

Comhairle Bhaile Chill Dara
Kildare County Council



DRAFT STRATEGIC FLOOD RISK ASSESSMENT

AMENDMENTS TO KILCOCK LOCAL AREA PLAN

**Kildare County Council
Planning Department
Aras Chill Dara
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1.0 INTRODUCTION

1.1 Requirement for Flood Risk Assessment

Kildare County Council is in the process of amending the Kilcock Local Area Plan in accordance with the Core Strategy and the requirements and provisions of the Planning and Development Act 2000 (as amended).

In accordance with Section 28 of the Planning and Development Act 2000 as amended, the planning authority shall have regard to any guidelines issued by the Minister of the Environment, Heritage and Local Government to planning authorities in the performance of their functions including the preparation of Development Plans.

In response to the recommendations of the National Flood Policy Review Group the Minister published statutory planning guidelines entitled "*The Planning System and Flood Risk Management – Guidelines for Planning Authorities*" on 30 November 2009 [the Guidelines] which incorporate flood risk assessment and management into the planning system. The Guidelines focus on providing for comprehensive consideration of flood risk in preparing Regional Plans, Development Plans and Local Area Plans, and in determining applications for planning permission.

The Guidelines were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of their development planning functions. This is achieved by ensuring that the various steps in the process of making or varying a development plan, together with the associated Strategic Environmental Assessment (SEA), are supported by an appropriate Strategic Flood Risk Assessment (SFRA).

Kilgallen and Partners Consulting Engineers have been appointed by Kildare County Council to undertake a Strategic Flood Risk Assessment (SFRA) for the Kilcock Local Area Plan in accordance with the Core Strategy and in accordance with the Guidelines referenced above.

It is recommended that the SFRA is adopted as a 'Living Document' and reviewed regularly and updated with any new relevant information that may become available during the lifetime of the Kilcock Local Area Plan.

It is the responsibility of each applicant for planning permission to determine the flood risk pertaining to the lands on which development is proposed and to include appropriate mitigation works as part of the proposed development for which permission is sought.

1.2 The Planning Guidelines and Flood Risk Management

The assessment of flood risk requires an understanding of the source of the floodwaters, the process and direction of flow and the people and assets affected by flooding. The Guidelines introduce the mechanism of Flood Risk Assessment (FRA) into the planning process by the incorporation of flood risk identification, assessment and management.

The core objectives of the Guidelines are to:

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

These core objectives are achieved through the process of Flood Risk Assessments. The level of detail required for a Flood Risk Assessment depends on the purpose of the FRA. In the subject case of the Kilcock Local Area Plan, a Strategic Flood Risk Assessment (SFRA) is required to inform the plan making process.

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

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

1.3 Structure of a Flood Risk Assessment (FRA)

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

- **Stage 1** ~ Flood Risk Identification
To identify whether there may be any flooding or surface water management issues that will require further investigation. This stage mainly comprises a comprehensive desk study of available information to establish whether a flood risk issue exists or whether one may exist in the future.
- **Stage 2** ~ Initial Flood Risk Assessment
If a flood risk issue is deemed to exist arising from the Stage 1 Flood Risk Identification process, the assessment proceeds to Stage 2 which confirms the sources of flooding, appraises the adequacy of existing information and determines the extent of additional surveys and the degree of modelling that will be required. Stage 2 must be sufficiently detailed to allow the application of the sequential approach (as described in Section 1.4.2 herein) within the flood risk zone.
- **Stage 3** ~ Detailed Flood Risk Assessment
Where Stages 1 and 2 indicate that a proposed area of possible zoning or development may be subject to a significant flood risk, a Stage 3 Detailed Flood Risk Assessment must be undertaken.

1.4 The Flood Risk Assessment Process for the Planning Authority

1.4.1 Scales of Flood Risk Assessments

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

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

1.4.2 The Sequential Approach

The sequential approach in terms of flood risk management is based on the following principles: **AVOID - SUBSTITUTE - JUSTIFY - MITIGATE – PROCEED.**

The primary objective of the sequential approach is that development is primarily directed towards land that is at low risk of flooding (AVOID).

The next stage is to ensure that the type of development proposed is not especially vulnerable to the adverse impacts of flooding (SUBSTITUTION).

The Justification Test is designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for various reasons, are being considered in areas of moderate or high flood risk (JUSTIFICATION). The test is comprised of two processes, namely The Plan-Making Justification Test and The Development Management Justification Test. Only the former (Plan-Making Justification Test) is relevant to a Strategic Flood Risk Assessment for a Development Plan, and this is described as follows.

The Plan-Making Justification Test

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

- (I) *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.*
- (II) *The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:*
 - (i) *Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;*
 - (ii) *Comprises significant previously developed and/or under-utilised lands;*
 - (iii) *Is within or adjoining the core of an established or designated urban settlement;*
 - (iv) *Will be essential in achieving compact or sustainable urban growth;*
 - (v) *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.*
- (III) *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."

MITIGATION is the process where the flood risk is reduced to acceptable levels by means of land use strategies or by means of detailed proposals for the management of flood risk and surface water, all as addressed in the Flood Risk Assessment.

The decision to PROCEED should only be taken after the Justification Test has been passed.

1.5 Key Outputs from the SFRA

The key outputs are:

- To provide for an improved understanding of flood risk issues within the Development Plan and development management process, and to communicate this to a wide range of stakeholders;
- To produce an assessment of existing flood defence infrastructure and the consequences of failure of that infrastructure and to identify areas of natural floodplain to be safeguarded;
- To produce a suitably detailed flood risk assessment that supports the application of the sequential approach in key areas where there may be tension between development pressures and avoidance of flood risk;
- To inform, where necessary, the application of the Justification Test;
- To conclude whether measures to deal with flood risks to the area proposed for development can satisfactorily reduce the risks to an acceptable level while not increasing flood risk elsewhere;
- To produce guidance on mitigation measures, how surface water should be managed and appropriate criteria.

2.0 FLOOD RISK

2.1 Components of Flood Risk

Flood Risk is defined as a combination of the likelihood of flooding occurring and the potential consequences arising from that flooding.

