

Comhairle Bhaile Chill Dara
Kildare County Council



STRATEGIC FLOOD RISK ASSESSMENT
ADDENDUM REPORT DECEMBER 2016

DRAFT CLANE LOCAL AREA PLAN 2017 TO 2023

Kildare County Council
Planning Department
Aras Chill Dara
Devoy Park
Naas
County Kildare

11049-LAP Clane
Issue No. 10

Kilgallen & Partners
Consulting Engineers
Well Road,
Kylekiproe
Portlaoise
Co. Laois

REVISION HISTORY

Project:	DRAFT CLANE LOCAL AREA PLAN 2017 TO 2023
Title:	STRATEGIC FLOOD RISK ASSESSMENT – ADDENDUM REPORT DECEMBER 2016

Date	Description	Origin	Checked	Approved	Issue
31.07.12	Initial Issue	HS	PB		No. 1
10.03.15	Revised following detailed FRA	PB	MK		No. 2
05.07.16	Revised following publication of CFRAM mapping	PB	MK		No. 3
05.09.16	Miscellaneous revisions	PB	MK		No. 4
08.09.16	Strategic reserve incorporated	PB	MK		No. 5
23.09.16	Miscellaneous revisions	PB	MK		No. 6
09.12.2016	Revised following public consultation	PB	MK		No. 7
16.12.2016	Minor revisions	PB	MK		No. 8
20.12.2016	Minor revisions	PB	MK		No. 9
20.12.2016	Minor revisions	PB	MK		No. 10

PREFACE

The Draft Clane Local Area Plan 2017-2023, published in September 2016 was accompanied by a Strategic Flood Risk Assessment Report.

This SFRA Addendum Report (SFRA –Issue No. 10) incorporates flood zone mapping from the Eastern CFRAM Study (published in September 2016) and illustrates the three flood zones as they relate to the Draft Local Area Plan.

INDEX

		Page
1.0	INTRODUCTION	1
1.1	Requirement for Flood Risk Assessment	
1.2	The Planning Guidelines and Flood Risk Management	
1.3	Structure of a Flood Risk Assessment (FRA)	
1.4	The Flood Risk Assessment Process for The Planning Authority	
1.5	Key Outputs from the SFRA	
1.6	Disclaimer	
2.0	FLOOD RISK	7
2.1	Types of Flooding	
2.2	Components of Flood Risk	
2.3	Source – Pathway – Receptor Model	
3.0	FLOOD RISK MANAGEMENT POLICIES AND OBJECTIVES	9
3.1	General Development Plans and Strategies	
3.2	Flood Risk Management Objectives	
4.0	STRATEGIC FLOOD RISK ASSESSMENTS – CLANE LOCAL AREA PLAN	10
4.1	Introduction	
4.2	Available Flood Risk Data	
4.3	Flood Risk Indicators	
4.4	Recommendations for modification to or additional assessment of land-use proposals	
4.5	Forthcoming Information to Inform Future Flood Risk Consideration	
5.0	MONITORING AND REVIEW	14

1.0 INTRODUCTION

1.1 Requirement for Flood Risk Assessment

Kildare County Council is in the process of preparing the Clane Local Area Plan 2017 to 2023 in 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 is required to 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 Clane Local Area Plan 2017 to 2023 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 Clane 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 Clane 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.

1.6 Disclaimer

This SFRA has been prepared in compliance with The Guidelines. It is a living document and is based on the best available data at the time of preparation. It is subject to change based on more up to date and relevant flood risk information that may become available during the lifetime of the Clane Local Area Plan 2017~2023.

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

The CFRAM mapping used to define the flood zones for this SFRA is the most comprehensive flood zone mapping available for Clane and is considered appropriate for use as a strategic overview of flood risk within the boundary of Clane LAP.

Further information on the Eastern CFRAM study is available at www.cfram.ie. Rather than providing information on floods that have occurred in the past, the flood maps are 'predictive' flood maps. They provide predicted flood extent and other information for a flood event that has an estimated probability of occurrence (the 1% Annual Exceedance Probability (AEP) and 0.1% AEP events – Refer to Section 2.2 herein).

Kildare County Council makes no representations, warranties or undertakings about any of the information provided on the CFRAM maps including, without limitation, their accuracy, their completeness or their quality or fitness for any particular purpose.

To the fullest extent permitted by applicable law, Kildare County Council nor any of its members, officers, associates, consultants, employees, affiliates, servants, agents or other representatives shall be liable for loss or damage arising out of, or in connection with, the use of, or the inability to use, the information provided on the flood maps including, but not limited to, indirect or consequential loss or damages, loss of data, income, profit, or opportunity, loss of, or damage to, property and claims of third parties, even if Kildare County Council has been advised of the possibility of such loss or damages, or such loss or damages were reasonably foreseeable.

Kildare County Council reserves the right to change the content and / or presentation of any of the information provided on the flood maps at its sole discretion, including these notes and disclaimer.

This disclaimer, guidance notes and conditions of use of CFRAM maps shall be governed by, and construed in accordance with, the laws of the Republic of Ireland. If any provision of this disclaimer, the guidance notes and conditions of use shall be unlawful, void or for any reason unenforceable, that provision shall be deemed severable and shall not affect the validity and enforceability of the remaining provisions.

2.0 FLOOD RISK

2.1 Types of Flooding

The two main sources of flooding are 'inland' and 'coastal'. Inland flooding is caused by prolonged and/or intense rainfall. This results in fluvial, pluvial or ground water flooding, occurring either separately or in combination. Coastal flooding is not a concern for the Clane area as the watercourses within County Kildare County are not susceptible to tidal influence.

Fluvial flooding occurs when a river overtops its banks due to insufficient channel capacity or due to blockage in the channel.

Pluvial flooding occurs when heavy rainfall results in:

- Water, which cannot infiltrate into the ground, flows across the ground surface,
- The capacity of local drainage is overwhelmed due to blocked drainage systems or drainage systems exceeding their capacity
- When the water cannot discharge due to a high water level in the receiving watercourse.

Groundwater flooding occurs when the level of water stored in the ground rises to the surface and flows out over it as a result of prolonged rainfall.

2.2 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."

A 1% probability indicates the severity of a flood that is expected to be exceeded on average once in 100 years, i.e. it has a 1 in 100 (1%) chance of occurring in any one year.

The consequences of flooding are described in the Guidelines as follows:

"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)."

2.3 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.

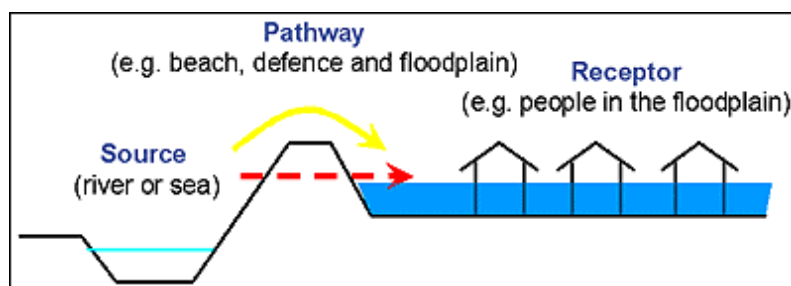


Figure 1: Source-Pathway-Receptor Model (adapted from www.floodsite.net)

3.0 FLOOD RISK MANAGEMENT POLICIES AND OBJECTIVES

3.1 General Development Plans and Strategies

The Draft Kildare County Development Plan 2017-2023 outlines surface water and flood risk management policies and objectives for County Kildare. The Clane Local Area Plan will implement these policies to ensure flood risk and surface water management is considered during the planning process for development within the LAP boundary. The Clane LAP will also implement specific local policies and objectives.

