McCloy Consulting

Strategic Flood Risk Assessment

for Variation No. 6 (Sallins Settlement Plan) of the Kildare County Development Plan 2023-2029 (as varied)

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CONTENTS

1 INTRODUCTION 1
1.1 Terms of Reference 1
1.2 Statement of Authority 1
1.3 Purpose and Scope 1
1.4 Approach to the Assessment 2
2 PLAN AREA INFORMATION 3
2.1 Location and Boundary 3
2.2 Existing Land Use 3
2.3 Topography 4
2.4 Water Environment 4
2.4.1 Hydrometric Area River Liffey Catchment 5
2.5 Geology and Hydrogeology 5
2.6 Climate Change 6
2.7 Land Use Zonings 7
3 APPROACH AND METHODOLOGY 9
3.1 Introduction 9
3.2 Objectives and Principles of the OPW Guidelines 9
3.3 Types of Flooding 9
3.3.1 Coastal Flooding 9
3.3.2 Fluvial (River) Flooding 10
3.3.3 Pluvial (Rainfall) Flooding 10
3.3.4 Groundwater Flooding 10
3.3.5 Other Sources 10
3.4 Definition of Flood Risk 11
3.4.1 Likelihood of Flooding 11
3.4.2 Consequences of Flooding 11
3.5 Source-Pathway-Receptor 11
3.6 Flood Zones 12
3.7 Receptor Vulnerability 13
3.8 Climate Change Adaptation 14
3.9 Stages and Scales of Flood Risk Assessment 15
3.9.1 Stages of FRA 15
3.9.2 Scales of FRA 16
3.10 The Sequential Approach and Justification Test 17
3.10.1 Sequential Approach 17
3.10.2 Justification Test 18
3.10.3 Plan Making Justification Test 18
3.11 Strategic Flood Risk Assessment 19
4 STAGE 1 – FLOOD RISK IDENTIFICATION 21
4.1 Introduction 21
4.2 Primary Sources of Flood Risk Information 21
4.2.1 Catchment Flood Risk Assessment and Management (CFRAM) Study 21
4.2.2 Geological Survey Ireland (GSI) Groundwater Flood Mapping 22
4.2.3 National Indicative Fluvial Mapping (NIFM) 22
4.2.4 National Coastal Flood Hazard Mapping (NCFHM) 22
4.2.5 Recorded Flooding 23
4.3 Secondary Sources of Flood Risk Information 24
4.3.1 OPW Arterial Drainage Schemes 24
4.3.2 OPW Flood Relief Schemes & Minor Works 24
4.4 Summary 26
5 STAGE 2 – INITIAL FLOOD RISK ASSESSMENT 27
5.1 Introduction 27
5.2 Fluvial Flooding 27
5.3 Grand Canal 27
5.4 Vulnerability Classifications 29
5.5 Justification Tests 30
5.5.1 Land Zonings 30
5.5.2 Plan Making Justification Tests 30
6 SUMMARY 32
6.1 Overview 32
6.2 Recommendations 32

6.2.1 Land Use 32
6.2.2 Development Management 32
6.2.3 Surface Water Management 33
6.2.4 Naas Flood Relief Scheme 33

LIST OF TABLES

Table 2.1: Geological and Hydrogeological Data for the Plan Area 6
Table 2.2: Variation No. 6 (Sallins Settlement Plan) Land Zoning Objectives 7
Table 3.1: Return Periods and Annual Exceedance Probabilities 11
Table 3.2: Flood Zones 12
Table 3.3: Receptor Vulnerability Classifications 13
Table 3.4: OPW Climate Change Allowances 15
Table 3.5: Stages of Flood Risk Assessment 16
Table 3.6: Scales of Flood Risk Assessment 16
Table 3.7: Vulnerability and Flood Zone Matrix for Justification Test 18
Table 3.8: Plan Making Justification Test 18
Table 4.1: Sources of Primary Flood Information Summary 21
Table 4.2: Stage 1 Flood Risk Assessment Summary 26
Table 5.1: Sallins Land Zoning Objectives and Flood Risk Vulnerability 29

LIST OF FIGURES

Figure 2.1: Plan Area Location and Boundary 3
Figure 2.2: Existing Land Use 3
Figure 2.3: Plan Area Topography 4
Figure 2.4: EPA Watercourse Map 5
Figure 3.1: Sources, Pathways and Receptors of Flooding 12
Figure 3.2: The Sequential Approach 17
Figure 4.1: Map of Past Flood Events 23
Figure 4.2: Aerial Photograph of 30th November 2009 Flooding [floodinfo.ie] 24
Figure 5.1: Grand Canal in vicinity of Plan Area [excerpt from Waterways Ireland] 28
Figure 5.2: Sites Subject to KCC Plan-Making Justification Test 31

APPENDICES

Appendix A Flood Zone Maps
Appendix B Climate Change Flood Extents Maps MRFS & HEFS
Appendix C Kildare County Council Justification Tests Sallins

1 INTRODUCTION

1.1 Terms of Reference

This Strategic Flood Risk Assessment (SFRA) was commissioned by Kildare County Council (KCC) to inform Variation No. 6 (Sallins Settlement Plan) of the Kildare County Development Plan (CDP) 2023-2029 (as varied). The variation is hereafter referred to as 'Variation No. 6 (Sallins Settlement Plan)'.

The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009 (the OPW Guidelines) recommend that an SFRA be prepared to inform and support local area / settlement plans to ensure that flood risk, where identified, is considered as one of the key environmental criteria against which the plan is assessed. The SFRA should ultimately inform policy and land use decisions in areas that have been assessed as being at risk of flooding.

A local area / settlement plan must be consistent with the objectives of its development plan, its core strategy, the National Planning Framework, and any relevant Regional Spatial and Economic Strategy.

The lands at Sallins, Co. Kildare are hereafter referred to as 'the Plan Area'. This SFRA should be read in conjunction with the Strategic Flood Risk Assessment (SWMS) prepared to inform Variation No. 6 (Sallins Settlement Plan).

1.2 Statement of Authority

This assessment and report have been prepared and reviewed by the following qualified professionals:

- Joanna Poprawa *BEng (Hons) MSc* – Flood Analyst with experience in flood risk assessment and surface water management.
- Mistaya Langridge *BEng (Hons) MASc MIEI* – Senior Engineer with experience in hydrology, hydraulic modelling, and flood risk assessment.
- Paul Singleton *BEng (Hons) MSc CEng MIEI* – Associate Director and Chartered Engineer specialising in flood risk assessment, hydrology, surface water management, and SuDS design, and a recognised industry professional providing training courses on these topics to the public and private sectors in Ireland and the UK.

1.3 Purpose and Scope

The purpose of this report is to present a SFRA for the Sallins Plan Area. In accordance with the OPW Guidelines, the scope of this SFRA report includes the following:

- Enable an improved understanding of flood risk issues within the Plan Making and Development Management process for Sallins and communicate this to a wide range of stakeholders.
- Identify natural floodplain areas that should be safeguarded.
- Produce a suitably detailed Flood Risk Assessment (FRA) that draws on and extends existing data and information and that leads 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.
- Inform, where necessary, the application of the Justification Test and the avoidance of development pressure in areas of flood risk.
- Conclude whether measures to deal with flood risks to areas proposed for development can reduce the risks to an acceptable level while not increasing flood risk elsewhere.
- Produce guidance on flood mitigation measures, how surface water should be managed, and appropriate criteria to be used in the review of site-specific FRAs.

1.4 Approach to the Assessment

The purpose of this SFRA is to provide a broad (area-wide) assessment of all types of flood risk in Sallins to inform strategic land use planning decisions. This report will allow KCC to apply the sequential approach and, where necessary, the Justification Test to identify appropriate areas / sites within the Plan Area for development and identify how flood risk can be reduced as part of the variation process.

This assessment is intended for 'plan making' only and is not intended to assess the risk to development proposals. Risk to any future developments within the Plan Area would be assessed separately by Site-Specific Flood Risk Assessments (SSFRAs) submitted in support of planning applications. While any future SSFRA may be informed by flood hazard information determined by this assessment, it would need to be made specific to a proposed development.

A review of available flood risk information has been undertaken to identify any flooding or surface water management issues in Sallins that warrant further investigation. Based on available data, areas at risk of flooding and Flood Zones were identified in order to inform the variation. The SFRA can include all levels of flood risk assessment, as described in the OPW Guidelines.

Having prepared a Strategic Flood Risk Assessment and mapped Flood Zones as part of its variation review process and any more detailed flood risk assessments as necessary, situations can arise where a planning authority will need to consider the future development of areas at a high or moderate risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate. In such cases, the planning authority must be satisfied that it can clearly demonstrate on solid evidence base that the zoning or designation for development will satisfy the Justification Test.

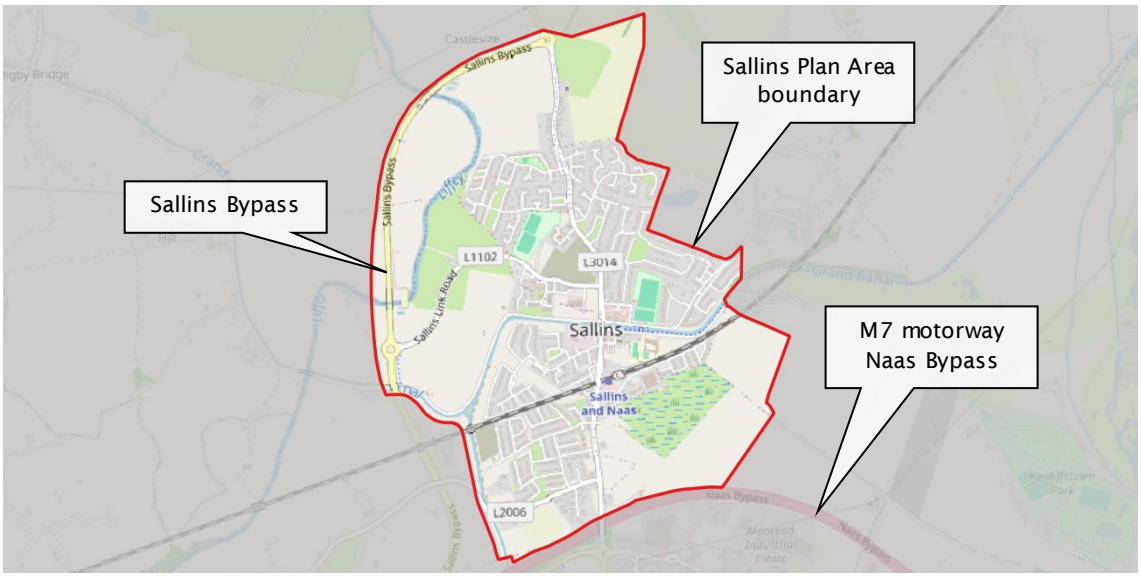
Further detail regarding the required contents of a Settlement Plan SFRA, as outlined in the OPW Guidelines, is included in Section 3.11.

2 PLAN AREA INFORMATION

2.1 Location and Boundary

Sallins is situated on the Grand Canal, in the low-lying agricultural landscape of County Kildare. Sallins is located approximately 3 km north of Naas and 35 km southwest of Dublin. The Plan Area is bisected by the Grand Canal, and is bounded to the south by the M7 motorway / Naas Bypass and to the west by the Sallins Bypass, as shown Figure 2.1.

Figure 2.1: Plan Area Location and Boundary



2.2 Existing Land Use

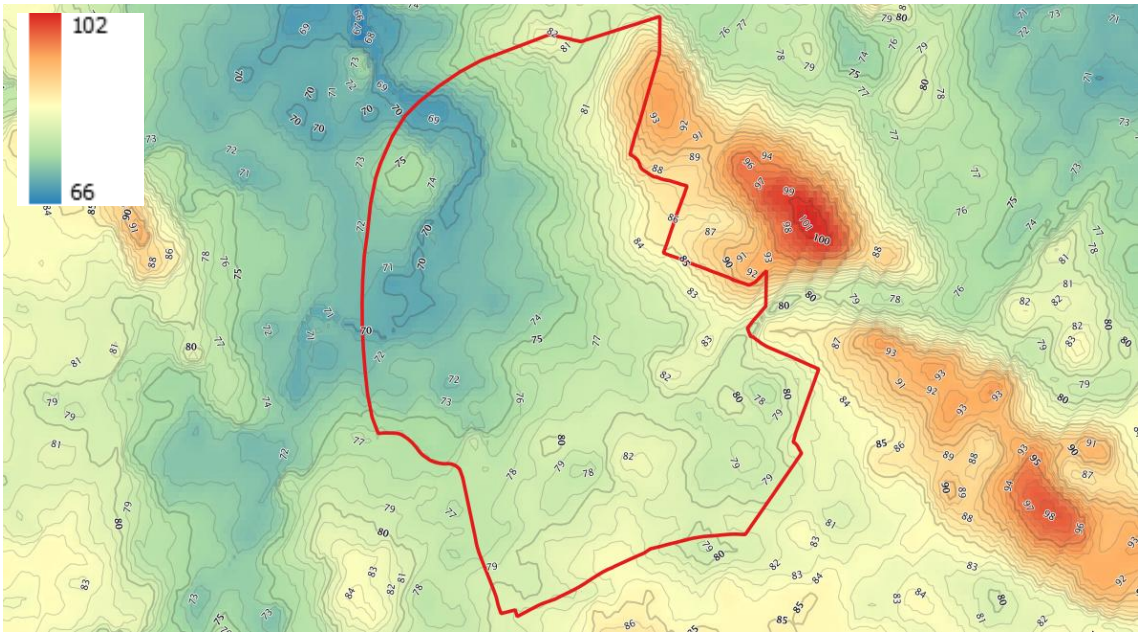
The Plan Area currently comprises c. 332 ha of residential and commercial infrastructure with some agricultural lands, as shown in Figure 2.2

Figure 2.2: Existing Land Use

2.3 Topography

Based on 25 m DTM height data, existing ground levels within the Plan Area range from c. 91 mOD in the east to c. 69 mOD in the northwest, as shown in Figure 2.3.