The likelihood of flooding is defined in the Guidelines as follows:

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

The consequences of flooding depend on the following:

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

2.2 Source-Pathway-Receptor Model

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

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

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

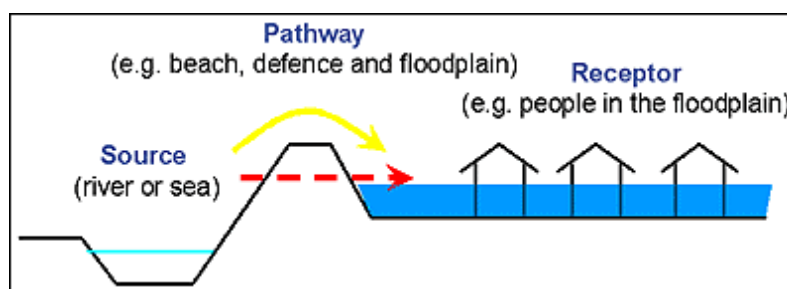


Figure 1: Source-Pathway-Receptor Model (adapted from www.floodsite.net)

3.0 EUROPEAN, NATIONAL AND REGIONAL POLICY

3.1 European Policy

3.1.1 EU Floods Directive

http://ec.europa.eu/environment/water/flood_risk/index.htm

Directive 2007/60/EC on the assessment and management of flood risks became operative on 26th November 2007. This Directive requires Member States to assess the risks of flooding along all watercourses and coast lines. It also requires Member States to map the extent of potential flooding in each case, determine the assets and humans at risk in the areas and to take adequate and coordinated measures to reduce this flood risk. The aim of the Directive is to reduce and manage the risks posed by flooding to human health, the environment, cultural heritage and economic activity.

Member States are required by 2011 to carry out a preliminary assessment identifying the river basins and the coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013 and Member States are required to establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters and to all coastal waters across the whole territory of the EU.

3.1.2 EU Water Framework Directive

www.wfdireland.ie

The Water Framework Directive, which came into force on December 22nd 2000, established a new and integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwater. It impacts on the management of water quality and water resources and affects conservation, fisheries, flood defence, planning and environmental monitoring.

The primary focus of the Directive is to achieve 'good' ecological status for all waters by 2015.

3.2 National Policy

3.2.1 Planning Guidelines "The Planning System and Flood Risk Management"

The *Planning System and Flood Risk Management* Guidelines were prepared in response to the recommendations of the National Flood Policy Review Group and focused on providing for comprehensive consideration of flood risk in preparing Regional Plans, Development Plans and Local Area Plans, and in determining applications for planning permission.

The Guidelines generally require that development should not be permitted in flood risk areas, particularly floodplains, except where there are no alternative and appropriate sites available in lower risk areas that are consistent with the objectives of proper planning and sustainable development.

3.2.2 Transposition and Implementation of the EU Floods Directive

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

3.2.3 Office of Public Works

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

3.3 Regional Policy

3.3.1 Introduction

For the purposes of regional planning, the Mid-East Regional Authority and the Dublin Regional Authority have partnered to produce Regional Planning Guidelines for the Greater Dublin Area (www.rpg.ie).

On the 15th of June 2010, Regional Planning Guidelines for the Greater Dublin Area 2010~2022 were made. The guidelines give regional effect to the National Spatial Strategy and guide the development plans in each Local Authority area. The guidelines have effect for six years.

The guidelines contain a Regional Flood Risk Appraisal (RFRA), which is a high-level broad-brush appraisal of flood risk across an entire regional authority area, based on existing readily available information.

Paragraphs 3.3.2 to 3.3.5 herein present a summary of the Regional Flood Risk Appraisal together with an outline of the main outputs of relevance to the Kilcock Local Area Plan.

3.3.2 Regional Flood Risk Appraisal Process

The RFRA process examines the issue of major flood risk from river, estuarine and coastal flooding and does not examine groundwater or artificial drainage flood events. The process of preparing the RFRA involved the mapping of historical flood events in the Greater Dublin Area (GDA) to provide a general indication at a regional scale of where flood vulnerable locations are located in the GDA.

The mapping of alluvial soils indicating flood plain locations in the GDA was also examined at a regional level.

The studies indicate that significant sections of the built up area of Dublin together with key towns in the GDA are vulnerable to flooding, particularly along the coast, near estuaries and lands proximate to the rivers flowing through the region.

3.3.3 Strategic Policies and Recommendations for Regional Flood Risk Management

- **Strategic Policy FP1:** That flood risk be managed pro-actively at all stages in the planning process by avoiding development in flood risk areas where possible and by reducing the risks of flooding to and from existing and future development.
- **Strategic Recommendation FR1:** New development should be avoided in areas at risk of flooding. Alongside this, the Regional Flood Risk Appraisal recognises the need for continuing investment and development within the urban

centres of flood vulnerable designated growth towns and the City and for this to take place in tandem with the completion of Catchment Flood Risk Assessment and Management (CFRAM) Studies and investment in comprehensive flood protection and management.

- **Strategic Recommendation FR2:** Development and Local Area Plans should include a Strategic Flood Risk Assessment and all future zoning of land for development in areas at risk of flooding should follow the sequential approach set out in the Departmental Guidance on Flood Risk Management. All Flood Risk Assessments and CFRAM studies should take place in coordination and consultation with adjoining local authorities and regions and in coordination with the relevant River Basin Management Plans.
- **Strategic Recommendation FR3:** Local authorities should take the opportunities presented to optimise improvements in biodiversity and amenity when including policies and actions in development plans/local area plans (such as flood plain protection and SuDS) for existing and future developments.
- **Strategic Recommendation FR4:** Plans and projects associated with flood risk management that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.

3.3.4 Role of Local Authorities (from RFRA)

Local Authorities must take account of the issues raised in this Regional Flood Risk Appraisal and undertake Strategic Flood Risk Assessment for future Development and Local Area Plans in line with the Department's Guidance on the Planning System and Flood Risk Management Guidelines. Local Authorities should ensure that they adhere to the principles of avoiding risk where possible in preparing such future Plans.

The Regional Planning Guidelines seek to emphasise the need to protect across the Greater Dublin Area the natural flood plains and riparian corridors of all rivers that have not already been built on, and seek that this is explicitly stated and spatially designated in all future Development and Local Area plans following the completion of CFRAM studies for the area in question. In the absence of the CFRAM studies, Planning Authorities should identify the areas at risk using other data such as data that is available from the OPW, available historical information (mapped or otherwise), and if necessary, through additional studies or investigations.