3.2 Flood Risk Management Objectives

Kildare County Council will implement the proposed flood risk management objectives for specific areas, ensuring planning applications, where applicable; will require a Flood Risk Assessment to an appropriate level of detail. The required level of detail of such Flood Risk Assessments will depend on the risks identified and the proposed land use. Planning Applications should demonstrate the use of the sequential approach in terms of the site layout and the design. Furthermore, in satisfying the Justification Test (where required), the proposal will demonstrate that appropriate flood mitigation and management measures are put in place.

For any Planning Application for development in flood risk areas that meets the Development Plan Justification Test, a Development Management Justification Test must then be applied. Development must satisfy all of the criteria of the Development Management Justification Test

4.0 STRATEGIC FLOOD RISK ASSESSMENTS—CLANE LOCAL AREA PLAN

4.1 Introduction

The Guidelines recommend identifying flood zones which show the extent of flooding for three levels of flood zones:

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

The flood zones do not take account of potential flooding from pluvial and groundwater sources and should not be taken as an indication that any areas are free from flood risk.

Similarly flood defences should be ignored in determining flood zones as defended areas still carry a residual risk of flooding from overtopping, failure of the defences and deterioration due to lack of maintenance.

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 Clane Local Area Plan 2017~2023. This process identifies flood risk indicators in some areas 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.

The influence of flood risk on the proposed zoning / de-zoning / development within the Plan area is demonstrated by a comparison of the map in Appendix I with the map in Appendix III. These maps show the draft initial Land Use Zonings and the current Land Use Zonings respectively, with the Flood Risk Zones superimposed on both.

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 Flood Records on Floodmaps.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.

4.2.2 Catchment Flood Risk Assessment and Management (CFRAM)

The OPW is currently leading the development of Catchment Flood Risk Assessment and Management (CFRAM) Studies. The aim of these studies is to assess flood risk, through the identification of flood hazard areas and the associated impacts of flooding.

They will also take account of issues such as climate change, land use practices and future development. These studies have been developed to meet the requirements of the EU Directive on the assessment and management of flood risks (the Floods Directive). The Floods Directive was transposed into Irish law by SI 122 of 2010 "European Communities (Assessment and Management of Flood Risks) Regulations 2010".

The CFRAM Studies will establish long-term Flood Risk Management Plans (FRMP) to manage flood risk within the relevant river catchment. Flood maps are one of the main outputs of the studies. The maps indicate modelled flood extents for flood events of a range of annual exceedance probability (AEP).

The CFRAM maps are the most comprehensive flood maps produced for Kildare since the introduction of the Guidelines and the Floods Directive. The flood zones only account for inland flooding. Confidence in the accuracy of the maps is considered to be high due to the robust nature of the CFRAM flood mapping process.

4.2.3 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.

4.2.4 Local Authority Personnel

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 Clane Local Area Plan.

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 2016 ~ 2018.

4.3 Flood Risk Indicators

The extent of Clane Local Area Plan, as defined by the boundaries of the draft Local Area Plan (the "study area"), has been assessed for the presence of flood risk indicators by reference to the datasets described herein in Section 4.2. Table 1 provides a matrix showing the locations of these indicators within the study area.

Location	Available data (by source)			
	www.floodmaps.ie / CFRAM Maps	Local Authority	25" & 6" OS maps	Other
Lands at northern boundary of LAP (townland of Mainham)	CFRAM shows localised flooding in lands immediately north, adjacent to the Gollymochy River.			
Area of land within Loughbollard adjacent to College Road East (townland of Loughbollard Commons)	Floodmaps website refers to repeated flooding at a location in Loughbollard along the Clane to Kilcock Road (Flood ID 1293). CFRAM mapping shows 1% and .1% AEP flood risk in lands adjoining the Gollymochy River	Clane Area Engineer has recorded previous flooding incidents in this low lying area.	25" mapping indicates springs, open drains and the Gollymochy River in the immediate proximity of these lands. A spring is mapped north of the lands.	Soils underlying the lands are mapped by the EPA as Poorly Drained topsoil whose parent material is Limestone Till.
Lands north and south of the Butterstream within the LAP boundary (townlands of Hoganswood East, Clane and Crockaun Commons)	CFRAM mapping indicates lands north of the Prosperous Road and as being affected by 1% and .1% AEP flood risk. Floodmaps website refers to repeated flooding in Commons, Clane (Flood ID 1285) by the Butterstream and flooding on the Millicent Road at a low lying area due to inadequate and frequently blocked drainage (Flood ID 1291).	The Butterstream Flood Alleviation Scheme has been completed. There has been a history of flooding in this area.	Extensive drainage features are mapped on the OS 6" and 25" Historic Mapping on lands around the Butterstream including rises, land drains and springs.	There has been a history of flooding in this area. Of particular note was the flooding which occurred in November/December 2009 when the nearby nursing home was evacuated.
Lands south of the Clane to Prosperous Road and lands east of the Clane to Sallins Road south of the Roman Catholic Church	CFRAM mapping indicates these lands as being affected b 1% and .1% AEP flood risk		Numerous springs and drainage features including the Butterstream are mapped within this area.	
Lands along the River Liffey within the LAP boundary (townlands of Carrigeen, Abbeyland (Clane By), Blackhall (Ed Bodestown) and Capdoo)	CFRAM mapping indicates a likelihood of significant flooding, with up to 10% AEP, within large portions of these lands. Floodmaps website refers to significant flood event around Alexandra Bridge in 1954.		The Butterstream enters the Liffey near Alexandra Bridge. Numerous open drains, springs, wells and rises are mapped on the OS 25" Historic Mapping. An area mapped as 'including water' lies north of the Liffey within the townland of Abbeyland near Clane Abbey.	Extensive development has occurred throughout large portions of these lands in recent years.
Extensive lands within the LAP boundary east of lands zoned Town Centre (including lands lying within townlands of Capdoo Commons, Castlebrown or Clongowes north of the Celbridge Road and lands east and west of the recently constructed link road between the Celbridge Road and the Sallins Road)	CFRAM mapping indicates a likelihood of significant flooding, with up to 10% AEP, within large portions of these lands.		OS 6" and 25" Historic Mapping indicates that these lands contain extensive drainage features including numerous springs and rises, wells, open field drains and small streams.	Extensive development of land areas east of Clane has occurred.