Figure 2.3: Plan Area Topography



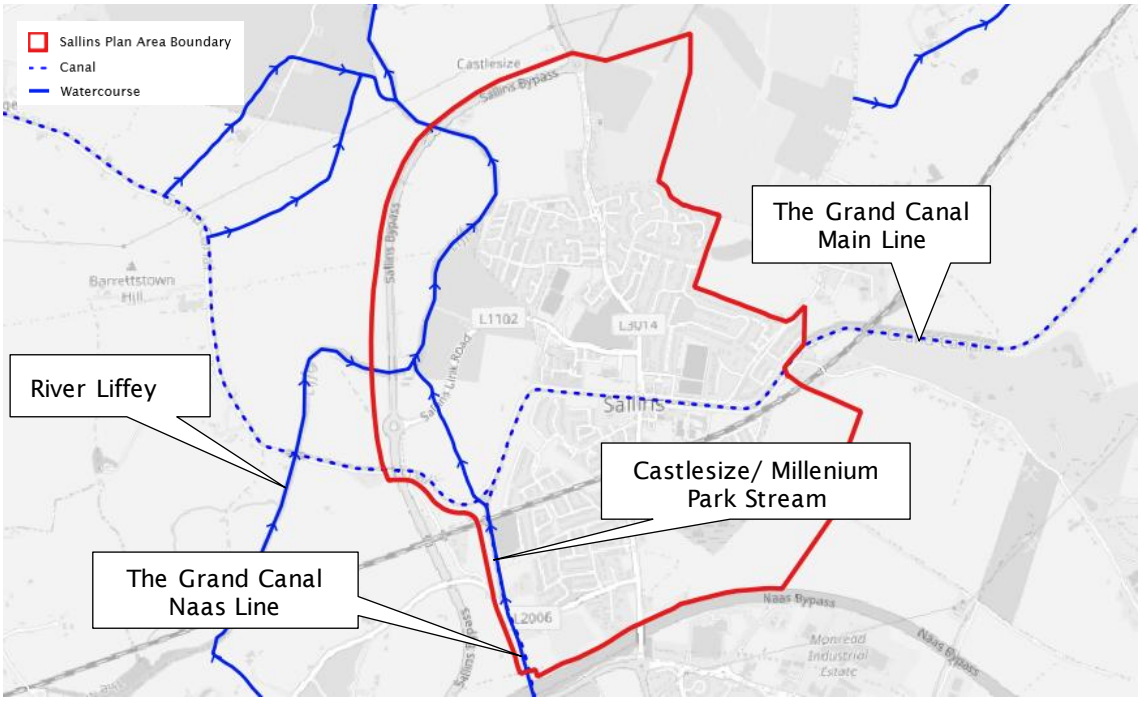
2.4 Water Environment

Environmental Protection Agency (EPA) 'Flow Network' data is presented in Figure 2.4 and has been found to be consistent with OPW FSU 'Rivers' data and KCC watercourses records. It is acknowledged that the EPA watercourse dataset is not intended to be exhaustive and does not capture all open waterbodies within the Plan Area as there are minor streams and ditches which will not have been captured / included

The River Liffey flows generally north along the western boundary of Plan Area, meandering into the north western portion of the Plan Area. The Millenium Park Stream and the Grand Canal Naas Line flow from south to north in both parallel and combined stretches between Naas and Sallins.

The Grand Canal runs from west to east through the centre of the Plan Area.

Figure 2.4: EPA Watercourse Map



2.4.1 Hydrometric Area River Liffey Catchment

Sallins is located in the River Liffey Catchment that includes the area drained by the River Liffey and by all streams entering tidal water between Sea Mount and Sorrento Point, Co. Dublin, draining a total area of 1,616 km². The Liffey catchment comprises 17 subcatchments with 77 river water bodies, six lakes, six transitional and five coastal water bodies, and 16 groundwater bodies.

The largest urban centre in the catchment is Dublin City. The other main urban centres are Dun Laoghaire, Lucan, Clonee, Dunboyne, Leixlip, Maynooth, Kilcock, Celbridge, Newcastle, Rathcoole, Clane, Kill, Sallins, Johnstown, Naas, Newbridge, Athgarvan, Kilcullen and Blessington. The total population of the catchment is approximately 1,255,000.

The River Liffey rises on the western slopes of Tonduff in the Wicklow Mountains, flowing west before being joined by the Brittas River and entering the Pollaphuca Reservoir, created by the ESB in the 1930s. Together with the Kings River, which joins from the south, it drains much of the north-western slopes of the Dublin and Wicklow Mountains. From Pollaphuca, the Liffey passes through the generating stations at Golden Falls and Ballymore Eustace, then flows west through Kilcullen and Newbridge, before passing Sallins and Clane, where it is joined by the Morell River. The Liffey continues through Celbridge to Leixlip, before which it flows into Leixlip reservoir and generating station and is then joined by the Ryewater. Flood relief works were completed in Leixlip during 2009. The Liffey then enters a steep-sided valley, through which it flows past Islandbridge, where the river becomes tidal, and through the centre of Dublin City where it is now considerably constrained by quay walls. The Liffey is then joined by the outflow from the Royal and Grand Canals, the River Dodder from the south and the River Tolka to the north. The Liffey flows past Dublin Port and through the north and south Bull Walls flowing out to sea in Dublin Bay.

2.5 Geology and Hydrogeology

No site investigation / infiltration testing has been conducted for the Plan Area. Table 2.1 summarises geological and hydrogeological data taken from Geological Survey of Ireland (GSI) mapping that is considered pertinent to the Plan Area.

Table 2.1: Geological and Hydrogeological Data for the Plan Area

GSI Data Type	Summary
Overlying Soil / Existing Land Use	• Primarily developed lands / made ground (i.e., existing residential and other built development) • Mix of agricultural and undeveloped greenfield lands on outskirts
Subsoil Geology	• Moderate subsoil permeability occurs across most of the Plan Area, from the south to the north-central part, with high soil permeability in the north. A relatively small area of low soil permeability is present along the central section of the eastern boundary. • Till derived from the limestones from the south to the north central part and to the northeast; Gravels derived from the limestones to the north and northeast, Alluvium present to the northwest
Bedrock Geology	• Majority of Rickardstown Formation – cherty often dolomitised limestone from south to north. • Waulsortian Limestones – massive unbedded lime-mudstone to the northwest
Groundwater Body	• Naas Groundwater Body • Regionally Important Aquifer - Karstified (diffuse)
Groundwater Vulnerability	• High from the centre to the northeast and northwest • Moderate from south to the northcentre • Low to the east
Groundwater Drinking Water Protection Area	• N/A

2.6 Climate Change

Climate change is an important theme in the Kildare CDP 2023-2029. KCC adopted a Local Authority Climate Action Plan in 2024, and have since adopted the Kildare County Council Climate Action Plan 2024-2029, with consideration of risks, impacts and opportunities to Kildare as a result of a changing climate, and a set of strategic measures and objectives to help build resilience across its services. It is recognised that the risks associated with climate change (i.e. flooding, extreme winds, extreme temperatures, etc) will require adaptation and mitigation.

It is also recognised that the nature of Kildare's economy, infrastructure (i.e., roads, electricity networks, water supply and sewer systems), settlement patterns, physical geography, and mixed land use presents a unique set of challenges in terms of the required response to climate change. It is the vision of this Settlement Plan to support the town centre as a place to work, live, visit and do business, by delivering a co-ordinated regeneration strategy, promoting the re-development of underused sites, enhancing town centre services, enabling residential development and protecting and showcasing the historic core of the town. The town is bordered by the River Liffey, with the historic core of the town centred upon the Grand Canal, and therefore presents need for care in flood risk management to maintain the integrity of the town centre alongside a changing climate.

The Kildare CDP 2023-2029 makes provisions for climate change mitigation and adaptation in areas such as flood risk management, transportation, surface water, waste management, water services, urban design, energy, natural heritage, and green infrastructure.

Further information and guidance relating to flood risk impact and considerations of climate change are contained in Section 3.8.

2.7 Land Use Zonings

Variation No. 6 (Sallins Settlement Plan) sets out a range of land use zonings and zoning objectives, as shown in Table 2.2. The Flood Zone maps included in Appendix A were prepared to assist with land use zoning decisions in areas that have been assessed as being at risk of flooding.

Land use zoning for Variation No. 6 (Sallins Settlement Plan) have been overlain with Flood Zone mapping and Section 5 presents Justification Tests where required. Land use zoning vulnerability was agreed through consultation with KCC, as outlined in subsequent sections.

Table 2.2: Variation No. 6 (Sallins Settlement Plan) Land Zoning Objectives

Ref	Use	Land-Use Zoning Objective
A	**Town Centre**	To protect, improve and provide for the future development of the town centre.
B	**Existing Residential / Infill**	To protect and enhance the amenity of established residential communities and promote sustainable intensification.
C	**New Residential**	To provide for new residential development. • C (1) – C (8): Refer to Table 2.4 Estimated Residential Development Capacity. • Refer to Section 10 for Key Development Areas (KDAs).
E	**Community and Education**	To provide for community, recreation and educational facilities. Site Specific Objectives E (1) This site is identified for the expansion of the St. Laurence's National School. E (2) This site is identified for the provision of new post-primary school. E (3) This site is identified for the provision of a new primary school
F	**Open Space and Amenity**	To protect and provide for open space, amenity and recreation provision. Site Specific Objectives F (1) These lands are identified for the development of Phase One and Two of the Sallins Amenity Park catering for active and passive recreation.
H	**Industry and Warehousing**	To provide for manufacturing, warehousing and industrial development. Site Specific Objective Bodenstown Employment Area Urban Design Framework (refer to Section 10).
I	**Agricultural**	To retain and protect agricultural uses.

Ref	Use	Land-Use Zoning Objective
MU- MU*	**Mixed Use**	To provide for a mix of uses to include residential and commercial. This zoning allows for a wide range uses including residential, commercial, office and cultural.
R	**Retail and Commercial**	To support continued operation of existing retail and commercial uses.
SR	**Strategic Reserve**	To protect the integrity of the lands to provide for the future strategic expansion of the town over future plan period and ensure that development that would prejudice the future orderly expansion of the town will be resisted. The inclusion of these lands will not in any way infer a prior commitment regarding the nature of any future zoning. Such a decision will be considered within the framework of the need for additional zoned lands and the proper planning and sustainable development of the area.
U	**Transport and Utilities**	To provide for and improve public infrastructure utilities.

Note on Land Use Zoning Objectives and Matrix per KCC: The limitation described in this note applies to a relatively small number of instances where Flood Zone A and Flood Zone B overlap with certain Land Use Zoning objectives. Uses under all Land Use Zoning Objectives (apart from where the Justification Test outlined in the Flood Risk Management Plan Guidelines has been passed) shall be limited to water-compatible uses in Flood Zone A, and less vulnerable or water compatible uses in Flood Zone B (as per the Flood Risk Management Guidelines), and detailed site-specific Flood Risk Assessment will be required in these areas. This limitation shall take primacy over any other provision relating to these land use zoning objectives.

3 APPROACH AND METHODOLOGY

3.1 Introduction

The approach and methodology adopted by this SFRA have been informed by the OPW Guidelines and associated Technical Appendices. The OPW Guidelines are therefore implemented and embedded in the context of Variation No. 6 (Sallins Settlement Plan).

3.2 Objectives and Principles of the OPW Guidelines

The SFRA recognises the core objectives of the OPW Guidelines, which are to:

- Avoid inappropriate development in areas that are at risk of flooding.
- Prevent new developments from increasing flood risk elsewhere, including flood risk that may arise from surface water runoff.
- Ensure effective management of residual risks for development permitted in floodplains.
- Avoid unnecessary restriction of national, regional, or local economic and social growth.
- Improve the 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.

In achieving the aims and objectives of the OPW Guidelines KCC need to:

- Adopt a sequential approach to flood risk management, which aims to avoid flood risk where possible, substitute less vulnerable uses where avoidance is not possible, and mitigate and manage the risk where avoidance and substitution are not possible.
- Apply the Justification Test for development in flood risk areas.

A precautionary approach should also be applied to flood risk management to reflect uncertainties in existing flooding datasets and risk assessment techniques and in the ability to predict the future climate, the future performance of existing flood defences, and the extent of future coastal erosion. Development should therefore be designed with careful consideration of likely future changes in flood risk, including the effects of climate change and coastal erosion, to ensure that future occupants are not subject to unacceptable risks.

3.3 Types of Flooding

Flooding is defined in the OPW Guidelines as a temporary covering by water of land not normally covered by water and as a natural process that can occur at any time in a variety of locations. Flooding can occur from different sources, acting alone or in combination, including:

- Coastal flooding (from the sea or estuaries)
- Fluvial flooding (from rivers or other watercourses)
- Pluvial flooding (from intense rainfall events and overland flow)
- Groundwater flooding (typically from turloughs in Ireland)
- Other sources (e.g., blocked drains or pipes)

3.3.1 Coastal Flooding

Coastal flooding occurs when water from the sea (along the coast or in estuaries) overflows onto adjacent land or overtops coastal flood defences where these exist. Coastal flooding is influenced by three factors, which often act in combination: high tide level, storm surges (caused by low atmospheric pressure and exacerbated by high winds), and wave action (dependent on wind speed and direction, local topography, and exposure).

The Plan Area is located sufficiently far inland and is not in an area affected by coastal flooding. The River Liffey and its tributaries are not considered tidal up to Sallins; therefore, coastal flood risk is not addressed in this assessment.

3.3.2 Fluvial (River) Flooding

Fluvial flooding occurs when rivers and other watercourses burst their banks and water flows out onto the adjacent low-lying areas (the natural floodplains). This can occur where the capacity of the channel is exceeded and / or where the channel is blocked or constrained.

A storm of a given rainfall depth and duration may cause flooding in one river but not in another, and some catchments may be more prone than others to prolonged rainfall or to a series of rainfall events. Changes in rainfall patterns (e.g., due to climate change) may also have different impacts on flood magnitude and frequency in different catchments. The response to rainfall events depends on factors such as the size and slope of the river and catchment, the permeability of the soil and underlying bedrock, the degree of urbanisation within the catchment, and the degree to which floodwater can be stored and slowly released by lakes and natural floodplains.

3.3.3 Pluvial (Rainfall) Flooding

Pluvial or surface water flooding occurs when the amount of rainfall exceeds the capacity of urban storm water drainage systems or the ground to absorb it. This excess water flows overland, ponding in natural or man-made hollows and low-lying areas or behind obstructions. This occurs as a rapid response to intense rainfall before the flood waters eventually enter a piped or natural drainage system. This type of flooding is driven in particular by short, intense rainfall events.

3.3.4 Groundwater Flooding

Groundwater flooding occurs when the level of water stored in the ground rises as a result of prolonged rainfall, to meet the ground surface and flows out over it, i.e. when the capacity of this underground reservoir is exceeded. Groundwater flooding tends to be very local and results from the interaction of site-specific factors such as local geology and tidal variations. While water level may rise slowly, groundwater flooding can last for extended periods of time. Hence, such flooding may often result in significant damage to property and disruption.

3.3.5 Other Sources

The above causes of flooding are all natural; caused by heavy or intense rainfall. Floods can also be caused by the failure or exceedance of capacity of built or man-made infrastructure, such as bridge collapses, from blocked or under-sized drainage systems or other piped networks, or the failure or overtopping of reservoirs or other water-retaining embankments (such as raised canals).

3.3.5.1 Flooding from Drainage Systems

Flooding from artificial drainage systems occurs when flow entering a system such as an urban storm water drainage system, exceeds its discharge capacity, it becomes blocked or it cannot discharge due to a high water level in the receiving watercourse.

