

Celbridge

Draft Local Area Plan 2017-2023

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STRATEGIC FLOOD RISK ASSESSMENT

Planning Department
Kildare County Council
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1 INTRODUCTION

1.1 BACKGROUND

Kildare County Council (KCC) has prepared a Draft Local Area Plan (LAP) for Celbridge for the period 2017-2023.

The LAP when adopted will replace the Celbridge Local Area Plan 2010. It is a policy of the Kildare County Development Plan 2011-2017 and Draft County Development Plan 2017-2023 (Policy PSO3) to extend the LAP boundary to incorporate the demesnes of Castletown, Donaghcumper and St. Wolstan's as these historic landscapes form an integral part of the history of Celbridge, whilst also providing significant opportunities for the town.

KCC commissioned RPS Consulting Engineers to carry out a Strategic Flood Risk Assessment (SFRA) to support the preparation of the LAP. The SFRA is prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014) referred to hereafter as 'The Guidelines'. The SFRA therefore informs policy regarding inappropriate development in areas at risk of flooding, and identify areas where site specific flood risk assessments should be undertaken for development.

1.2 REPORT OBJECTIVES

The objective of this report is to prepare a SFRA for the Celbridge Draft LAP in accordance with The Guidelines. The SFRA provides an assessment of all types of flood risk within the LAP boundary and has enabled KCC to make informed strategic land-use planning decisions and to formulate flood risk policies.

A review of available flood risk information was undertaken to identify any flooding or surface water management issues related to the LAP that may warrant further investigation. The best available data at the time of preparation was acquired from the Office of Public Works (OPW) Eastern Catchment Flood Risk Assessment Management (CFRAM) Studies. The CFRAM Studies generated draft flood zone mapping that have enabled KCC to apply 'The Guidelines' sequential approach, and where necessary the Justification Test, to appraise sites for suitable land zonings and identify how flood risk can be managed as part of the development plan.

1.3 DISCLAIMER

The SFRA has been prepared in compliance with the Guidelines. It should be noted that the SFRA remains a living document and is based on the best available data at the time of preparation. It is subject to change based on more up to date and relevant flood risk information becoming available during the lifetime of the Local Area Plan.

All information in relation to flood risk is provided for general policy guidance only. All landowners and developers are instructed that Kildare County Council and their consultants can accept no responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments. Furthermore owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding of lands in which they have an interest prior to making planning or development decisions.

It should be noted that the CFRAM mapping used to define the flood zones for this SFRA are at Draft Final stage and are subject to change following a stakeholder and public consultation process. However the CFRAM mapping is the most comprehensive flood zone mapping available for the county and is considered appropriate for use as a strategic overview of flood risk within the county. Further information on the Eastern CFRAM studies is available at www.cfram.ie. The flood maps are 'predictive' flood maps, as they provide predicted flood extent and other information for a flood event that has an estimated probability of occurrence (the 1% Annual Exceedance Probability (AEP) and 0.1% AEP events – refer to section 3.2.3), rather than information on floods that have occurred in the past.

Kildare County Council makes no representations, warranties or undertakings about any of the information provided on these draft maps including, without limitation, their accuracy, their completeness or their quality or fitness for any particular purpose. To the fullest extent permitted by applicable law, Kildare County Council nor any of its members, officers, associates, consultants, employees, affiliates, servants, agents or other representatives shall be liable for loss or damage arising out of, or in connection with, the use of, or the inability to use, the information provided on the draft flood maps including, but not limited to, indirect or consequential loss or damages, loss of data, income, profit, or opportunity, loss of, or damage to, property and claims of third parties, even if Kildare County Council has been advised of the possibility of such loss or damages, or such loss or damages were reasonably foreseeable.

Kildare County Council reserves the right to change the content and / or presentation of any of the information provided on the draft flood maps at its sole discretion, including these notes and disclaimer. This disclaimer, guidance notes and conditions of use shall be governed by, and construed in accordance with, the laws of the Republic of Ireland. If any provision of these disclaimer, guidance notes and conditions of use shall be unlawful, void or for any reason unenforceable, that provision shall be deemed severable and shall not affect the validity and enforceability of the remaining provisions.

1.4 REPORT STRUCTURE

The Celbridge LAP area and its primary watercourses are identified in **Section 2**.

A summary of the Planning System and Flood Risk Management Guidelines and the procedure for undertaking a SFRA is presented in **Section 3**.

Section 4 outlines a broad overview of the requirements of Flood Risk Assessments (FRA) which should accompany planning applications.

The available flood risk information used to identify the flood risk zones is discussed in **Section 5**. Potential zoning areas at risk from flooding are examined and recommendations for Flood Risk Assessments are made in **Section 6**.

Section 7 details the flood risk management policies and objectives being brought forward to the LAP and lastly **Section 8** provides a summary.

2 STUDY AREA

2.1 INTRODUCTION

The extents for the Celbridge LAP area are shown in **Figure 2.1**. Celbridge is located in north County Kildare along the banks of the River Liffey. It is approximately 19km west from Dublin City Centre and situated south of the M4 motorway. The population of the town in the 2011 census was 15,323 with preliminary results for the 2016 census showing a slight increase to 15,630.

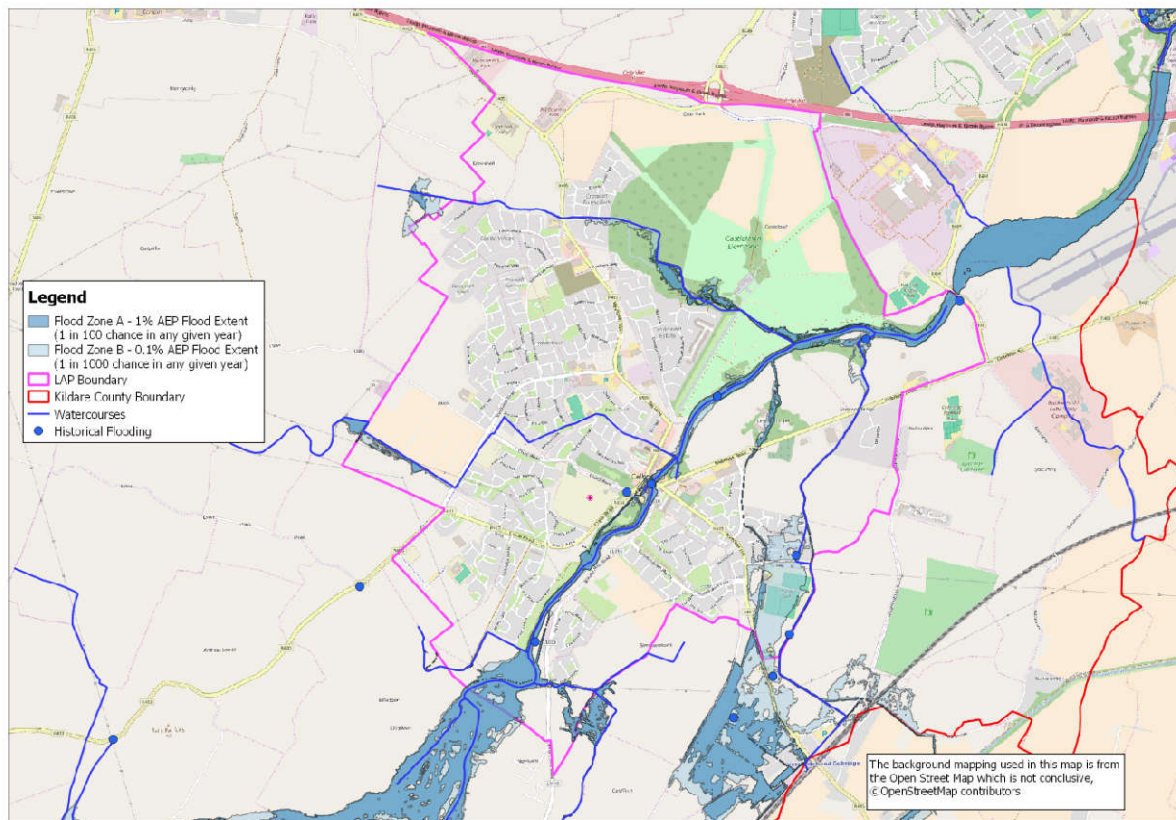


Table 2.1 Celbridge LAP Boundary, Watercourses and Flood Risk Information

2.2 WATERCOURSES

The Celbridge catchment encompasses the middle reaches of the River Liffey. The town is situated on the banks of the Liffey and several of its minor tributaries. These include the Crippaun (known locally as the Toni River), Coolfitch, Hazelhatch, Kilwoghan and the Shinkeen. The River Liffey is approximately 120km long from source to sea rising at approximately 750mOD in the Wicklow Mountains. The Liffey is heavily influenced by three hydroelectric power stations and associated dams and reservoirs at Pollaphuca, Leixlip and Golden Falls. The Leixlip Dam is the furthest located dam downstream and the town is located just upstream of the reservoir. The total contributing catchment area upstream of the Leixlip reservoir (excluding the catchment upstream of Golden Falls Dam and the Poulaphuca Reservoir) is approximately 502 km².

The Crippaun (Toni River) River is a relatively small watercourse with a catchment of approximately 3km². The river originates in the Pickering Forest which is located to the West of Celbridge and flows a westerly route in the direction of the Inner Relief Road, it then meanders in a north easterly direction through Celbridge town, passing under the Main Street and outfalls to the Liffey. It has a

history of flooding but flood relief works along the channel were carried out in 2009. The Shinkeen and Hazelhatch Streams flow from the south east through the Commons and Simmonstown areas of the town respectively. The Shinkeen has a catchment area of approximately of 15 km² while the Hazelhatch catchment area is approximately 5 km². These streams have historical flooding problems particularly near the village of Hazelhatch on the south east periphery of the town.

3 THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES FOR PLANNING AUTHORITIES

3.1 INTRODUCTION

In 2009 the Department of Environment, Heritage and Local Government in conjunction with the Office of Public Works published The Planning System and Flood Risk Management: Guidelines for Planning Authorities ('The Guidelines'). The purpose of The Guidelines is to ensure that flood risk is considered by all levels of government when preparing development plans and planning guidelines. They should also be used by developers when addressing flood risk in development proposals. The Guidelines should be implemented in conjunction with the relevant flooding and water quality EU Directives including the Water Framework Directive (River Basin Management Plans (RBMPs)) and the Floods Directive (Catchment Flood Risk Assessment and Management (CFRAM) Studies).

The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding.
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off.
- Ensure effective management of residual risks for development permitted in floodplains.
- Avoid unnecessary restriction of national, regional or local economic and social growth.
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

The Guidelines recommend that Flood Risk Assessments (FRA) be carried out to identify the risk of flooding to land, property and people. FRAs should be carried out at different scales by government organisations, local authorities and for proposed developments appropriate to the level of information required to implement the core objectives of The Guidelines. The FRA scales are Regional Flood Risk Appraisal (RFRA), Strategic Flood Risk Assessment (SFRA) and Site Specific Flood Risk Assessment (FRA).

3.2 FLOOD RISK ASSESSMENT

3.2.1 Flood Risk Assessment Approach

The Guidelines recommend that Flood Risk Assessments (FRA) be carried out to identify the risk of flooding to land, property and people. FRAs should use the Source-Pathway-Receptor (S-P-R) Model to identify the sources of flooding, the flow paths of the floodwaters and the people and assets impacted by the flooding. **Figure 3.1** shows the SPR model that should be adopted in FRAs.

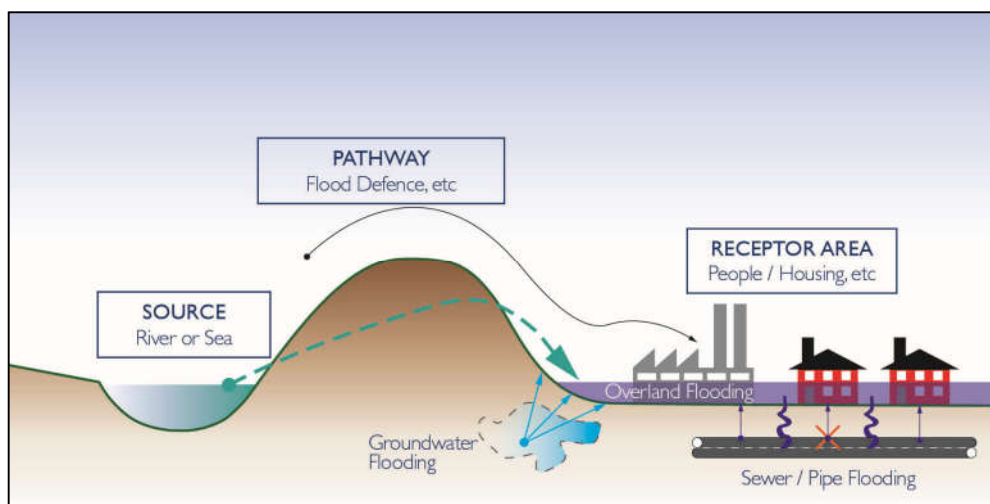


Figure 3.1 Flood Risk Assessment Source – Pathway – Receptor Model

FRA should be carried out using the following staged approach;

- **Stage 1 Flood Risk Identification** – to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application levels.
- **Stage 2 Initial Flood Risk Assessment** – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped.
- **Stage 3 Detailed Flood Risk Assessment** – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

3.2.2 Types of Flooding

There are two main sources of flooding: inland and coastal. Inland flooding is caused by prolonged and/or intense rainfall. This results in fluvial, pluvial or ground water flooding acting independently or in combination. Coastal flooding is not a concern for the Celbridge area as the watercourses within Kildare County do not experience any tidal influence from the Irish Sea.

- Fluvial flooding occurs when a river overtops its banks due to a blockage in the channel or the channel capacity is exceeded.
- Pluvial flooding occurs when overland flow cannot infiltrate into the ground, when drainage systems exceed their capacity or are blocked and when and when the water cannot discharge due to a high water level in the receiving watercourse.
- 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.

3.2.3 Flood Risk

Guidelines state flood risk is a combination of the likelihood of flooding and the potential consequences arising. Flood risk is expressed as:

$$\text{Flood risk} = \text{Likelihood of flooding} \times \text{Consequences of flooding}$$

The Guidelines define the likelihood of flooding as the percentage probability of a flood of a given magnitude as occurring or being exceeded in any given year. A 1% probability indicates the severity of a flood that is expected to be exceeded on average once in 100 years, i.e. it has a 1 in 100 (1%) chance of occurring in any one year. **Table 3.1** shows flood event probabilities used in flood risk management.