Table 1: Flood Risk Indicators for Clane

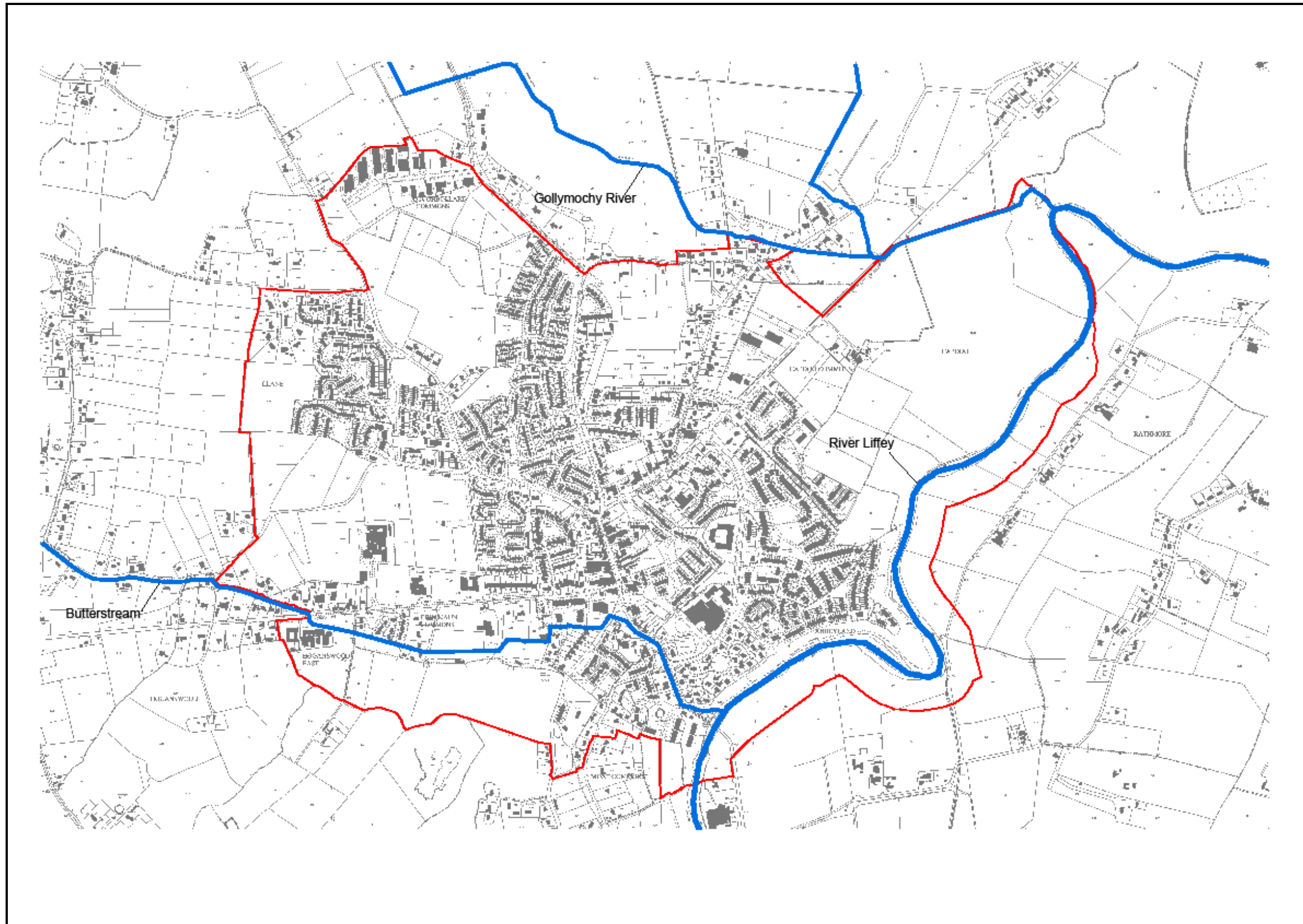


Figure 1 – Significant Watercourses Through LAP Area

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

As part of the SFRA process, a Stage 1 Flood Risk Identification was carried out.

Clane has been the subject of repeated historical flooding as well as more recent flood events. Prior to the construction of Pollaphuca dam on the River Liffey, Clane regularly experienced extensive flooding. The Butterstream watercourse in Clane has also caused flooding.

Historical indicators suggested the potential for localised flooding at several locations. OPW flood-mapping also identified a recurring flooding problem arising from inadequacies in the surface water drainage infrastructure and low-lying lands.

Based on the findings of Stage 1, the SFRA proceeded to Stage 2. The resulting flood zone maps superimposed on the zoning objective map from the 2009 LAP are shown in [Appendix I](#).

In those areas where the Stage 2 assessment indicated a risk of localised flooding of undeveloped or partially developed lands, the SFRA recommends that Site-Specific Flood Risk Assessment (SSFRA) be carried out for any future proposals for development of these lands. The SFRA also recommends SSFRA for development proposals (i.e. re-development) of lands that are already developed but found by the Stage 2 Assessment to be at risk of Flooding. All Site-Specific Flood Risk Assessments should be appropriate to the nature and scale of the development being proposed. The map in [Appendix IV](#) shows the areas for which it is recommended that development proposals be subject to Site-Specific FRA.

In a number of cases, the Stage 2 Assessment indicated a more significant flood risk in undeveloped or partially developed 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. In such cases, detailed FRA was carried out 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).

Where land parcels that were under consideration for types of development not generally compatible with flood risk were found to be located within Flood Zones A and B, Justification Tests were carried out in accordance with the Guidelines.

Records of these Justifications Tests are reproduced in [Appendix II](#).

The map in [Appendix III](#) shows the flood risk zones superimposed on the Draft Land-Use Maps for Clane LAP 2017~2023.

The influence of flood risk and of the SFRA on the proposed zoning / de-zoning / development within the Plan area is demonstrated by a comparison of the map in Appendix I with the map in Appendix III, all of which is informed by the Justification Tests contained in Appendix II.

It is recommended that Development proposals in Clane have regard to the general policies, requirements and objectives which are set out in Chapter 7 (Infrastructure) of the Draft County Development Plan 2017-2023 and all relevant general policies, requirements and objectives of the final adopted County Development Plan 2017-2023.

