Comhairle Bhaile Chill Dara

Kildare County Council

DRAFT STRATEGIC FLOOD RISK ASSESSMENT

NEWBRIDGE LOCAL AREA PLAN 2013

Kildare County Council **Planning Department** **Aras Chill Dara** **Devoy Park** **Naas** **County Kildare**	**11049-NEWB** **Issue 01**	**Kilgallen & Partners** **Consulting Engineers** **Well Road,** **Kylekiproe** **Portlaoise** **Co. Laois**

April 2013

KILGALLEN & PARTNERS
CONSULTING ENGINEERS

REVISION HISTORY

Project:	**NEWBRIDGE LOCAL AREA PLAN 2013**
Title:	**DRAFT STRATEGIC FLOOD RISK ASSESSMENT**

Date	Description	Origin	Checked	Approved	Issue
09/04/13	11049-NEWB	HS	PB	PB	01

INDEX

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

1.1 Requirement for Flood Risk Assessment

Kildare County Council is in the process of preparing a new Local Area Plan for Newbridge accordance with 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 September 2008 the Minister of the Environment, Heritage and Local Government published Draft Planning Guidelines on the Planning System and Flood Risk Management for public consultation. The 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.

Following on from the consultation process the Minister published statutory planning guidelines entitled *"The Planning System and Flood Risk Management – Guidelines for Planning Authorities"* on 30 November 2009 which incorporate flood risk assessment and management into the planning system. These 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 Newbridge Local Area Plan 2013 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 Newbridge Local Area Plan 2013.

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 making of the Newbridge Local Area Plan 2013, a Strategic Flood Risk Assessment (SFRA) is required to inform that 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.

<u>The Plan-Making Justification Test</u>

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, a 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.

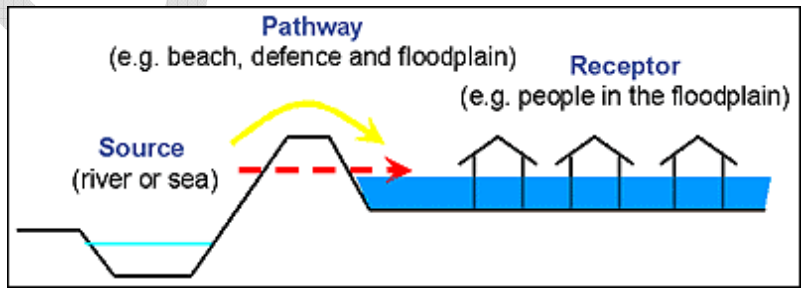


Figure 1: Source-Pathway-Receptor Model (adapted from www.floodsite.net)

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 Newbridge Local Area Plan 2013.

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–NEWBRIDGE LOCAL AREA PLAN 2013

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 Newbridge Local Area Plan 2013. 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. Further information on the PFRA process is available on www.cfram.ie.

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.

The locations of recorded flood events for the Newbridge area were investigated on www.floodmaps.ie and are listed in Table 1.

	Location	Flood Quality Code	Further Information	Flood ID
1	Greatconnel to Clownings Recurring	3	Stream which flows along road overflows its banks after heavy rain. Road is liable to flood	1506
2	Moorfield, Newbridge Recurrring	4	Ballymanagh Cottages are liable to flood after significant heavy rain due to runoff from Hotel car park	1503
3	Miltown Road, Newbridge Recurring	4	Tributary of the Liffey overflows its banks after heavy rain. Housing in Lakeside Park and Mount Carmel are affected. Developer has undertaken some remedial work.	1494
4	Hosbery, Newbridge Recurring	4	Stream entering Liffey overflows its banks after heavy rain.	1496
5	Newbridge College, Newbridge Recurring	4	Flooding occurs at the junction of the stream in (Flood Id 1496) above and the Liffey after heavy rain.	1495
6	Kilbelin. Newbridge Recurring	4	Area floods after heavy rain. The surface water system unable to cope. Occurs one to two times per year.	1491
7	Naas Road, Newbridge Recurring	3	Road is liable to flood every year after heavy rain due to inadequate drainage. (1. The Island, Newbridge: Flood Plain of River Liffey. Flood ID: 1505)	1504

Table 1

Information of flood events taken from OPW Floodmaps website

4.2.3 6" (1:10560) Ordnance Survey Maps

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

4.2.4 Local Authority Personnel

Detailed consultations were held with Local Authority personnel regarding historical flooding and flood relief works in Castledermot.