Table 3.1 Flood Event Probabilities

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

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

3.3 FLOOD ZONES

The Guidelines recommend identifying flood zones which show the extent of flooding for a range flood event probabilities. The Guidelines identify three levels of flood zones:

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding).
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding).
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

The flood zones are generated without the inclusion of climate change factors. The flood zones only account for inland and coastal flooding. They should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from pluvial and groundwater flooding. Similarly flood defences should be ignored in determining flood zones as defended areas are still carry a residual risk of flooding from overtopping, failure of the defences and deterioration due to lack of maintenance. Appendix B shows the Flood Zone Map for the Celbridge LAP.

3.4 CLIMATE CHANGE

Climate Change is expected to increase flood risk. It could lead to more frequent flooding and increase the depth and extent of flooding. Due to the uncertainty surrounding the potential effects of climate change a precautionary approach is recommended in the Guidelines:

- Recognise 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 these potential transitional areas.
- Ensure that the levels of structures designed to protect against flooding, such as flood defences, land-raising or raised floor levels are sufficient to cope with the effects of climate change over the lifetime of the development they are designed to protect.
- Ensure that structures to protect against flooding and the development protected are capable of adaptation to the effects of climate change when there is more certainty about the effects and still time for such adaptation to be effective.

3.5 STRATEGIC FLOOD RISK ASSESSMENT

The purpose of this report is to carry out a SFRA at town scale for the Celbridge LAP. The Guidelines recommend a series of outputs for a SFRA. These outputs in board terms include:

- 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. Where mathematical models are not available climate change flood extents can be assessed by using the Flood Zone B outline as a surrogate for Flood Zone A with allowance for the possible impacts of climate change.
- 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.
- Assess the risks to the proposed development and its occupants using a range of extreme flood or tidal events.
- Identify areas where site-specific FRA will be required for new development or redevelopment.
- Identify drainage catchments where surface water or pluvial flooding could be exacerbated by new development and develop strategies for its management in areas of significant change.

- Identify where integrated and area based provision of SUDS and green infrastructure are appropriate in order to avoid reliance on individual site by site solutions; and,
- Provide guidance on appropriate development management criteria for zones and sites.

3.6 SEQUENTIAL APPROACH AND JUSTIFICATION TEST

The Guidelines recommend using a sequential approach to planning to ensure the core objectives (as described in Section 3.1) are implemented. Development should be avoided in areas at risk of flooding, where this is not possible, a land use that is less vulnerable to flooding should be considered. If the proposed land use cannot be avoided or substituted a Justification Test must be applied and appropriate sustainable flood risk management proposals should be incorporated into the development proposal. **Figure 3.2** shows the sequential approach principles in flood risk management. **Table 3.2** and **Table 3.3** outline recommendations from the Guidelines for the types of development that would be appropriate to each flood zone and those that would be required to meet the Justification Test.

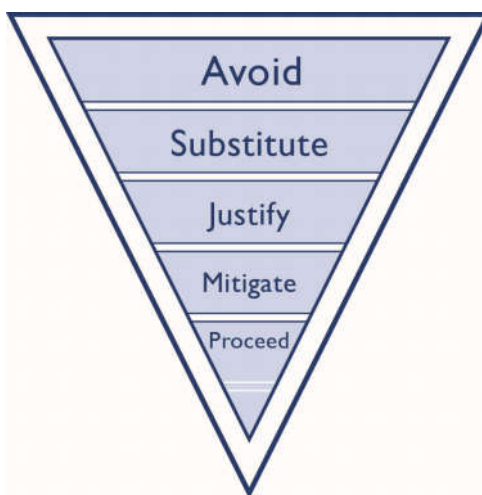


Figure 3.2 Sequential approach principles in Flood Risk Management

Table 3.2 Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water compatible development	Appropriate	Appropriate	Appropriate

The Justification Test is used to assess the appropriateness of developments in flood risk areas. The test is comprised of two processes. The first is the Plan-making Justification Test and is used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding. The second is the Development Management Justification Test and is used at the planning application stage 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 3.3 Classification of vulnerability of different types of development

Vulnerability Class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	<ul style="list-style-type: none"> ▪ 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; and ▪ 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 (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	<ul style="list-style-type: none"> ▪ 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; and ▪ Local transport infrastructure.
Water-compatible development	<ul style="list-style-type: none"> ▪ 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; and ▪ 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 on their own merit	

3.7 DEVELOPMENT PLAN JUSTIFICATION TEST

The Development Plan Justification Test (or 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 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**.

Table 3.4 Justification Test for Development Plans

Justification Test for Development Plans	
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: <ol style="list-style-type: none"> i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement; ii. Comprises significant previously developed and/or under-utilised lands; iii. Is within or adjoining the core of an established or designated urban settlement; iv. Will be essential in achieving compact and sustainable urban growth; and v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.
3.	A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. 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 Development Plan Justification Test has been applied, and it is demonstrated that it cannot meet the specified requirements it is recommend that planning authorities reconsider the zoning by implementing the following:

- Remove the existing zoning for all types of development on the basis of the unacceptable high level of flood risk;
- Reduce the zoned area and change or add zoning categories to reflect the flood risk; and/or
- Replace the existing zoning with a zoning or a specific objective for less vulnerable uses;
- 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.

4 DEVELOPMENT MANAGEMENT AND FLOOD RISK

4.1 OVERVIEW

All development proposals regardless of which flood zone they are within should be supported by an appropriately detailed Flood Risk Assessment (FRA). The level of detail within the FRA will depend on the risks identified and the proposed land use. Applications should demonstrate the use of the sequential approach in terms of the site layout and design and, in satisfying the Justification Test (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place. For any development in flood risk areas that meet the Development Plan Justification Test, a Development Management Justification Test must then be applied. Development must satisfy all of the criteria of the Development Management Justification Test as per **Table 4.1** below. This chapter provides a broad overview of the requirements of Flood Risk Assessments which should accompany planning applications.

Table 4.1 Justification Test for Development Management

Justification Test for Development Management	
1.	The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2.	The proposal has been subject to an appropriate flood risk assessment that demonstrates: <ol style="list-style-type: none"> i. The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk; ii. The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible; iii. The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and iv. The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.
The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.	

4.2 SURFACE WATER AND DRAINAGE

All development proposals shall carry out a surface water and drainage assessment and shall be compliant with the Greater Dublin Strategic Drainage Study (GDSDS) (2005) and the Greater Dublin Regional Code of Practice for Drainage Works (2012) to ensure that drainage from the site is managed sustainably. The requirements below provide an overview of drainage requirements for development in County Kildare and by extension Celbridge town. It is noted that the GDSDS and Code of Practice remain the overriding policy documents.

4.2.1 Drainage

1. Proposed development shall be drained on a completely separate system. All new developments must incorporate Sustainable Drainage Systems (SuDS). In the unlikely event of this not being feasible the Developer must provide alternative means of dealing with pollutants.

Rainwater should be infiltrated to the ground and/or discharged via a SuDS system to a surface water drain or watercourse. Other effluent, including wastewater, shall discharge to the foul drainage systems.

2. In general, watercourses are not to be culverted or piped. They should remain open in their natural valley, which should be incorporated into the public open space. Culverting should be confined to road crossings and should be sufficiently large to prevent blockage, allow runoff from a one in a hundred rain event and to allow for man entry for maintenance purposes. Permission must be obtained from the OPW (under a section 50 licence) to construct any culvert or bridge.
3. All proposed structures must be set back from the edge of any watercourse to allow access for channel cleaning/maintenance. A 15 meters wide riparian buffer strip each side of the watercourse is recommended. In dense urban areas the width of the riparian buffer strip is to be agreed with KCC.
4. All new development must allow for climate change as set out in the GSDSDS Technical Document, Volume 5, Climate Change
 - i. River flows 20% increase in flows for all return periods up to 100 years
 - ii. Rainfall 10% increase intensity (factor all intensities by 1.1)
5. Surface water outfalls to streams, rivers, etc. should be unobtrusive and not cause erosion of the bed and banks. A suitable non-return device should be fitted on the outfall pipeline. KCC must approve all design details.

Further guidance on the use of SuDS is given in the GSDSDS Technical Documents Vol. 2 New Development and Vol. 3 Environmental Management and in the Design and Best Practice manuals produced by CIRIA in the UK.

4.2.2 Storm Water Management

1. Development shall comply with the Greater Dublin Strategic Drainage Study, Volume 2, New Development Policy.
2. The maximum permitted surface water outflow from any new development is to be restricted to that of a Greenfield site before any development took place.
3. All new development must allow for climate change as set out in the GSDSDS Technical Document, Volume 5, Climate Change.
4. In general, all new developments must incorporate Sustainable Drainage Systems (SuDS).
5. Sustainable Drainage Systems include devices such as: Swales, Permeable Pavements, Filter Drains, Storage Ponds, Constructed Wetlands, Soakaways, etc. SuDS devices such as permeable paving or swales/ ponds etc. may require the approval of KCC.
6. In some exceptional cases it may not be feasible to use the above devices and at the discretion of the KCC, approval may be given to install underground attenuation tanks or enlarged pipes in conjunction with other devices to achieve the required water quality. These should only be considered as a last resort where it can be shown that SuDS measures are not achievable
7. Attenuation tanks shall normally be located in green areas; any other location requires the approval from KCC.
8. Where a tank is to be constructed in a trafficked area, a standard minimum depth of cover from road level to top of the roof of the tank should be 1.2m.

9. All enlarged pipes and associated manholes must comply with the GSDS and the Code of Practice.
10. In order to isolate and carry out maintenance of the flow control device a penstock valve (or similar approved) shall be installed within the outfall manhole, on the upstream end of the manhole.
11. For gravity systems a Hydrobrake (or similar approved flow control device) shall be installed in the last manhole.

4.3 RESIDUAL RISK

As well as assessing the surface water management risk for a site, all development including that in Flood Zone C, should consider residual risk factors such as culvert / bridge blockages and the effects of climate change which may expand the extents of Flood Zones A and B. These residual risk factors should influence the potential mitigation measures for a site which could include setting the finished floor levels.

4.4 DEVELOPMENT PROPOSALS IN FLOOD ZONES

4.4.1 Overview

It is recommended that any planning applications in flood risk areas are accompanied by a supporting appropriately detailed flood risk assessment. This is to ensure a conservative approach and that consideration is given to new development within Flood Zones where mitigation measures may still be required to ensure an appropriate level of flood protection and/or resilience. The detailed assessment should include at a minimum Stage 1 - Identification of Flood Risk. Where flood risk is identified a Stage 2 - Initial FRA will be required, and depending on the scale and nature of the risk a Stage 3 - Detailed FRA may be required.

Detailed FRAs should be carried out in accordance with the Guidelines and should present in sufficient detail the potential flood risk to a proposed development, the potential increase in flood risk elsewhere, any proposed mitigation measures and proposals for sustainable surface water management. The surface water drainage must be compliant with the GSDS and the Code of Practice. The FRA should also consider the impacts of climate change, residual risk associated with culvert blockages and freeboard in setting the finished floor levels (FFLs) of new development.

4.4.2 Assessment of Proposals for Minor Development

The Justification Test does not apply to applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use. However, a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts. These proposals should follow best practice in the management of health and safety for users and residents of the proposal. FRAs should consider placing bedrooms upstairs, sockets above the 1% AEP water level and other individual property protection measures e.g. flood doors, non-return valves. They must also ensure that modifications do not block significant flow paths or cause flood risk impacts to the surrounding areas.

4.4.3 Assessment of Proposals for Highly Vulnerable Development

Highly vulnerable development proposals should not be considered in flood risk areas unless supplemented by an appropriately detailed FRA and meets the criteria for the criteria of the Development Management Justification Test. The following considerations should be addressed in applications for highly vulnerable development in flood risk areas:

- The minimum finished floor level for highly vulnerable development should be above the Flood Zone B (0.1% AEP) level plus suitable freeboard. The recommended level of freeboard is 500 mm for fluvial flood levels.
- Applications should outline the emergency procedures that will be applied in the event of a flood. Evacuation routes should be identified but if this is not possible then containment may be considered if it is considered safe and practical to do so. If either safe evacuation or containment is not possible, then the development proposal should be refused.
- The site layout should follow the sequential approach to allocate land within a development based on the vulnerability class of the development i.e. more vulnerable development should be placed on higher ground while water compatible development e.g. car parking, greenfield space can be placed in the flood zones.
- Compensatory storage for development that results in a loss of floodplain within Flood Zone A must be provided on a level for level basis, the lands should be in close proximity to the area that storage is being lost from, the land must be within the ownership of the developer and the land given to storage must be land which does not flood in the 1% AEP event. Also the compensatory storage area should be constructed before land is raised to facilitate development.

4.4.4 Assessment of Proposals for Less Vulnerable Development

Less vulnerable development proposals should not be considered in Flood Zone A area unless supplemented by an appropriately detailed FRA and meets the criteria of the Development Management Justification Test. The minimum finished floor level for less vulnerable development should be above the Flood Zone A (1% AEP) level plus suitable freeboard. The recommended level of freeboard is 500 mm for fluvial flood levels.

4.4.5 Extension of Duration in Flood Risk Areas

In areas where recent and more up to date flood risk information subsequently finds that a site has a flood risk, applications for extension of duration or new applications within the zoning will require appropriately detailed FRA at development management stage. If the permitted development is found not to conform to The Guidelines then the application should be refused on flood risk grounds and a new application submitted, allowing for appropriate design and FRA.

5 FLOOD RISK

5.1 INTRODUCTION

There are several sources of relevant flood risk information available for County Kildare and the Celbridge area. Figure 5.1 below shows an overview of the draft CFRAM flood zones and historical flooding areas for the town extents. Fluvial flood zone mapping and Justification Tests where applicable are shown in Appendix A and Appendix B respectively.

5.2 HISTORICAL FLOODING

A review of historical flood data was carried out for the Eastern CFRAM Studies using information provided on floodmaps.ie and in consultation with KCC. Consultation with the area engineer for Celbridge was also carried out as part of the SFRA to confirm sources of flooding. The main sources of flooding in the town are fluvial and pluvial flooding. Figure 5.1 and Table 5.1 show the locations of previous flood events within Celbridge. Recurring historical Flooding along the Crippaun (Toni River) River resulted in flood alleviation works being carried out in 2009.