Land required for current and future flood management should be safeguarded from development.

Allocation of future areas for development as extensions to existing built up areas, villages or towns should follow a sequential approach; be within the lowest risk sites appropriate for the development; and should include adequate provision for adaptation to, or protection against, the projected impacts of climate change.

3.3.5 Recommendations from Regional Flood Risk Appraisals

In the preparation of future Development and Local Area Plans, Local Authorities are advised to:

- Identify and consider at the earliest stage in the planning process flood hazard and potential risk.
- Identify flood risk areas on the Development Plan and Local Area Plan maps.
- Review existing Development Plans and Local Area Plans to ensure that the issue of Flood Risk has been addressed in a manner consistent with the Flood Risk Management Guidelines.
- Where lands are already zoned for housing or other vulnerable development in flood risk areas, the Planning Authority should undertake a re-examination of the zoning in accordance with the sequential approach. Regional Planning Guidelines may need to identify Plans which will require a variation to take account of flood risk assessments.
- Include policies which ensure that flood risk areas targeted for development following the sequential approach should be planned, designed and constructed to reduce and manage flood risk and be adaptable to changes in climate.
- Include policies to ensure that flood risk and impact is considered as a key element in the assessment of future waste and mineral planning strategies and developments.
- Include policies that ensure that the location of key infrastructure will be subject to flood risk assessment.
- Include policies on the importance of the inclusion of Sustainable Drainage Systems (SuDS) in future developments, in accordance with the recommendations of the Greater Dublin Strategic Drainage Study Guidelines and Appendix B of the Planning System and Flood Risk Management Guidelines.

Flooding events, whether widespread or localised, can cause serious damage to key infrastructure (e.g. power stations, sub-stations, communication hubs, wastewater treatment plants etc.). The cost of such disruption is significant to business, causes hardship to residents and also can place people in "at risk" situations. For this reason, it is recommended that on completion of Catchment Flood Risk Assessment and Management Studies and upon identification of areas of high flood risk in each Planning Authority area, that key infrastructure suppliers are advised of the risk to such installations and encouraged to assess current infrastructure for risk and stress test future projects against flood risk, where this has not been previously undertaken.

4.0 STRATEGIC FLOOD RISK ASSESSMENT—KILCOCK LOCAL AREA PLAN

4.1 Introduction

The Strategic Flood Risk Assessment provides an appraisal and assessment of available flood risk data for the land-use proposals within the boundaries of the Kilcock Local Area Plan. This process identifies flood risk indicators in each area and, where it is demonstrated that lands may be at risk of flooding, recommends modifications to land-use proposals or the carrying out of more detailed flood risk assessment as appropriate.

4.2 Available Flood Risk Data

Most of the data utilised is historically derived, not prescriptive in relation to flood return periods and not yet predictive or inclusive for climate change analysis.

4.2.1 Office of Public Works

The OPW is currently undertaking flood risk assessment mapping showing Areas of Potential Significant Flood Risk in collaboration with local authorities and other key agencies. Upon completion, it will become an important and primary source of input into future flood risk assessment studies. A public consultation period for the Preliminary Flood Risk Assessment (PFRA) which identifies Areas of Potential Significant Risk has just concluded. A list designating a number of Areas for Further Assessment (AFA's) arising from the PFRA has recently been published by the OPW. These areas will now be the focus of the CFRAM (Catchment Flood Risk Assessment and Management) studies. Further information on the PFRA process is available on www.cfram.ie.

In addition, as part of the National Flood Risk Management Policy, the OPW developed the www.floodmaps.ie web based data set, which contains information concerning historical flood data and displays related mapped information and provides tools to search for and display information about selected flood events.

Additional mapped information, such as the Ordnance Survey of Ireland background maps, rivers, hydrometric gauge stations, drainage districts and land benefiting from drainage schemes is included as additional contextual information.

4.2.2 6" (1:10560) Ordnance Survey Maps

6" Ordnance Survey maps include areas which are marked as being "Liable to Floods". Generally, these areas are only shown identified indicatively and suggest historical flooding, usually recurrent. In addition, the maps indicate areas of wet or hummocky ground, bog, marsh, springs, rises and wells as well as surface water features including rivers, streams, bridges, weirs and dams.

4.2.3 Local Authority Personnel

Detailed consultations were held with Local Authority personnel regarding historical flooding and any flood relief works which either have been carried out or are proposed for the areas encompassed by the boundaries of the Kilcock Local Area Plan.

4.2.4 Flood Studies, Reports and Flood Relief Schemes

Flood reports have been completed for a number of areas within County Kildare and many areas with a history of flooding have undergone flood relief works in the recent past. A number of surface water / flood alleviation schemes are listed in the Capital Programme.

4.3 Flood Risk Indicators

The extent of Kilcock Local Area Plan, as defined by the boundaries of the draft Local Area Plan, has been assessed for the presence of flood risk indicators by reference to the datasets described in Section 4.2. Table 1 provide a matrix showing these indicators at various locations throughout the Local Area Plan.