Flooding in urban areas can also be attributed to sewers. Sewers have a finite capacity which, during certain load conditions, will be exceeded. In addition, design standards vary and changes within the catchment area draining to the system, in particular planning growth and urban creep, will reduce the level of service provided by the asset. Sewer flooding problems will often be associated with regularly occurring storm events during which sewers and associated infrastructure can become blocked or fail. This problem is exacerbated in area with under-capacity systems. In the larger events that are less frequent but have a higher consequence, surface water will exceed the capacity of the sewer system and flow across the surface of the land, often following the same flow paths and ponding in the same areas as overland flow.

Foul sewers and surface water drainage systems are spread extensively across the urban areas with various interconnected systems discharging to treatment works and into local watercourses. Whilst such incidents can give an idea of those areas with limited drainage capacity, it is only a record of the hydraulic inadequacies of the sewer systems, not properties at risk of flooding. Therefore it has limited usefulness in predicting future flooding.

3.3.5.2 Canals/Impoundments

Canal flooding occurs when the water level within a canal rises above its designed capacity and overtops the banks. Although rare, such events may still occur despite effective control measures, when water volumes become difficult to manage.

3.4 Definition of Flood Risk

Flooding presents a risk only when people, property, infrastructure, and / or environmental assets are located in the area that could potentially flood. Flood risk is defined as the product of the likelihood of the occurrence of a flood event and the potential consequences arising from that flood event. It is expressed as follows:

Flood Risk = Likelihood of Flooding x Consequences of Flooding

3.4.1 Likelihood of Flooding

The likelihood of flooding is defined in the Guidelines as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. It is generally expressed as a return period or as an annual exceedance probability (AEP). For example, a 1% AEP indicates the severity of a flood that has a 1 in 100 (1%) chance of occurring or being exceeded in any one year. Annual exceedance probability is the inverse of return period, as shown in Table 3.1.

Table 3.1: Return Periods and Annual Exceedance Probabilities

Return Period (Years)	Annual Exceedance Probability (%)
1	100
10	10
50	2
100	1
200	0.5
1000	0.1

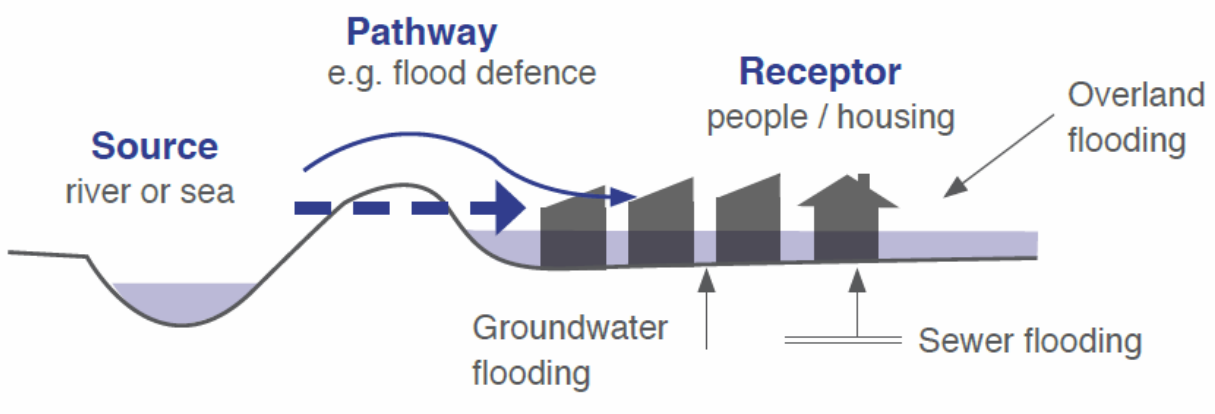
3.4.2 Consequences of Flooding

The consequences of flooding are determined by the hazards associated with the flooding (depth of water, speed, flow, rate of onset, duration, wave action, water quality) and the vulnerability of people, property, and environment assets potentially affected by a flood (age profile of the population, type of development, presence, and reliability of mitigation measures).

3.5 Source-Pathway-Receptor

This SFRA, in line with the OPW Guidelines, advocates the use of the Source-Pathway-Receptor model in Flood Risk Assessments (FRA) to identify the sources of flooding (e.g. intense or prolonged rainfall leading to increased runoff and increased flow in rivers and sewers), the people and assets impacted by flooding (receptors) and the pathways by which the flood water reaches those receptors (e.g. overland flow, river and coastal floodplains, river channels and sewers). Figure 3.1 shows the source-pathway-receptor model from the OPW Guidelines.

Figure 3.1: Sources, Pathways and Receptors of Flooding



3.6 Flood Zones

Flood Zones are geographical areas within which the likelihood of flooding is in a particular range. The Sallins SFRA in conjunction with the OPW Guidelines defines three Flood Zones for flooding from rivers and sea only as indicated in Table 3.2.

Table 3.2: Flood Zones

Flood Zone	Description	Probability (Rivers)	Probability (Sea)
A	Probability of flooding from rivers and sea is highest	Greater than 1% or 1-in-100	Greater than 0.5% or 1-in-200
B	Probability of flooding from rivers and sea is moderate	Between 0.1% or 1-in-1000 and 1% or 1-in-100	Between 0.1% or 1-in-1000 and 0.5% or 1-in-200
C	Probability of flooding from rivers and sea is low (any parts of the Plan Area not in Flood Zone A or B)	Less than 0.1% or 1-in-1000	Less than 0.1% or 1-in-1000

When determining Flood Zones, the presence of flood protection structures should be ignored as areas protected by flood defences still carry a residual risk from overtopping or breach of defences.

Flood Zones are generated without inclusion of factors to allow for climate change. Therefore, land zoning based on delineated Flood Zones will not account for climate change floodplains which, in most instances, will be a wider extent than the present-day scenario.

This approach is consistent with the OPW Guidelines, and the Kildare CDP 2023-2029 SFRA.

3.7 Receptor Vulnerability

The vulnerability of development to flooding depends on the nature of the development, its occupation and the construction methods used. The classification of different land uses and types of development as highly vulnerable (including essential infrastructure), less vulnerable, and water compatible is influenced primarily by the ability to manage the safety of people in flood events and the long-term implications for recovery of the function and structure of buildings.

Zone A - High probability of flooding. Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports, and recreation, would be considered appropriate in this zone.

Zone B - Moderate probability of flooding. Highly vulnerable development, such as hospitals, residential care homes, Garda, fire, and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone, unless the requirements of the Justification Test can be met. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone.

In general, however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will adequately be managed.

Zone C - Low probability of flooding. Development in this zone is appropriate from a flood risk perspective (subject to assessment of flood hazard from sources other than rivers) but would need to meet the normal range of other proper planning and sustainable development considerations.

Table 3.3: Receptor Vulnerability Classifications

Vulnerability Classification	Land Uses / Type of Development *
Highly Vulnerable Development (including Essential Infrastructure)	• Garda, ambulance, and fire stations and command centres required to be operational during flooding • Hospitals • Emergency access and egress points • Schools • Dwelling houses, student halls of residence, and hostels • Residential institutions such as residential care homes, children's homes, and social services homes • Caravans and mobile home parks • Dwelling houses designed, constructed, or adapted for the elderly or other people with impaired mobility • Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution in the event of flooding (SEVESO sites, IPPC sites, etc.)

Vulnerability Classification	Land Uses / Type of Development *
Less Vulnerable Development	• Buildings used for: retail, leisure, warehousing, commercial, industrial, and non-residential institutions • Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans • Land and buildings used for agriculture and forestry • Waste treatment (except landfill and hazardous waste) • Mineral working and processing • Local transport infrastructure.
Water Compatible Development	• Flood control infrastructure • Docks, marinas, and wharves • Navigation facilities • Ship building, repairing, and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location • Water-based recreation and tourism (excluding sleeping accommodation) • Lifeguard and coastguard stations • Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms • Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan)
** Uses not listed here should be considered based on their own merits.*	

3.8 Climate Change Adaptation

It is likely that climate change will have an impact on flood risk in Ireland as a result of rising sea levels and more frequent extreme rainfall events. Climate change is a dynamic process that requires a precautionary and flexible approach to ensure appropriate provision for or adaptation to its potential consequences.

Guidance on climate change objectives and actions is set out in the Climate Change Sectoral Adaptation Plan published by the OPW in 2025. The first Climate Change Sectoral Adaptation Plan was published in 2015 under the mandate of the National Climate Change Framework. An updated plan was prepared in 2019 with amendments to the previous plan made based on new information available on climate change and its potential impacts and developments in flood risk management since 2015 and was the standing document when the Kildare CDP 2023-2029 and associated CDP SFRA was published.

An updated plan has since been published in 2025 and updates the 2019 Plan using newly available information on climate change and its potential impacts, developments in flood risk management since 2019 and the Guidelines for the preparation of the Sectoral Adaptation Plans (DECC, 2024b).

The long-term goal adopted by the OPW on climate adaptation for flooding and flood risk management is "Enhance resilience against flood risk and reduce impacts of flooding now and into the future, by integrating climate adaptation strategies and measures that reduce vulnerability, protect communities, and promote sustainable flood risk management", supporting the overarching vision of "A climate-resilient Ireland where flood risk is managed sustainably to protect communities, reduce vulnerability and secure the future".

To deliver on this goal, the OPW has identified the following adaptation objectives:

- Objective 1: Enhancing our knowledge and understanding of the potential impacts and future risks of climate change for flooding and flood risk management through research and assessments.
- Objective 2: Strengthen capacity and awareness of the impacts of climate change, relating to flooding and flood risk management, within the OPW and across wider stakeholder groups including public bodies, professional sectors and the general public.

- Objective 3: Embed climate change adaptation into flood risk management practices undertaken by the OPW and other sectors.
- Objective 4: Increase the awareness and suitable application of Nature-based Solutions for Catchment Management to improve climate resilience.

A number of actions have been identified under each adaptation objective across the areas of activity in flood risk prevention, protection and preparedness and resilience, as well as in further research and capacity building. Flooding has the potential to affect all sectors and local authorities, and coordination is critical towards ensuring a coherent and whole of government approach to climate resilience in relation to flooding and flood risk management.

Based on the Sectoral Adaptation Plans, the OPW adopted two indicative potential futures for flood risk assessment; the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). These were selected to reflect, based on information available at the time and remain valid per the updated document, a future in the latter part of the century that would be:

- typical or near to the general average of the future climate projections (MRFS)
- a more extreme future based on the upper end of the range of projections of future climatic conditions and the impacts such changes would have on the drivers of flood risk (HEFS).

The allowances, in flood risk terms, for both the MRFS and HEFS are shown in Table 3.4. For the purposes of the SFRA, climate change flood mapping has been prepared and is included in Appendix B.

Table 3.4: OPW Climate Change Allowances

Parameter	Mid-Range Future Scenario (MRFS)	High End Future Scenario (HEFS)
Mean Sea Level Rise	+ 500 mm	+ 1000 mm
Peak River Flood Flows	+ 20%	+ 30%
Extreme Rainfall Depths	+ 20%	+ 30%

Due to the uncertainty of the potential effects of climate change, the Sallins SFRA sets out recommendations in line with the precautionary approach adopted by the Guidelines in terms of managing the effects of climate change. These include:

- Recognising that significant changes in the flood extent may result from an increase in rainfall or tide events and, accordingly, adopt a cautious approach to zoning land in transitional areas.
- Ensuring that the finished levels of structures are designed to protect against flooding such that flood defences, land raising, and ground floor levels are sufficient to cope with the effects of climate change over the lifetime of the development.
- Ensuring that both the structures designed to protect against flooding and the protected development are capable of adaptation to the effects of climate change when there is more certainty about the effects and when there is still time for such adaptation to be effective.

3.9 Stages and Scales of Flood Risk Assessment

3.9.1 Stages of FRA

Flood risk assessments are typically undertaken over three stages, in order of increasing detail, as described in Table 3.5. Progression to a more detailed stage depends on the outcomes of the previous stage. This staged approach ensures that the level of assessment undertaken is appropriate for the scale and nature of the flood risk issues, site or area, and type of development proposed. It also prevents unnecessary flood modelling and development of mitigation and management measures.

Table 3.5: Stages of Flood Risk Assessment

Stage	Purpose
Stage 1: Flood Risk Identification	To identify whether there may be any flooding or surface water management issues relevant to a plan area or proposed development site that may warrant further investigation.
Stage 2: Initial Flood Risk Assessment	To confirm sources of flooding that may affect a plan area or proposed development site and to appraise the adequacy of the existing flood risk information. If necessary, to determine what surveys and modelling approach are appropriate to match the spatial resolution required and complexity of the flood risk issues identified.
Stage 3: Detailed Flood Risk Assessment	To provide a quantitative assessment of flood risk to a proposed or existing development, the effect of the development on flood risk elsewhere, and the effectiveness of any proposed mitigation measures. Typically involves the construction of a hydraulic model that covers a wide enough area to capture catchment-wide impacts and hydrological processes.

3.9.2 Scales of FRA

There are three scales of flood risk assessment described in the OPW Guidelines, summarised in Table 3.6.

Table 3.6: Scales of Flood Risk Assessment

Scale	Purpose	Responsibility
Regional Flood Risk Appraisal (RFRA)	• To appraise the source and significance of all types of flood risk in a region based on readily derivable information to inform the regional planning guidelines and influence spatial allocations for growth in housing and employment. • To identify areas where more detailed studies are required or where flood risk management measures may be required at a regional level to support the proposed growth.	Regional Authorities
Strategic Flood Risk Assessment (SFRA)	• To provide a broad assessment of all types of flood risk in the area to inform strategic land use planning decisions and to identify opportunities for reducing flood risk. • Typically involves up to a Stage 2 – Initial Flood Risk Assessment. • A site-specific flood risk assessment would be recommended where the initial flood risk assessment demonstrates the potential for a significant level of flood risk or where there is conflict with the vulnerability of proposed development.	Local Authorities

Scale	Purpose	Responsibility
Site-specific Flood Risk Assessment (SSFRA)	• To identify and assess all types of flood risk for a proposed new development and to assess the potential effects of climate change, the impact of development on flooding, and residual risks. • To propose appropriate site management and mitigation measures to reduce flood risk to an acceptable level. • If stages 1 and 2 of assessment have been undertaken to appropriate levels of detail, it is likely that the SSFRA will require detailed channel and site surveys and flood modelling.	Planning Applicants

3.10 The Sequential Approach and Justification Test

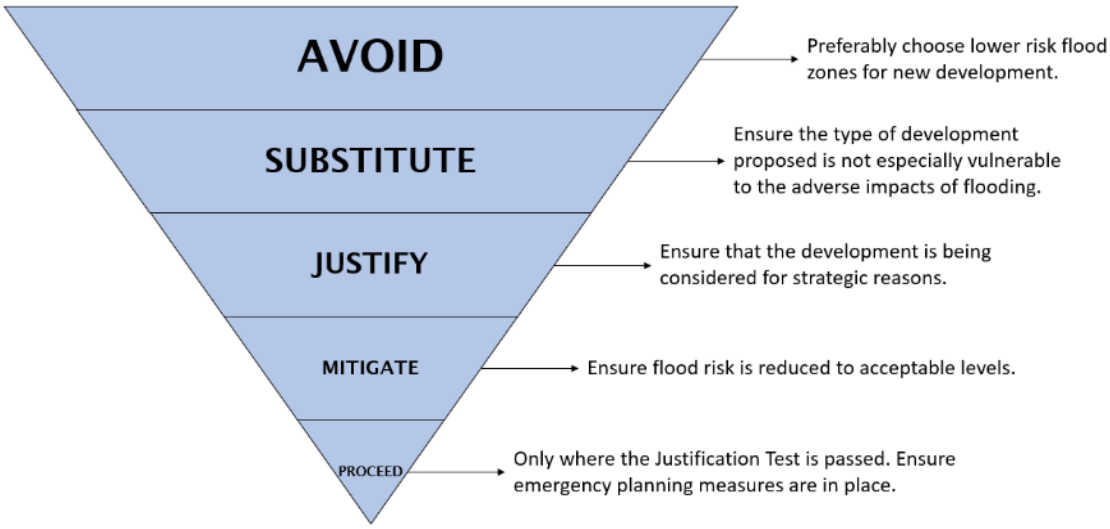
3.10.1 Sequential Approach

The OPW Guidelines recommend a sequential approach to planning to ensure the core objectives outlined in Section 3.2 are implemented. It is of particular importance at the plan making stage but is also applicable in the layout and design of development at the development management stage. The broad philosophy of the sequential approach in flood risk management from the OPW Guidelines is shown in Figure 3.2.