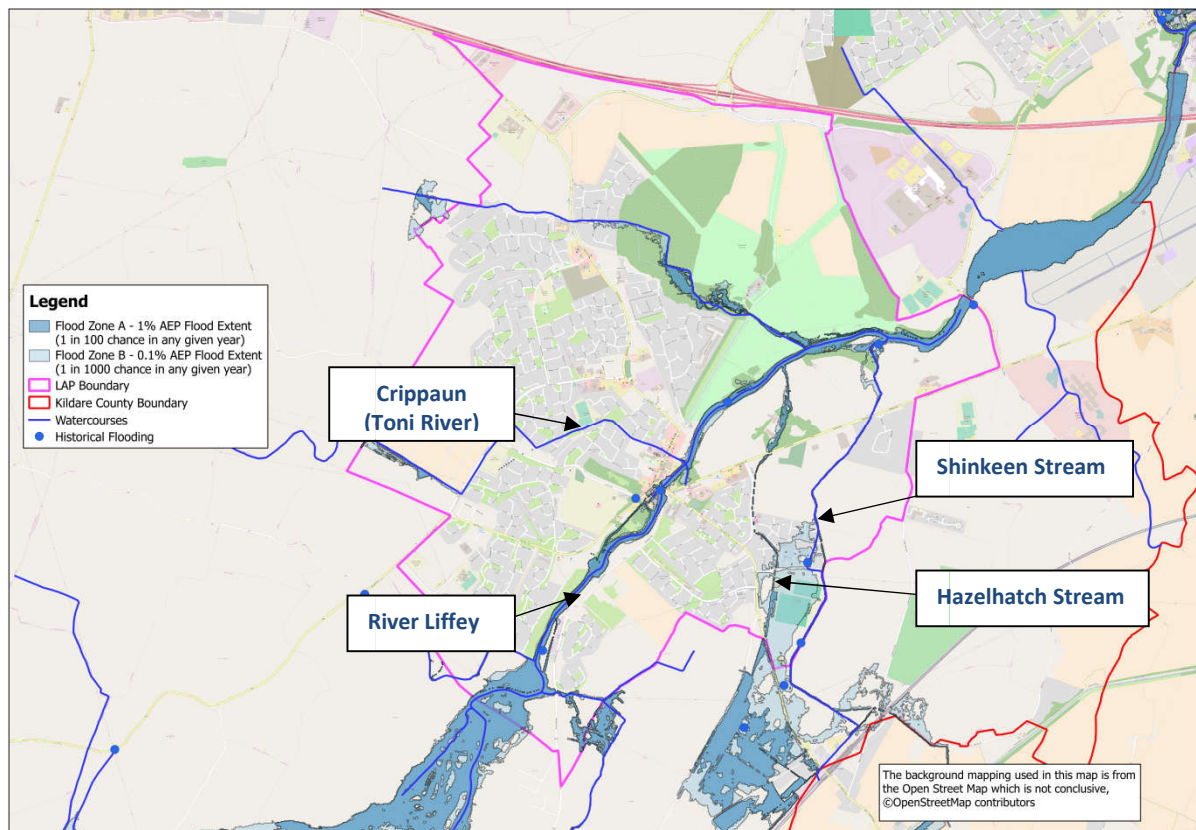


Figure 5.1 An overview of the CFRAM flood zones and historical flood events in Celbridge

Table 5.1 Previously recorded flooding within in Celbridge

Flood Location and Date
Flood Event Dec 1954 - River Rye Liffey: Flooded areas in the town centre and near Temple Mills
Flood Event June 1993 - River Liffey: Lands adjacent to the River Liffey
Flood Event Nov 2000- Shinkeen Stream: Flooded areas near Donaghcumper, Loughlinstown, Tennis Club
Flood Event Nov 2000- Hazelhatch Stream: Flooded areas near Commons
Flood Event Nov 2000- River Liffey: Lands adjacent to the River Liffey
Flood Event Nov 2002 – Hazelhatch Stream: Flooded areas near Dangan
Flood Event Nov 2002 – Toni River: Flooded areas near, Ballymakealy, and Oldtown
Flood Event Nov 2014 – Shinkeen Stream flooded areas near Commons

5.3 CFRAM STUDIES

5.3.1 Background

The OPW is currently leading the development of Catchment Flood Risk Assessment and Management (CFRAM) Studies. The aim of these studies is to assess flood risk, through the identification of flood hazard areas and the associated impacts of flooding. The flood hazard areas have been identified as being potentially at risk from significant flooding, including areas that have experienced significant flooding in the past. They will also take account of issues such as climate change, land use practices and future development. These studies have been developed to meet the requirements of the EU Directive on the assessment and management of flood risks (the Floods Directive). The Floods Directive was transposed into Irish law by SI 122 of 2010 “European Communities (Assessment and Management of Flood Risks) Regulations 2010”.

The CFRAM Studies will establish long-term Flood Risk Management Plans (FRMP) to manage flood risk within the relevant river catchment. Flood maps are one of the main outputs of the studies. The maps indicate modelled flood extents for flood events of a range of annual exceedance probability (AEP). Celbridge has been identified as an Area for Further Assessment (AFA) within the Eastern CFRAM Study. The Eastern CFRAM Flood Risk Review recognised the need for the Celbridge Area to be identified as an AFA based on evidence from historical flood events and the extents of the flood risk determined during the OPW Preliminary Flood Risk Assessment (PFRA) Study. Hazelhatch located to the south east of Celbridge is also included within the AFA boundary, while outside the extent of the LAP it is referenced in the report as flooding in Hazelhatch can affect areas downstream within Celbridge.

5.3.2 Flood Risk Management Plans

The Eastern CFRAM Flood Risk Management Plans (FRMP) are ongoing and if it is deemed necessary, flood risk management objectives, options and plans will be developed for the Celbridge AFA. KCC have committed to implementing any recommendations from the FRMPs and will work in conjunction with the OPW to deliver any proposed flood alleviation schemes that are deemed appropriate and viable.

The draft Eastern CFRAM FRMP was published in September 2016 and outlined a series of proposed flood risk policy measures for the local authorities but also specific measures for the County Kildare AFAs. These include regional measures, but also identify flood defence works in Celbridge to protect against the 1% AEP event in the town centre. The list of measures applicable to Celbridge are outlined in **Table 5.2** below. A Disclaimer and Conditions of Use for flood maps and flood risk management plans are available at the following website www.opw.ie/floodplans.

Table 5.2 Eastern CFRAM Draft FRMP proposed Flood Risk Management measures

CFRAM Recommendation Code	Measure
Regional Measures	
IE09-UoM-9011-M22	Application of the Guidelines on the Planning System and Flood Risk Management (DECLG/OPW, 2009)
IE09-UoM-9012-M34	Implementation of Sustainable Urban Drainage Systems (SUDS)
IE09-UoM-9013-M24	Consideration of Flood Risk in local adaptation planning.
IE09-UoM-9023-M33	Ongoing Maintenance of Drainage Districts
IE09-UoM-9031-M41	Establishment of a National Flood Forecasting and Warning Service
IE09-UoM-9032-M42	Ongoing Appraisal of Flood Event Emergency Response Plans and Management Activities
IE09-UoM-9033-M51	Individual Action to Build Resilience
IE09-UoM-9041-M61	Flood-Related Data Collection
IE09-UoM-9051-M61	Minor Works Scheme
Celbridge AFA	
IE09-090076-0209-M61	Celbridge Flood Relief Scheme: Option 1 - Hard defences and Improvement of Channel Conveyance - Progression of the Celbridge Flood Relief Scheme, comprising hard defences (flood walls and embankments) and improvement of channel conveyance to project-level development an assessment for refinement and preparation for planning / Exhibition and, as appropriate, implementation.
IE09-091086-0309-M61	Hazelhatch Flood Study - To carry out a detailed assessment, including data collection and an assessment of potential non-fluvial sources, in order to achieve confidence in the modelling and to identify an integrated option to manage the existing risk in Hazelhatch.

5.3.3 CFRAM Fluvial Flood Zone Mapping

The CFRAM studies are currently ongoing and at the time of compiling this SFRA the outputs remain as Draft Final status. They have been released as part of a statutory consultation process for the National CFRAM Programme. The draft CFRAM flood maps may be amended following the consultation process due to observations, technical objections and appeals from the local authorities and the public. It should be acknowledged however, that the CFRAM mapping is the most comprehensive flood zone mapping available for the county and is considered appropriate for use as a strategic overview of flood risk within the county. The draft flood zone mapping has been used to enable KCC to apply 'The Guidelines' sequential approach, and where necessary the Justification Test, to appraise sites for suitable land zonings and identify how flood risk can be managed as part of the development plan.

It should be noted that the CFRAM mapping used to define the flood zones for this SFRA are at Draft Final stage and are subject to change following a stakeholder and public consultation

process. However the CFRAM mapping is the most comprehensive flood zone mapping available for the county and is considered appropriate for use as a strategic overview of flood risk within the county. Further information on the CFRAM studies is available at www.cfram.ie.

5.4 FLOOD DEFENCE WORKS

5.4.1 Flood Defence Schemes

Flood relief works were completed in 2009 along the Crippaun (Toni River) River. The works included channel upgrades, culvert improvements, installation of trash screens and improvements to the outfall of the river as it discharges into the River Liffey. Kildare County Council have a maintenance regime in place to ensure that debris and vegetation are removed from the channel and blockages do not occur. No flood events have occurred along the Crippaun (Toni River) River since the works have been completed.

5.4.2 Proposed Flood Relief Works

The Eastern CFRAM Flood Risk Management Plans (FRMP) are ongoing and if deemed necessary, flood risk management objectives, options and plans will be developed for the Celbridge AFA. KCC have committed to implementing any recommendations from the FRMPs and will work in conjunction with the OPW to deliver any proposed flood alleviation schemes that are deemed appropriate and viable. The draft Eastern CFRAM FRMP identified flood defence works in Celbridge to protect against the 1% AEP event in the Town Centre.

5.5 LIFFEY FLOOD CONTROLS

The river flows along the Liffey are greatly influenced by the dams and reservoirs operated by ESB at Poulaphouca, Golden Falls and Leixlip. In particular the Poulaphouca reservoir is capable of storing large volumes of runoff and acts a flood relief reservoir for the Liffey. The dams at Golden Falls and at Leixlip are significantly smaller and have limited storage capacity but they still have some attenuating effect on the middle and lower reaches of the Liffey. The ESB operates the three reservoirs and hydro-electric plants based on: 'Regulations and Guidelines for the control of the River Liffey, Water Management Document, February 2006, ESBI'. The three main considerations for the operation of the dams are Dam safety (designed to safely store a 1 in 10,000 year or 0.01% AEP rainfall event), Efficiency of electric power generation and Flood management.

Flood management procedures for the three dams begin when thresholds for water levels or inflows are reached or predicted to occur. These operation procedures ensure that the Liffey dams are capable of dealing safely with floods having an expected annual probability of occurrence of 1:10,000. The CFRAM hydrology and hydraulic modelling has accounted for the discharges from the Liffey reservoirs within the generation of the flood maps within the limits of the ESB operation guidelines. They also account for discharges from the Leixlip reservoir where levels in the Liffey can rise upstream near Celbridge town if water is being held back in line with the flood management procedures.

5.6 FLUVIAL FLOOD ZONE MAPPING REVIEW

The flood zones are derived from the Draft Final Eastern CFRAM maps. These maps are the most comprehensive flood maps produced for Kildare since the introduction of the Guidelines and the Floods Directive. The flood zones only account for inland flooding. Confidence in the accuracy of the maps is considered to be high due to the robust nature of the CFRAM flood mapping process. The flood zone maps are shown in Appendix A. As described in Section 5.3.3 the Eastern CFRAM mapping is at Draft Final stage. Further information on the Eastern CFRAM study is available at www.cfram.ie.

5.7 OTHER SOURCES OF FLOODING

5.7.1 Overview

The flood zones only account for inland flooding. However they should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from other sources. Hence a review of other sources of flooding was carried out to identify potential areas of risk.

5.7.2 Groundwater Flooding

The OPW PFRA carried out a national scale a Groundwater Flooding Report which concludes that ground water flooding is largely confined to the West Coast of Ireland due to the hydrogeology of the area. Therefore ground water flooding is not a significant risk for County Kildare but should still be examined at detailed FRA level particularly if the development includes proposals for basements.

However during the public consultation for the Eastern CFRAM Studies it was stated that there are springs located within the Commons Lower area, and that there is a high water table due to the geology of the area. These characteristics, in addition to the local (predominantly flat) topography result in flooding from both groundwater and pluvial sources in the Commons Lower area. For this area there is a lower confidence in both hydrology and hydraulics. This is because of the difficulty in achieving model calibration with historical flood events due to the significant impact of both groundwater flooding and pluvial flooding. It is concluded that the reported flooding is a result of a combination of flood sources, and therefore cannot be adequately represented through the CFRAM Study which considers fluvial flooding only. Consequently, it has not been possible to successfully calibrate and validate the hydraulic model in Commons Lower area of Hazelhatch. Any flood relief measures which are implemented must consider the flooding regime from all sources of flooding, including pluvial and groundwater and fluvial flooding. As noted in Table 5.2 the draft CFRAM FRMP has recommended that a detailed non-fluvial flood study be carried out for the Hazelhatch area (this would include Commons in Celbridge).

5.7.3 Pluvial Flooding

The OPW PFRA study provides a national level screening of areas that are at potential risk of pluvial flooding. For a thorough assessment of pluvial risk in Kildare a more detailed assessment at a countywide scale (taking into consideration of local factors and parameters) would need to be carried out. Nonetheless, the national PFRA maps can be used to identify areas that may be at risk and that may require a pluvial flooding assessment to be carried out for planning applications. **Table 5.3** below highlights areas where a more detailed FRA maybe required addressing pluvial flood risk. Recommendations and guidelines from the GSDSDS should be implemented in these areas to reduce the risk of pluvial flooding.

As noted in Section 5.7.2 above the Commons Lower area of Celbridge is affected by a combination of fluvial, pluvial and groundwater flooding. The OPW PFRA pluvial mapping supports this assessment, as the pluvial extent covers a large part of the Commons Lower area, including the GAA club and tennis club. Any flood relief measures which are implemented in this area must consider the flooding regime from all sources of flooding, including pluvial and groundwater and fluvial flooding. As noted in **Table 5.2** the draft CFRAM FRMP has recommended that a detailed non-fluvial flood study be carried out for the Hazelhatch AFA (this would include Commons in Celbridge).

Table 5.3 Locations with an indication of Pluvial Risk

Townland / Estate	Indicative Pluvial Risk Assessment
M4 Business Park	Pluvial risk on low-lying areas along the northern boundary of the M4 Business Park adjacent to the M4.
Castletown	Pluvial Extents shown in low-lying areas in the Castletown Estate.
Commons Lower	Pluvial Extents shown in low-lying areas adjacent to the GAA pitches and tennis club.