4.2.5 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 2010 ~ 2012.

4.3 Flood Risk Indicators

The Town of Newbridge has been assessed for the presence of flood risk indicators by reference to the datasets described in Section 4.2. Table 2 provides a matrix showing these indicators at various locations throughout the Town.

			LOCATION			
Information Source	OS 6" Mapping					
	OS 25" Mapping					
	OPW					
	Soil and Subsoil Mapping					
	PFRA Mapping					
	Other					

Table 2: Flood Risk Indicator matrix for New bridge

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

The SFRA assessed the flood risk indicators listed in Table 2 in relation to the land-use proposals contained in the Amendments to Newbridge Local Area Plan 2013. Various areas were identified which may be at risk of flooding but which are being considered for types of development which are not generally compatible with flood risk areas *(i.e. developments which are classed as vulnerable in accordance with the criteria set out in the Planning System and Flood Risk Management Guidelines)*.

A detailed FRA was carried out for these areas in accordance with these Guidelines and Flood Zones established for the 1 in 100year and 1 in 1000year flood events (Flood Zones A and B respectively). The extents of these Flood Zones are shown on the maps included in Appendix 1.

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 full in Appendix 3. Table 3 summarises the recommendations of the SFRA in regard to these Justification Tests.

Area	**Recommendations** *(refer to appendix 2 for associated mapping)*
Site No.1 (Rosconnell)	Having failed to pass other elements of the Justification test, the SFRA recommends that the subject lands be reclassified for water compatible development only in accordance with the Flood Risk Management Guidelines. Development of the lands for water-compatible uses must include such mitigation measures as are required to ensure that: (i) there is no net reduction in the volume of floodplain storage contained within the lands being developed; (ii) existing flow paths will not be compromised; (iii) surface water run-off from development to be limited to the existing greenfield run-off from the site in accordance with the GDSDS.
Site No 2 (Great Connell)	Having failed to pass other elements of the Justification test, the SFRA recommends that the subject lands be reclassified for water compatible development only in accordance with the Flood Risk Management Guidelines. Development of the lands for water-compatible uses must include such mitigation measures as are required to ensure that: (i) there is no net reduction in the volume of floodplain storage contained within the lands being developed; (ii) existing flow paths will not be compromised; (iii) surface water run-off from development to be limited to the existing greenfield run-off from the site in accordance with the GDSDS.

Table 3 Justification Tests - SFRA recommendations

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. By 2013 flood hazard maps and flood risk maps must be produced for areas where real risks of flood damage exist. By 2015 Flood Risk Management Plans must be drawn up for each of these zones.

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 requires 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 these emerging datasets of maps and plans as they become available.