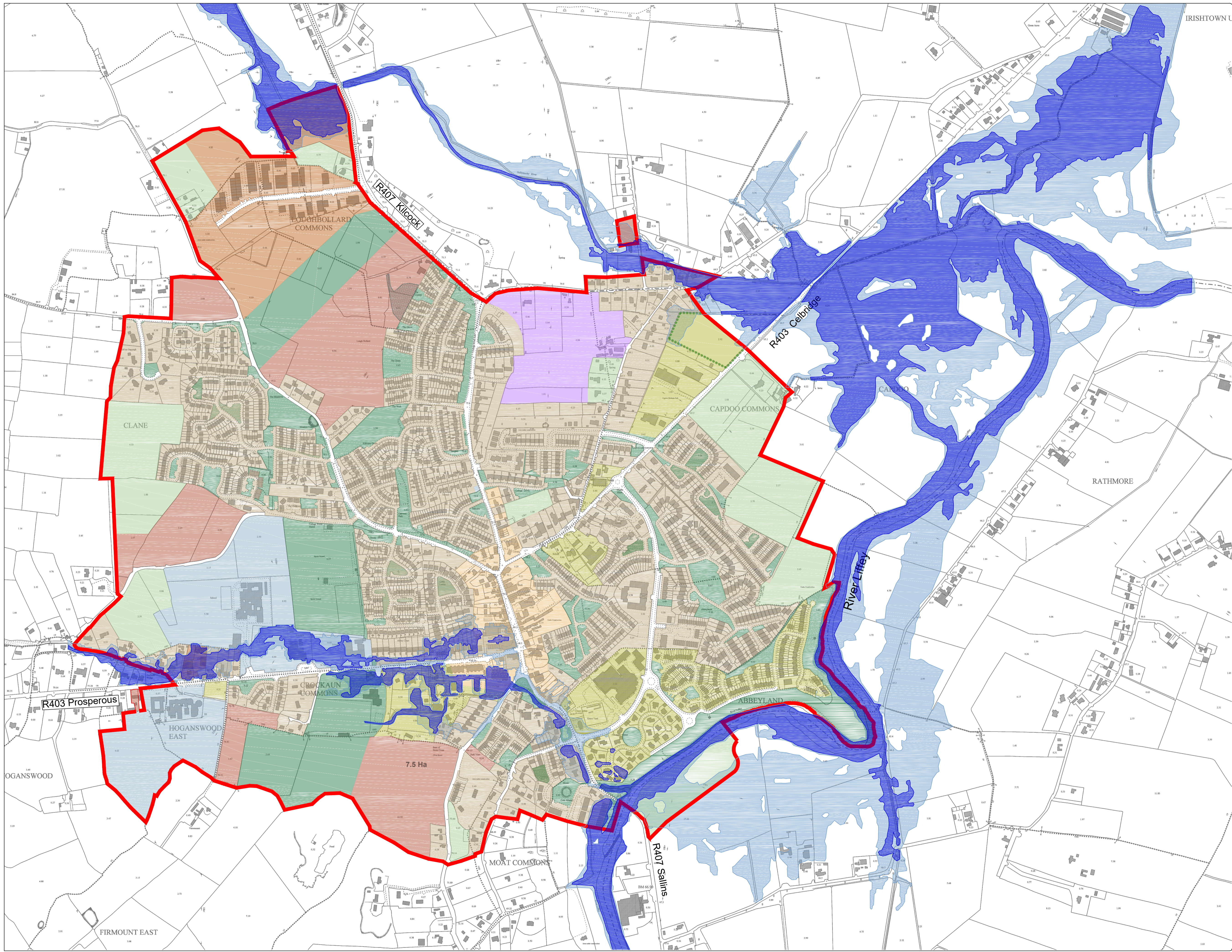
4.5 Forthcoming Information to Inform Future Flood Risk Consideration

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 SFRA MONITORING AND REVIEW

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

APPENDIX I
INITIAL DRAFT LAND-USE MAP WITH FLOOD RISK ZONES SUPERIMPOSED



Development Plan boundary

Fluvial Flood Risk Zones
(as determined by Detailed FRA and the Eastern CFRAM Study)

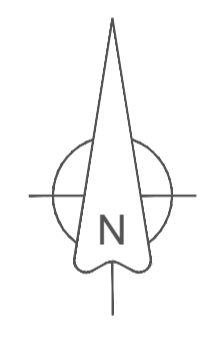
Flood Risk Zone A (1.0% AEP)

Flood Risk Zone B (0.1% AEP)

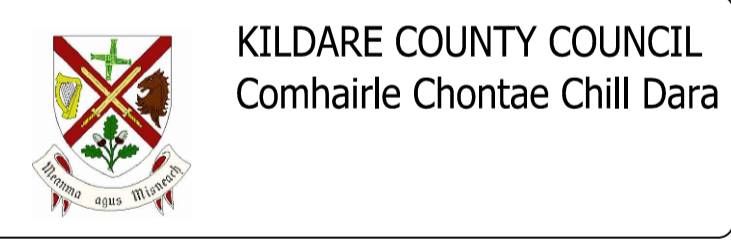
Pluvial Flood Risk Zone

LAND-USE LEGEND

- A: Town Centre
- B: Existing Residential
- C: New Residential
- E: Community and Institutional
- F: Open Space and Amenity
- F2: Strategic Open Space
- H: Light Industry & Warehousing
- I: Agriculture
- Q: Business and Technology
- SR: Strategic Reserve



DR2	09/12/16	PB	Colour Scheme for Flood Risk Zones amended
DR1	07/12/16	PB	For issue with draft report issue 07
REV	DATE	BY	DETAILS