5.8 CLIMATE CHANGE SENSITIVE AREAS

5.8.1 Draft CFRAM Flood Extents

As recommended by the Guidelines when hydraulic models are not available which include the effects of climate change the current scenario flood extents can be assessed by using the Flood Zone B outline as a surrogate for Flood Zone A with allowance for the possible impacts of climate change. Hence the draft CFRAM current scenario flood extents were reviewed as part of the SFRA to establish an indication of future risk in areas using the difference between the Flood Zones A and B. **Table 5.4** outlines areas that are potentially sensitive to climate change impacts. Site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures in these areas.

Table 5.4 Areas sensitive to climate change flood risk using Flood Zone B as an indicator

Townland / Estate	Indicative Pluvial Risk Assessment
Kilwoghan	Relative to Flood Zone A, there is an increase in Flood Zone B at the upstream end of the Kilwoghan catchment. It lies outside the LAP extent but should be highlighted if a review of the LAP extent is carried out in this area that there is a fluvial risk on these lands.
Castletown Demesne	Relative to Flood Zone A, there is an increase in Flood Zone B on portions of land in the Castletown Demesne. All land is zoned for water open space.
Ballymakealy Upper	Relative to Flood Zone A, there is an increase in Flood Zone B along the Crippaun (Toni River) River. A portion of these lands are proposed to be zoned for residential and will require a Justification Test for the zoning.
Donaghcumper	Relative to Flood Zone A, there is an increase in Flood Zone B along the Hazelhatch and Shinkeen Stream in Donaghcumper as both streams join the River Liffey. All land is zoned for water open space.
Commons Lower	Relative to Flood Zone A, there is a large increase in Flood Zone B along the Hazelhatch and Shinkeen Streams in Commons Lower. It affects existing residential sites on the R405, Willow Estate, the GAA pitches and local tennis club.

6 DEVELOPMENT PLAN ZONING

6.1 INTRODUCTION

The zonings in the following areas have been reviewed against the available flood zone mapping, the indicative pluvial risk, the sensitivity of flood extents to climate change and previous SFRA reports. A summary of the zonings (other zoning categories not listed here should be considered on their own merit) and an assessment of their vulnerability and the requirements of application of the justification test are shown in 6.1. Justification Tests as applicable are shown in Appendix B.

Table 6.1 Land Use Zoning and Vulnerabilities

Objective	Vulnerability	Justification Test Required
A - Town Centre	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
B - Existing Residential & Infill	High	For Development in Flood Zone A or B
C – New Residential	High	For Development in Flood Zone A or B
E - Community & Educational	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
F - Open Space & Amenity	Less / Water Compatible	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
F2 - Strategic Open Space	Less / Water Compatible	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
H – Industry & Warehousing	Less	For Development in Flood Zone A
I – Agriculture	Less	For Development in Flood Zone A
N - Neighbourhood Centre	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
R - Commercial & Tourism	Less	For Development in Flood Zone A
U – Utilities & Services	High	For Development in Flood Zone A or B

6.2 EXISTING ZONED AREAS

6.2.1 Overview


Table 6.2 below surmises the applicability of the Justification Test to existing zoned areas in Celbridge by overlaying the draft Final CFRAM flood mapping on the existing land use zonings. Justification Tests for these areas are shown in Appendix B.

Table 6.2 Existing zoned areas vulnerable to potential flooding

Location	Land Use Zoning	Land Use Vulnerability	Justification Test Requirement
Forest Park Area	Existing Residential	Highly Vulnerable	Required as some residential properties are located in Flood Zone B.
Town Centre	Town Centre	Highly / Less Vulnerable	Required as Town Centre zoning is located in Flood Zone B. Town Centre Zoning has mixed uses including residential which requires a Justification Test. Commercial activity is exempt from the Justification Test in Flood Zone B but new commercial development should still carry out a FRA.
Primrose Gate	Existing Residential	Highly Vulnerable	Required as residential properties are located in Flood Zone B.
Commons	Existing Residential &	Highly Vulnerable	Required as some residential properties and a community zoning are located in Flood Zone B.

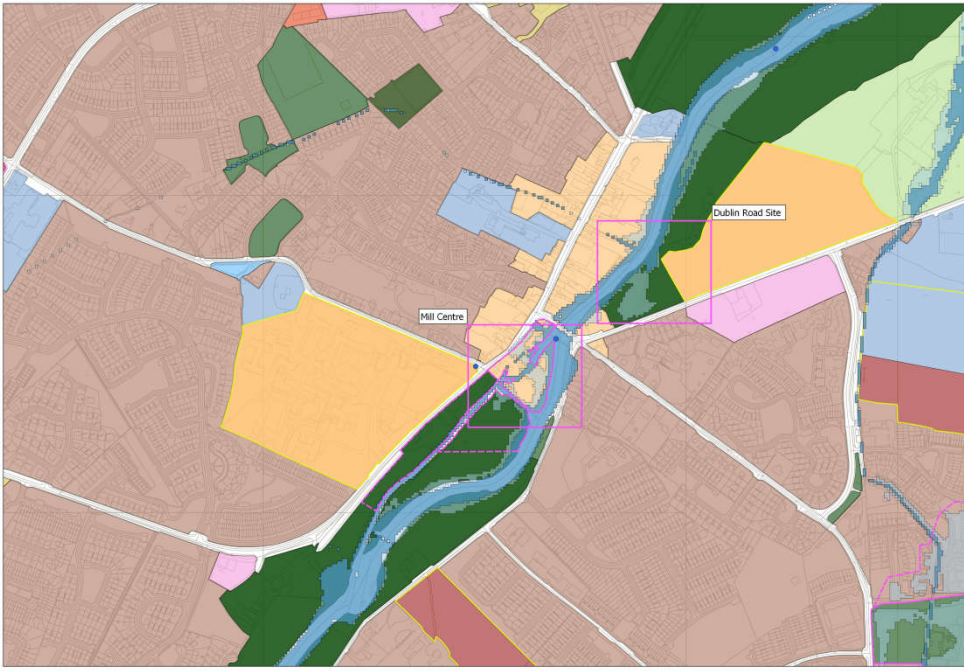
	Community		
Newtown	New Residential	Highly Vulnerable	Required as a large portion of new residential zoning is located in Flood Zones A and B.
Simmonstown	Existing Residential	Highly Vulnerable	Required as existing residential properties located in Flood Zones A and B.

6.2.2 Forest Park

	
Historical Flooding	No historical flooding reported in the area.
Flood Zone Mapping	Draft CFRAM mapping
Comment	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones show a very low risk to a few houses in the Forest Park Estate. The extent is largely confined to the estate road and green area adjacent to the river.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight pluvial extents in this area. The area is very flat but generally slopes east towards the Liffey.</p> <p><u>Climate Change</u> The CFRAM mapping indicates an increase in flood extents from Flood Zone A to Flood Zone B near a few residential properties</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable.</p>
Conclusion	KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning. Justification Test included in Appendix B. Any future development in this area of Forest Park should be subject to a site specific FRA.

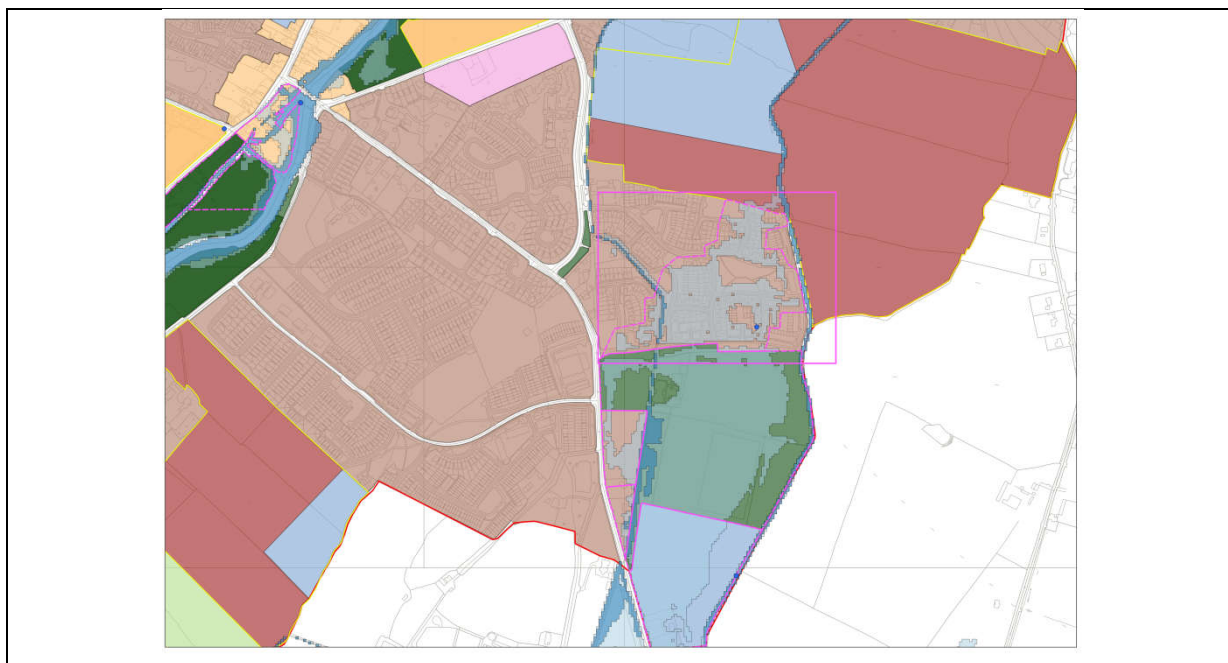
	<p>The FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts and employ flood resilient construction materials and fittings.</p>
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6.2.3 Town Centre (Mill Centre & Donaghcumper)

	
<p>Historical Flooding</p>	<p>Historical flooding in this area where River Liffey bursts its banks.</p>
<p>Flood Zone Mapping</p>	<p>Draft CFRAM mapping</p>

<p>Comment</p>	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones show that areas in the Town Centre at the Mill Centre and adjacent to the Dublin Road in Donaghcumper overlap with Flood Zone B.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight pluvial extents in this area. The area is very flat but generally slopes towards the Liffey.</p> <p><u>Climate Change</u> The CFRAM mapping indicates an increase in flood extents from Flood Zone A to Flood Zone B within both sites identified.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable.</p>
<p>Conclusion</p>	<p>KCC carried out Justification Test and found that the subject site at Donaghcumper has failed to pass the Justification Test and that the proposed land-use has been reclassified to F: Open Space and Amenity in accordance with the Flood Risk Management Guidelines.</p> <p>The lands zoned A: Town Development have been maintained at the Mill Centre however any significant new development will be subject to a site-specific FRA.</p> <p>The FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts and employ flood resilient construction materials and fittings.</p> <p>Any FRA should be cognisant of the draft Eastern CFRAM FRMP which identified proposed flood defences in the town Centre to protect against the 1% AEP event.</p>

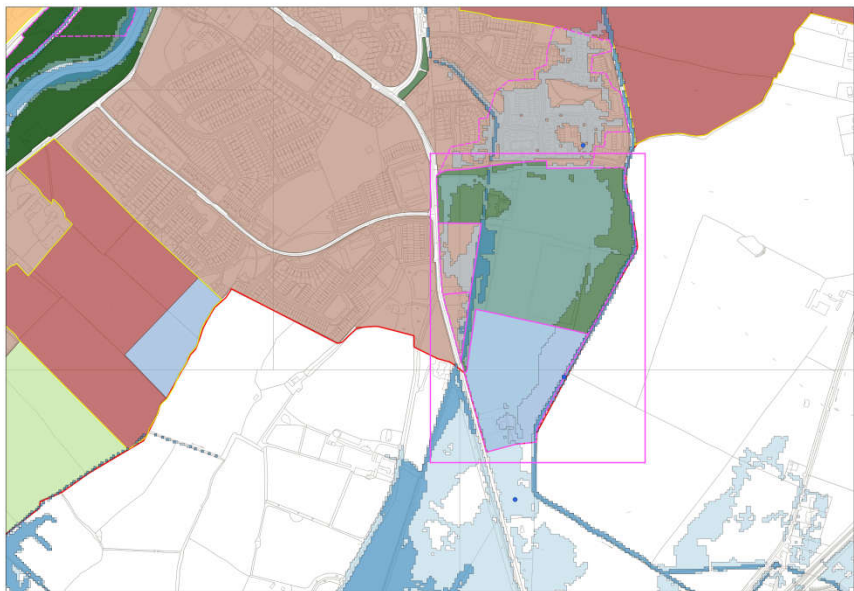
6.2.4 Primrose Gate



Historical Flooding	Historical flooding in this area as the Hazelhatch Stream burst its banks. This area is also susceptible pluvial and groundwater flooding.
Flood Zone Mapping	Draft CFRAM mapping
Comment	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones in this area show residential properties which overlap with Flood Zone B. As noted in the SFRA report there is uncertainty with the flood plain in this area due to a combination of flooding sources including pluvial and groundwater flooding.</p> <p><u>Pluvial Flooding</u> The OPW PFRA pluvial mapping shows pluvial extent covers a large part of the Commons Lower area to the south of Primrose Hill. The land in this area is generally very flat.</p> <p><u>Climate Change</u> Relative to Flood Zone A, there is a significant increase in Flood Zone B in the Primrose Hill area.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable.</p>
Conclusion	KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning. Justification Test included in Appendix B. Any future development in the Willow Estate, Primrose Gate should be subject to a site specific FRA.