Location	Available data (by source)			
	www.floodmaps.ie / PFRA Maps	Local Authority	25" & 6" OS maps	Other
Lands north of the Royal Canal within the LAP boundary (with exception of one small area west of the R158 regional road)	<p>PFRA indicates a likelihood of significant flooding within the lands south of the Rye Water River particularly within the townlands of Balfeaghan and Commons East.</p> <p>These lands are also mapped as Benefiting Lands in Balfeaghan.</p> <p>August 2008 saw extensive flooding of lands both upstream and downstream of the Balfeaghan Bridge along the Rye Water</p>		<p>The Rye Water forms the northern boundary of the LAP which has a history of flooding.</p> <p>Rises, springs, some drainage ditches and a mill race are mapped in the townlands of Kilcock and Commons East</p>	
Lands north of the R148 within the LAP in the townland of Boycetown west of a large distribution premises.	<p>PFRA indicates a likelihood of flooding a small area near the railway line.</p> <p>An area is also mapped as 'Benefiting Lands' immediately south of the railway line.</p>		<p>OS 25" Historic Mapping shows extensive network of open drains and small streams within these lands draining towards the Rye Water. There is an aqueduct located within these lands and a number of rises. An area of land is also marked as 'including water'.</p>	<p>Lands are mapped as generally underlain by poorly drained topsoils with distinct alluvial features indicating the presence of significant drainage features.</p> <p>Subsoils including alluvium, gravels and limestone tills are mapped at this location.</p>
Lands within the LAP east and west of the recently constructed link road between the M4 interchange (Junction 8) and the R148 Kilcock to Enfield Road.	<p>Lands are situated close to a location mapped on the Floodmaps website as prone to flooding.</p>		<p>OS 25" and 6" Historic Mapping shows that the lands are characterised by numerous drainage features including a network of open land drains, wells and rises.</p>	<p>Lands are mapped as generally underlain by poorly drained topsoils with distinct alluvial features indicating the presence of significant drainage features.</p>
Lands within the LAP boundary north east of Commons West and bounded by the Railway to the north and Molly Ware Street to the south east.	<p>Lands are situated close to a location mapped on the Floodmaps website as prone to flooding.</p>	<p>Area near Shaw Bridge is subject to recurring flooding as the area is generally low lying.</p> <p>Inadequate drainage is also considered to be a contributing factor.</p>	<p>OS 25" Historic Mapping shows open drains and small streams within these lands draining towards the Rye Water. A large area of land is marked as 'including water' north west of the Commons West commonage area.</p>	
Lands north of the M4 motorway and south of the Railway Line lying along the eastern boundary of the LAP (townlands of Branganstown and Courtown Little)			<p>OS 25" and 6" Historic Mapping indicates that the lands are characterised by numerous drainage features including a network of open land drains and streams flowing in north easterly and westerly directions.</p> <p>In addition, numerous rises are mapped and an area near the LAP boundary is mapped as 'including water'.</p>	

Lands south of the M4 motorway and southeast of the R407 Regional Road within the LAP boundary and within the townlands of Courtown Little and Courtown Great			OS 25" and 6" Historic Mapping shows that the lands are characterised by numerous drainage features including a network of open land drains and streams flowing in an easterly direction. In addition, numerous rises and springs are mapped.	
Lands bounded by the R148 Regional Road and the Railway Line immediately east of the roundabout on the R148.	Lands are situated close to a location mapped on the Floodmaps website as prone to flooding.		OS 25" and 6" Historic Mapping shows that the lands are surrounded by numerous drainage features including a network of open land drains.	

Note: Lands south of Kilcock have been subject to extensive drainage modification due to the recent M4 motorway construction.

Table 1: Flood Risk Indicators for Kilcock

4.4 Recommendations for modification to or additional assessment of land-use proposals

The SFRA for the Kilcock Local Area Plan carried out an Initial Flood Risk Assessment based on the flood risk indicators listed in Table 1 in relation to the land-use proposals contained in the Local Area Plan.

Kilcock has experienced numerous flooding events due to its proximity to the Rye Water along the northern boundary of the LAP and areas of poorly draining and low lying land. The drainage pattern of lands near the southern boundary of the LAP has been altered in recent years due to the construction of the M4 Kilcock-Enfield-Kinnegad motorway.

Historical indicators suggested the potential for minor localised flooding at several locations as well as more extensive flooding along the Rye Water. OPW flood-mapping also identified a recurrent flooding problem arising from inadequacies in the surface water drainage infrastructure and low lying lands.

In those areas where the Initial Assessment indicated a risk of minor localised flooding, the SFRA recommended that site-specific Flood Risk Assessment be carried out for any proposals for development of these lands. These site-specific assessments should be appropriate to the nature and scale of the development being proposed.

In a number of cases, the Initial Assessment indicated a more significant flood risk in lands which were being considered for types of development not generally compatible with flood risk areas (*i.e. development classed as vulnerable in accordance with the criteria set out in the Planning System and Flood Risk Management Guidelines*). The SFRA recommended that Detailed Flood Risk Assessment (Detailed FRA) be carried out for these lands (the extent of Detail FRA is shown on the Drawing included in [Appendix IV](#)).

Detailed FRA was carried out for these areas in accordance with the Guidelines and Flood Zones established for the 1 in 100year and 1 in 1000year flood events (Flood Zones A and B respectively). Land parcels being considered for types of development not generally compatible with flood risk were found to be located within Flood Zones A and B. In accordance with the Guidelines, the Justification Test was carried out for each land parcel where the encroachment of Flood Zones A and B is significant. Records of these Justifications Tests are reproduced in [Appendix III](#).

The Drawings included in Appendix II show the recommendations of the SFRA further to completion of this Detailed Flood Risk Assessment together with the flood risk zones established by the Detailed FRA.

It is recommended that Development proposals in Kilcock have regard to the general policies, requirements and objectives which are set out in Chapter 7 (Water, Drainage and Environmental Services) of the County Development Plan.

4.5 Forthcoming Information to Inform Future Flood Risk Consideration

Ireland is required under the EU Floods Directive to carry out Preliminary Flood Risk Assessments of their river basins and associated coastal zones by 2011. The OPW has developed a Catchment Flood Risk Assessment and Management (CFRAM) Programme, which lies at the core of the assessment of flood risk and the long-term planning of the flood risk management measures throughout the country, including capital structural and non-structural measures. The CFRAM Programme will, as well as delivering on national policy, meet the requirements of the EU 'Floods' Directive that came into force in November 2007. This Directive required the production of flood maps for the Areas of Potentially Significant Risk by the end of 2013, and the development of Flood Risk Management Plans to manage risk within the Areas of Potentially Significant Risk by the end of 2015.

This SFRA is based on currently available data and in accordance with its status as a "living document" it will be subject to modification by emerging datasets of maps and plans as they become available.