In general, most types of development would be considered inappropriate in Flood Zone A. In Flood Zone B highly vulnerable development (e.g., hospitals, dwelling houses and primary infrastructure) would be considered inappropriate but less vulnerable development (e.g., retail, commercial and industrial uses) might be considered appropriate. Development within Flood Zone C is appropriate from a flood risk perspective.

However, this preferred Sequential Approach is not always possible as many urban centres are affected by Flood Zones and are targeted for key social and economic development. To reflect this, the OPW Guidelines outline the Justification Test to facilitate assessment of the balance between consideration of flood risk issues and the need for continued development in towns and cities.

Figure 3.2: The Sequential Approach



3.10.2 Justification Test

The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for the reasons outlined above, are being considered in areas of moderate or high flood risk. The test is comprised of two processes:

- **Plan Making Justification Test** – used at the plan preparation and adoption stage where it is intended to zone or otherwise designated land which is at moderate or high risk of flooding.
- **Development Management Justification Test** – used at the planning application state where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land.

Table 3.7 is a matrix of receptor vulnerability versus Flood Zone to illustrate appropriate development and scenarios where development is required to meet the Justification Test.

Table 3.7: Vulnerability and Flood Zone Matrix for Justification Test

Development Vulnerability	Flood Zone A	Flood Zone B	Flood Zone C
Highly Vulnerable (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less Vulnerable	Justification Test	Appropriate	Appropriate
Water-compatible	Appropriate	Appropriate	Appropriate

3.10.3 Plan Making Justification Test

The Plan Making Justification Test should be carried out as part of the SFRA using mapped Flood Zones. It applies where land zonings have been reviewed with respect to the need for development of areas at a high or moderate risk of flooding for uses which are vulnerable to flooding and which would generally be inappropriate, as set out in Table 3.2, and where avoidance or substitution is not appropriate. Where land use zoning objectives are being retained, they must satisfy all of the following criteria as per Table 3.4 of the OPW Guidelines included as Table 3.8.

Table 3.8: Plan Making Justification Test

No.	Criteria
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.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular: • Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement • Comprises significant previously developed and/or under-utilised lands • Is within or adjoining the core of an established or designated urban settlement • Will be essential in achieving compact and sustainable urban growth

No.	Criteria
	• 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. N.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.

In cases where existing zoned lands are discovered to be within flood zones, the Plan Making Justification Test has been applied, and it is demonstrated that it cannot meet the specified requirements it is recommended that planning authorities reconsider the zoning by implementing the following:

- Remove the existing zoning for all types of development on the basis of the high level of flood risk
- Reduce the zoned area and change or add zoning categories to reflect the flood risk
- Replace the existing zoning with a zoning or a specific objective for less vulnerable uses
- Prepare an appropriate settlement plan / masterplan informed by a detailed flood risk assessment to address zoning and development issues in more detail and prior to any development

If the criteria of the Justification Test have been met, design of structural or non-structural flood risk management measures as prerequisites to development in specific areas, ensuring that flood hazard and risk to other locations will not be increased or, if practicable, will be reduced. The mitigation measures are required prior to development taking place.

3.11 Strategic Flood Risk Assessment

The purpose of this report is to carry out an SFRA at Plan Area scale. The following requirements are set out in the OPW Guidelines Technical Appendices and have been undertaken where relevant data is available:

- Identify principal rivers, sources of flooding and produce Flood Zone maps for across the local authority area and in key development areas.
- An appraisal of the availability and adequacy of the existing information.
- Assess potential impacts of climate change to demonstrate the sensitivity of an area to increased flows or sea levels.
- 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 the 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.
- 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.
- Identify where an integrated and area based provision of SuDS and green infrastructure are appropriate in order to avoid reliance on individual site by site solutions.

- Provide guidance on appropriate development management criteria for zones and sites.

4 STAGE 1 – FLOOD RISK IDENTIFICATION

4.1 Introduction

The Flood Risk Identification stage involves a review of available flood risk information and identification of any flooding or surface water management issues in Sallins that warrant further investigation. Following the guidance set out in the OPW Guidelines, both primary and secondary sources of flood risk information have been used to inform this SFRA.

4.2 Primary Sources of Flood Risk Information

Table 4.1 lists the primary sources of flood risk information in chronological order and indicates whether the source has been used to develop the Flood Zone maps produced as part of this SFRA, included in Appendix A. The rationale for use of the nature and suitability of flood data is described in subsequent report sections.

Table 4.1: Sources of Primary Flood Information Summary

Information Source	Year Published	Flooding Type	Used for Flood Zone Mapping?
Irish Coastal Protection Strategy Study (ICPSS)	2013	Coastal	N/A
Catchment Flood Risk Assessment and Management (CFRAM) Study	2015 / 2016	Fluvial Coastal	Yes N/A
GSI Groundwater Flooding	2020	Groundwater	No
National Indicative Fluvial Mapping (NIFM)	2021	Fluvial	N/A
National Coastal Flood Hazard Mapping (NCFHM)	2021	Coastal	N/A
Past Flood Events Mapping	Historical / Ongoing	Various	No

4.2.1 Catchment Flood Risk Assessment and Management (CFRAM) Study

As part of the OPW's CFRAM programme, flood extent, depth, and risk maps (generally referred to as 'CFRAM maps') were published in 2015 / 2016 for areas identified by the Preliminary Flood Risk Assessment (PFRA) as being at potentially significant risk of flooding. One of the main purposes of the detailed CFRAM flood maps was to assist Local Authorities in planning and development management.

The CFRAM flood extent maps show the estimated extents, peak water levels, and peak flows associated with flooding from modelled river reaches, estuaries, and coastlines, taking account of flood defences. Flood maps were produced for a range of flood events (10%, 1%, and 0.1% AEP) for the present-day scenario and two future scenarios (the MRFS and HEFS). Flooding from other sources has typically not been considered as part of the CFRAM flood mapping. The Flood Zones as presented as part of this SFRA are based on the CFRAM fluvial scenarios which represent the best available for the Plan Area.

4.2.2 Geological Survey Ireland (GSI) Groundwater Flood Mapping

In response to the extensive groundwater flooding that occurred in the winter of 2015 / 2016, Geological Survey Ireland (GSI) undertook the 'GWFlood' project to address the lack of data on groundwater flooding and fit-for-purpose flood hazard maps necessary to manage groundwater flood risk in vulnerable communities. Project outputs included the Groundwater Flood Maps Viewer, which shows historic and predictive (10%, 1%, and 0.1% AEP) groundwater flood extents, a Groundwater Level Data Viewer, which shows live groundwater hydrometric data, and a comprehensive project report.

GSI Groundwater Flooding Probability Maps do not show any areas of predicted groundwater flood risk within the Sallins Plan Area. This information is available through GSI, and through the OPW at floodinfo.ie. Groundwater flooding is not considered within the Flood Zone mapping.

4.2.3 National Indicative Fluvial Mapping (NIFM)

The National Indicative Fluvial Mapping (NIFM) was published by the OPW in 2021. It shows the extent of flooding from modelled river reaches for catchments greater than 5 km^2 in areas that were not previously mapped as part of the CFRAM programme. Flood mapping was prepared for a range of flood events (5%, 1%, and 0.1% AEP) for the present-day scenario and two future climate change scenarios (the MRFS and HEFS).

NIFM User Guidance Notes state that the maps only provide an indication of areas that may be prone to flooding. They are not necessarily locally accurate and should not be used as the sole basis for defining the Flood Zones nor for making decisions on planning applications. They are by definition of a national indicative quality.

Flood outlines are suitable for use in the Stage 1 Flood Risk Assessment and initial Flood Zone mapping but not suitable for use in site specific flood risk assessment. Where a land zoning allocation is being considered within or adjacent to an initial Flood Zone defined by NIFM flood extents then additional data / information source will be required to form the basis of a Stage 2 Flood Risk Assessment.

NIFM flood data represents best available information for flooding from fluvial sources where no more detailed regional or local-quality data exists, is a component part of the flood outlines used for Flood Zone mapping for the SFRA. NIFM data is also used in SFRA MRFS / HEFS climate change flood mapping.

All relevant watercourses to the Plan Area are CFRAM mapped; therefore, there are no NIFM extents within the settlement boundary, and these have not been included in the preparation of the flood zones.

4.2.4 National Coastal Flood Hazard Mapping (NCFHM)

The National Coastal Flood Hazard Mapping (NCFHM) project was prepared and published by the OPW Coastal and Flood Risk Management Data Management Sections in 2021. The NCFHM coastal flood extents are based on the estimated extreme water level outputs from Phase 1 of the Irish Coastal Wave and Water Level Modelling Study (ICWWS) published in 2018, and supersede the findings of the 2013 Irish Coastal Protection Strategy Study (ICPSS) and PFRA.

NCFHM flood data represents best available information for flooding from coastal sources and is a component part of the flood outlines used for Flood Zone mapping for the SFRA. NCFHM data is also used in SFRA MRFS / HEFS climate change flood mapping. Sallins is not located in a coastal area; therefore, there are no NCFHM extents within the settlement boundary, and these have not been included in the preparation of the flood zones.

4.2.5 Recorded Flooding

The OPW has recorded and mapped 'Past Flood Events' based on available information including flood reports, news articles, photos, Council meeting minutes and other archived information. Historical records are mostly anecdotal and incomplete but are useful for providing background information. The record is not an exhaustive record of all flooding that has occurred in the Plan Area and historic flood events will have occurred that are not captured by this dataset. These records have been reviewed as part of the SFRA along with historic flood event records and reports provided by KCC.

Figure 4.1 shows the single reported flood record within the Sallins Plan Area. The published flood event includes a record of flooding on 30th November 2009 in Monread, Sallins. The flood source is not recorded.

It is noted that past flood event mapping is not consistent or comprehensive and are not a component of the flood outlines used for development of Flood Zone mapping for the SFRA. Mapping of single or recurring past flood events may provide useful additional information as an indicator of a risk of flooding on land, and information on the scale and nature of flood risk in a particular location that can be used to inform site-specific flood risk assessment, but records of past flood events should not be taken as the only source of data in assessing flood risk.

Note that OPW floodinfo.ie records are continually updated and those presented are the data available at time writing.

Figure 4.1: Map of Past Flood Events

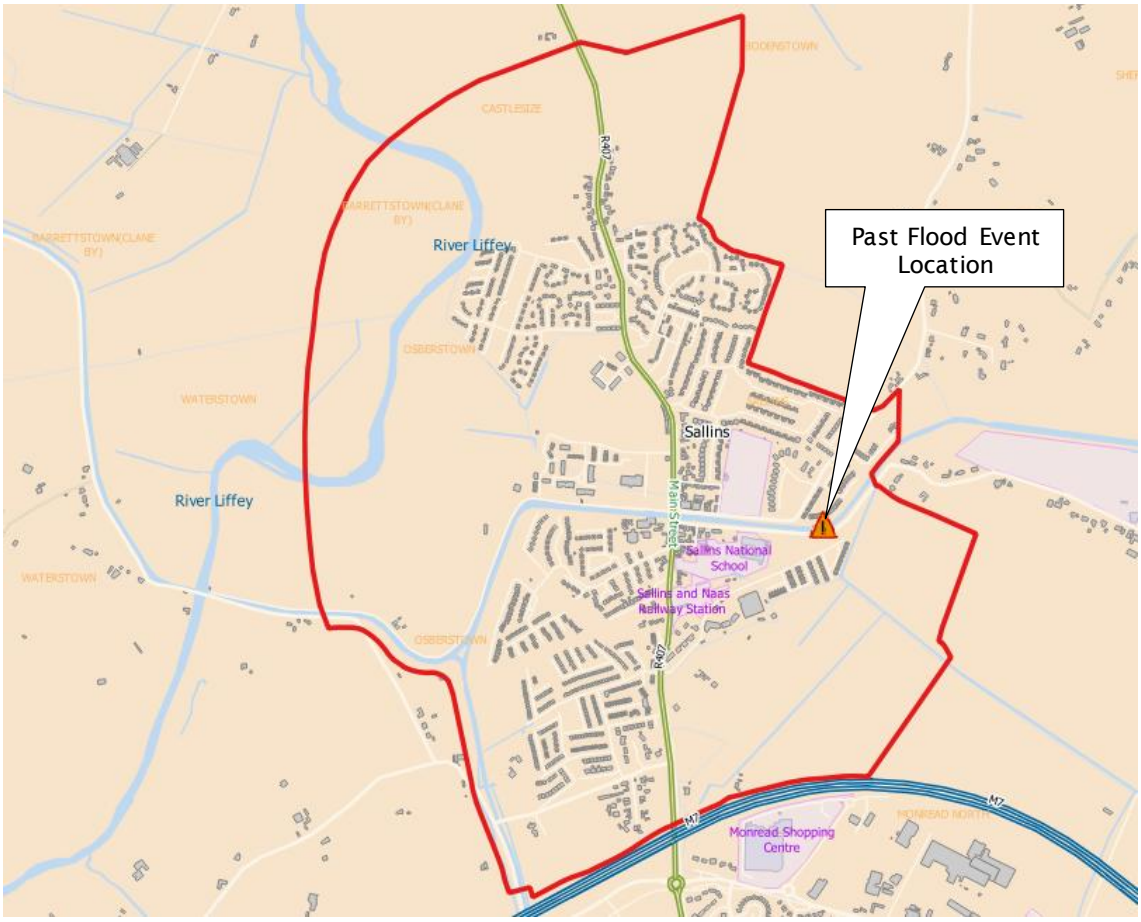


Figure 4.2: Aerial Photograph of 30th November 2009 Flooding [floodinfo.ie]

4.3 Secondary Sources of Flood Risk Information

4.3.1 OPW Arterial Drainage Schemes

Arterial Drainage Schemes were carried out under the Arterial Drainage Act, 1945 to improve land for agriculture and to mitigate flooding. Rivers, lakes weirs and bridges were modified to enhance conveyance, embankments were built to control the movement of flood water and various other work was carried out under Part II of the Arterial Drainage Act, 1945.