STATUS
DRAFT REPORT

CLIENT
KILDARE COUNTY COUNCIL

PROJECT
STRATEGIC FLOOD RISK ASSESSMENT
CLANE DRAFT LOCAL AREA PLAN
2017- 2023

TITLE
FLOOD RISK ZONES SUPERIMPOSED ON ZONING
OBJECTIVES FROM 2009 LAP

KILGALLEN & PARTNERS

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

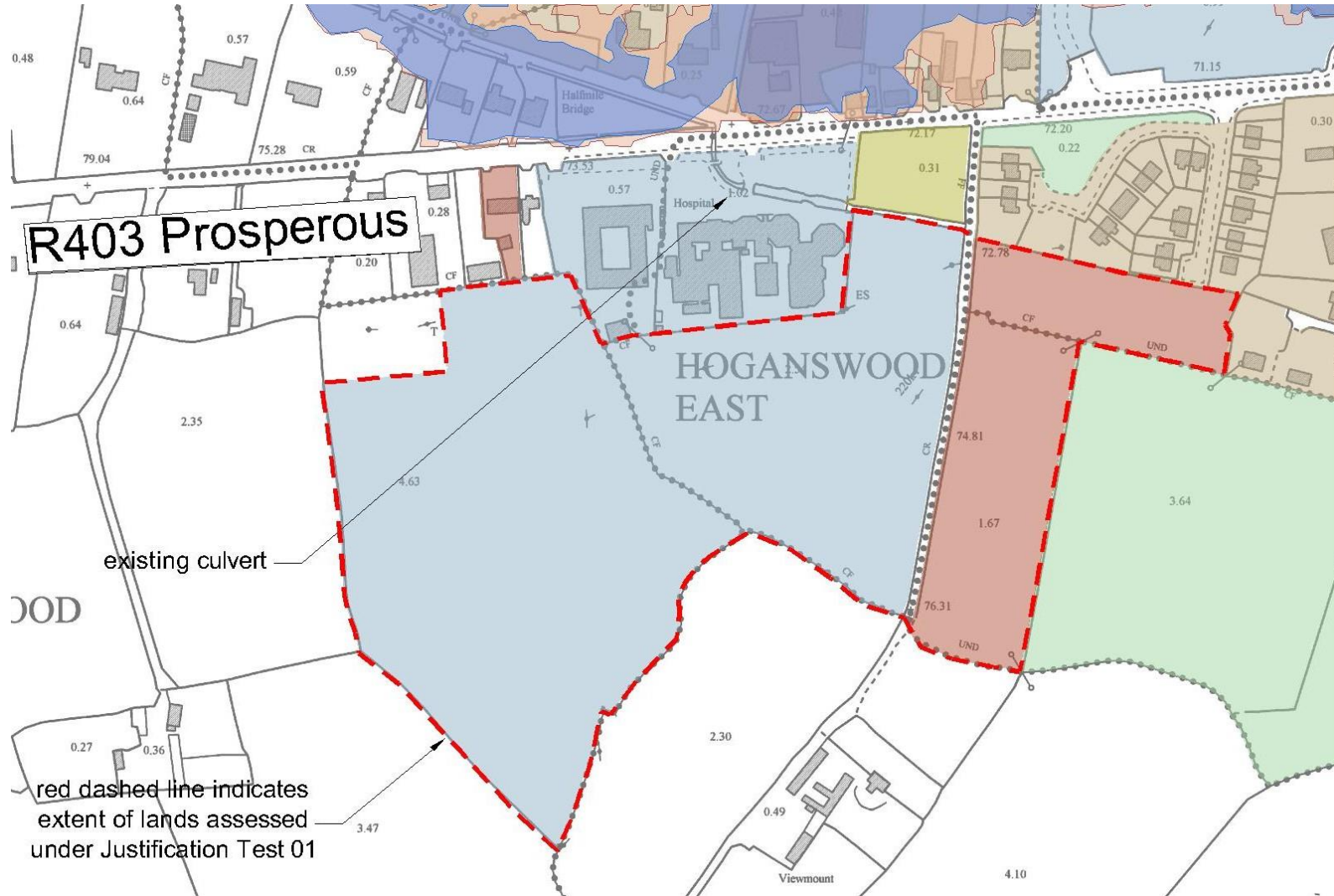
DRN:	SCALE:	DRAWING NO.:	REV.:
DQ	1:5000 @ A1		
CHKD:	DATE:	11049-CLA-701	DR3
PB	07/12/16		

APPENDIX II
RECORDS OF JUSTIFICATION TESTS

JUSTIFICATION TEST 01

**Lands formerly zoned Community & Educational and New Residential located to the west of
the town on the Prosperous Road**

Map showing extent of lands being assessed superimposed on zoning objective from 2009 LAP



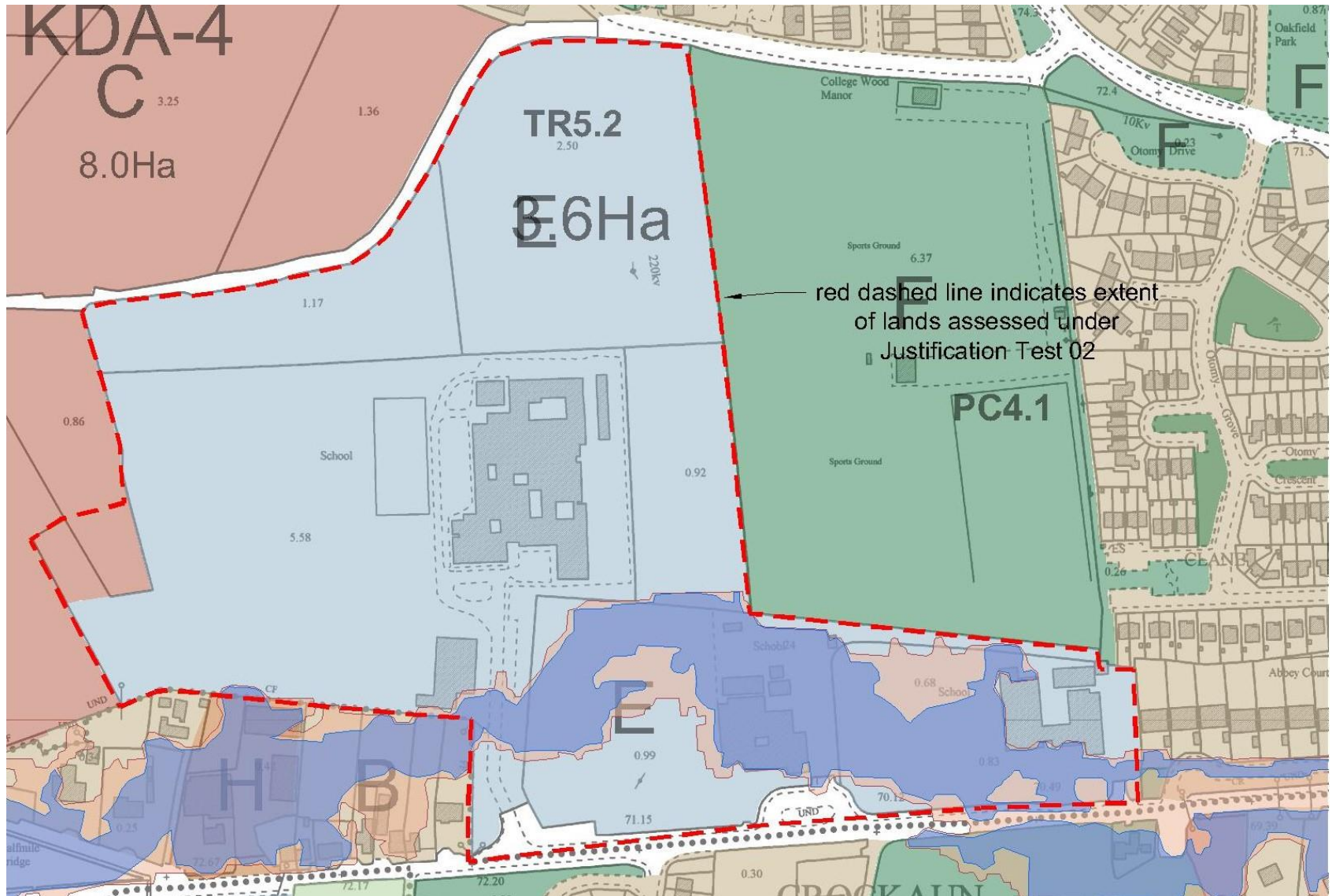
JUSTIFICATION TEST 01 Lands formerly zoned Community & Educational, Residential and General Development located to the west of the town on the Prosperous Road		
1/1	<p>The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.</p>	<p>Clane as a Small Town is intended to support the development of small locally-financed business. Other economic investment opportunities are to be supported where sustainable. Arising from the RPGs and the draft County Development Plan 2017-2023, a growth target of an additional 780 residential units is prescribed for Clane during the lifetime of the plan.</p> <p>The Council will seek:</p> <ul style="list-style-type: none"> • to encourage new local employment opportunities at a scale appropriate to the town’s role and growth • to assist in reducing long distance commuting patterns, thus creating more sustainable communities • to support the local community by facilitating improvements to existing educational, childcare and healthcare facilities. <p>The subject site is located in close proximity to the Butterstream watercourse, which flows into the Liffey further to the east.</p> <p>The lands were zoned ‘Community and Educational’ and ‘New Residential’ under the 2009 Clane LAP. This zoning reflected community uses (hospital and nursing home) at the location and identified land to the rear of the hospital intended for further healthcare-related development with the requirement that any housing be ancillary to community/educational uses. It also included New Residential land to the rear (south) of Butterstream Drive.</p>
1/2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The need for an extensive amount of lands for further Community/Institutional development adjacent to the hospital has not been demonstrated and there is no specific objective to intensify such uses in Clane. The backland location and configuration of the residential lands poses difficulties in terms of proper planning and sustainable development. Sequentially, there are other sites closer to the town centre zoned for new residential use.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The lands are located at the edge of the town and would not contribute to expansion or regeneration of the core.</p>