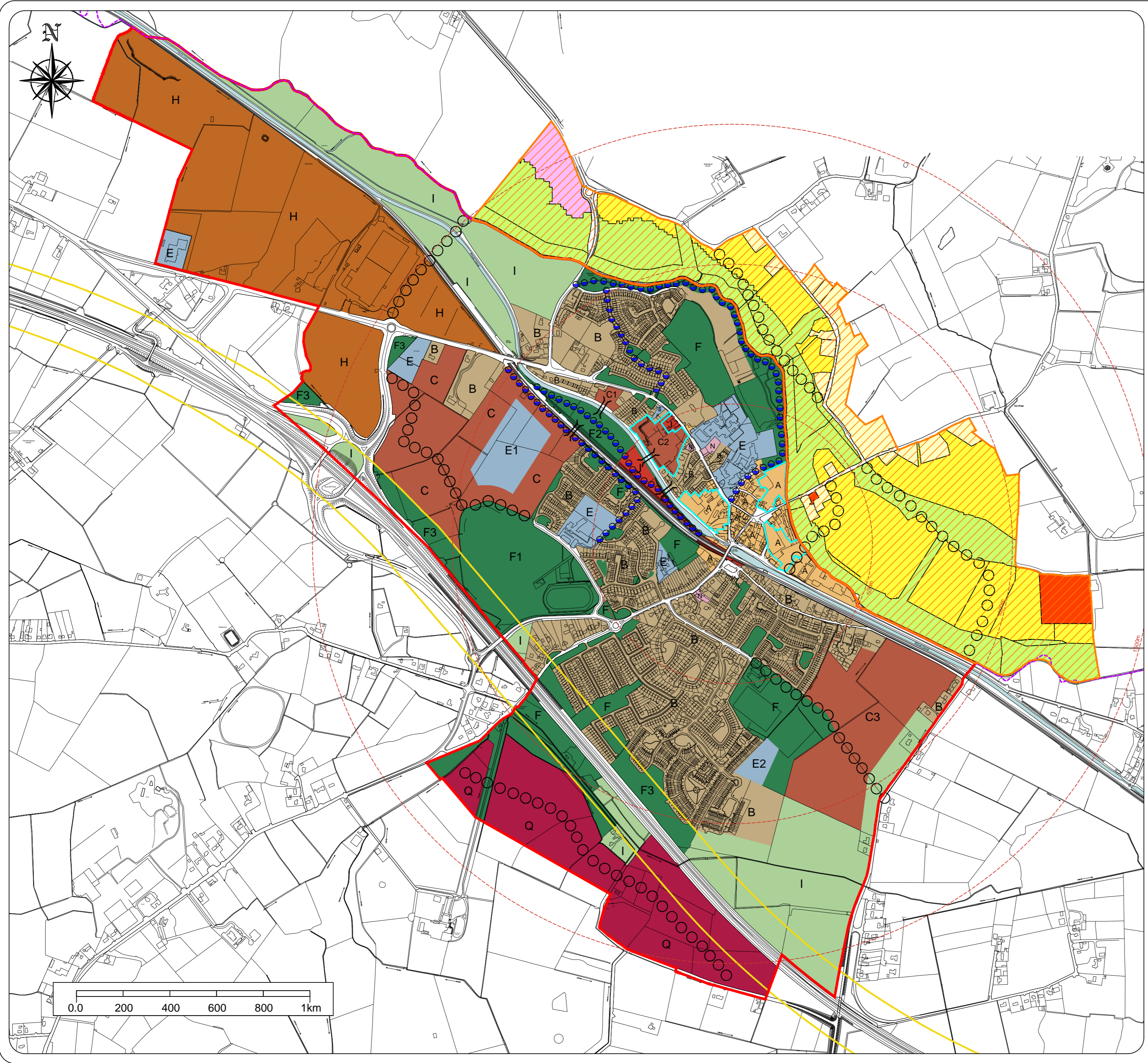
5.0 MONITORING AND REVIEW

It is anticipated based on information available from the OPW that catchment-based Flood Planning Groups should be operational soon after adoption of the Kilcock Local Area Plan.

The catchment-based Flood Planning Groups will monitor and review progress in addressing flood risk in the County with reference to the "The Planning System and Flood Risk Management Guidelines", the EU Floods Directive and this Strategic Flood Risk Assessment together with other data sources as they become available.

It is recommended that the relevant statutory bodies and the catchment based Flood Planning Groups are consulted, and that their progress in implementation of the requirements of the EU Flood Directive be reviewed prior to the preparation of any new Local Area Plan.

APPENDIX I
KILCOCK LOCAL AREA PLAN - DRAFT LAND-USE MAP



Kildare County Council
Planning & Economic
Development Department

Draft
Kilcock Local Area Plan 2014-2020

Legend :

-  A: Town Centre
-  B: Existing Residential & Infill
-  C: New Residential
-  N: Neighbourhood Centre
-  E: Community and Educational
-  F: Open Space and Amenity
-  I: Agriculture
-  H: Light Industry & Warehousing
-  J: Transport and Utilities
-  Q: Enterprise & Employment
-  R: Commercial / Retail Park
-  Meath Zoning
-  Development Boundary
-  Kildare County Boundary
-  Strategic Redevelopment & Regeneration Areas
-  Rivers, Canal & Lakes
-  Roads Objective (i) - (vii) {Indicative only}
-  Pedestrian / Cycle Path (Indicative)
-  Pedestrian / Cycle bridge (Indicative)

Land Use Zoning Objectives Map

Scale : N.T.S

Map Ref :

Date: 22nd Jan 2015

Drawing No: 200/14/678

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(Kildare County Council)

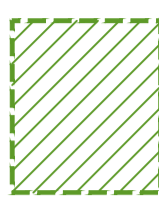
Drawn By: G McGrath

This drawing is to be read in conjunction with
the written statement and objectives map

APPENDIX II
MAPS SHOWING RECOMMENDATIONS OF SFRA AND FLOOD RISK ZONES
ESTABLISHED BY DETAILED FRA

LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Such Development Proposals shall also:

- Indicate and quantify loss of floodplain storage arising from the development proposal;
- Provide compensatory storage located within or adjacent to the proposed development;
- Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000-year flood;
- Ensure that existing flow paths for flood waters will not be compromised.