The purpose of the schemes was to improve land for agriculture, to ensure that the 3-year flood was retained in bank this was achieved by lowering water levels during the growing season to reduce waterlogging on the land beside watercourses known as callows. Flood protection in the benefiting lands was increased as a result of the Arterial Drainage Schemes.

Under Section 37 of the Arterial Drainage Act 1945, the Office of Public Works (OPW) is statutorily obliged to maintain all rivers, embankments and urban flood defences on which it has executed works since the 1945 Act.

The Arterial Drainage Scheme does not apply to the Sallins area. The location of OPW Arterial Drainage Schemes can be viewed / accessed via floodinfo.ie.

4.3.2 OPW Flood Relief Schemes & Minor Works

Areas that benefit from an existing flood relief scheme or flood defences have a reduced probability of flooding but can be particularly vulnerable due to the speed of flooding when overtopping or a breach or other failure takes place.

The OPW is responsible for leading and coordinating the implementation of localised flood relief schemes to provide flood protection for cities, towns, and villages, either directly or in association with relevant Local Authorities.

The location of OPW 'Minor Works' schemes can be viewed / accessed via floodinfo.ie. This database will be updated throughout the lifetime of the Plan. A Minor Works Scheme for Sallins was approved in 2010, including "culvert upgrade, embankment".

The previous Sallins LAP SFRA 2016-2022 refers to the "Sallins Flood Alleviation Scheme works" being undertaken to minimise future risk of flooding in the Waterways Estate, following historic flooding in 2009 (see Section 4.2.5). Punch Consulting Engineers were commissioned with the "installation of twin Ø1200 mm pipe culverts under the Dublin-Cork railway line to provide a new outfall to alleviate flooding to the Waterways Estate"[1].

At present, there are no existing Flood Relief Schemes within the Plan Area. However, the Plan Area is bordered by two ongoing Flood Relief Schemes (FRS).

The southern boundary of the Plan Area is adjacent to the ongoing Naas FRS. The Scheme is currently being progressed, and the initial Flood Study has been completed, for publication in 2026. The Sallins Plan Area is located downstream of the Naas FRS area and is not intended to be included in the proposed works. However, future development should have regard to the Naas FRS due to the hydrologic and geographic connection.

Further, the Plan Area borders the wider study area of the ongoing Morell River FRS, currently under construction, which provides flood protection measures along the Morell River catchment, including: construction or restoration of over 9,000 metres of sloped embankments; construction of up to 480 metres of flood walls to direct the flood water away from high risk areas; realigning two streams; and up to 11 culvert alterations/upgrades[2].

[1] https://clonmelent.com/experience/sallins-flood-alleviation-scheme/

[2] https://www.morellfms.ie/

4.4 Summary

In accordance with the OPW Guidelines, the flood information sources within the Plan Area have been identified. The findings of the Stage 1 assessment indicate that lands within Sallins are at risk of flooding. Therefore, in accordance with the OPW Guidelines, a Stage 2 flood risk assessment, including Justification Test, should be carried out.

Table 4.2: Stage 1 Flood Risk Assessment Summary

Source of Flooding	Significant?	Reason	Assess Further?
Fluvial flooding	Yes	The River Liffey and its tributary bound the Plan Area to the west. OPW CFRAM mapping indicates areas within the Plan boundary are affected by fluvial flooding.	Yes – refer to Section 5.2
Coastal flooding	No	The Plan Area is not in an area affected by coastal flooding.	No
Pluvial / surface water flooding	Yes	Surface water drainage / pluvial flooding is covered in the Sallins Surface Water Management Strategy, as prepared on behalf of KCC, to inform Variation No. 6 (Sallins Settlement Plan).	No- refer to Sallins SWMS
Urban drainage flooding	Possible	Surface water drainage / pluvial flooding is covered in the Sallins Surface Water Management Strategy, as prepared on behalf of KCC, to inform Variation No. 6 (Sallins Settlement Plan).	No- refer to Sallins SWMS
Groundwater flooding	No	GSI groundwater flood mapping indicates that the Plan Area is not affected by groundwater flooding.	No
Flooding from artificial sources (e.g., impoundments)	Possible	The Grand Canal bisects the Plan Area.	Yes – refer to Section 5.3

5 STAGE 2 – INITIAL FLOOD RISK ASSESSMENT

5.1 Introduction

A Stage 2 SFRA (initial flood risk assessment) was undertaken to:

- Confirm the sources of flooding that may affect lands within Sallins Plan Area
- Appraise the existing land zonings relative to the Stage 1 flood data / Flood Zone Maps
- Provide clarification on the requirement for a site-specific FRA and Justification Test, based on the proposed use and associated vulnerability of a land zoning

5.2 Fluvial Flooding

Based on an assessment of the sources above, the Sallins Plan Area is identified to be at risk of fluvial flooding. Flood Zones have been prepared using best-available fluvial data, as outlined in preceding sections as based upon the CFRAM fluvial mapping.

As per Section 3.6 and the OPW Guidelines, Flood Zones have been determined whereby the presence of flood protection structures should be ignored as areas protected by flood defences still carry a residual risk from overtopping or breach of defences. As such, the undefended scenario has been considered and applied to prepare the Flood Zone maps. Flood Zone maps are included in Appendix A.

As per Section 3.6 and the OPW Guidelines, Flood Zones are generated without inclusion of factors to allow for climate change. However, KCC and the OPW recognize the importance of adaptation for climate change. For the purposes of the SFRA, climate change flood mapping has been prepared and is included in Appendix B.

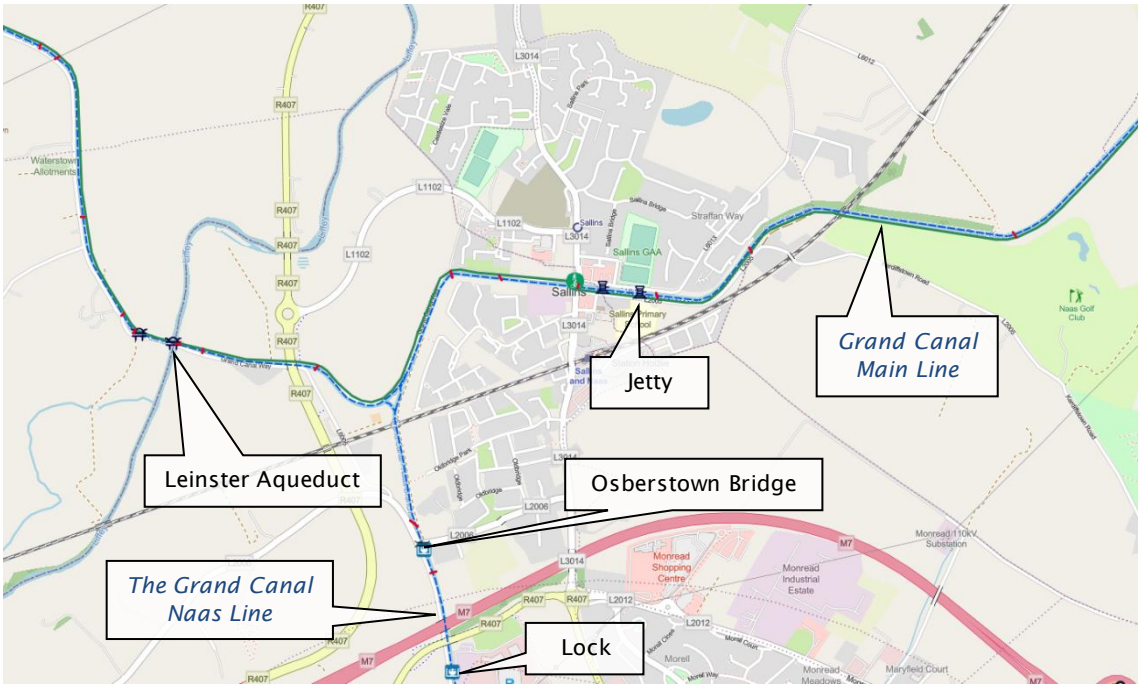
As provided for by measures integrated into both the Kildare CDP 2023-2029 (as varied) and Variation No. 6 (Sallins Settlement Plan), new developments, including applications for development on previously developed lands within Flood Zone A or Flood Zone B and extensions of uses or minor development, and those within Benefitting Areas will be required to comply with requirements of the OPW Guidelines.

5.3 Grand Canal

The Grand Canal extends 117 km from Dublin through counties Offaly, Laois and Kildare. Waterways Ireland is the cross-border navigation authority responsible for the management, maintenance, and development of seven inland navigable waterways, including the Grand Canal. Water levels in the canal are controlled, and the infrastructure is subject to regular monitoring and maintenance by Waterways Ireland.

Best available height data demonstrates that the canal sits lower than surrounding ground levels as it passes through the Plan Area. Therefore, the Plan Area is not considered to be at risk of flooding from the Grand Canal. Figure 5.1 shows the Grand Canal in the vicinity of the Plan Area.

Figure 5.1: Grand Canal in vicinity of Plan Area [excerpt from Waterways Ireland]



5.4 Vulnerability Classifications

The Flood Zone maps included in Appendix A were prepared to assist with land use zoning decisions in areas that have been assessed as being at risk of flooding. Land use zoning for Variation No. 6 (Sallins Settlement Plan) have been overlain with Flood Zone mapping and the following section presents Justification Tests as prepared by KCC, where required, whereby land use zonings are located within an inappropriate flood zone, based on land use zoning vulnerability. Land use zoning vulnerability was agreed through consultation with KCC, as outlined in the table below, and in following with the PSFRM Guidelines (see Section 3.7).

Table 5.1: Sallins Land Zoning Objectives and Flood Risk Vulnerability

Zoning	Flood Risk Vulnerability	Suitability
Town Centre	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B
Existing Residential / Infill	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B
New Residential	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B
Community and Education	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B
Open Space and Amenity	Water Compatible*	Appropriate in any flood zone Any proposal for development within Flood Zones A or B will require site specific flood risk assessment at planning application stage which demonstrates that the proposed development will not be at an unacceptable risk from flooding, and will not cause, contribute to, or exacerbate flooding elsewhere.
Industry and Warehousing	Less Vulnerable	Inappropriate in Flood Zone A Any proposal for development within Flood Zone B which involves changes in existing ground levels or provision of structures will require site specific flood risk assessment at planning application stage which demonstrates that the proposed development will not be at an unacceptable risk from flooding, and will not cause, contribute to, or exacerbate flooding elsewhere.
Agricultural	Less Vulnerable	Inappropriate in Flood Zone A Any proposal for development within Flood Zone B which involves changes in existing ground levels or provision of structures will require site specific flood risk assessment at planning application stage which demonstrates that the proposed development will not be at an unacceptable risk from flooding, and will not cause, contribute to, or exacerbate flooding elsewhere.
Mixed Use	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B

Zoning	Flood Risk Vulnerability	Suitability
Retail and Commercial	Less Vulnerable	Inappropriate in Flood Zone A Any proposal for development within Flood Zone B which involves changes in existing ground levels or provision of structures will require site specific flood risk assessment at planning application stage which demonstrates that the proposed development will not be at an unacceptable risk from flooding, and will not cause, contribute to, or exacerbate flooding elsewhere.
Strategic Reserve	Highly Vulnerable	Inappropriate in Flood Zone A and Flood Zone B *Lands zoned Strategic Reserve are not designated for development over the duration of the Plan period.
Transport & Utilities	Less Vulnerable	Inappropriate in Flood Zone A Any proposal for development within Flood Zone B which involves changes in existing ground levels or provision of structures will require site specific flood risk assessment at planning application stage which demonstrates that the proposed development will not be at an unacceptable risk from flooding, and will not cause, contribute to, or exacerbate flooding elsewhere.

5.5 Justification Tests

5.5.1 Land Zonings

Land use zonings for Variation No. 6 (Sallins Settlement Plan) have been provided by KCC as part of the SFRA process. The zoning objectives have been reviewed as part of the Stage 2 assessment. The review, outlined in the following sections, applies a Plan-Making Justification Test (as per approach set out in Section 3.10.3) for areas identified to include 'inappropriate' land zonings relative to Flood Zones as per the guidance set out in the OPW Guidelines.

This process includes consideration of the specific land use zoning objectives as well as comment on the source / nature of flood risk. Recommendations are presented on how flood risk is proposed to be managed within the area identified.

5.5.2 Plan Making Justification Tests

Plan-making Justification Tests for all land use zonings identified as 'inappropriate' have been carried out by KCC and are included in Appendix C. It is noted that in some cases, land use zoning parcels have been grouped by land use zoning type within the Justification Tests.

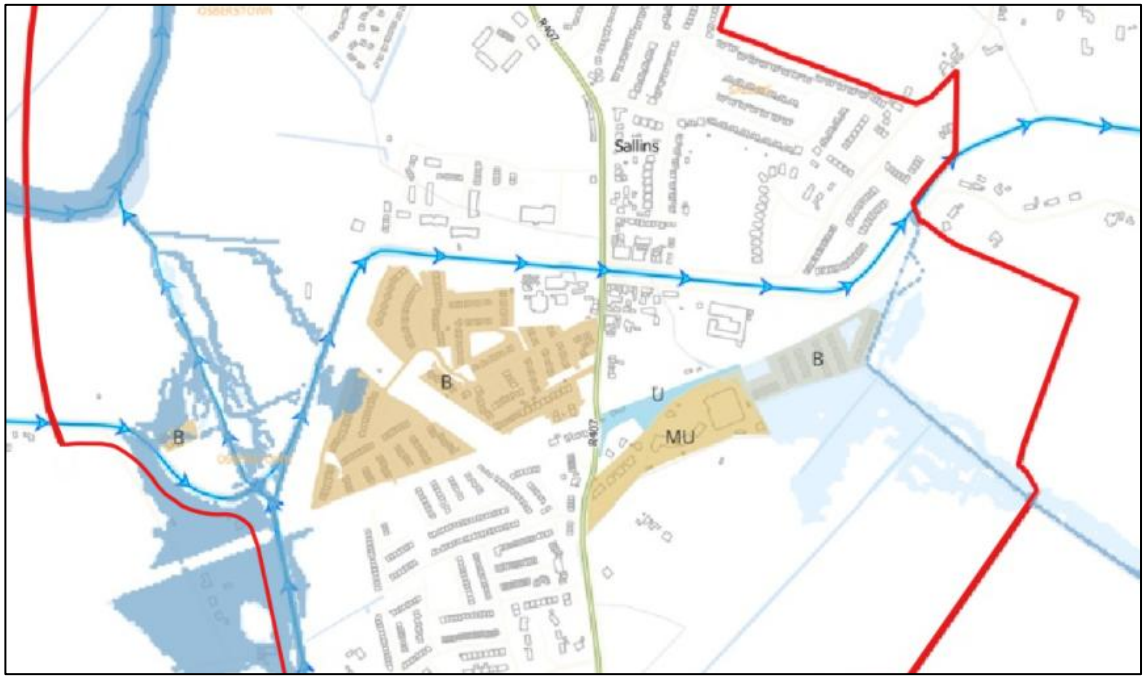
In line with the OPW Guidelines, 'inappropriate' land use zonings are:

- Highly vulnerable uses in Flood Zone A and Flood Zone B
- Less vulnerable uses in Flood Zone A

It is noted that water compatible uses are considered appropriate in any Flood Zone.