JUSTIFICATION TEST 01		
Lands formerly zoned Community & Educational, Residential and General Development located to the west of the town on the Prosperous Road		
1/2 cont.	(ii) Comprises significant previously developed and / or underutilized lands;	The lands are undeveloped. While there have been a number of planning permissions on the site of the existing healthcare facilities, no development proposals have been made on the subject lands.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located on the outskirts of the town on the Prosperous Road.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	It has not been demonstrated that there is a need for the lands for expansion of healthcare facilities or associated residential development. As such the lands are not essential for compact/sustainable 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.	There are other lands zoned for Community and Educational development, and New Residential development, with lower risk of flooding and there is scope for the intensification of healthcare uses within its current site.
1/3	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>A section of the stream flowing through the site is culverted. It is considered that the capacity of this culvert will not be sufficient to carry flows in the stream during intense / prolonged rainfall events. As a result, there remains the possibility that until such time as the culvert is removed, the lands would be impacted upon by Flood Risk Zones A and B. Accordingly, replacement of this culvert might be necessary if water-vulnerable development of the lands was to proceed. The impact of replacing the culvert should be assessed by detailed FRA.</p> <p>The site failed to pass other elements of the Justification Test and has been reclassified for water compatible development in accordance with the Flood Risk Management Guidelines.</p> <p>Development of the lands for water compatible uses must include such mitigation measure as are required to ensure that:</p> <ul style="list-style-type: none"> (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 runoff from any proposed development is to be limited to the existing Greenfield run off from the site in accordance with the GSDS.

JUSTIFICATION TEST 02

Lands zoned for Community and Institutional use North of the Prosperous Road

Map showing extent of lands being assessed superimposed on zoning objective from Draft 2016 Clane LAP



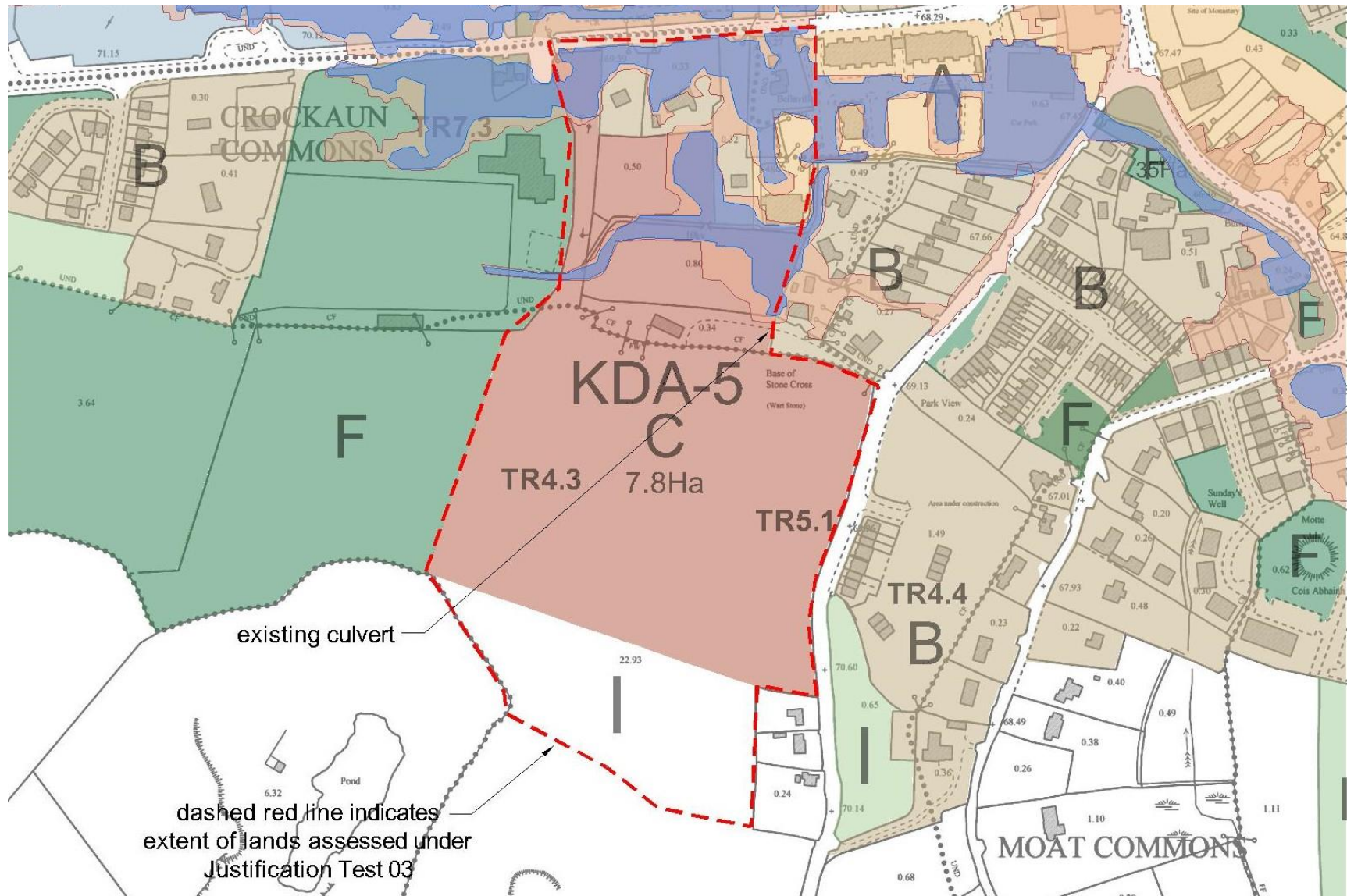
JUSTIFICATION TEST 02		
Lands zoned for Community and Institutional use North of the Prosperous Road		
2/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.
2/2	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 zoning of this area for community and educational use is intended to reflect the existing use, i.e. Scoil Bhride Girls National School, Scoil Phádraig Boys National School and Scoil Mhuire Community School.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The land is currently in use as for educational and ancillary purposes. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
	(ii) Comprises significant previously developed and / or underutilized lands;	The land is currently in use for educational and ancillary purposes.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site adjoins the west of the town centre and is within walking distance of town centre residential areas.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The continued development of this land is essential in achieving compact and sustainable urban growth as it provides community and education services to Clane.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The zoning of this land reflects the existing uses on the site, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.