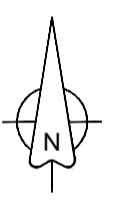


Development Plan boundary

Outline of areas within which Flood risk zones have been established

1,000year flood zone established by Detailed Flood Risk Assessment

Extent of 100year flood zone established by Detailed Flood Risk Assessment



DR2	28/01/15	PB	Issued for inclusion with Report issue 02
DR1	27/01/15	PB	Issued for inclusion with Report issue 01
REV	DATE	BY	DETAILS

DESIGN
CIVIL

STATUS
PLANNING

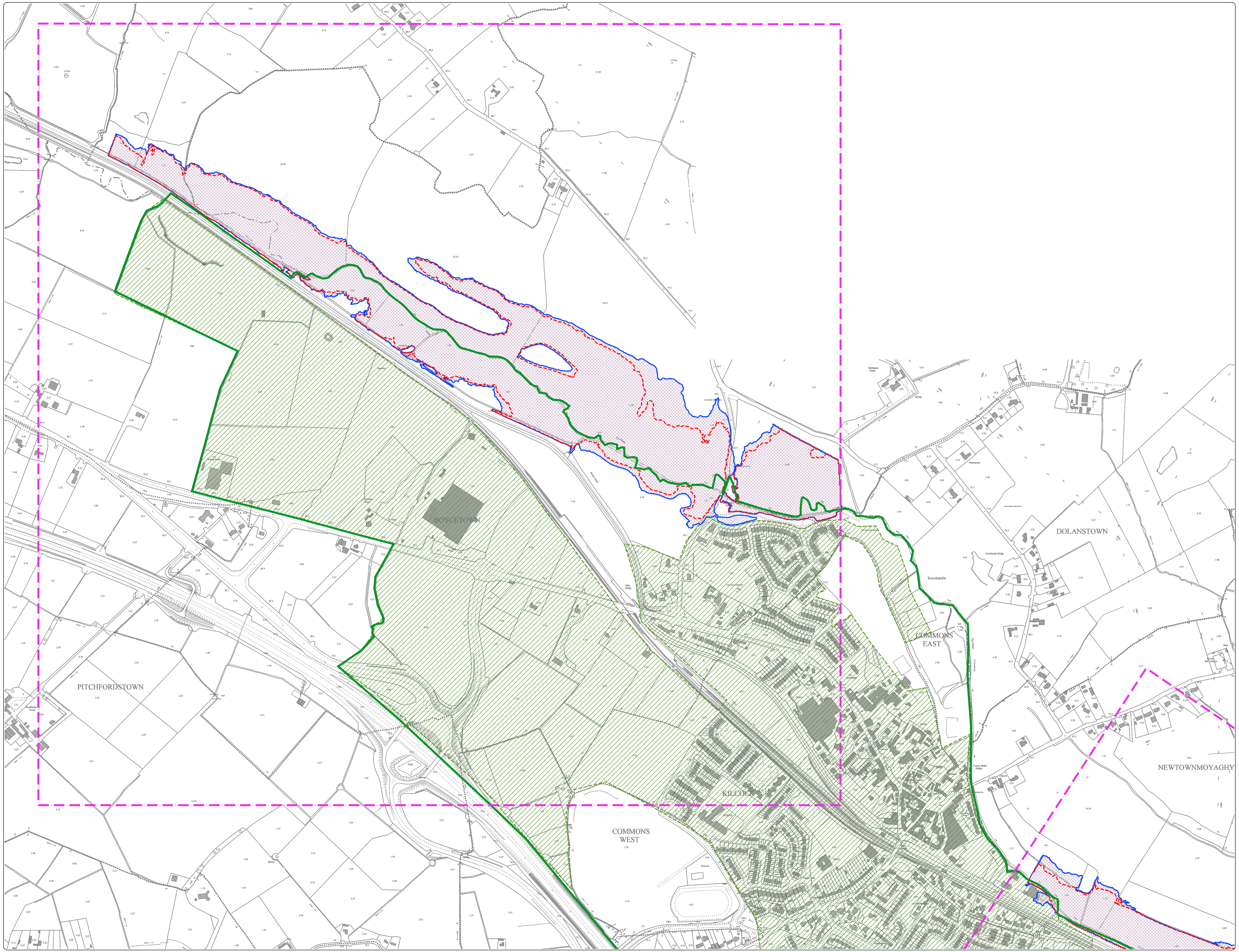
CLIENT
KILDARE COUNTY COUNCIL

PROJECT
**DRAFT STRATEGIC FLOOD RISK ASSESSMENT
 COUNTY DEVELOPMENT PLAN - SMALL TOWNS**

TITLE
**SPECIFIC RECOMMENDATIONS FOR KILCOCK
 (SHEET 1 OF 2)**





KILGALLEN & PARTNERS
 KYLEKIPROE, WELL ROAD, PORTLAOISE, CO. LAOIS
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DRN:	SCALE: 1:5,000 @ A1	DRAWING NO.:	ISSUE:
CHKD:	DATE: 09/01/2015	11049-KILCK-101	DR2



LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Such Development Proposals shall also:

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- Provide compensatory storage located within or adjacent to the proposed development;
- Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood;
- Ensure that existing flow paths for flood waters will not be compromised.

- Development Plan boundary 
- Outline of areas within which Flood risk zones have been established 
- 1,000year flood zone established by Detailed Flood Risk Assessment 
- Extent of 100year flood zone established by Detailed Flood Risk Assessment 