The sites as set out in the figure below have been subject to the Plan-Making Justification Test.

Figure 5.2: Sites Subject to KCC Plan-Making Justification Test



6 SUMMARY

6.1 Overview

In achieving the objectives of the OPW Guidelines, KCC must:

- Adopt a sequential approach to flood risk management, which aims to (1) avoid flood risk where possible, (2) substitute less vulnerable uses where avoidance is not possible, and (3) mitigate and manage the risk where avoidance and substitution are not possible.
- Apply the Justification Test for development in flood risk areas.

A precautionary approach should also be applied to flood risk management to reflect uncertainties in available flood data, risk assessment techniques, climate change projections, and performance of existing flood defences.

This SFRA report has been prepared in accordance with the OPW Guidelines and DHLGH Circular PL2/2014 and provides an assessment of all sources of flood risk within the Plan Area to assist KCC in making informed strategic land-use decisions. The collation and presentation of flood risk information will support KCC to apply the requirements of the OPW Guidelines including the Sequential Approach and Justification Test. The SFRA also outlines the requirements of site-specific FRAs through development management.

6.2 Recommendations

6.2.1 Land Use

Siting of future development proposals within the Plan Area should be cognisant of the receptor vulnerability set out in Section 3.7 of this report alongside the Flood Zone Map provided as part of this assessment, i.e.:

- Highly vulnerable development (e.g. residential) in Flood Zone C.
- Less vulnerable development (e.g. local access roads, car parking, commercial) in Flood Zone C and Flood Zone B.
- Water compatible development (e.g. open amenity space) in Flood Zone C, Flood Zone B and Flood Zone A.

Any deviation from the above would require the preparation of a Development Management Justification Test to support proposals within an 'inappropriate' Flood Zone.

6.2.2 Development Management

Development management of flood risk shall be in accordance with the OPW Guidelines, as well as policies in the Kildare CDP 2023-2029 (as varied) and associated SFRA. Further reference should be made to the Sallins Surface Water Management Strategy, as prepared on behalf of KCC, to inform Variation No. 6 (Sallins Settlement Plan).

A key mechanism for providing flood protection and resilience is the setting of Finished Floor Levels (FFLs), Finished Ground Levels (FGLs), or flood defence levels with appropriate freeboard above the relevant design flood levels.

Freeboard is a safety margin to account for uncertainties in flood level prediction and / or structural performance. It is the difference between the FFL, FGL, or flood defence level and the applicable adjacent design flood level. Freeboard is designed to account for uncertainty in hydrological predictions, modelling accuracy, topographical accuracy, and the quality of digital elevation models.

In accordance with the OPW Guidelines, access to / egress from any future development within the Plan Area should be within Flood Zone C (i.e., outside the 0.1% AEP floodplain) to allow for safe emergency access / egress.

6.2.3 Surface Water Management

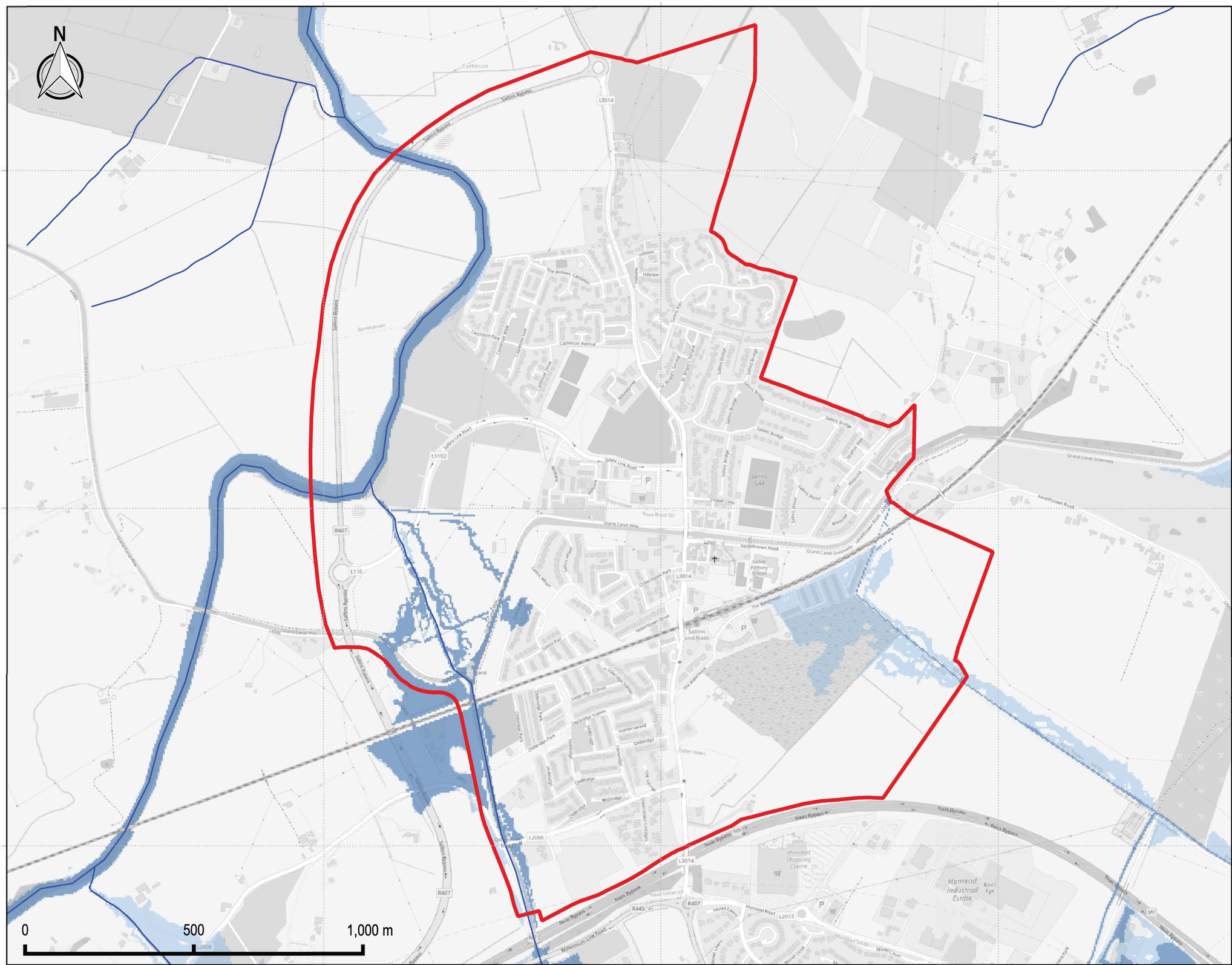
Management of internal surface water runoff within the Plan Area (i.e., surface water from any future development) shall be managed in accordance with the Sallins Surface Water Management Strategy, as prepared on behalf of KCC, to inform Variation No. 6 (Sallins Settlement Plan).

6.2.4 Naas Flood Relief Scheme

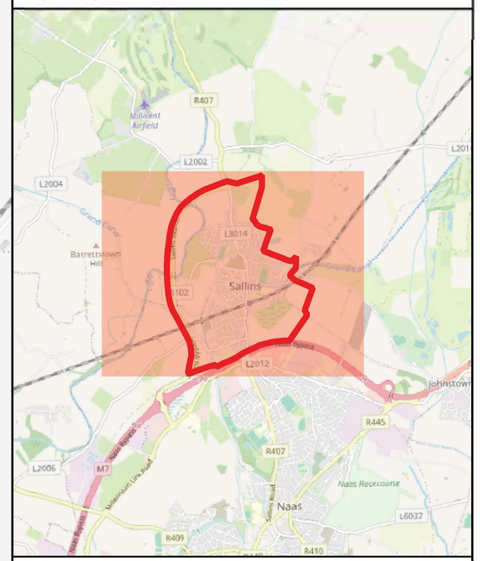
Variation No. 6 (Sallins Settlement Plan) and any proposed development within the Plan Area should have regard to the progression and impacts of the development of the proposed Naas Flood Relief Scheme, ensuring no interference or future pressure upon the scheme as development within the Plan Area progresses.

Appendix A

Flood Zone Maps



MODEL OVERVIEW



LEGEND

- Plan Area Boundary
- Watercourse
- Flood Zone A [1% AEP]
- Flood Zone B [0.1% AEP]

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PROJECT	HYDROLOGY SCENARIO	SCALE	ORIGINAL SIZE
SALLINS, CO KILDARE	PRESENT DAY	AS SHOWN	A3
MAP TYPE	**GEOMETRY SCENARIO**	**DRAWN BY**	**APPROVED BY**
FLOOD ZONE MAP	EXISTING	DL	PS
SOURCE / **FLOOD EVENT**	**FIGURE NUMBER**	**REVISION**	**DATE**
FLUVIAL / 1% AEP / 0.1% AEP	M02215-10_FL01	3	16/10/2026

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Appendix B

Climate Change Flood Extents Maps

MRFS & HEFS

688000 689000 690000

724000

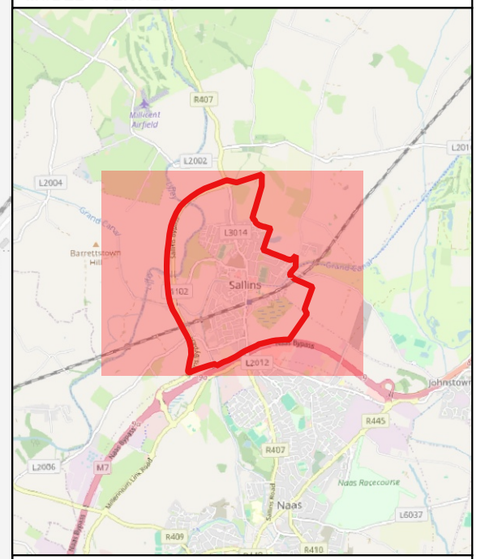
723000

722000

N

0 500 1,000 m

MODEL OVERVIEW



LEGEND

- Plan Area Boundary
- Watercourse
- MRFS Flood Extent [1% AEP]
- MRFS Flood Extent [0.1% AEP]

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PROJECT	HYDROLOGY SCENARIO	SCALE	ORIGINAL SIZE
SALLINS, CO KILDARE	MID RANGE FUTURE SCENARIO	AS SHOWN	A3
MAP TYPE	**GEOMETRY SCENARIO**	**DRAWN BY**	**APPROVED BY**
FLOOD EXTENTS MAP	EXISTING	DL	PS
SOURCE / **FLOOD EVENT**	**FIGURE NUMBER**	**REVISION**	**DATE**
FLUVIAL / 1% AEP / 0.1% AEP	M02215-10_FL02	3	16/10/2026

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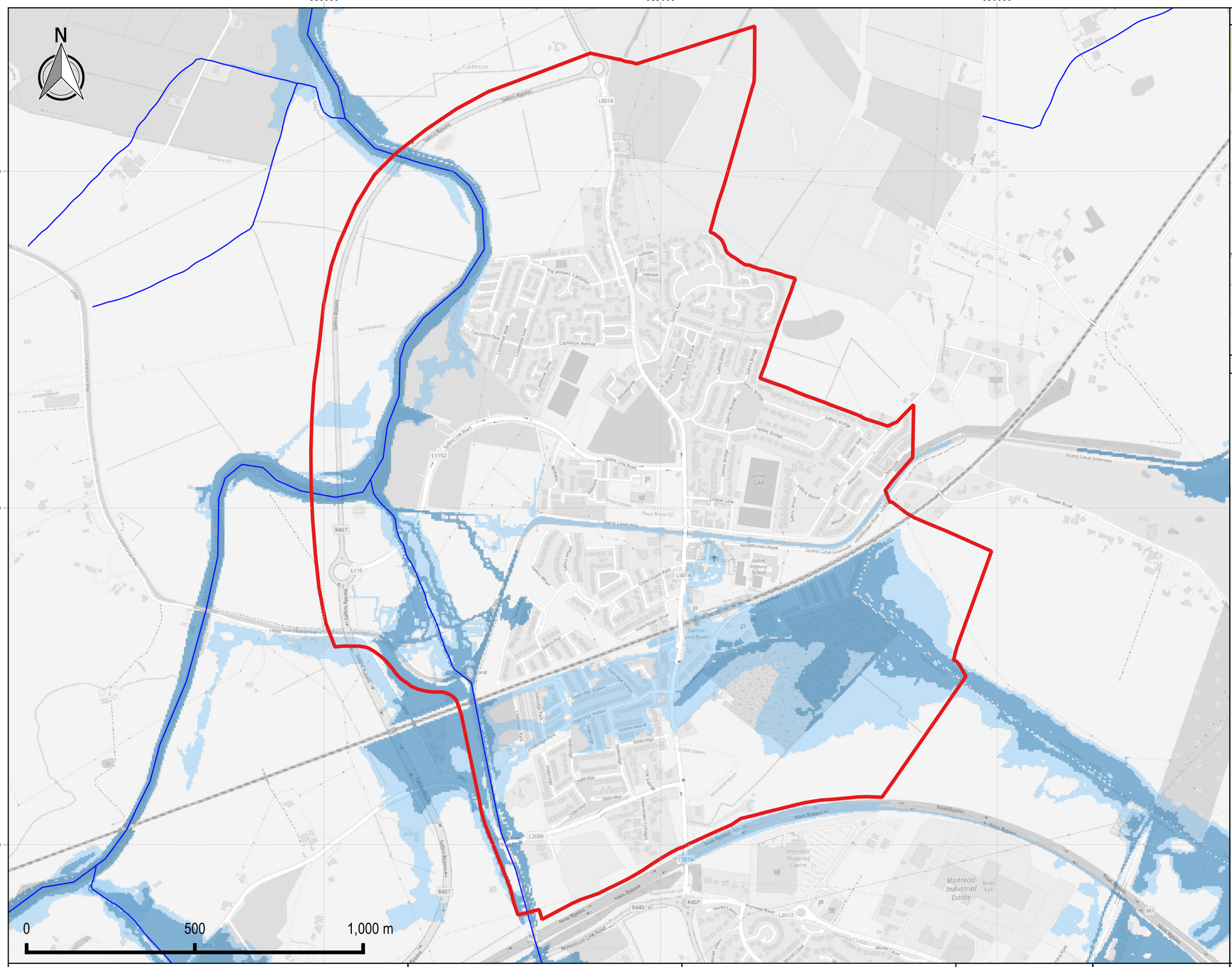
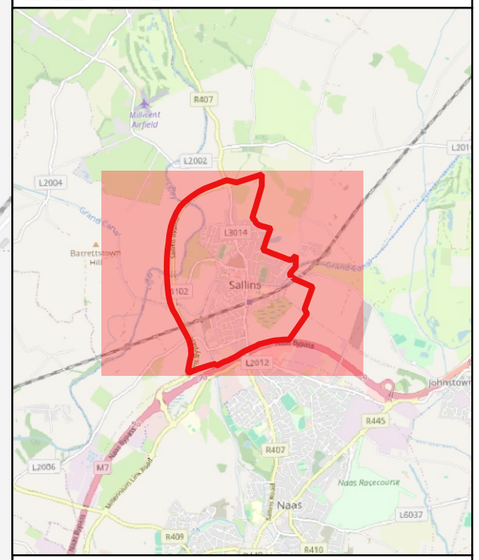