5.0 MONITORING AND REVIEW

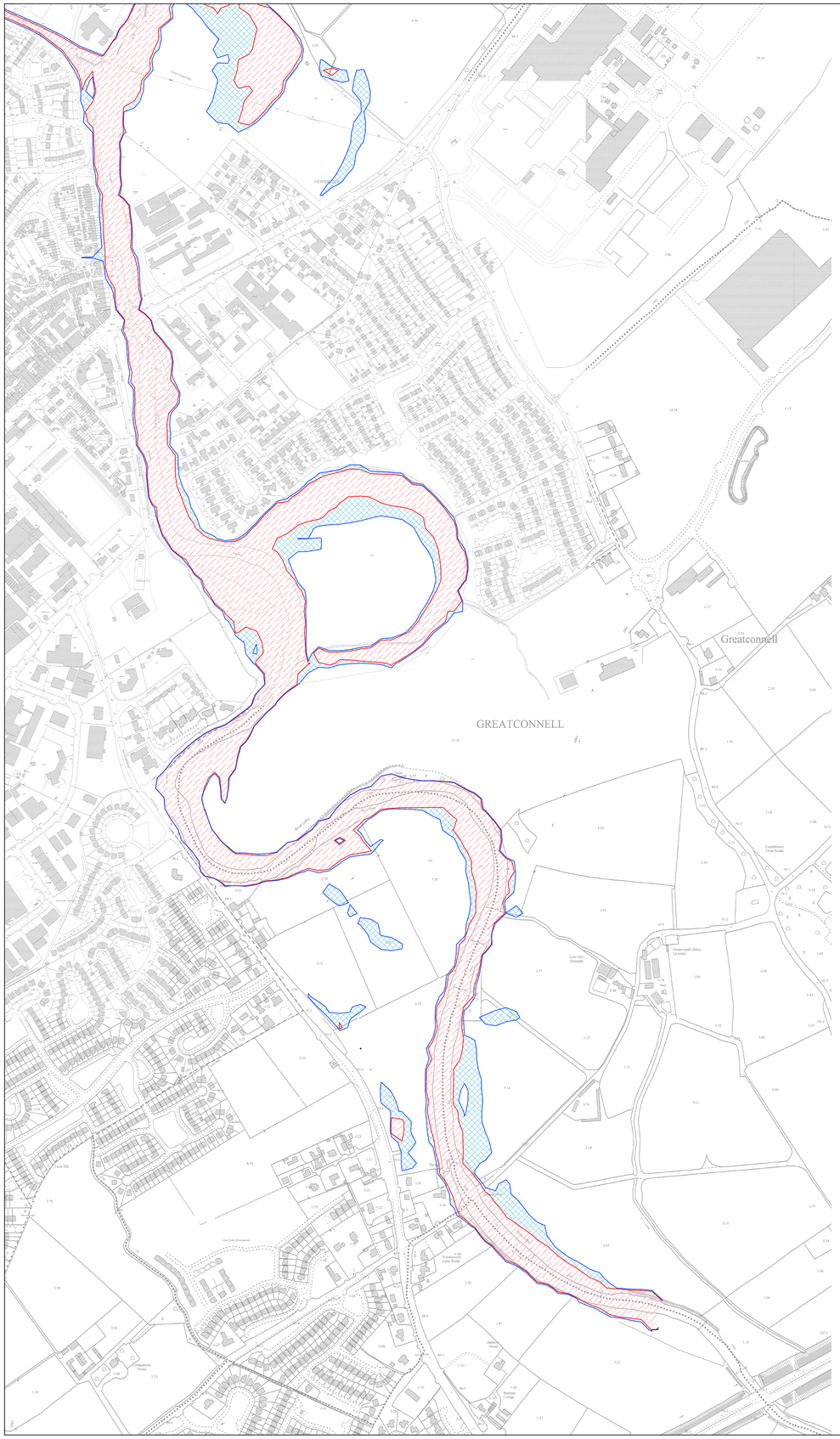
It is anticipated based on information available from the OPW that catchment-based Flood Planning Groups should be operational soon after adoption of the Newbridge Local Area Plan 2013.