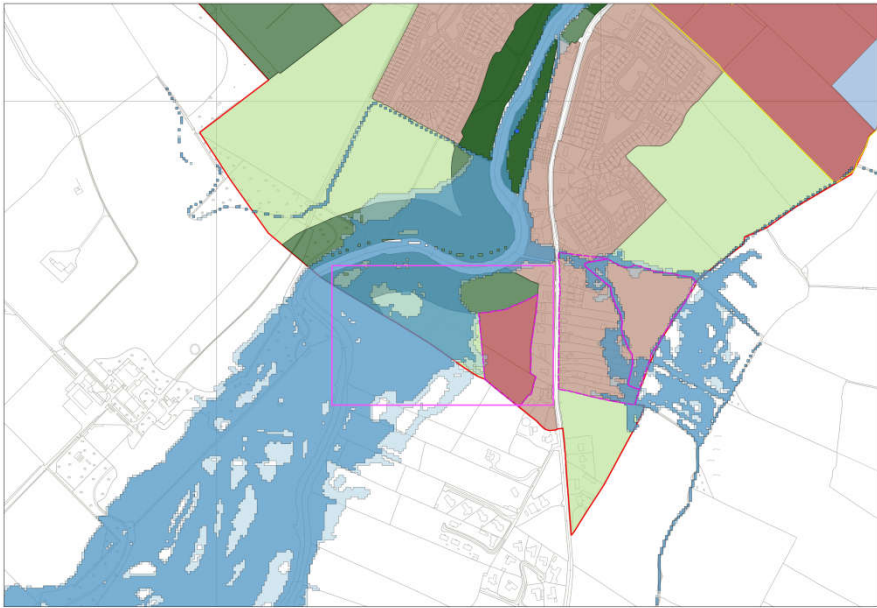
	<p>The FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts and employ flood resilient construction materials and fittings.</p>
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6.2.5 Commons

	
Historical Flooding	Historical flooding in this area as the Hazelhatch Stream burst its banks. This area is also susceptible pluvial and groundwater flooding.
Flood Zone Mapping	Draft CFRAM mapping
Comment	<p><u>Fluvial Flooding</u></p> <p>The draft CFRAM flood zones in this area show residential properties, open space and a community zoning which overlap with Flood Zone B. As noted in the SFRA report there is uncertainty with the flood plain in this area due to a combination of flooding sources including pluvial and groundwater flooding</p> <p><u>Pluvial Flooding</u></p> <p>The OPW PFRA pluvial mapping show a pluvial extent covers a large part of the Commons Lower area, including the GAA club and tennis club. The land in this area is generally very flat.</p>

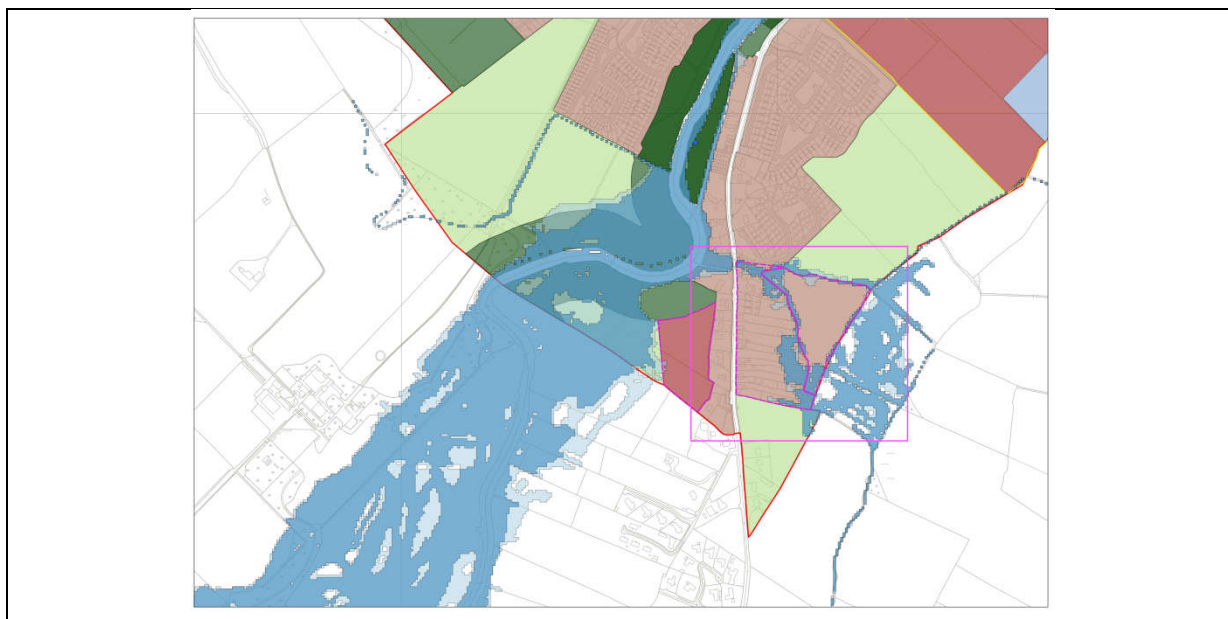
	<p><u>Climate Change</u> Relative to Flood Zone A, there is a significant increase in Flood Zone B in the Commons Area.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable</p>
<p>Conclusion</p>	<p>KCC carried out Justification Test and found that it is considered appropriate to retain the existing residential zoning in Commons. Justification Test included in Appendix B. Any future development in this area should be subject to a site specific FRA.</p> <p>The open space zoning comprising of the GAA pitches is exempt from the requirement for a Justification Test however any future expansion of the clubhouse and changing facilities should be subject to a site specific FRA.</p> <p>The lands zoned E: Community & Educational will be maintained. However development will only be limited to community infrastructure e.g. playing pitches and associated infrastructure. Any development will be subject to a site specific FRA.</p> <p>FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts and employ flood resilient construction materials and fittings.</p> <p>Any FRA should be cognisant of the draft Eastern CFRAM FRMP which identified that a detailed study be carried out to investigate non-fluvial flooding sources in this region. Any FRAs should be cognisant of the potential for non-fluvial flooding in this area and the proposed detailed study.</p>

6.2.6 Newtown

	
Historical Flooding	Historical flooding in this area where River Liffey bursts its banks.
Flood Zone Mapping	Draft CFRAM mapping
Comment	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones in this area highlighted lands which overlap with a new residential zoning in Flood Zone A.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight pluvial extents in this area. The land in this area is generally very flat.</p> <p><u>Climate Change</u> Relative to Flood Zone A, there is a slight increase in Flood Zone B on the lands.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable.</p>
Conclusion	<p>The SFRA notes that the subject site at Newtown has failed to pass the Justification Test and that the proposed land-use has been reclassified as I: Agriculture. Also the extent of the C: New Residential Zoning will be reduced to outside the identified Flood Zones in accordance with the Flood Risk Management Guidelines.</p> <p>The new residential development site should still be subject to a Site Specific FRA to confirm the flood zones adjacent to site.</p>

	<p>FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p>
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6.2.7 Simmonstown



<p>Historical Flooding</p>	<p>No historical flooding noted in this area.</p>
<p>Flood Zone Mapping</p>	<p>Draft CFRAM mapping</p>
<p>Comment</p>	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones in this area highlighted some existing residential properties and a small portion of a new proposed zoning overlapping with Flood Zone A. The flood extents are largely confined to the back gardens of existing properties on the left bank. The flood extent on the undeveloped land is confined to the north east corner. Development should be avoided in this area.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight pluvial extents in this area. The land in this area is generally very flat.</p> <p><u>Climate Change</u> Relative to Flood Zone A, there is not a significant increase in Flood Zone B in this area.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development</p>

	Plan Justification Test to assess if the zoning in this area remains suitable.
Conclusion	<p>KCC carried out Justification Test and found that it is considered appropriate to retain the existing zonings. Justification Test included in Appendix B. Any future development should be subject to a site specific FRA.</p> <p>The FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas. An emergency evacuation plan and defined access / egress routes should be developed for extreme flood events.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts and employ flood resilient construction materials and fittings.</p> <p>Any FRA should be cognisant of the draft Eastern CFRAM FRMP which identified channel conveyance improvement works in this area. Any FRA should be cognisant of the identified proposed works adjacent to the subject lands.</p>

6.3 PROPOSED ZONINGS

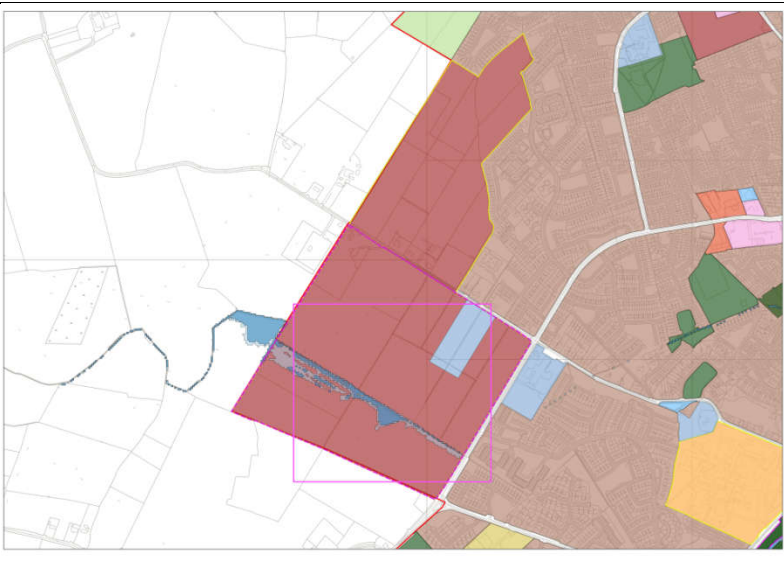
6.3.1 Overview

Table 6.3 below surmises the applicability of the Justification Test and flood risk management proposals for proposed zonings in Celbridge. The zonings were compared against the draft Final CFRAM flood mapping. A review of historical flooding, significant watercourses and historical mapping did not indicate any further fluvial flood risk outside the scope of the CFRAM mapping. Therefore, no further flood zone mapping was deemed to be necessary.

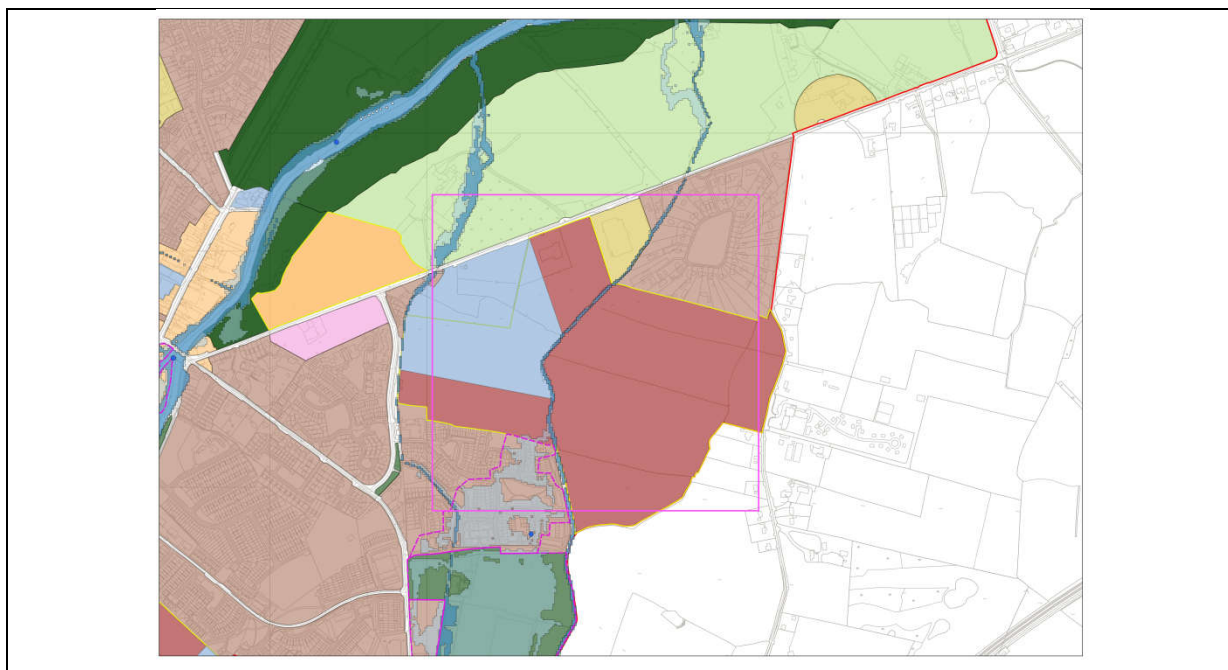
Table 6.3 Proposed Zoned areas vulnerable to potential flooding

Location	Land Use Zoning	Land Use Vulnerability	Justification Test Requirement
Oldtown	New Residential	Highly Vulnerable	Required as a portion of the lands adjacent to the Crippaun River are located in Flood Zones A and B.
Ballymakealy Lower	New Residential	Highly Vulnerable	Not applicable as the lands are located in Flood Zone C.
Loughlinstown	New Residential	Highly Vulnerable	Not applicable as the lands are located in Flood Zone C.
Crodaun	New Residential	Highly Vulnerable	Not applicable as the lands are located in Flood Zone C.

6.3.2 Oldtown

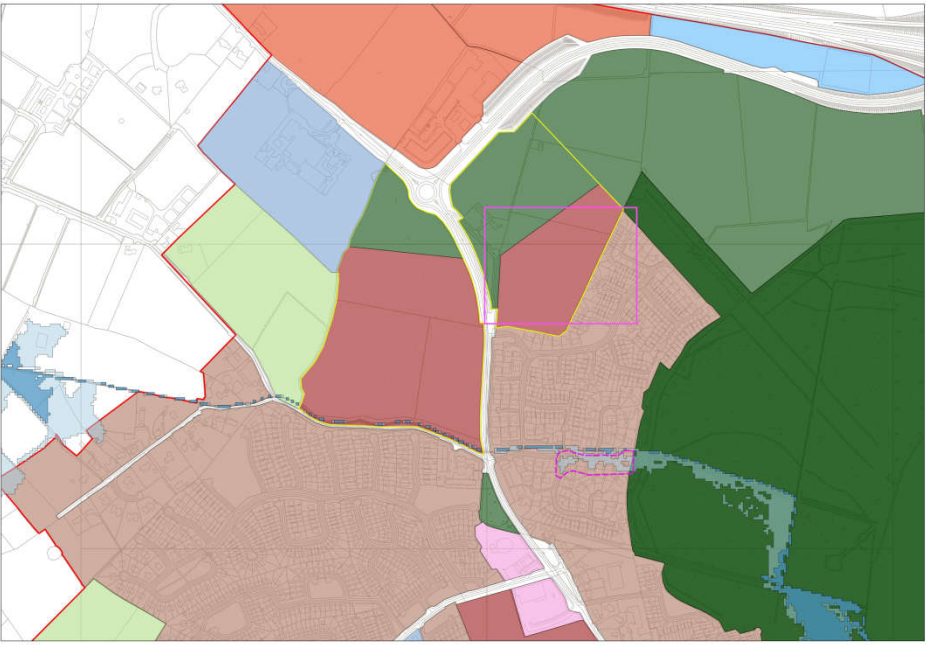
	
<p>Historical Flooding</p>	<p>Historical flooding downstream on the Crippaun River in the town</p>
<p>Flood Zone Mapping</p>	<p>Draft CFRAM mapping</p>
<p>Comment</p>	<p><u>Fluvial Flooding</u> The draft CFRAM flood zones in this area highlighted lands which overlap with Flood Zones A and B.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight significant pluvial extents in this area. The area is very flat but generally slopes east towards the Liffey.</p> <p><u>Climate Change</u> Relative to Flood Zone A, there is a slight increase in Flood Zone B on the southern side of the Crippaun River.</p> <p><u>Justification Test</u> It was recommended that the Planning Authority carry out the Development Plan Justification Test to assess if the zoning in this area remains suitable.</p>
<p>Conclusion</p>	<p>KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning. Justification Test included in Appendix B. Any future development in these lands should be subject to a site specific FRA.</p> <p>The FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p>

6.3.3 Loughlinstown



<p>Historical Flooding</p>	<p>No historical flooding reported in the area.</p>
<p>Flood Zone Mapping</p>	<p>No fluvial risk indicated on CFRAM mapping</p>
<p>Comment</p>	<p><u>Fluvial Flooding</u> The CFRAM mapping does not indicate any fluvial risk in this area. A review of historical flooding, significant watercourses and historical mapping did not indicate any further fluvial flood risk. Therefore, no further flood zone mapping was deemed to be necessary.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight significant pluvial extents in this area. The area is very flat but generally slopes east towards the Liffey.</p> <p><u>Climate Change</u> The CFRAM mapping does not indicate any significant changes in flood extent from Flood Zone A to Flood Zone B on the site.</p> <p><u>Justification Test</u> Not applicable to this site.</p>
<p>Conclusion</p>	<p>There is very little flood risk identified in this area. However all developments will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan. Implementation of these policies will help protect properties downstream from increased surface runoff and potentially flooding.</p>

6.3.4 Crodaun

	
Historical Flooding	No historical flooding reported in the area.
Flood Zone Mapping	No fluvial risk indicated on CFRAM mapping
Comment	<p><u>Fluvial Flooding</u> The CFRAM mapping does not indicate any fluvial risk in this area. A review of historical flooding, significant watercourses and historical mapping did not indicate any further fluvial flood risk. Therefore, no further flood zone mapping was deemed to be necessary.</p> <p><u>Pluvial Flooding</u> The PFRA mapping does not highlight significant pluvial extents in this area. The area is very flat but generally slopes east towards the Liffey.</p> <p><u>Climate Change</u> The CFRAM mapping does not indicate any significant changes in flood extent from Flood Zone A to Flood Zone B on the site.</p> <p><u>Justification Test</u> Not applicable to this site.</p>
Conclusion	There is very little flood risk identified in this area. However all developments will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan. Implementation of these policies will help protect properties downstream from increased surface runoff and potentially flooding.