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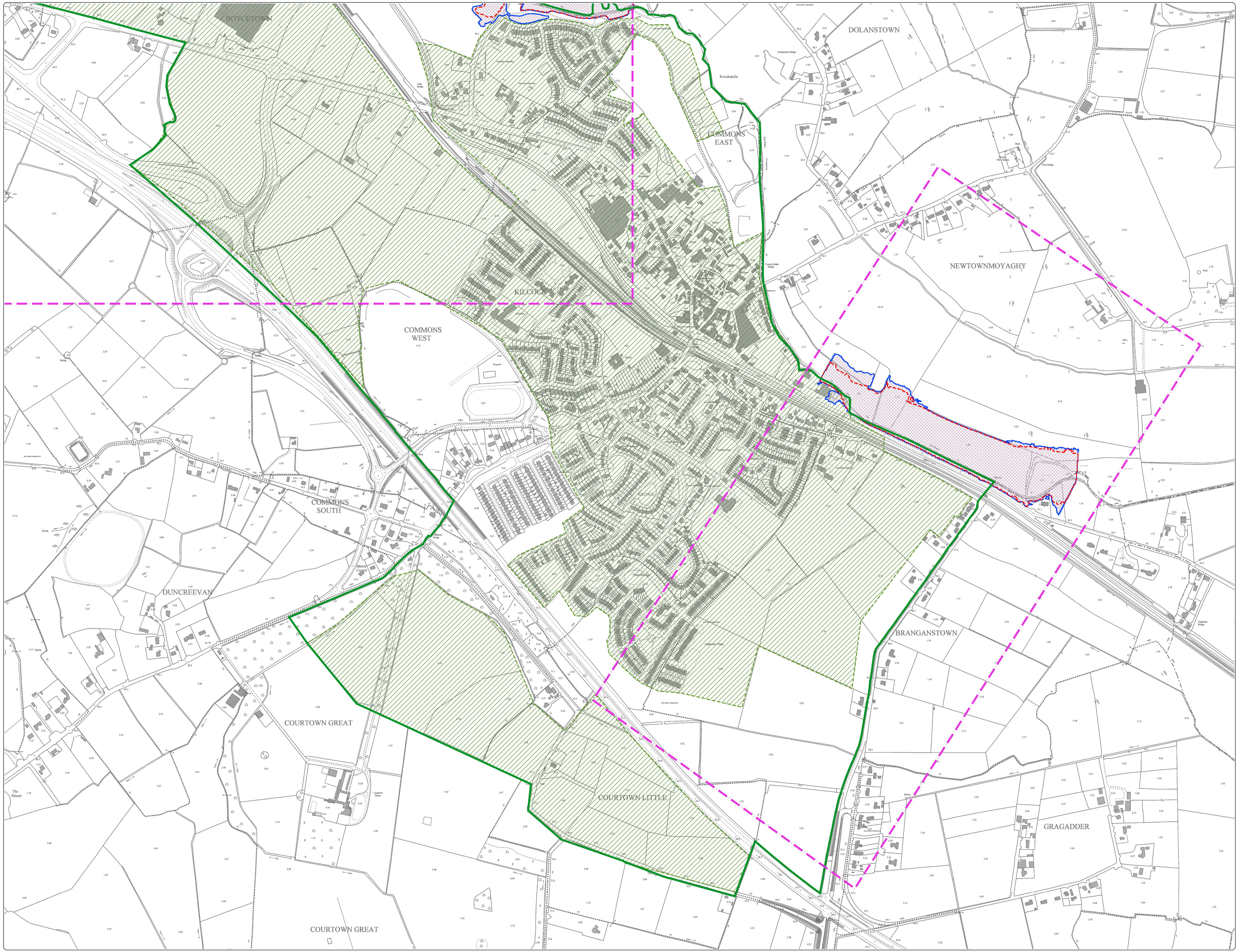
PROJECT
**DRAFT STRATEGIC FLOOD RISK ASSESSMENT
 COUNTY DEVELOPMENT PLAN - SMALL TOWNS**

TITLE
**SPECIFIC RECOMMENDATIONS FOR KILCOCK
 (SHEET 2 OF 2)**



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APPENDIX III
RECORDS OF JUSTIFICATION TESTS

	Kilcock Local Area Plan 2013-2019	Site No 1 A: Town Centre
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). The RPG's have designated Kilcock as a Moderate Sustainable Growth Town situated in the Metropolitan Area.	<p>Kilcock's role as a Moderate Sustainable Growth Town is to have levels of economic activity to ensure that the town develops in a self-sustaining manner.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 850 residential units is prescribed for Kilcock over the period 2006-2017. In achieving this figure regard must be had to the un-built units with valid permissions currently in existence as well as the residential units constructed since 2006.</p> <p>The Council will seek to encourage new local employment opportunities and assist in reducing long distance commuting patterns and thus creating more sustainable communities.</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>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p> <p>(ii) Comprises significant previously developed and / or under utilised lands;</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p> <p>(iv) Will be essential in achieving compact and sustainable urban growth; and</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>The subject site comprises Dermot Kelly Motors which consists of a number of buildings including a Car Showroom and Vehicular Repairs Garage. The Maynooth Road and Royal Canal run to the south of the site, while the Rye Water River forms the boundary to the North. It appears that the area to the west of the site could be impacted by a flood event. This are of the site is currently in use as a private car parking area for the ancillary use of the garage.</p> <p>This site was zoned A: Town Centre in the 2009 Kilcock Development Plan. This zoning provides for the development and improvement of appropriate town centre uses including retail, residential, commercial, office and civic use. There are no current applications for development on this site.</p> <p>The subject site is located in close proximity to the Rye Water River. The subject site is deemed essential to facilitate the regeneration and expansion of the Kilcock as it is located at the edge to the town centre and signifies the entrance to Kilcock.</p> <p>The subject site comprises under utilised and underdeveloped lands adjacent to the town centre and currently.</p> <p>The subject site is located within the town centre of Kilcock adjacent to the established retail core of the town.</p> <p>The subject site is deemed essential to achieving compact and sustainable growth of Kilcock.</p> <p>These lands including other newly zoned lands are required to be zoned in order for Kilcock to reach its residential unit target and fulfil its role as a Moderate Sustainable Growth Town during the life of the plan. These lands will facilitate the appropriate sustainable development of Kilcock in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to</p>