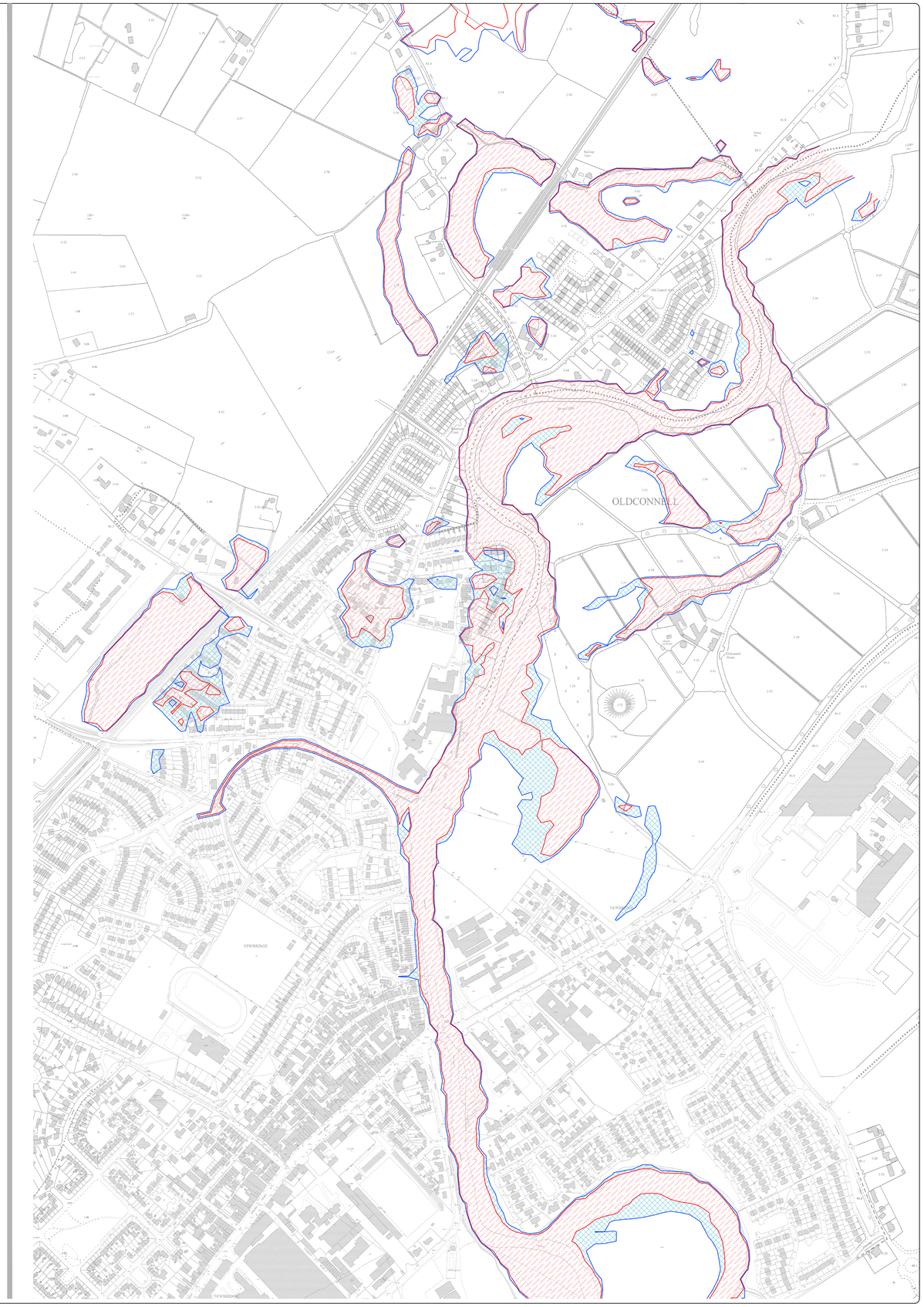
The catchment-based Flood Planning Groups will monitor and review progress in addressing flood risk in the County with reference to the "The Planning System and Flood Risk Management Guidelines", the EU Floods Directive and this Strategic Flood Risk Assessment together with other data sources as they 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 is reviewed prior to the preparation of any amendments or new Castledermot Local Area Plans (i.e. the Plan which succeeds the Amendments to the Newbridge Local Area Plan 2013.

APPENDIX 1

MAPS SHOWING FLOOD ZONES ESTABLISHED BY DETAILED FRA





NOTES A1

Flood Zone A
(AEP: 1%)

Flood Zone B
(AEP: 0.1%)

N

REV	DATE	BY	DETAILS

KILDARE COUNTY COUNCIL
Comhairle Chontae Chill Dara

STATUS
FOR DISCUSSION

CLIENT
KILDARE COUNTY COUNCIL

PROJECT
STRATEGIC FLOOD RISK ASSESSMENT
VARIATION TO KILDARE COUNTY DEVELOPMENT PLAN 2011 - 2017

TITLE
NEWBRIDGE
FLOOD RISK ZONES AS DETERMINED BY DETAILED FRA

KILGALLEN & PARTNERS
CONSULTING ENGINEERS
KYLEKIPROE, WELL ROAD, PORTLAOISE, CO. LAOIS
Tel: +353 57 86 62860, Fax: +353 57 86 62861
E-mail: Info@Kilgallen.ie, Web: www.kilgallen.ie