6.4 ZONING FLOOD RISK SUMMARY AND PROPOSALS

Table 6.4 outlines the SFRA proposals and the planning decisions undertaken to address flood risk in the zoning review areas. Justification Tests where applicable are shown in Appendix B. Flood mapping for the Celbridge LAP is shown in Appendix A.

Celbridge was identified as an AFA in the Eastern CFAM study, the proposed flood risk management policies for shall be reviewed following publication of the Eastern CFRAM FRMP recommendations for the AFA in Q4 of 2016. The FRMP may propose flood defences and flood management strategies for the sites identified in **Table 6.4**.

Table 6.4 Areas at risk of flood within the Celbridge area

Location	Flood Risk Management Proposals for the Site
Forest Park	<p>Existing residential properties should undertake site specific FRAs to ensure that future development or material alterations to sites expansion are cognisant of flood risk. The sites should be developed in an appropriate manner to reduce the flood risk to residents and buildings.</p> <p>The FRA should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas.</p>
Town Centre - Mill Centre & Donaghcumper	<p>KCC carried out Justification Test and found that a portion of the subject site at Donaghcumper has failed to pass the Justification Test and that the proposed land-use has been reclassified to F: Open Space and Amenity in accordance with the Flood Risk Management Guidelines.</p> <p>The lands zoned A: Town Centre have been maintained at the Mill Centre however any significant new development will be subject to a site- specific FRA.</p> <p>FRAs should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas.</p> <p>Any FRA should be cognisant of the draft Eastern CFRAM FRMP which identified proposed flood defences in the town Centre to protect against the 1% AEP event.</p>
Primrose Gate	<p>Existing residential properties should undertake site specific FRAs in association with any new development proposals to ensure that future development or material alterations to sites expansion are cognisant of flood risk. The sites should be developed in an appropriate manner to reduce the flood risk to residents and buildings.</p> <p>FRAs should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas.</p>
Commons	<p>Existing residential properties or community buildings should undertake site specific FRAs in association with any new development proposals to ensure that future development or material alterations to sites expansion are cognisant of flood risk. The sites should be developed in an appropriate manner to reduce the flood risk to residents and buildings.</p> <p>The lands zoned E: Community & Educational will be maintained. However development will only be limited to community infrastructure e.g. playing pitches and associated infrastructure. Any development will be subject to a site specific FRA.</p> <p>FRAs should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts</p>

Location	Flood Risk Management Proposals for the Site
	<p>to the surrounding areas.</p> <p>Any FRAs should be cognisant of the potential for non-fluvial flooding in this area and the proposed detailed study identified in the draft Eastern CFRAM FRMP.</p>
Newtown	<p>The SFRA notes that the subject site at Newtown has failed to pass the Justification Test and that the proposed land-use has been reclassified as F: Open Space and Amenity. Also the extent of the C: New Residential Zoning will be reduced to outside the identified Flood Zones in accordance with the Flood Risk Management Guidelines.</p> <p>The new residential development site should still be subject to a Site Specific FRA to confirm the flood zones adjacent to site.</p> <p>FRAs should address the site layout with respect to vulnerability of the proposed development type, finished floor levels should be above the 1% AEP level, flood resilient construction materials and fittings should be considered and the site should not impede existing flow paths or cause flood risk impacts to the surrounding areas.</p>
Simmonstown	<p>Existing residential properties should undertake site specific FRAs in association with any new development proposals to ensure that future development or material alterations to sites expansion are cognisant of flood risk. The sites should be developed in an appropriate manner to reduce the flood risk to residents and buildings.</p> <p>A site specific FRA should be undertaken for any development on the new residential zoning lands. This will ensure that residential development that is not constructed will not be susceptible to fluvial flood risk. The FRA should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas.</p> <p>FRAs should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas. Development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan.</p> <p>Any FRA should be cognisant of the draft Eastern CFRAM FRMP which identified channel conveyance improvement works in this area. Any FRA should be cognisant of the identified proposed works adjacent to the subject lands.</p>
Oldtown	<p>The design concept for KDA 4 as set out in Chapter 12 of the Draft LAP makes provision for a linear park to address the flood risk areas associated with these lands. A site specific FRA should be undertaken for any development at this site. This will ensure that residential development that is not constructed will not be susceptible to fluvial flood risk. The FRA should address the sequential approach in terms of site layout, finished floor levels, flood resilient construction materials and fittings, existing flow paths and flood risk impacts to the surrounding areas.</p> <p>All development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan.</p>
Ballymakealy Lower	<p>All development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan.</p>
Loughlinstown	<p>All development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare</p>

Location	Flood Risk Management Proposals for the Site
	County Development Plan.
Crodaun	All development shall also be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Celbridge LAP and Kildare County Development Plan.

7 FLOOD RISK MANAGEMENT POLICIES AND OBJECTIVES

7.1 GENERAL DEVELOPMENT PLANS AND STRATEGIES

The Kildare County Development Plan 2017-2023 outlines surface water and flooding flood risk management policies and objectives for the entire county. The Celbridge Local Area will implement these policies to ensure flood risk and surface water management is considered during the planning process for development within the LAP boundary. The Celbridge LAP will also implement specific local policies and objectives which have also been adopted from the existing LAP and updated based on the information provided in the SFRA process and are shown in **Table 7.1**.

Table 7.1 Local Area Plan Flood Risk Management policies

Planning Policy		Policy Description
Flooding	INFO3.1	To manage flood risk in Celbridge in accordance with the requirements of The Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and Circular PL02/2014 (August 2014).
	INFO3.2	To ensure development proposals within the areas outlined on the Flood Map are the subject of Site-Specific Flood Risk Assessment, appropriate to the nature and scale of the development being proposed.
	INFO3.3	To support and co-operate with the OPW in delivering flood alleviation work under the Eastern CFRAM Programme
Surface Water	INFO2.1	To carry out surface water infrastructure improvement works as required
	INFO2.2	To incorporate Sustainable Urban Drainage Systems (SUDS) as part of all plans and development proposals in Celbridge. Proposals for KDA's should address the potential for SUDS at a local and district level to control surface water outfall and protect water quality.
	INFO2.3	To maintain, improve and enhance the environmental and ecological quality of surface waters and groundwater in Celbridge in accordance with the Eastern River Basin District River Basin Management Plan and in conjunction with the EPA
	INFO2.4	To require applicants to demonstrate that proposals will not negatively impact on the status of a waterbody, in accordance with the requirements of the Water Framework Directive and associated River Basin Management Plans.
	INFO2.5	To ensure that planning applications have regard to any existing groundwater protection schemes and/or the likely impacts that the development may have on groundwater and soils.

7.2 FLOOD RISK MANAGEMENT PLANS

The Eastern CFRAM Flood Risk Management Plans (FRMP) is ongoing and if it is deemed necessary, flood risk management objectives, options and plans will be developed for the Celbridge AFA. KCC have committed to implementing any recommendations from the FRMPs and will work in conjunction with the OPW to deliver any proposed flood alleviation works that are deemed appropriate and viable.

The draft Eastern CFRAM FRMP was published in September 2016 and outlined a series of proposed flood risk policy measures for the local authorities but also specific measures for the County Kildare AFAs. These include regional measures to address surface water management, flood risk considerations during the planning process, flood forecasting and also identified flood defence works in Celbridge to protect against the 1% AEP event in the Town Centre.

7.3 FLOOD RISK MANAGEMENT OBJECTIVES

KCC will implement the proposed flood risk management objectives for specific areas, ensuring planning applications, where applicable; will require an FRA of appropriate detail. The level of detail within the FRA will depend on the risks identified and the proposed land use. Applications should demonstrate the use of the sequential approach in terms of the site layout and design and, in

satisfying the Justification Test (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place. For any development in flood risk areas that meet the Development Plan Justification Test, a Development Management Justification Test must then be applied. Development must satisfy all of the criteria of the Development Management Justification Test.

8 SUMMARY

8.1 OVERVIEW

The SFRA Report has been prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014). The SFRA has provided an assessment of all types of flood risk within Celbridge to assist KCC to make informed strategic land-use planning decisions. The flood risk information has enabled KCC to apply the Guidelines sequential approach, and where necessary the Justification Test, to appraise sites for development and identify how flood risk can be reduced as part of the development plan.

8.2 FLOOD ZONES AND FLOOD RISK

Celbridge is susceptible to several types of flood risk, including:

- Fluvial - Flooding occurs when a river overtops its banks due to a blockage in the channel or the channel capacity is exceeded.
- Pluvial - Flooding occurs when overland flow cannot infiltrate into the ground, when drainage systems exceed their capacity or are blocked and when and when the water cannot discharge due to a high water level in the receiving watercourse.

These types of flood risk act independently or in combination to cause flooding within the town LAP boundary.

The flood zones extents have been prepared in accordance the Planning System and Flood Risk Assessment Guidelines identifying Flood Zones A, B and C. The flood zone maps are derived from the draft Eastern CFRAM Study. The Flood Zone mapping is based on the best currently available data and a more detailed, site specific FRA may generate localised flood extents. Confidence in the accuracy of the maps is considered to be high due to the robust nature of the CFRAM flood mapping process. Following their completion the final flood zone mapping areas covered by the CFRAM programme will be reviewed and adopted into the current or future Local Area Plan SFRA's. The flood zones only account for inland flooding and are generated without the inclusion of climate change factors. They should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from pluvial and groundwater flooding. The flood zone maps are shown in Appendix A.

8.3 FLOOD MANAGEMENT POLICIES & OBJECTIVES

The Kildare County Development Plan 2017-2023 outlines surface water and flooding flood risk management policies and objectives for the entire county. The Celbridge Local Area will implement these policies to ensure flood risk and surface water management is considered during the planning process for development within the LAP boundary. The Celbridge LAP will also implement specific local policies and objectives which have also been adopted from the existing LAP and updated based on the information provided in the SFRA process and are shown in Table 7.1. The council has committed to supporting and co-operating with the Office of Public Works (OPW) in delivering the Catchment Based Flood Risk Assessment and Management Programme in the Eastern CFRAM Study and associated Flood Management Plans (FRMP). The Eastern CFRAM Flood Risk Management Plans (FRMP) is ongoing and if it is deemed necessary, flood risk management objectives, options and plans will be developed for the Celbridge AFA. KCC have committed to implementing any recommendations from the FRMPs and will work in conjunction with the OPW to deliver any proposed flood alleviation works that are deemed appropriate and viable.

The draft Eastern CFRAM FRMP was published in September 2016 and outlined a series of proposed flood risk policy measures for the local authorities but also specific measures for the County Kildare AFAs. These include regional measures to address surface water management, flood risk considerations during the planning process, flood forecasting and also identified flood defence works in Celbridge to protect against the 1% AEP event in the Town Centre.

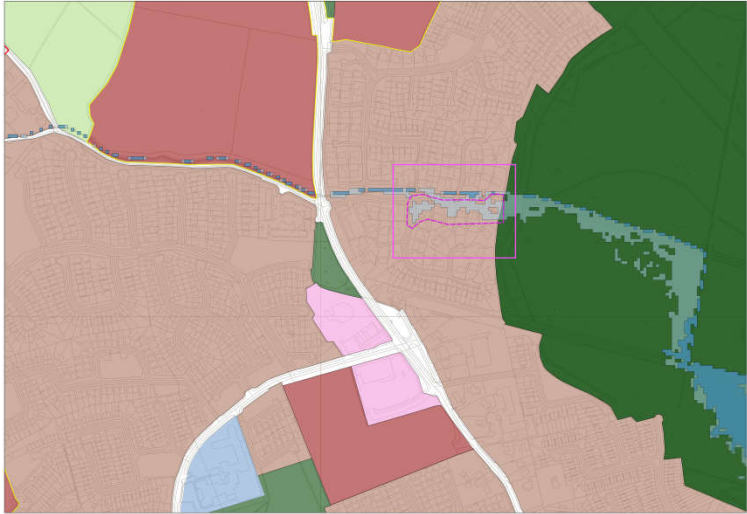
KCC will implement the proposed flood risk management objectives for specific areas, ensuring planning applications, where applicable; will require an FRA of appropriate detail. The level of detail within the FRA will depend on the risks identified and the proposed land use. Applications should demonstrate the use of the sequential approach in terms of the site layout and design and, in satisfying the Justification Test (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place. For any development in flood risk areas that meet the Development Plan Justification Test, a Development Management Justification Test must then be applied. Development must satisfy all of the criteria of the Development Management Justification Test.