MODEL OVERVIEW



LEGEND

- Plan Area Boundary
- Watercourse
- HEFS Flood Extent [1% AEP]
- HEFS Flood Extent [0.1% AEP]

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PROJECT	HYDROLOGY SCENARIO	SCALE	ORIGINAL SIZE
SALLINS, CO KILDARE	HIGH END FUTURE SCENARIO	AS SHOWN	A3
MAP TYPE	**GEOMETRY SCENARIO**	**DRAWN BY**	**APPROVED BY**
FLOOD EXTENTS MAP	EXISTING	DL	PS
SOURCE / **FLOOD EVENT**	**FIGURE NUMBER**	**REVISION**	**DATE**
FLUVIAL / 1% AEP / 0.1% AEP	M02215-10_FL03	3	16/10/2026

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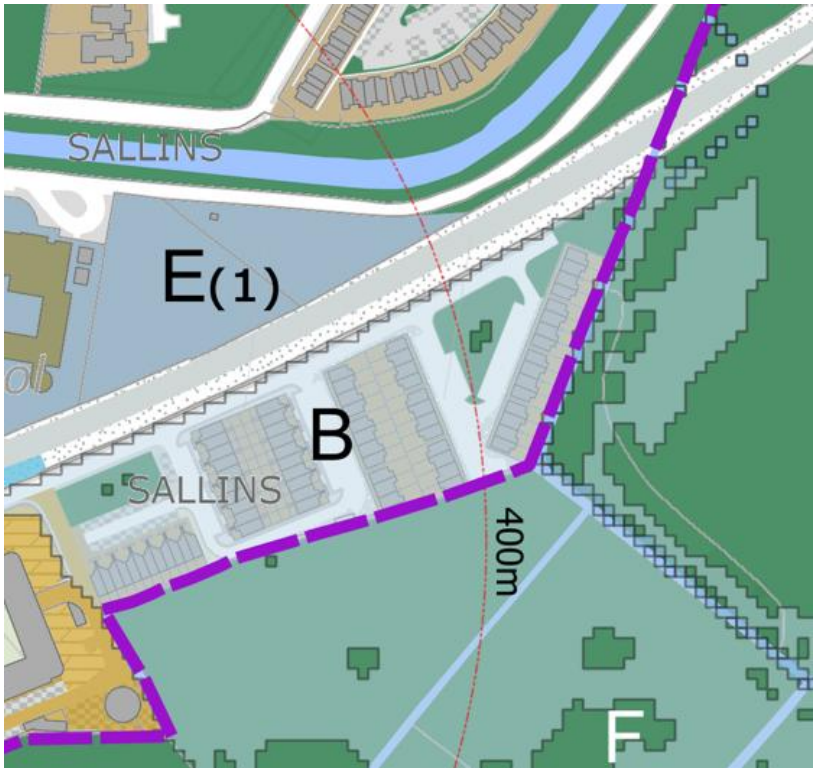
Appendix C

Kildare County Council Justification Tests

Sallins

Kildare County Development Plan 2023-2029	Sallins - B: Existing Residential / Infill



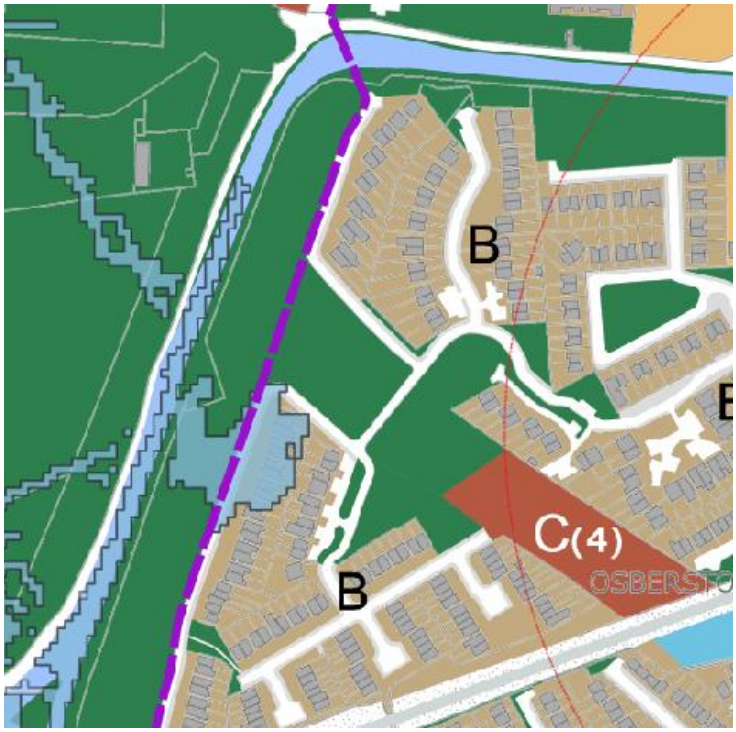
The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the planned direction for sustainable growth within the Eastern and Midland Region up to 2031. The RSES provides regional level strategic planning and economic policy in support of the implementation of the National Planning Framework (NPF) and provides a greater level of focus around the National Policy Objectives and National Strategic Outcomes of the NPF. Sallins provides local service and employment functions in close proximity to higher order urban areas. Sallins has been designated as a Town under the Kildare County Development Plan 2023-2029, aligning with the RSES Settlement Hierarchy.
The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and	Land Zoned – - B: Existing Residential / Infill

sustainable development of the urban settlement and in particular:	Zoning is required to maintain the proper planning and development of Sallins.
(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement,	Yes. The land in the east of Sallins zoned as existing residential / infill comprises of the existing The Waterways residential estate.
(ii) Comprises significant previously developed and / or underutilized lands,	Yes. See (i) above. The lands identified are significantly previously developed.
(iii) Is within or adjoining the core of an established or designated urban settlement,	No. The land zoned as existing residential / infill in the east of Sallins is not located within or adjacent to the core of the settlement.
(iv) Will be essential in achieving compact and sustainable urban growth, and	Yes. The existing residential / infill lands are already developed.
(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.	The existing residential / infill zoned land is already developed. It is considered reasonable to retain the use and zoning subject to a stipulation that any development within the areas of the flood risk zone include measures to mitigate against flooding. Therefore, prior to any further development being permitted a SSFRA should be undertaken to the satisfaction of Kildare County Council.
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. N.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.	A SFRA was completed as part of the CDP 2023-2029. A review of the flood zone mapping in Sallins highlighted multiple areas overlapping with Flood Zones A and B including multiple existing residential zonings, mixed use zoning, and transport and utilities zoning. The pre-existing zonings should be retained but the SFRA recommends future development in these areas should be subject to a SSFRA. The requirements for SSFRAs are outlined in Table A-1 of Appendix A of the CDP SFRA. The SSFRAs should be carried out in accordance with the following: • The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014); • The flood risk management policies outlined in the KCC CDP 2023-2029; and

	• The recommendations and observations in Chapter 4, Chapter 7 and Appendix A of the CDP SFRA. Also, all planning applications are required to be developed in accordance with the KCC CDP surface water and drainage policies and to undertake a Surface Water Management Plan to mitigate any potential pluvial flood risk. In accordance with Section 4.27a of the Planning Guidelines Circular PL 2-2014, existing land use which is categorised as a “highly vulnerable development” such as housing and is zoned for residential purposes, can also be located in Flood Zones A and B. Additional development such as small scale infill housing, extensions, or changes of use that could increase the risk or number of people in the flood prone area can be expected in such a zone into the future. Furthermore, in accordance with Section 5.28 of the FRM Planning Guidelines, the Justification Test does not apply for minor developments which cannot be located in lower-risk areas. However, an SSFRA should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. In accordance with Appendix B of the FRM Guidelines Technical Appendices, the SSFRA should include assessment of residual risk, exceedance, access and egress, flood resistant construction, flood resilient construction, raising floor levels, adapted internal layout, and emergency response planning. The SSFRA should also address all types of mitigation measures to inform the assignment of appropriate land use with

	respect to vulnerability of the proposed development type. The zoning has been considered as part of the development plan preparation, including the use of the Justification Test as appropriate. It is considered that the existing use zoning is still appropriate in accordance with Section 4.27a of the Planning Guidelines Circular PL 2/2014. No new 'highly vulnerable development' can be located within Flood Zone A or B or 'less vulnerable development' within Flood A with exception of Minor Development in accordance with Revised Section 5.28 of the Planning Guidelines for Flood Risk Management.

Kildare County Development Plan 2023-2029	Sallins - B: Existing Residential / Infill



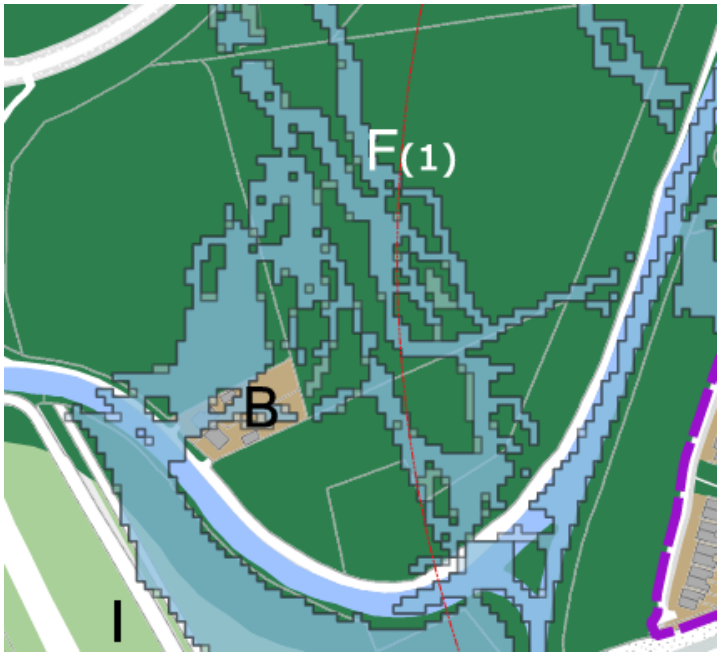
The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the planned direction for sustainable growth within the Eastern and Midland Region up to 2031. The RSES provides regional level strategic planning and economic policy in support of the implementation of the National Planning Framework (NPF) and provides a greater level of focus around the National Policy Objectives and National Strategic Outcomes of the NPF. Sallins provides local service and employment functions in close proximity to higher order urban areas. Sallins has been designated as a Town under the Kildare County Development Plan 2023-2029, aligning with the RSES Settlement Hierarchy.
The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	Land Zoned – - B: Existing Residential / Infill Zoning is required to maintain the proper planning and development of Sallins.

(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement,	Yes. The land in the west of Sallins zoned as existing residential / infill comprises of the existing Sallins Pier residential estate.
(ii) Comprises significant previously developed and / or underutilized lands,	Yes. See (i) above. The lands identified are significantly previously developed.
(iii) Is within or adjoining the core of an established or designated urban settlement,	No. The land zoned as existing residential / infill in the west of Sallins is not located within or adjacent to the core of the settlement.
(iv) Will be essential in achieving compact and sustainable urban growth, and	Yes. The existing residential / infill lands are already developed.
(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.	The existing residential / infill zoned land is already developed. It is considered reasonable to retain the use and zoning subject to a stipulation that any development within the areas of the flood risk zone include measures to mitigate against flooding. Therefore, prior to any further development being permitted a SSFRA should be undertaken to the satisfaction of Kildare County Council.
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. N.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.	A SFRA was completed as part of the CDP 2023-2029. A review of the flood zone mapping in Sallins highlighted multiple areas overlapping with Flood Zones A and B including multiple existing residential zonings, mixed use zoning, and transport and utilities zoning. The pre-existing zonings should be retained but the SFRA recommends future development in these areas should be subject to a SSFRA. The requirements for SSFRAs are outlined in Table A-1 of Appendix A of the CDP SFRA. The SSFRAs should be carried out in accordance with the following: • The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014); • The flood risk management policies outlined in the KCC CDP 2023-2029; and • The recommendations and observations in Chapter 4, Chapter 7 and Appendix A of the CDP SFRA.

	Also, all planning applications are required to be developed in accordance with the KCC CDP surface water and drainage policies and to undertake a Surface Water Management Plan to mitigate any potential pluvial flood risk. In accordance with Section 4.27a of the Planning Guidelines Circular PL 2-2014, existing land use which is categorised as a “highly vulnerable development” such as housing and is zoned for residential purposes, can also be located in Flood Zones A and B. Additional development such as small scale infill housing, extensions, or changes of use that could increase the risk or number of people in the flood prone area can be expected in such a zone into the future. Furthermore, in accordance with Section 5.28 of the FRM Planning Guidelines, the Justification Test does not apply for minor developments which cannot be located in lower-risk areas. However, an SSFRA should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. In accordance with Appendix B of the FRM Guidelines Technical Appendices, the SSFRA should include assessment of residual risk, exceedance, access and egress, flood resistant construction, flood resilient construction, raising floor levels, adapted internal layout, and emergency response planning. The SSFRA should also address all types of mitigation measures to inform the assignment of appropriate land use with respect to vulnerability of the proposed development type.

