✓	In addition to this Flood Risk Assessment any development proposals which provide for new buildings etc on the subject lands will be required to be supported by a Site Specific Flood Risk Assessment.
<b>Note:</b> The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.		



<b>SITE SUBJECT TO THIS ASSESSMENT:</b> Lands zoned for existing Residential Development at Sean Treacy Park, Orchard Crescent and Millstreet Court (See Map SFRA 3 & 4)		
Justification Test Criteria	Criteria Satisfied	Comments
1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000 (as amended)	✓	Under the provisions of the NSS Carrick on Suir is located on a National Transport Corridor and it is stated that Carrick on Suir and similar towns offer good bases for population and services which will attract investment and employment activities additional to those that need to be located in or near a gateway. There are development opportunities for Carrick-on-Suir, placed strategically between Waterford and Limerick/Shannon. Under the Regional Planning Guidelines it is stated that the strategic role of Carrick on Suir needs to be developed. The town has been targeted for growth having regard to its strategic location, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development. Carrick on Suir is identified as a Secondary Service Centre under the Settlement Strategy included in the County Development Plan 2009 – 2015 and is to accommodate a population of 7,042 by 2019.
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		It is proposed to zone the lands subject to this assessment for Existing Residential Land Use. The lands are currently occupied by existing residential communities and it is considered reasonable that the Plan provide for the extension of residential properties and the provision of necessary neighbourhood facilities etc within these areas. It is acknowledged that the zoning of these lands is not essential to facilitate regeneration and/or expansion of the centre of the urban settlement nor is the land within or adjoining the core of an established or designated urban settlement and it is proposed to further address this issue through the use of site specific development objectives including the prohibiting the development of highly vulnerable uses which are generally permitted or open for consideration under the Land Use Zoning Matrix within these areas.
(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	✗	
(ii) Comprises significant previously developed and/or under-utilised lands;	✓	
(iii) Is within or adjoining the core of an established or designated urban settlement;	✗	
(iv) Will be essential in achieving compact or sustainable urban growth;	✓	
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	✓	
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	✓	In addition to this Flood Risk Assessment any development proposals which provide for new buildings etc on the subject lands will be required to be supported by a Site Specific Flood Risk Assessment.
<b>Note:</b> The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.		

<b>SITE SUBJECT TO THIS ASSESSMENT:</b> Lands zoned for new Residential Development to the north of the Duck Pond and to the east of the Sports Grounds on the Coolnamuck Road (See Map SFRA 5)		
Justification Test Criteria	Criteria Satisfied	Comments
1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000 (as amended)	✓	Under the provisions of the NSS Carrick on Suir is located on a National Transport Corridor and it is stated that Carrick on Suir and similar towns offer good bases for population and services which will attract investment and employment activities additional to those that need to be located in or near a gateway. There are development opportunities for Carrick-on-Suir, placed strategically between Waterford and Limerick/Shannon. Under the Regional Planning Guidelines it is stated that the strategic role of Carrick on Suir needs to be developed. The town has been targeted for growth having regard to its strategic location, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development. Carrick on Suir is identified as a Secondary Service Centre under the Settlement Strategy included in the County Development Plan 2009 – 2015 and is to accommodate a population of 7,042 by 2019.
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		It is proposed to zone the lands subject to this assessment for new Residential Land Use. The majority of the two sites in question are located outside of Flood Zone A and Flood Zone B however the residentially zoned lands do skirt and marginally encroach the Flood Zone A and B which are very closely aligned. It is considered that owing to their location immediately adjoining the core of the settlement that the lands constitute underutilised lands.
(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	✓	
(ii) Comprises significant previously developed and/or under-utilised lands;	✓	
(iii) Is within or adjoining the core of an established or designated urban settlement;	✓	
(iv) Will be essential in achieving compact or sustainable urban growth;	✓	
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	✓	
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	✓	In addition to this Flood Risk Assessment any development proposals which provide for new buildings etc on any sections of subject lands located within or adjoining Flood Zone A or Flood Zone B will be required to be supported by a Site Specific Flood Risk Assessment.
<b>Note:</b> The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.		

SITE SUBJECT TO THIS ASSESSMENT: Lands zoned for Light Industrial Land Uses at the existing Livestock Mart (See Map SFRA 5)		
Justification Test Criteria	Criteria Satisfied	Comments
1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000 (as amended)	✓	Under the provisions of the NSS Carrick on Suir is located on a National Transport Corridor and it is stated that Carrick on Suir and similar towns offer good bases for population and services which will attract investment and employment activities additional to those that need to be located in or near a gateway. There are development opportunities for Carrick-on-Suir, placed strategically between Waterford and Limerick/Shannon. Under the Regional Planning Guidelines it is stated that the strategic role of Carrick on Suir needs to be developed. The town has been targeted for growth having regard to its strategic location, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development. Carrick on Suir is identified as a Secondary Service Centre under the Settlement Strategy included in the County Development Plan 2009 – 2015 and is to accommodate a population of 7,042 by 2019.
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		It is proposed to zone the lands subject to this assessment for Light Industrial Land Use.
(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	✓	
(ii) Comprises significant previously developed and/or under-utilised lands;	✓	
(iii) Is within or adjoining the core of an established or designated urban settlement;	✓	
(iv) Will be essential in achieving compact or sustainable urban growth;	✓	
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	✓	
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	✓	In addition to this Flood Risk Assessment any development proposals which provide for new buildings etc on the subject lands will be required to be supported by a Site Specific Flood Risk Assessment.
<b>Note:</b> The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.		