8.4 SFRA REVIEW AND MONITORING

The Celbridge SFRA will be reviewed and updated every six years in line with the Kildare Planning Authority's review process. Additionally, outputs from future studies and datasets may trigger a review and update of the SFRA during the lifetime of the Local Area Plan and also the Kildare County Development Plan. These include the outputs from the CFRAM FRMPs. Other sources of information may not lead to an update of the SFRA during the lifetime of the plan but they should be retained and collected to supplement the future SFRAs.

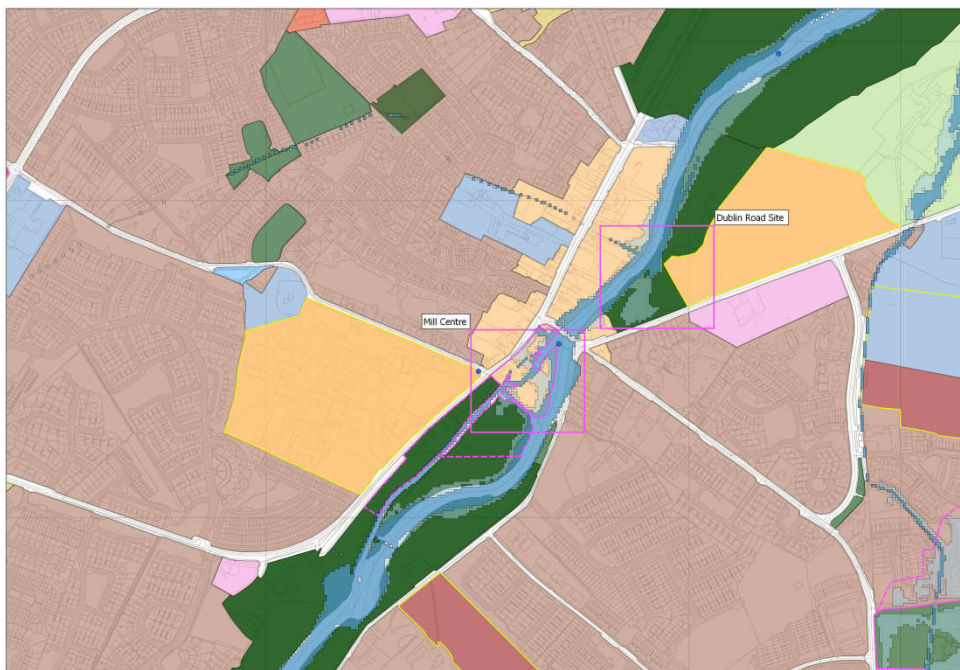
APPENDIX A
FLUIVAL FLOOD ZONE MAPPING

APPENDIX B
JUSTIFICATION TEST

1	Celbridge Local Area Plan 2017-2023	Forest Park Celbridge
		
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>Lands zoned B: Existing Residential & Infill are located in the Forest Park estate. This is an important land bank / entry point for the town located adjacent the Maynooth Road.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The Maynooth Road is an important entry point to Celbridge from Maynooth and the M4 at the northern edge of the town. The lands form an important expansion land bank for the town.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The lands in this area comprise established settlements in the Forest Park estate.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located within the overall built envelope of the settlement, and the northern edge of the town.</p>
	<p>(iv) Will be essential in achieving compact and sustainable urban growth; and</p>	<p>The development of lands in this area is considered to support strategic planning goals, and supports sustainable expansion of the town to meet the County Plan's Settlement Strategy</p>
	<p>(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.</p>	<p>Having regard to the developed nature of the lands it is considered reasonable to retain the proposed use subject to the stipulation that the areas of the site inside the flood risk zone include measures to mitigate against flooding. Prior to any further development being permitted on this site a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County Council.</p>
3	<p>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</p>	<p>The Draft Final CFRAM flood mapping indicates that a small area of Forest Park falls within Flood Zone Flood Zone B.</p> <p>KCC carried out Justification Test and found that it is considered appropriate to retain the existing zonings. And any future development in this area of Forest Park should be subject to a site specific FRA. Site Specific FRAs should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain.

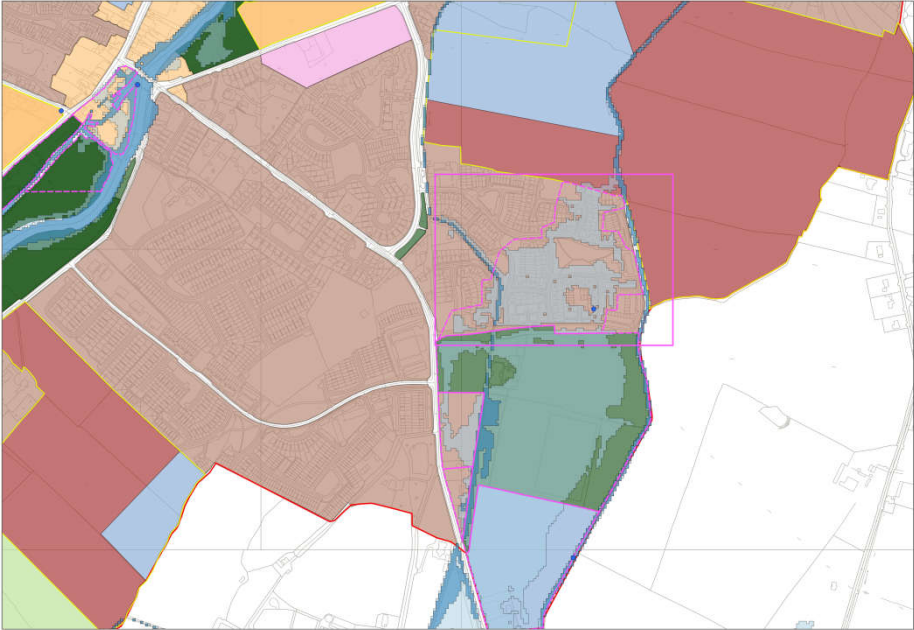
<p>development and the local context and should be described in the relevant flood risk assessment</p>	<ul style="list-style-type: none"> ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Bedrooms should be located in the upstairs of two story buildings. ▪ Flood resilient construction materials and fittings should be considered ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas
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2	Celbridge Local Area Plan 2017-2023	Town Centre –Mill Centre / Donaghcumper Celbridge
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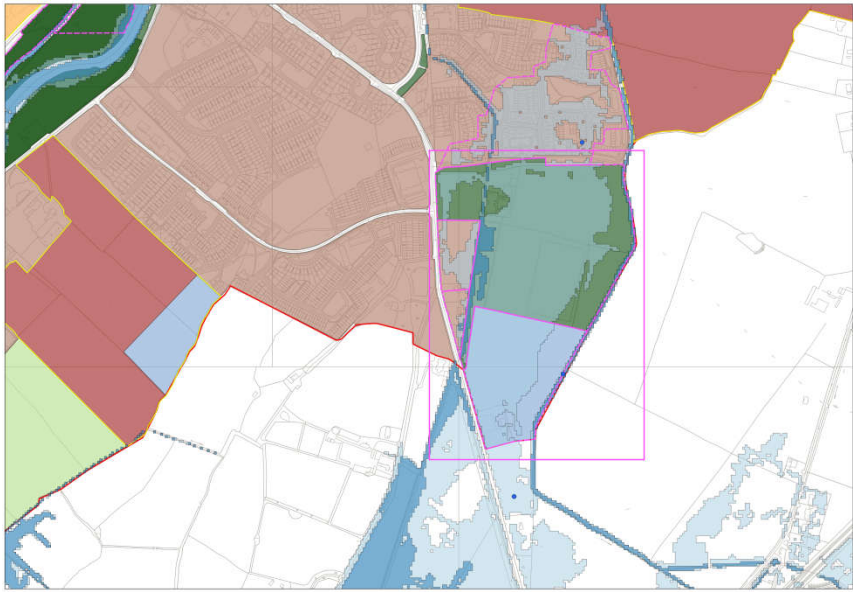


1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a Moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>The subject sites were zoned A: Town Centre and E: Community in the Celbridge LAP 2010. The zoning objective policy is designed to support the function and vibrancy of the town centre and encourage town centre living with reduced need for vehicular trips.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The renewal and utilisation of A: Town Centre lands in Celbridge are essential to facilitate regeneration and urban expansion. Encouraging renewal of the town centre as a preferred location is fundamental to the LAP's overall strategic objectives</p>
	<p>(ii) Comprises significant previously developed and / or underutilised lands;</p>	<p>The lands generally comprise previously developed lands at the Mill Centre and underutilised lands in close proximity to the Main Street at Donaghcumper.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The 'town centre' sites are located within the historic urban core of the settlement.</p>

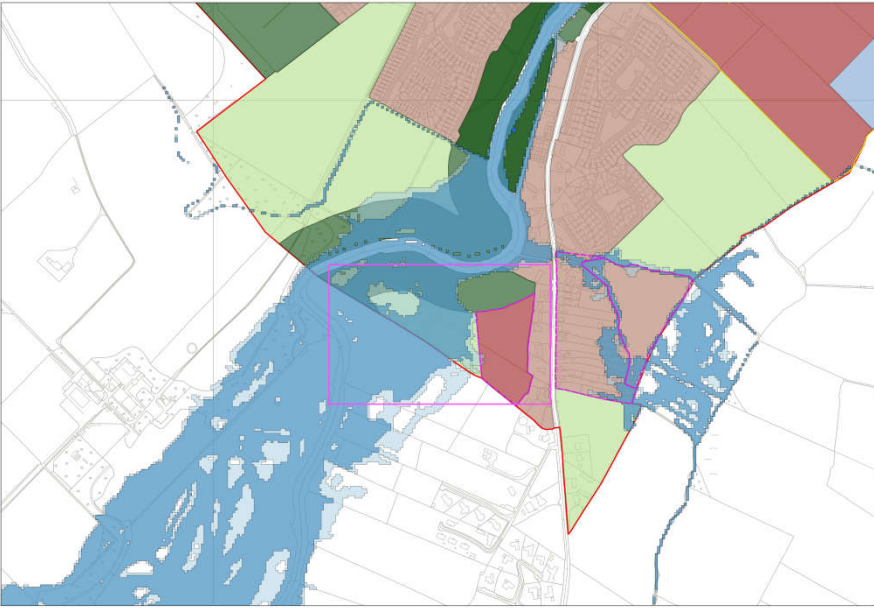
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The town centre sites are located at the core of the settlement. The development of lands in this area is considered to support strong strategic planning goals, support renewal of the town centre area, and the goal of achieving compact sustainable urban growth. Urban design guidance in the LAP emphasises the importance of compact urban form and sustainable growth in these locations.
	(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.	<p>For the lands at Donaghcumper there is already a significant quantity of suitably zoned land that is not at risk of flooding adjacent to the town centre in Celbridge. These lands will facilitate the appropriate sustainable development in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023.</p> <p>The Mill Centre site is located at the core of the settlement and there are no other suitable lands. The development of lands in this area is considered to support strong strategic planning goals, support renewal of the town centre area, and the goal of achieving compact sustainable urban growth.</p> <p>Prior to any significant new development on the Mill Centre site being permitted a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County Council. The recommendations of this assessment will determine the location, type and quantum of development on this site.</p>
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	<p>The SFRA notes that the subject site at Donaghcumper has failed to pass the Justification Test and that the proposed land-use has been reclassified to F: Open Space and Amenity in accordance with the Flood Risk Management Guidelines.</p> <p>The lands zoned A: Town Development have been maintained at the Mill Centre however any significant new development will be subject to a site-specific FRA.</p> <p>Site Specific FRA should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Flood resilient construction materials and fittings should be considered ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas <p>Celbridge was identified as an AFA in the Eastern CFAM study, the proposed flood risk management policies for shall be reviewed following publication of the Final Eastern CFRAM FRMP recommendations. The draft Eastern CFRAM FRMP has proposed flood defence works which would protect the areas adjacent to the Mill Centre against the 1% AEP event. Any FRA should be cognisant of the identified proposed flood defences on the school site.</p>

3	Celbridge Local Area Plan 2017-2023	Primrose Gate, Celbridge
		
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>Lands zoned B: Existing Residential & Infill are located in the Willow Estate of Primrose Gate, Celbridge. This an important land bank for the town</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>Maintaining the existing zoning in this area is considered to support strategic planning goals, and sustainable growth through providing community and residential development in integrated manner in close proximity to neighbourhood and town centre facilities.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The lands in this area comprise established settlements in the Willow Estate.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located on the edge of the existing built edge of the south-eastern side of the town. The lands are situated beside an existing local centre at Primrose Gate and St. Wolstons Shopping Centre, and bus routes along the R403 Dublin Road.</p>
	<p>(iv) Will be essential in achieving compact and sustainable urban growth; and</p>	<p>The site is located on the edge of the settlement. The development of lands in this area is considered to support strategic planning goals, and sustainable growth through providing community and residential development in integrated manner in close proximity to neighbourhood and town centre facilities.</p>
	<p>(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.</p>	<p>Having regard to the developed nature of the lands it is considered reasonable to retain the proposed use subject to the stipulation that the areas of the site inside the flood risk zone include measures to mitigate against flooding sizeable linear sections of the site are impacted upon by the flood zone and therefore unsuitable for certain sensitive uses. Prior to any further development being permitted on this site a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County</p>

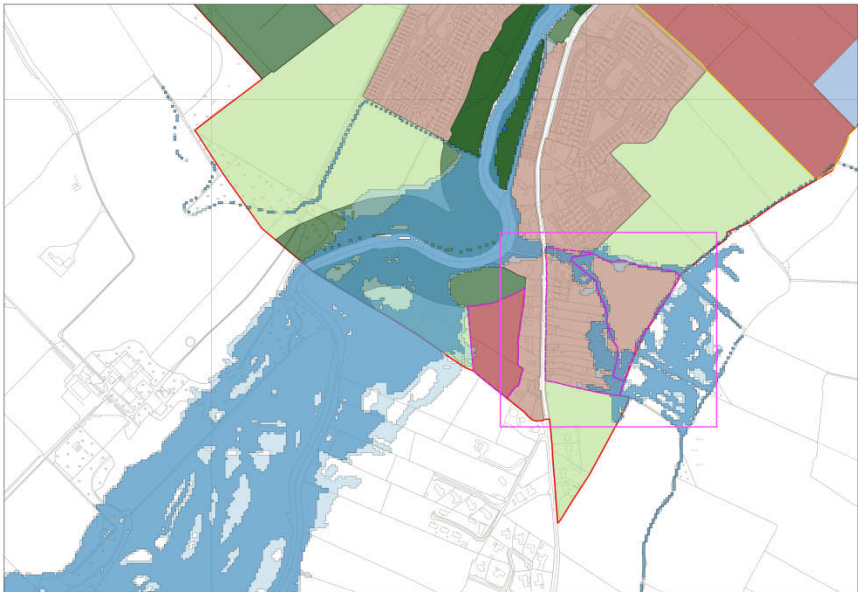
		Council.
3	A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of 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	<p>The Draft Final CFRAM flood mapping indicates that a large area of the Willow Estate falls within Flood Zone Flood Zone B.</p> <p>KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning. And any future development in this area of Primrose Gate should be subject to a site specific FRA. Site Specific FRAs should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Bedrooms should be located in the upstairs of two story buildings. ▪ Flood resilient construction materials and fittings should be considered ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas

4	Celbridge Local Area Plan 2017-2023	Commons/Hazelhatch, Celbridge
		
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
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:	The subject lands were predominantly zoned B: Existing Residential & Infill, F: Open Space and Amenity and E: Community in the Celbridge LAP 2010.
	(i) Is essential to facilitate regeneration and / or expansion	The lands are located on the southern edge of the settlement and are not

	of the centre of the urban settlement;	essential to regeneration or expansion of the central area.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands comprise previously developed individual dwellings and undeveloped greenfield lands/amenity lands.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located on the southern periphery of the settlement.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The lands are located at the southern periphery of the settlement. The development of lands in this area does not support short-term development objectives over the life of the LAP for compact growth or sustainable urban form.
	(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.	<p>There is already a significant quantity of suitably zoned land that is not at risk of flooding at various locations in Celbridge and in other areas of County Kildare. These lands will facilitate the appropriate sustainable development in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023.</p> <p>A small number of existing properties at Commons on the R405 Road are impacted upon by Flood Zone B with flooding confined to green field areas within the sites..</p>
3	<p>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</p>	<p>The lands zoned B: Existing Residential & Infill have been maintained however any significant new development will be subject to a site- specific FRA.</p> <p>The lands zoned E: Community & Educational will be maintained. However development will only be limited to community infrastructure e.g. playing pitches and associated infrastructure. Any development will be subject to a site specific FRA.</p> <p>Site Specific FRA should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Flood resilient construction materials and fittings should be considered ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas <p>Celbridge was identified as an AFA in the Eastern CFAM study, the proposed flood risk management policies for shall be reviewed following publication of the Final Eastern CFRAM FRMP recommendations. Due to the uncertainty encountered in the hydrological and hydraulic modelling of the Hazelhatch / Commons area the draft Eastern CFRAM FRMP has proposed that a detailed study be carried out to investigate non-fluvial flooding sources in this region. Any FRAs should be cognisant of the potential for non-fluvial flooding in this area and the proposed detailed study.</p>

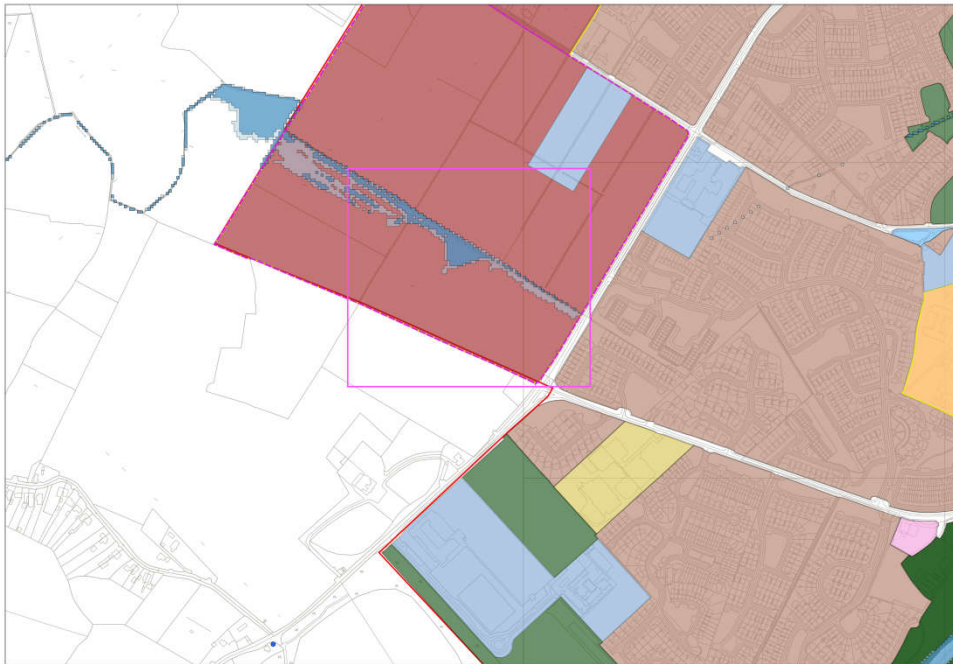
5	Celbridge Local Area Plan 2017-2023	Newtown, Celbridge
		
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan.</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>This site was previously zoned C: New Residential in the Celbridge LAP 2010.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>This land area is not considered essential to facilitate urban regeneration and expansion where other alternatives are available.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The lands generally comprise undeveloped and underutilised lands.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located on the south western periphery of the town area.</p>
	<p>(iv) Will be essential in achieving compact and sustainable urban growth; and</p>	<p>The development of lands in this area is not considered essential to achieving compact growth.</p>
	<p>(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.</p>	<p>There is already a significant quantity of suitably zoned land that is not at risk of flooding at various locations in Celbridge lands will facilitate the appropriate sustainable development in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023.</p> <p>A significant section of the site is impacted upon by the flood zone and therefore is unsuitable for certain sensitive uses.</p>
3	<p>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</p>	<p>The SFRA notes that the subject site at Newtown has failed to pass the Justification Test and that the proposed land-use has been reclassified as I: Agriculture. Also the extent of the C: New Residential Zoning will be reduced to outside the identified Flood Zones in accordance with the Flood Risk Management Guidelines.</p> <p>However the new residential development site should still be subject to a Site Specific FRA to confirm the flood zones adjacent to site.</p>

	<p>development and the local context and should be described in the relevant flood risk assessment</p>	<p>Site Specific FRA should address the following:</p> <ul style="list-style-type: none"> ▪ Confirm Flood Zones A and B adjacent to the site. ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas
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6	Celbridge Local Area Plan 2017-2023	Simmonstown, Celbridge
		
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan.</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>The subject lands were previously zoned B: Existing Residential & Infill and C: New Residential in the Celbridge LAP 2010.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>Maintaining the existing zoning in this area is considered to support strategic planning goals, and sustainable growth through providing community and residential development in integrated manner in close proximity to neighbourhood and town centre facilities.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The most southerly lands generally comprise undeveloped and underutilised lands. The existing residential lands in this area comprise established settlements on the Newtown Road and in Chelmsford Manor.</p>

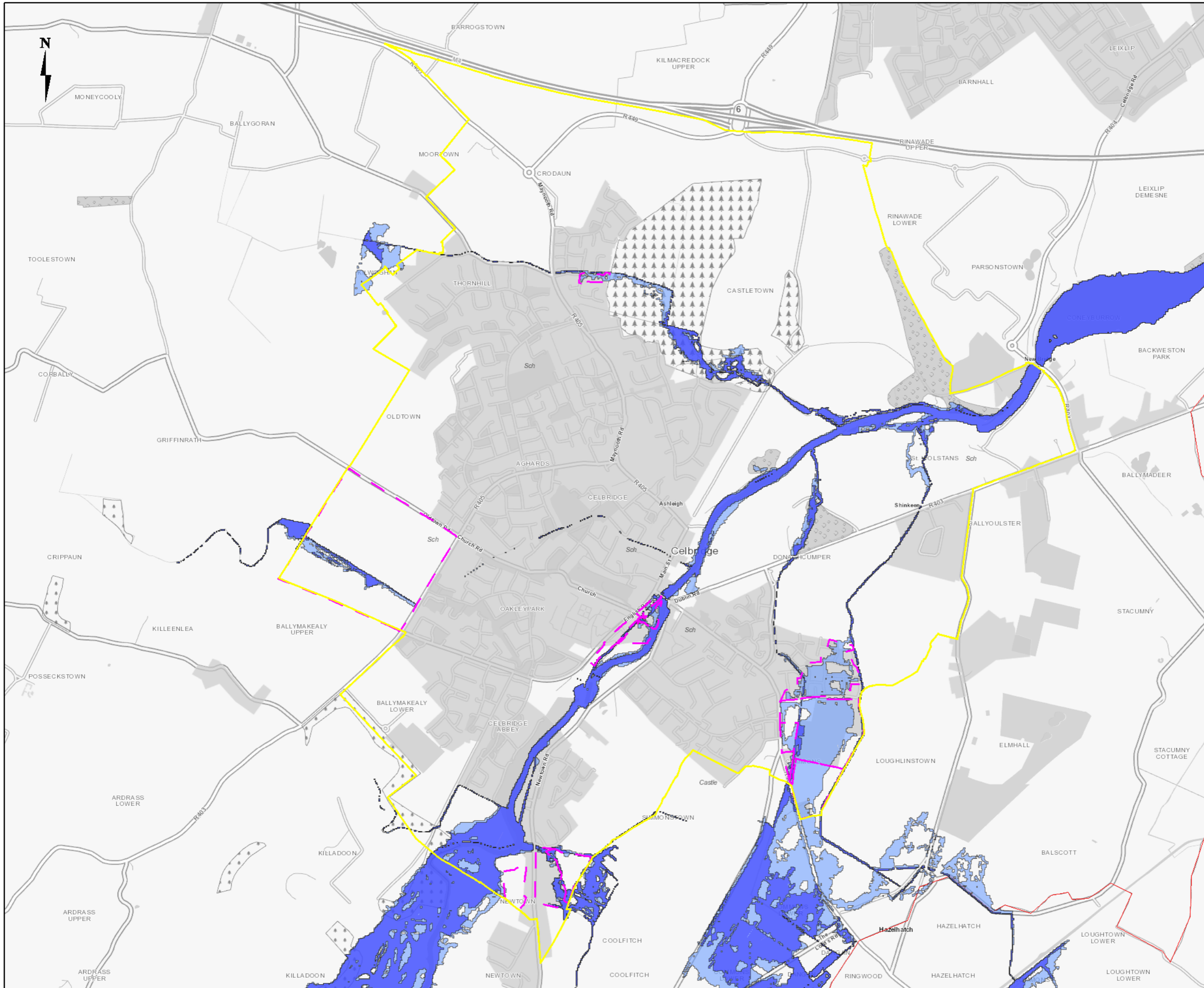
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located on the south western periphery of the town area.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is located on the edge of the settlement. The development of lands in this area is considered to support strategic planning goals, and sustainable growth through providing community and residential development in integrated manner in close proximity to neighbourhood and town centre facilities.
	(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.	Having regard to the developed nature of the lands it is considered reasonable to retain the proposed use subject to the stipulation that the areas of the site inside the flood risk zone include measures to mitigate against flooding sizeable linear sections of the site are impacted upon by the flood zone and therefore unsuitable for certain sensitive uses. Prior to any further development being permitted on this site a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County Council.
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	<p>The lands zoned B: Existing Residential & Infill have been maintained however any significant new development will be subject to a site- specific FRA.</p> <p>The flood risk to the lands zoned C: New Residential is confined to the north eastern corner of the site and any new development will be subject to a site- specific FRA.</p> <p>Site Specific FRA should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Flood resilient construction materials and fittings should be considered ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas <p>Celbridge was identified as an AFA in the Eastern CFAM study, the proposed flood risk management policies for shall be reviewed following publication of the Final Eastern CFRAM FRMP recommendations. The draft Eastern CFRAM FRMP has proposed channel conveyance improvement works in this area. Any FRA should be cognisant of the identified proposed works adjacent to the subject lands.</p>

7	Celbridge Local Area Plan 2017-2023	Oldtown Celbridge Zoning
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1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).</p>	<p>Celbridge is designated as a moderate Growth Town in the Kildare Development Plan 2011-2017 and the Draft County Development Plan 2017-23. Detailed policy and zoning is provided under the Local Area Plan</p> <p>Arising from the RPGs and the Draft Kildare County Development Plan 2017-2023, a growth target of 3,250 units is prescribed for Celbridge between 2017 and 2023.</p>
2	<p>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:</p>	<p>Development of the overall landholding is covered by KDA 3 – Oldtown which seeks to ensure that new residential communities are delivered along with key and recreation and amenity infrastructure in this area. The subject site is predominantly zoned C: New Residential and F: Open Space and Amenity. The wider area is included as strategic reserve lands so as to ensure that any development with the KDA has regard to a long-term vision for the northern edge of the town. This is an important land bank for the town, and seeks to locate new residential communities close to schools and infrastructure at the north west sector of the town.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The provision of new development and community facilities at Oldtown is an essential part of facilitating expansion of Celbridge, serving a growing residential community in the short-term, and supporting the development close to school sites.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The lands are generally greenfield in nature on the edge of the town, and may be considered underutilised.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located on the edge of the existing built edge of the north-western side of the town. The nearby location of the school site will encourage walking and cycling access and the town core area is also accessible within cycling distance.</p>
	<p>(iv) Will be essential in achieving compact and sustainable urban growth; and</p>	<p>The site is located on the edge of the settlement. The development of lands in this area is considered to support strategic planning goals, and sustainable growth through providing community and residential development in integrated manner in close proximity to community facilities.</p>
	<p>(v) There are no suitable alternative lands for the</p>	<p>There is already a significant quantity of suitably zoned land that is not at</p>

	<p>particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.</p>	<p>risk of flooding at various locations in Celbridge and in other areas of County Kildare. These lands will facilitate the appropriate sustainable development in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023.</p> <p>A section of the site is impacted upon by a linear flood zone and therefore is unsuitable for certain sensitive uses. Along with residential an objective to provide Open Space and Amenity on the site has been proposed. Prior to any development being permitted on this site a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County Council. The recommendations of this assessment will determine the location, type and quantum of development on this site.</p>
3	<p>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</p>	<p>The flood risk for these lands is confined to close proximity of the riverbank. A site- specific FRA should be carried out for development on these lands in accordance with The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014).</p> <p>Site Specific FRA should address the following:</p> <ul style="list-style-type: none"> ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address climate change scenarios in relation to FFLs and potential mitigation measures. ▪ Finished floor levels should be above the 1% AEP level ▪ Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas



Legend

- Flood Zone A - 1% AEP Flood Extent
(1 in 100 chance in any given year)
- Flood Zone B - 0.1% AEP Flood Extent
(1 in 1000 chance in any given year)
- Defended Area
- Flood Risk Assessment
- County Boundary
- LAP Boundary

Client **Kildare County Council**



Project **Strategic Flood Risk Assessment**

Title **Celbridge**



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Date: 05/12/2016	

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