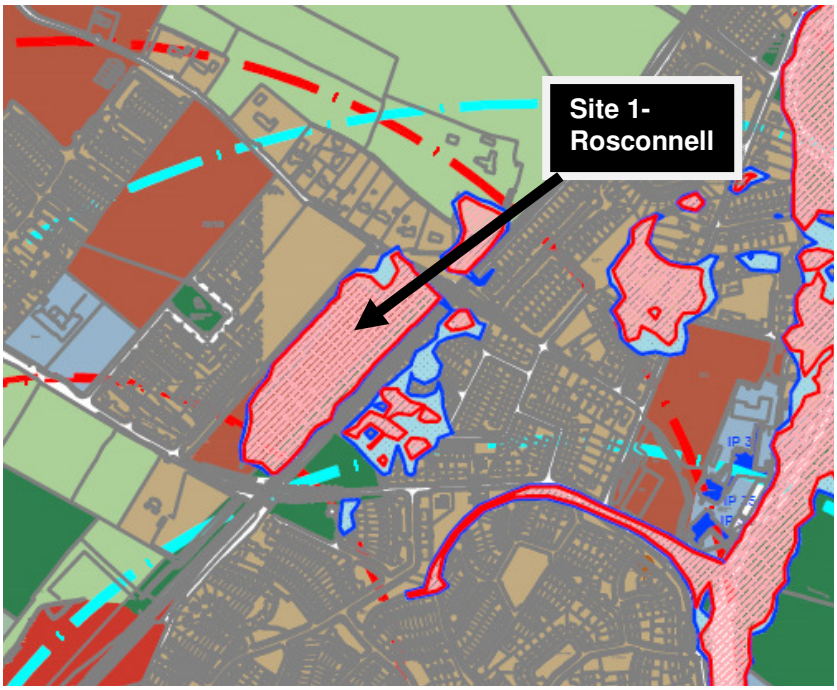
DRN:	SCALE:	DRAWING NO.:	REV.:
MOC	1:5000 @ A1	11049-NEWB-02	P2
CHKD: PB	DATE: 09.02.2012		

APPENDIX 2

RECORDS OF JUSTIFICATION TESTS

Justification Test for Development Plans as per SFRA Guidelines

Newbridge Local Area Plan 2013-2019 **Site No 1- Rosconnell**



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 Newbridge as a Large Growth Town II situated in the Metropolitan Area.	**The role of Newbridge as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.** **Arising from the RPGs and the County Development Plan 2011-2017, a growth target of 23, 254 persons has been set. Based on these figures, an additional 1,497 residential units is prescribed for Newbridge during the lifetime of the plan.**
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper	**The site is bound to the northwest by a scheme of housing development by Kildare County Council, to the north east and south west by public roads. This**

	planning and sustainable development of the urban settlement and in particular:	**site is bound to the south east by the Dublin to Cork railway line. This line runs along an embankment and so it is elevated in relation to the site. The site is bound to the south west by Sex Road, the L-7045, including the northern embankment to this Road that marks its approach to Sexton's Bridge. Overall the lands to the north slope towards this site, which is lowlying in nature.** **The subject site is surrounded by existing residential area to the north and south and by existing educational uses further north. The site was zoned for residential uses in the previous Newbridge Local Area Plan 2003.** **Having regard to the extent of the site impacted upon by potential flooding, it is considered inappropriate to retain the zoning for residential development. The site should be de-zoned to a water compatible use.** **Note: part of the site is in Kildare County Council Ownership**
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	**The proposed residential zoning is not considered necessary to facilitate regeneration and / or expansion of the town centre of the urban settlement. The town centre is located approximately 1km from the site.**
	(ii) Comprises significant previously developed and / or under utilized lands;	**The site does not comprise previously developed lands.** **Permission for 158 units was refused on this site under Reg. Ref. 09/657 (ABP Pl 09.234641).**
	(iii) Is within or adjoining the core of an established or designated urban settlement;	**The site is adjacent to residential developments to the north and further south (on the opposite side of the rail line) and is circa 1km from the existing town centre.**
	(iv) Will be essential in achieving compact and sustainable urban growth; and	**The site is located close to existing residential area and represents an infill site. However it is located approximately 1km from the town centre and the proposed zoning is not considered necessary to facilitate the future expansion of the residential**

		areas of the town. An alternative land use may be considered.
	(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.	**There are suitable alternative lands for residential use elsewhere in the town which are in areas at lower risk of flooding within and adjoining the core of the urban settlement.** **Currently there is an oversupply of residentially zoned lands in Newbridge, exceeding the demand for the period 2013-2019. To ensure compliance with the core strategy lands have been proposed for phasing and down-zoning. In accordance with the Flood risk guidelines which recommend as a core objective "to avoid inappropriate development in areas at risk of flooding and having regard to the extent of the site located within the flood risk zone", it is considered appropriate to re-zone the site for other water compatible uses.**
	SFRA	
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.	**Having failed to pass other elements of the Justification test, the SFRA recommends that the subject lands be reclassified for water compatible development only in accordance with the Flood Risk Management Guidelines.** **Development of the lands for water-compatible uses must include such mitigation measures as are required to ensure that:** **(i) there is no net reduction in the volume of floodplain storage contained within the lands being developed;** **(ii) existing flow paths will not be compromised;** **(iii) surface water run-off from development to be limited to the existing greenfield run-off from the site in accordance with the GDSDS.**