	The zoning has been considered as part of the development plan preparation, including the use of the Justification Test as appropriate. It is considered that the existing use zoning is still appropriate in accordance with Section 4.27a of the Planning Guidelines Circular PL 2/2014. No new 'highly vulnerable development' can be located within Flood Zone A or B or 'less vulnerable development' within Flood A with exception of Minor Development in accordance with Revised Section 5.28 of the Planning Guidelines for Flood Risk Management.

Kildare County Development Plan 2023-2029	Sallins - B: Existing Residential / Infill



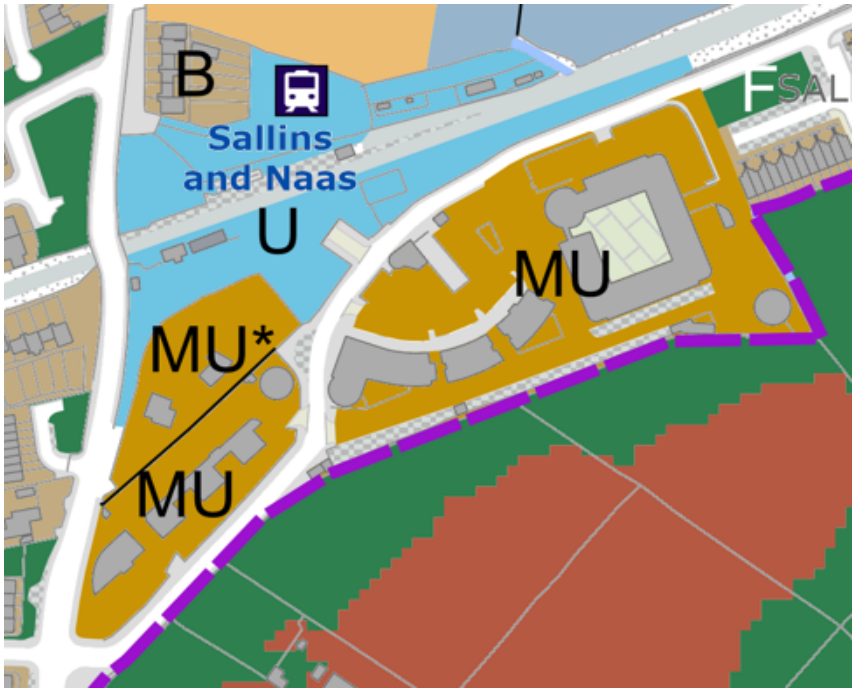
The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the planned direction for sustainable growth within the Eastern and Midland Region up to 2031. The RSES provides regional level strategic planning and economic policy in support of the implementation of the National Planning Framework (NPF) and provides a greater level of focus around the National Policy Objectives and National Strategic Outcomes of the NPF. Sallins provides local service and employment functions in close proximity to higher order urban areas. Sallins has been designated as a Town under the Kildare County Development Plan 2023-2029, aligning with the RSES Settlement Hierarchy.
The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	Land Zoned – - B: Existing Residential / Infill Zoning is required to maintain the proper planning and development of Sallins.

(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement,	Yes. The land in the west of Sallins zoned as existing residential / infill comprises of existing residential dwellings.
(ii) Comprises significant previously developed and / or underutilized lands,	Yes. See (i) above. The lands identified are significantly previously developed.
(iii) Is within or adjoining the core of an established or designated urban settlement,	No. The land zoned as existing residential / infill in the west of Sallins is not located within or adjacent to the core of the settlement.
(iv) Will be essential in achieving compact and sustainable urban growth, and	Yes. The existing residential / infill lands are already developed.
(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.	The existing residential / infill zoned land is already developed. It is considered reasonable to retain the use and zoning subject to a stipulation that any development within the areas of the flood risk zone include measures to mitigate against flooding. Therefore, prior to any further development being permitted a SSFRA should be undertaken to the satisfaction of Kildare County Council.
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. N.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.	A SFRA was completed as part of the CDP 2023-2029. A review of the flood zone mapping in Sallins highlighted multiple areas overlapping with Flood Zones A and B including multiple existing residential zonings, mixed use zoning, and transport and utilities zoning. The pre-existing zonings should be retained but the SFRA recommends future development in these areas should be subject to a SSFRA. The requirements for SSFRAs are outlined in Table A-1 of Appendix A of the CDP SFRA. The SSFRAs should be carried out in accordance with the following: • The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014); • The flood risk management policies outlined in the KCC CDP 2023-2029; and • The recommendations and observations in Chapter 4, Chapter 7 and Appendix A of the CDP SFRA.

	Also, all planning applications are required to be developed in accordance with the KCC CDP surface water and drainage policies and to undertake a Surface Water Management Plan to mitigate any potential pluvial flood risk. In accordance with Section 4.27a of the Planning Guidelines Circular PL 2-2014, existing land use which is categorised as a “highly vulnerable development” such as housing and is zoned for residential purposes, can also be located in Flood Zones A and B. Additional development such as small scale infill housing, extensions, or changes of use that could increase the risk or number of people in the flood prone area can be expected in such a zone into the future. Furthermore, in accordance with Section 5.28 of the FRM Planning Guidelines, the Justification Test does not apply for minor developments which cannot be located in lower-risk areas. However, an SSFRA should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. In accordance with Appendix B of the FRM Guidelines Technical Appendices, the SSFRA should include assessment of residual risk, exceedance, access and egress, flood resistant construction, flood resilient construction, raising floor levels, adapted internal layout, and emergency response planning. The SSFRA should also address all types of mitigation measures to inform the assignment of appropriate land use with respect to vulnerability of the proposed development type.

	The zoning has been considered as part of the development plan preparation, including the use of the Justification Test as appropriate. It is considered that the existing use zoning is still appropriate in accordance with Section 4.27a of the Planning Guidelines Circular PL 2/2014. No new 'highly vulnerable development' can be located within Flood Zone A or B or 'less vulnerable development' within Flood A with exception of Minor Development in accordance with Revised Section 5.28 of the Planning Guidelines for Flood Risk Management.

Kildare County Development Plan 2023-2029	Sallins - MU-MU*: Mixed Use



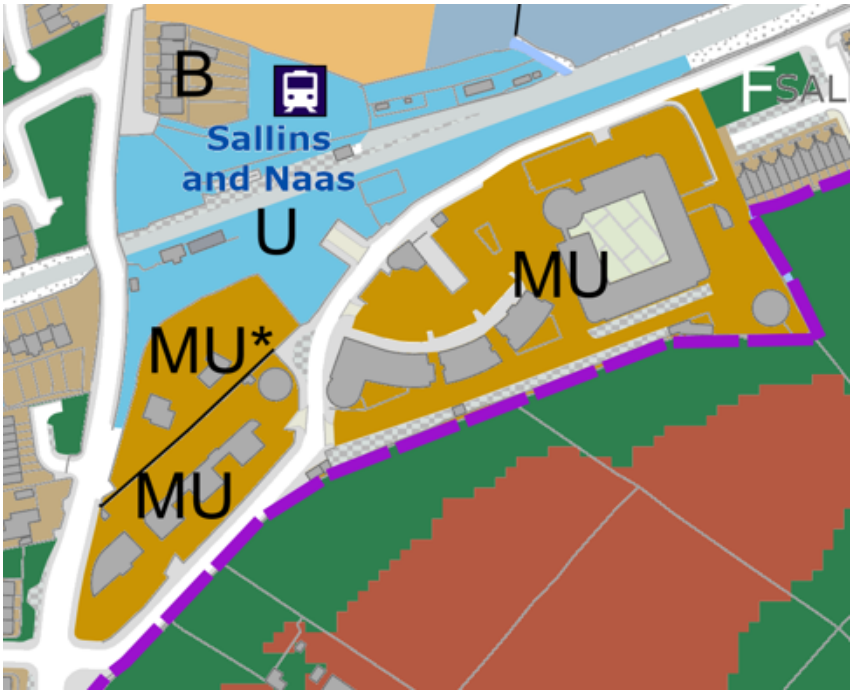
The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the planned direction for sustainable growth within the Eastern and Midland Region up to 2031. The RSES provides regional level strategic planning and economic policy in support of the implementation of the National Planning Framework (NPF) and provides a greater level of focus around the National Policy Objectives and National Strategic Outcomes of the NPF. Sallins provides local service and employment functions in close proximity to higher order urban areas. Sallins has been designated as a Town under the Kildare County Development Plan 2023-2029, aligning with the RSES Settlement Hierarchy.
The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	Land Zoned – MU-MU*: Mixed Use Zoning is required to maintain the proper planning and development of Sallins.

(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement,	Yes. The land zoned as mixed use comprises of existing commercial and residential.
(ii) Comprises significant previously developed and / or underutilized lands,	Yes. See (i) above. The lands identified are significantly previously developed.
(iii) Is within or adjoining the core of an established or designated urban settlement,	No. The land zoned as mixed use is not located within or adjacent to the core of the settlement.
(iv) Will be essential in achieving compact and sustainable urban growth, and	Yes. The existing mixed use lands are already developed.
(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.	The mixed use zoned land is already developed. It is considered reasonable to retain the use and zoning subject to a stipulation that any development within the areas of the flood risk zone include measures to mitigate against flooding. Therefore, prior to any further development being permitted a SSFRA should be undertaken to the satisfaction of Kildare County Council.
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. N.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.	A SFRA was completed as part of the CDP 2023-2029. A review of the flood zone mapping in Sallins highlighted multiple areas overlapping with Flood Zones A and B including multiple existing residential zonings, mixed use zoning, and transport and utilities zoning. The pre-existing zonings should be retained but the SFRA recommends future development in these areas should be subject to a SSFRA. The requirements for SSFRAs are outlined in Table A-1 of Appendix A of the CDP SFRA. The SSFRAs should be carried out in accordance with the following: • The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014); • The flood risk management policies outlined in the KCC CDP 2023-2029; and • The recommendations and observations in Chapter 4, Chapter 7 and Appendix A of the CDP SFRA.

	Also, all planning applications are required to be developed in accordance with the KCC CDP surface water and drainage policies and to undertake a Surface Water Management Plan to mitigate any potential pluvial flood risk. In accordance with Section 4.27a of the Planning Guidelines Circular PL 2-2014, existing land use which is categorised as a “highly vulnerable development” such as housing and is zoned for residential purposes, can also be located in Flood Zones A and B. Additional development such as small scale infill housing, extensions, or changes of use that could increase the risk or number of people in the flood prone area can be expected in such a zone into the future. Furthermore, in accordance with Section 5.28 of the FRM Planning Guidelines, the Justification Test does not apply for minor developments which cannot be located in lower-risk areas. However, an SSFRA should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. In accordance with Appendix B of the FRM Guidelines Technical Appendices, the SSFRA should include assessment of residual risk, exceedance, access and egress, flood resistant construction, flood resilient construction, raising floor levels, adapted internal layout, and emergency response planning. The SSFRA should also address all types of mitigation measures to inform the assignment of appropriate land use with respect to vulnerability of the proposed development type. The zoning has been considered as part of the development plan preparation, including

	the use of the Justification Test as appropriate. It is considered that the existing use zoning is still appropriate in accordance with Section 4.27a of the Planning Guidelines Circular PL 2/2014. No new ‘highly vulnerable development’ can be located within Flood Zone A or B or ‘less vulnerable development’ within Flood A with exception of Minor Development in accordance with Revised Section 5.28 of the Planning Guidelines for Flood Risk Management.

Kildare County Development Plan 2023-2029	Sallins - U: Transport and Utilities



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.	The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region 2019-2031 sets out the planned direction for sustainable growth within the Eastern and Midland Region up to 2031. The RSES provides regional level strategic planning and economic policy in support of the implementation of the National Planning Framework (NPF) and provides a greater level of focus around the National Policy Objectives and National Strategic Outcomes of the NPF. Sallins provides local service and employment functions in close proximity to higher order urban areas. Sallins has been designated as a Town under the Kildare County Development Plan 2023-2029, aligning with the RSES Settlement Hierarchy.
The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	Land Zoned – - U: Transport and Utilities Zoning is required to maintain the proper planning and development of Sallins.

(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement,	Yes. The land in Sallins zoned as transport and utilities comprises of Sallins Train Station.
(ii) Comprises significant previously developed and / or underutilized lands,	Yes. See (i) above. The lands identified are significantly previously developed.
(iii) Is within or adjoining the core of an established or designated urban settlement,	Yes. The land zoned as transport and utilities is adjacent to the core of the settlement.
(iv) Will be essential in achieving compact and sustainable urban growth, and	Yes. The existing transport and utilities lands are already developed.
(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.	The transport and utilities zoned land is already developed. It is considered reasonable to retain the use and zoning subject to a stipulation that any development within the areas of the flood risk zone include measures to mitigate against flooding. Therefore, prior to any further development being permitted a SSFRA should be undertaken to the satisfaction of Kildare County Council.
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. N.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.	A SFRA was completed as part of the CDP 2023-2029. A review of the flood zone mapping in Sallins highlighted multiple areas overlapping with Flood Zones A and B including multiple existing residential zonings, mixed use zoning, and transport and utilities zoning. The pre-existing zonings should be retained but the SFRA recommends future development in these areas should be subject to a SSFRA. The requirements for SSFRAs are outlined in Table A-1 of Appendix A of the CDP SFRA. The SSFRAs should be carried out in accordance with the following: • The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014); • The flood risk management policies outlined in the KCC CDP 2023-2029; and • The recommendations and observations in Chapter 4, Chapter 7 and Appendix A of the CDP SFRA.

	Also, all planning applications are required to be developed in accordance with the KCC CDP surface water and drainage policies and to undertake a Surface Water Management Plan to mitigate any potential pluvial flood risk. In accordance with Section 4.27a of the Planning Guidelines Circular PL 2-2014, existing land use which is categorised as a “highly vulnerable development” such as housing and is zoned for residential purposes, can also be located in Flood Zones A and B. Additional development such as small scale infill housing, extensions, or changes of use that could increase the risk or number of people in the flood prone area can be expected in such a zone into the future. Furthermore, in accordance with Section 5.28 of the FRM Planning Guidelines, the Justification Test does not apply for minor developments which cannot be located in lower-risk areas. However, an SSFRA should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. In accordance with Appendix B of the FRM Guidelines Technical Appendices, the SSFRA should include assessment of residual risk, exceedance, access and egress, flood resistant construction, flood resilient construction, raising floor levels, adapted internal layout, and emergency response planning. The SSFRA should also address all types of mitigation measures to inform the assignment of appropriate land use with respect to vulnerability of the proposed development type. The zoning has been considered as part of the development plan preparation, including

	the use of the Justification Test as appropriate. It is considered that the existing use zoning is still appropriate in accordance with Section 4.27a of the Planning Guidelines Circular PL 2/2014. No new ‘highly vulnerable development’ can be located within Flood Zone A or B or ‘less vulnerable development’ within Flood A with exception of Minor Development in accordance with Revised Section 5.28 of the Planning Guidelines for Flood Risk Management.