JUSTIFICATION TEST 02	
Lands zoned for Community and Institutional use North of the Prosperous Road	
2/3	<p>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> <p>The site has passed other elements of the Justification Test.</p> <p>A significant area at the southern side of the lands is located within a flood risk zone, however the depth of floodwater is generally shallow and the lands in question are already developed or being used as sporting grounds ancillary to the schools that are located on the lands.</p> <p>It is anticipated that flood risk will not undermine the strategic decision to classify the lands for Community & Institutional use.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

JUSTIFICATION TEST 03

Lands zoned New Residential, Existing Residential and Town Centre between the Prosperous and Millicent Roads, beside the GAA grounds

Map showing extent of lands being assessed superimposed on zoning objective from 2016 Draft Clane LAP



JUSTIFICATION TEST 03		
Lands zoned New Residential between the Prosperous and Millicent Roads, beside the GAA grounds		
3/1	<p>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.</p>	<p>Arising from the RPGs and the Draft County Development Plan 2017-2023, a growth target of an additional 780 residential units is prescribed for Clane during the lifetime of the plan.</p> <p>Clane as a Small Town is intended to support the development of small locally-financed business. Other economic investment opportunities are to be supported where sustainable.</p> <p>The subject site had one zoning objective, (C - New Residential) under the 2009 LAP. The lands are zoned New Residential under the Draft LAP 2017~2023, with small portions zoned Existing Residential/Infill and Town Centre.</p> <p>The subject site is located in close proximity to the Butterstream watercourse, which flows into the Liffey further to the east.</p>
3/2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The lands are zoned for New Residential development.</p> <p>The zoning of adequate lands for residential development is necessary in order to enable the growth of Clane in compliance with the Core Strategy of the CDP. The zoning of these specific lands is in accordance with proper planning and sustainable development for the following reasons:</p> <ul style="list-style-type: none"> • Sequentially they represent the closest landbank to the town centre • They are adjacent to amenities • They offer the best opportunity for sustainable residential development.
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The zoning of these lands is necessary for the sustainable development of the town and the development of a compact urban structure as these lands are in close proximity to the Main Street. The currently undeveloped new residential lands are located adjacent to existing residential development, amenity facilities and education facilities.</p>
	<p>(ii) Comprises significant previously developed and / or underutilized lands;</p>	<p>The lands were not previously developed. Permission was refused in 2010 on part of these lands due to insufficient capacity in the wastewater treatment infrastructure. They are underutilised as they currently used predominantly as agricultural lands, with one residential premises.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>Parts of these lands are within the town centre area. The portion of the land zoned for residential development adjoins the core of the settlement.</p>

JUSTIFICATION TEST 03		
Lands zoned New Residential between the Prosperous and Millicent Roads, beside the GAA grounds		
3/2 Cont.	(iv) Will be essential in achieving compact and sustainable urban growth; and	The development of these lands is essential for the future expansion of the town and the provision of residential areas in a compact and sustainable manner.
	(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.	This lands represent the most suitable location for further residential development.
3/3	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>A section of the stream flowing through the site is culverted. It is considered that the capacity of this culvert will not be sufficient to carry flows in the stream during intense / prolonged rainfall events. Replacement of this culvert might be necessary if water-vulnerable development of the lands is to proceed. There is also a thrash screen on this stream and this must be cleared regularly and also in advance of significant rainfall events.</p> <p>A significant part of the land is located in a flood risk zone. However, the lands are already substantially developed and it is anticipated that flood risk will not undermine the strategic decision to classify the lands in accordance with their existing use.</p> <p>An emergency evacuation plan and defined access / egress routes should be developed for extreme flood events.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must consider the impact of replacing the culvert as recommended above and must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

JUSTIFICATION TEST 04		
Lands zoned Business & Technology and Community & Institutional to the east of the town on the Celbridge Road.		
4/1	<p>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.</p>	<p>Clane as a Small Town is intended to support the development of small locally-financed business. Other economic investment opportunities are to be supported where sustainable.</p> <p>Arising from the RPGs and the draft County Development Plan 2017-2023, a growth target of an additional 780 residential units is prescribed for Clane during the lifetime of the plan.</p> <p>The Council will seek:</p> <ul style="list-style-type: none"> • to encourage new local employment opportunities at a scale appropriate to the town's role and growth • to assist in reducing long distance commuting patterns, thus creating more sustainable communities • to support the local community by facilitating improvements to existing educational, childcare and healthcare facilities. <p>The Gollymochy stream runs to the north of the site and is a tributary of the River Liffey. It appears that a portion of the site could be impacted by a flood event, particularly the portion of the site to the north west adjacent to existing residential properties.</p>
4/2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The lands were zoned as 'T1' General Development in the 2009 Clane Local Area Plan. The lands are zoned for Business & Technology and Community & Institutional under the Draft LAP 2017~2023. These zonings are intended to provide for employment generating uses (such as offices and high technology) and a childcare facility. There are no other undeveloped lands zoned for Business & Technology in the LAP area.</p> <p>The site has advantages in terms of access, opportunity to provide a landmark development, potential to drive the intensification of development on adjacent sites and (in conjunction with Key Development Area 1, strategic reserves and strategic open space) would consolidate the form of the settlement.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The subject site is not within the centre of the settlement but is within 1km of same.</p>

JUSTIFICATION TEST 04		
Lands zoned Business & Technology and Community & Institutional to the east of the town on the Celbridge Road.		
4/2 cont.	(ii) Comprises significant previously developed and / or underutilized lands;	<p>There is no planning history on the site. The lands are considered underutilised in the following context:</p> <ul style="list-style-type: none"> • good access to regional road network • potential for landmark type development announcing the town • potential to drive the regeneration and intensification of development on adjacent sites and • consolidation of the form of the settlement in conjunction with the lands zoned to the south.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The lands are not within or adjoining the core of the settlement but lie approximately 900metres from the town centre and should also be considered in the context of adjoining Business & Technology lands.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	While located at the edge of the town, the lands are adjacent other Business & Technology zoned lands. In conjunction with these lands and lands in Key Development Area 1, the site will contribute to compact and 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.	Although there are other lands available for Light Industry and Warehousing Use, there are no other undeveloped lands available for Business & Technology use and there are no other undeveloped lands identified for Community and Institutional use in the north-east quadrants of the town.
4/3	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 lands passed other elements of the Justification Test. Approximately 20% of the land is located in a flood risk zone (at the northern boundary), however the depth of floodwater is generally shallow. It is anticipated that flood risk will not undermine the strategic decision to classify the lands for Business & Technology and Community & Institutional.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

JUSTIFICATION TEST 05		
Lands at Loughbollard on the Kilcock Road (proposed New Residential zoning within KDA3)		
5/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.
5/2	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 zoning of the lands for residential development is necessary in order to enable the sustainable growth of Clane in compliance with the Core Strategy of the CDP. The LAP has designated a quantum of zoned lands to deliver the Core Strategy housing allocation based on 5 Key Development Areas. KDA 3 includes the subject lands. It is considered that the zoning of the subject lands for residential development at this location is required to achieve the proper planning and sustainable development of Clane.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands were not previously developed. They are considered underutilized given their infill nature and prominent location on the Kilcock Road.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The lands would form part of a consolidated development area at an infill location and would thus contribute to sustainable and compact 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.	It is not considered that there are other more suitable lands for Residential Development.	