Justification Test for Development Plans as per SFRA Guidelines

Newbridge Local Area Plan 2013-2019 **Site No 2- Great Connell**

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 Newbridge as a Large Growth Town II situated in the Metropolitan Area.	**The role of Newbridge as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.** **Arising from the RPGs and the County Development Plan 2011-2017, a growth target of 23, 254 persons has been set. Based on these figures, an additional 1,497 residential units is prescribed for Newbridge during the lifetime of the plan.**

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 site was zoned for residential use in the previous Newbridge Local Area Plan 2003 and is currently in agricultural use.** **The subject site is located directly east of the River Liffey and the historic photo above would indicate that the River flowed around the site, which could have formed an ox-box lake.** **The site is bounded by existing residential development to the north and east and by undeveloped land to the immediate east which is zoned for amenity and open space uses in the previous 2003 Local Area Plan.** **There are suitable alternative lands for residential use elsewhere in the town which are in areas at lower risk of flooding within the core of the urban settlement. Having regard to the extent of the site located within the flood risk zone, the level of overprovision of residentially zoned land in the 2003 Plan, together with the inaccessibility of the site, it is considered appropriate to re-zone the site for other water compatible uses.**
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	**The proposed residential zoning is not considered necessary to facilitate regeneration and / or expansion of the town centre of the urban settlement and it is located approximately 200m from the town centre and is physically separated from the town centre by the River Liffey.**
	(ii) Comprises significant previously developed and / or under utilized lands;	**The site does not comprise previously developed lands. The lands are currently in agricultural use.**
	(iii) Is within or adjoining the core of an established or designated urban settlement;	**The site is not located within the core of the established or designated urban settlement.**
	(iv) Will be essential in achieving compact and sustainable urban growth; and	**The site is bounded by existing residential development to the north and east but is currently inaccessible by existing roads infrastructure. There are also notable changes in ground levels in the area. Access is possible through the adjoining residentially zoned lands.**

		In short, the site is not considered necessary to facilitate the future expansion of the residential areas of the town.
	(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.	**There are suitable alternative lands for residential use elsewhere in the town which are in areas at lower risk of flooding within the core of the urban settlement. Having regard to the extent of the site located within the flood risk zone, the level of overprovision of residentially zoned land in the 2003 Plan, together with the inaccessibility of the site, it is considered appropriate to re-zone the site for other water compatible uses.**
	SFRA	
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.	**Having failed to pass other elements of the Justification test, the SFRA recommends that the subject lands be reclassified for water compatible development only in accordance with the Flood Risk Management Guidelines.** **Development of the lands for water-compatible uses must include such mitigation measures as are required to ensure that:** **(i) there is no net reduction in the volume of floodplain storage contained within the lands being developed;** **(ii) existing flow paths will not be compromised;** **(iii) surface water run-off from development to be limited to the existing greenfield run-off from the site in accordance with the GDSDS.**

APPENDIX 3

MAP SHOWING FLOOD RISK ZONES AND RECOMMENDATIONS FOR SITE-SPECIFIC FLOOD RISK ASSESSMENTS

NOTES A1

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 1000year flood;
- Ensure that existing flow paths for flood waters will not be compromised.

Development Plan boundary

1000year flood zone

100year flood line

N

REV	DATE	BY	DETAILS

KILDARE COUNTY COUNCIL
Comhairle Chontae Chill Dara

STATUS
PLANNING

CLIENT
KILDARE COUNTY COUNCIL

PROJECT
STRATEGIC FLOOD RISK ASSESSMENT
VARIATION TO KILDARE COUNTY DEVELOPMENT PLAN 2011 - 2017

TITLE
NEWBRIDGE
FLOOD RISK ZONES AND RECOMMENDATIONS FOR SITE SPECIFIC FRA

KILGALLEN & PARTNERS
CONSULTING ENGINEERS
KYLEKIPROE, WELL ROAD, PORTLAOISE, CO. LAOIS
Tel: +353 57 86 62860, Fax: +353 57 86 62861
E-mail: Info@Kilgallen.ie, Web: www.kilgallen.ie

DRN:	SCALE:	DRAWING NO.:	REV.:
MOC	1:7500 @ A1	11049-NEWB-04	P1
CHKD: PB	DATE: 08.03.12		