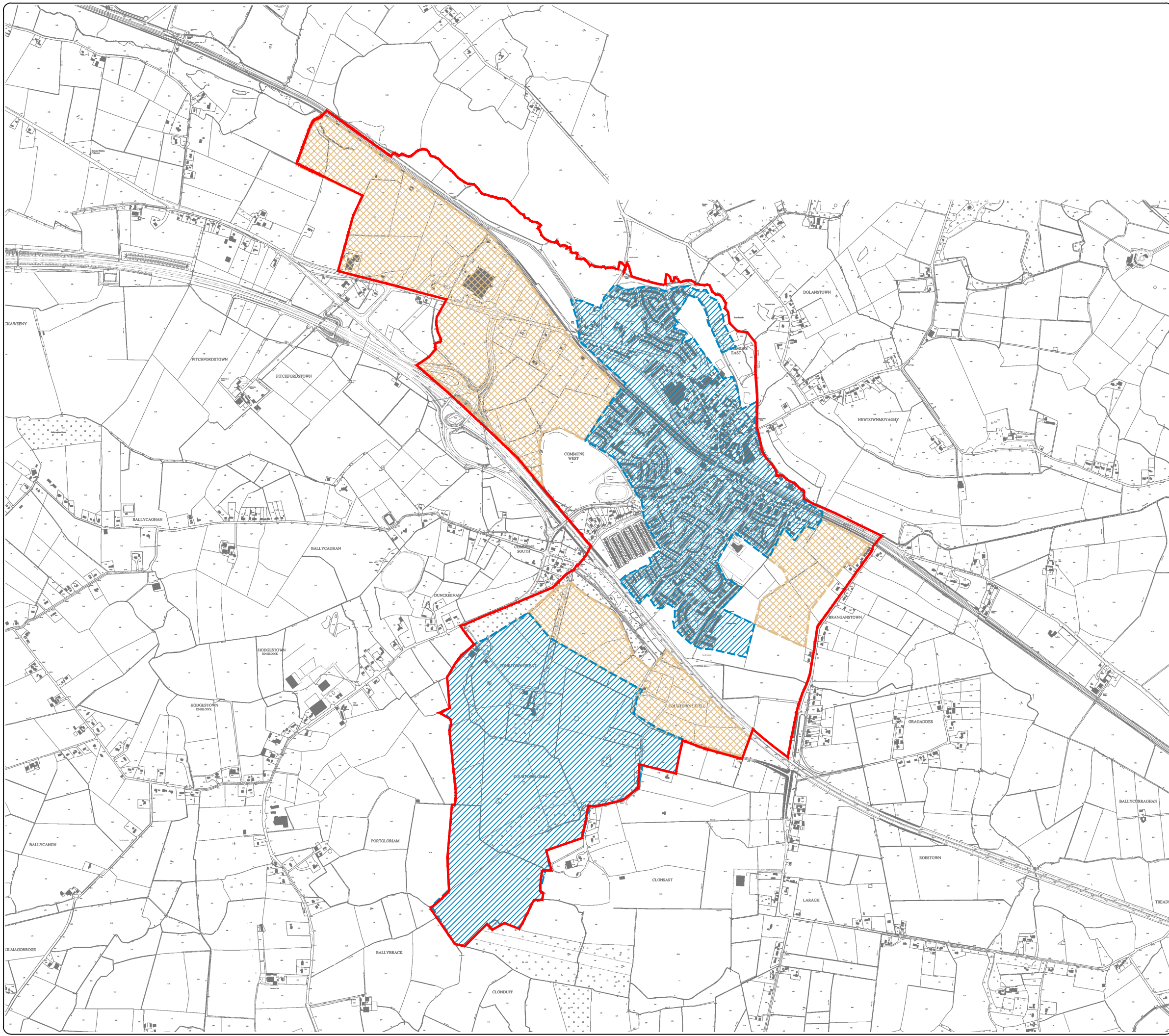
		development.
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>The site is already developed.</p> <p>It is recommended that re-development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such development proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or immediately adjacent to the proposed development; 3) Indicate measures to ensure that water vulnerable elements of the development would not be flooded during the 1000 year flood (in this regard a freeboard of 500mm shall be provided); 4) Ensure the existing flow paths for flood waters will not be compromised.

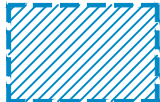
	Kilcock Local Area Plan 2013-2019	Site No 2 I: Agriculture
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Kilcock as a Moderate Sustainable Growth Town situated in the Metropolitan Area.	Kilcock's role as a Moderate Sustainable Growth Town is have levels of economic activity to ensure that the town develops in a self-sustaining manner. Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 850 residential units is prescribed for Kilcock over the period 2006-2017. In achieving this figure regard must be had to the un-built units with valid permissions currently in existence as well as the residential units constructed since 2006. The Council will seek to encourage new local employment opportunities and assist in reducing long distance commuting patterns and thus creating more sustainable communities.
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>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p> <p>(ii) Comprises significant previously developed and / or under utilized lands;</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p> <p>(iv) Will be essential in achieving compact and sustainable urban growth; and</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>The subject site comprises of an area of undeveloped lands to the north west of the plan boundary. The site is bounded to the south by the Royal Canal and the Enfield Road and to the north by the Rye Water River. The site is currently undeveloped. It appears that quite a large portion of the site could be impacted by a flood event.</p> <p>The site was zoned as I: Agriculture in the 2009 Kilcock Development Plan. This zoning ensures the retention of agriculture uses and protects them from urban sprawl and ribbon development. Uses which are directly associated with agriculture or which would not interfere with this use are open for consideration.</p> <p>The subject lands are located to the north west of the LAP boundary on the outskirts of the town, there are other lands available to facilitate the expansion of the town.</p> <p>There is no planning history on this site</p> <p>The subject lands are located to the north west of the LAP boundary on the outskirts of the town, there are other lands available to facilitate the expansion of the town.</p> <p>The subject lands are essential in ensuring the retention of agricultural uses and protecting from urban sprawl and the unsustainable urban growth of the town.</p> <p>This land ensures the retention of agricultural uses and protects them from urban development. These lands are required to ensure that Kilcock fulfils its role as a Moderate Sustainable Growth Town during the life of the plan and develops as a compact town.</p> <p>These lands will facilitate the appropriate sustainable development of Kilcock in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.</p>

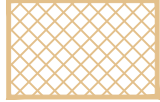
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	The site is currently used for agricultural purposes and this is the land-use proposed in the LAP. It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such development proposals shall also: <ol style="list-style-type: none">1) Indicate and quantify loss of floodplain storage arising from the development proposal;2) Provide compensatory storage located within or immediately adjacent to the proposed development;3) Indicate measures to ensure that water vulnerable elements of the development would not be flooded during the 100 year flood (in this regard a freeboard of 500mm shall be provided);4) Ensure the existing flow paths for flood waters will not be compromised.
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APPENDIX IV

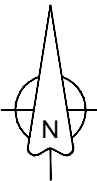
**Maps showing findings Initial Assessment including those areas for
which site-specific flood risk assessment was recommended**



LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. 

Lands for which detailed FRA is required 

Boundary of Plan 



N

REV	DATE	BY	DETAILS

STATUS
PLANNING

CLIENT
KILDARE COUNTY COUNCIL

PROJECT
**DRAFT STRATEGIC FLOOD RISK ASSESSMENT
 COUNTY DEVELOPMENT PLAN - SMALL TOWNS**

TITLE
**RECOMMENDATIONS FOR KILCOCK ARISING FROM
 INITIAL ASSESSMENT**



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