SITE SUBJECT TO THIS ASSESSMENT: Lands zoned agricultural land use within the Plan Boundary as per Map (See Map SFRA 3)		
Justification Test Criteria	Criteria Satisfied	Comments
1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000 (as amended)	✓	Under the provisions of the NSS Carrick on Suir is located on a National Transport Corridor and it is stated that Carrick on Suir and similar towns offer good bases for population and services which will attract investment and employment activities additional to those that need to be located in or near a gateway. There are development opportunities for Carrick-on-Suir, placed strategically between Waterford and Limerick/Shannon. Under the Regional Planning Guidelines it is stated that the strategic role of Carrick on Suir needs to be developed. The town has been targeted for growth having regard to its strategic location, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development. Carrick on Suir is identified as a Secondary Service Centre under the Settlement Strategy included in the County Development Plan 2009 – 2015 and is to accommodate a population of 7,042 by 2019.
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		It is proposed to zone the lands subject to this assessment for Agricultural Land Use. Under the land use zoning matrix agricultural buildings and structures and garden centres are generally permitted on this land use whilst abattoirs, bed and breakfasts, caravan parks, car parks, community facilities, veterinary surgery and residential are among the list of uses which are open for consideration.
(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	X	
(ii) Comprises significant previously developed and/or under-utilised lands;	X	
(iii) Is within or adjoining the core of an established or designated urban settlement;	X	
(iv) Will be essential in achieving compact or sustainable urban growth;	X	
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	X	
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	✓	In addition to this Flood Risk Assessment any development proposals which provide for new buildings etc on lands located within Flood Zone A or Flood Zone B will be required to be supported by a Site Specific Flood Risk Assessment.
<b>Note:</b> The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment.		

### 5.3 Policy/Objective Response to Justification Test

Zoning/Area	Recommendations
<p>Lands zoned for Town Centre uses along the North Quay</p>	<p>The flood risk assessment identifies parts of the existing and undeveloped town centre zoned lands as being at moderate or high risk of flooding. In most instances, existing development in the town centre meets the Justification Test. In assessing planning applications the Planning Authority will seek to address flood risk through substitution or replacement of uses (for example non-residential uses at ground floor) and design for residual flood risk as applications for replacement development are received. Proposals for new development will be subject to the Development Management Justification Test.</p> <p>As the range of development normally permitted under this zoning objective includes both highly vulnerable and less vulnerable development, it is assumed that the Justification Test applies to Flood Zones A and B (Note: The Justification Test would not be required in the case of less vulnerable uses located in Flood Zone B. However, the flood risk assessment generally shows a strong correlation between both Flood Zones).</p> <p>These lands passed the Justification Test and thus modification of the land-use classification is not a recommendation of the SFRA. However, it is recommended that development of these lands which is located within the 100year and 1000year Flood Zones be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ul style="list-style-type: none"> <li>(i) Indicate and quantify loss of floodplain storage arising from the development proposal;</li> <li>(ii) Provide compensatory storage located within or adjacent to the proposed development;</li> <li>(iii) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood;</li> <li>(iv) Ensure that existing flow paths for flood waters will not be compromised.</li> </ul>
<p>Lands zoned for existing residential land use at Sean Treacy Park, Orchard Crescent and Millstreet Court</p>	<p>The flood risk assessment identifies existing residential developments, or parts of developments, as being in areas at moderate or high risk of flooding. As residential use is considered highly vulnerable to flooding it is recommended that only minor development, such as small extensions and most changes of use, be considered in these areas. Where the replacement or reconstruction of an existing dwelling is considered appropriate having regard to the other relevant policies, objectives and standards in the Plan, the Planning Authority should require that:</p> <p>Proposals for further development of these lands shall be the subject of a Site Specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. It is recommended that further development of these lands be required to incorporate mitigation measures that:</p> <ul style="list-style-type: none"> <li>(i) Indicate and quantify loss of floodplain storage arising from the development proposal;</li> <li>(ii) Provide compensatory storage located within or adjacent to the proposed development;</li> </ul>

	<p>(iii) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1,000 year flood event;</p> <p>(iv) Ensure that existing flow paths for flood waters will not be compromised.</p> <p>(v) A development management Justification Test is carried out</p> <p>(vi) Residual risk is addressed and reduced where possible, for example, through relocation of buildings, and/or flood resilience/resistance measures applied to the site and the building/s.</p>
Lands zoned for New Residential Land Use to the north of the Duck Pond and to the east of the Sports Grounds on the Coolnamuck Road	While a proportion of these lands are located in Flood Zone A and Flood Zone B in each case the proportion is not sufficient to prevent appropriate development within the overall parcel. Development proposals for these lands shall be the subject of a Site-Specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Development proposals will be required to develop lands at risk of flooding as open space/amenity areas. This requirement will be in addition to the standard open space requirements for residential development set out under the Plan.
Lands zoned for Light Industrial Land Use at the existing Livestock Mart	Development proposals for these lands shall be the subject of a Site-Specific Flood Risk Assessment appropriate to the type and scale of the development being proposed in addition a Development Management Justification Test shall be required.
Lands Zoned for Agricultural Land Use within Flood Zone A and B	Development proposals seeking permission for high vulnerable land uses on these lands shall be the subject of a Site-Specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Note: Applications will also be required to be accompanied by a comprehensive Stage 3 Flood Risk Assessment for proposals in an area at risk of flooding, adjoining same or where cumulative impacts may result in a flood risk elsewhere, in low lying areas and in areas adjacent to streams.

## **6.0 Conclusion**

This SFRA has been carried out in accordance with the Planning System and Flood Risk Management Guidelines and the recommendations of this SFRA are incorporated into the COSTDP 2013.