JUSTIFICATION TEST 05		
Lands at Loughbollard on the Kilcock Road (proposed New Residential zoning within KDA3)		
5/3	<p>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>	<p>The site is affected by pluvial flood risk. While the extent of the flood risk area is significant, the body of water would be shallow. Thus, it is considered that the impact of any pluvial flooding can be mitigated and that pluvial flood risk will not undermine the strategic decision to classify the lands for Business & Technology and Community & Institutional.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

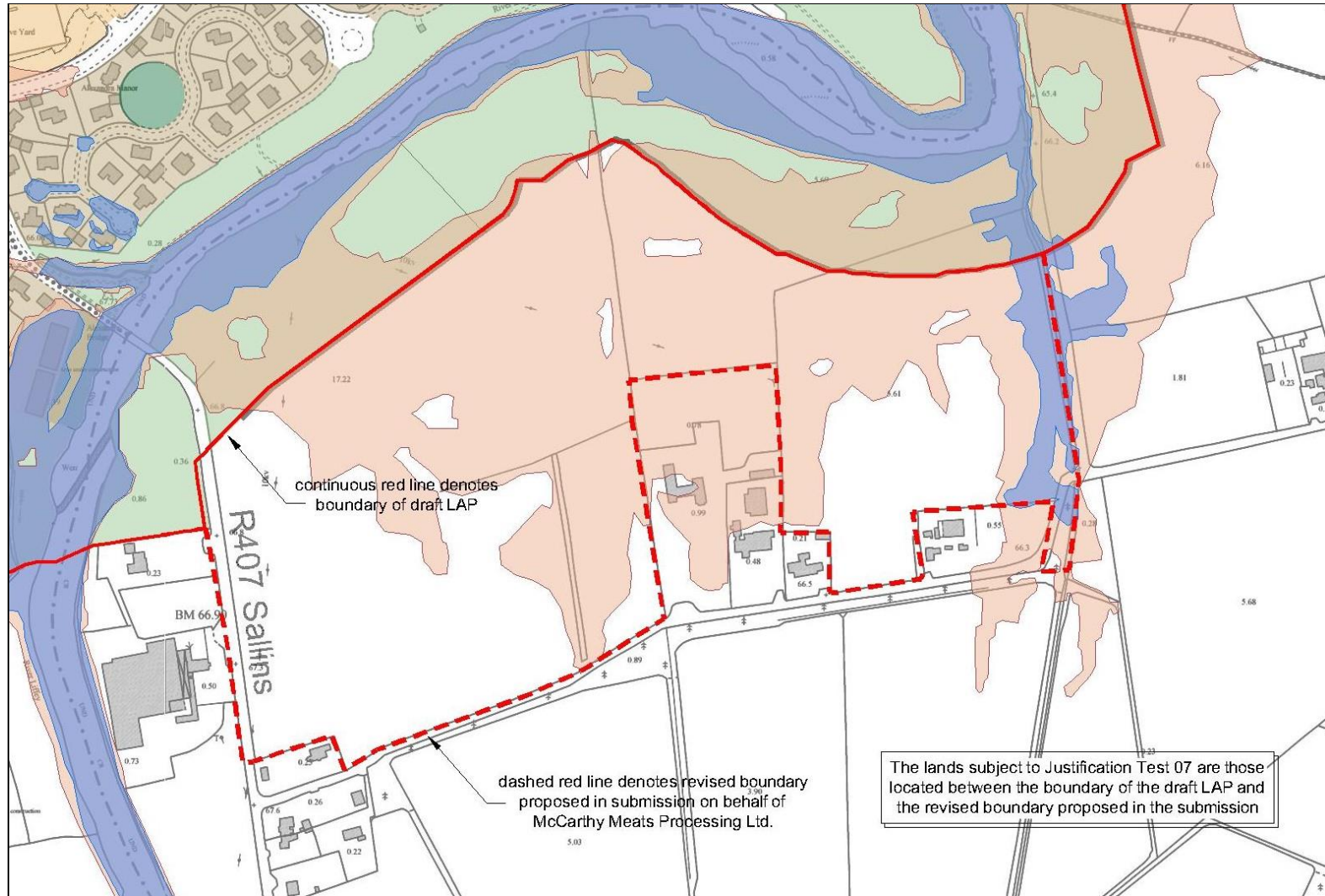
JUSTIFICATION TEST 06		
Lands zoned Office / Light Industry and Warehousing (H) on the Kilcock Road		
6/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	<p>Clane as a Small Town is intended to support the development of small locally-financed business. Other economic investment opportunities are to be supported where sustainable.</p> <p>Arising from the RPGs and the draft County Development Plan 2017-2023, a growth target of an additional 780 residential units is prescribed for Clane during the lifetime of the plan.</p> <p>The Council will seek:</p> <ul style="list-style-type: none"> • to encourage new local employment opportunities at a scale appropriate to the town's role and growth • to assist in reducing long distance commuting patterns, thus creating more sustainable communities.
6/2	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:	<p>The lands were zoned 'H' Office/Light Industry and Warehousing under the 2009 Clane LAP. This zoning provides for employment generating uses such as light industry, manufacturing, warehousing.</p> <p>It is considered that, while the zoning of some lands for Light Industrial/Warehousing is required, it is not evident that these specific lands present the optimum location. The subject lands are currently undeveloped and located on the outskirts of the town. The Clane Business Park and other such zoned lands are located to the south of these lands, and parts of the former remain undeveloped.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The lands are approximately 1.5 from the centre of Clane. Given their location they would not facilitate regeneration or expansion of the centre of Clane.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands are undeveloped; there is no planning history on the site.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The lands are not within or adjoining the core of the settlement.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	Other lands in closer proximity to the town centre are available for development and would provide more compact 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.	As stated, there are other lands available in closer proximity to the town centre. These other lands have a lower risk of flooding than the subject lands.	

JUSTIFICATION TEST 06		
Lands zoned Office / Light Industry and Warehousing (H) on the Kilcock Road		
6/3	<p>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>	<p>A significant portion of the site is affected by flood risk. However the depth of floodwater is generally shallow.</p> <p>The site failed to pass other elements of the Justification Test and has been reclassified for water compatible development in accordance with the Flood Risk Management Guidelines.</p> <p>Development of the lands for water compatible uses must include such mitigation measure as are required to ensure that:</p> <ul style="list-style-type: none"> (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 runoff from any proposed development is to be limited to the existing Greenfield run off from the site in accordance with the GSDSDS.

JUSTIFICATION TEST 07

Lands southeast of the River Liffey off Sallins Road (New Residential land-use proposed in submission on behalf of McCarthy Meats Processing Limited.)

Map showing extent of lands being assessed superimposed on zoning objective from Draft 2016 Clane LAP



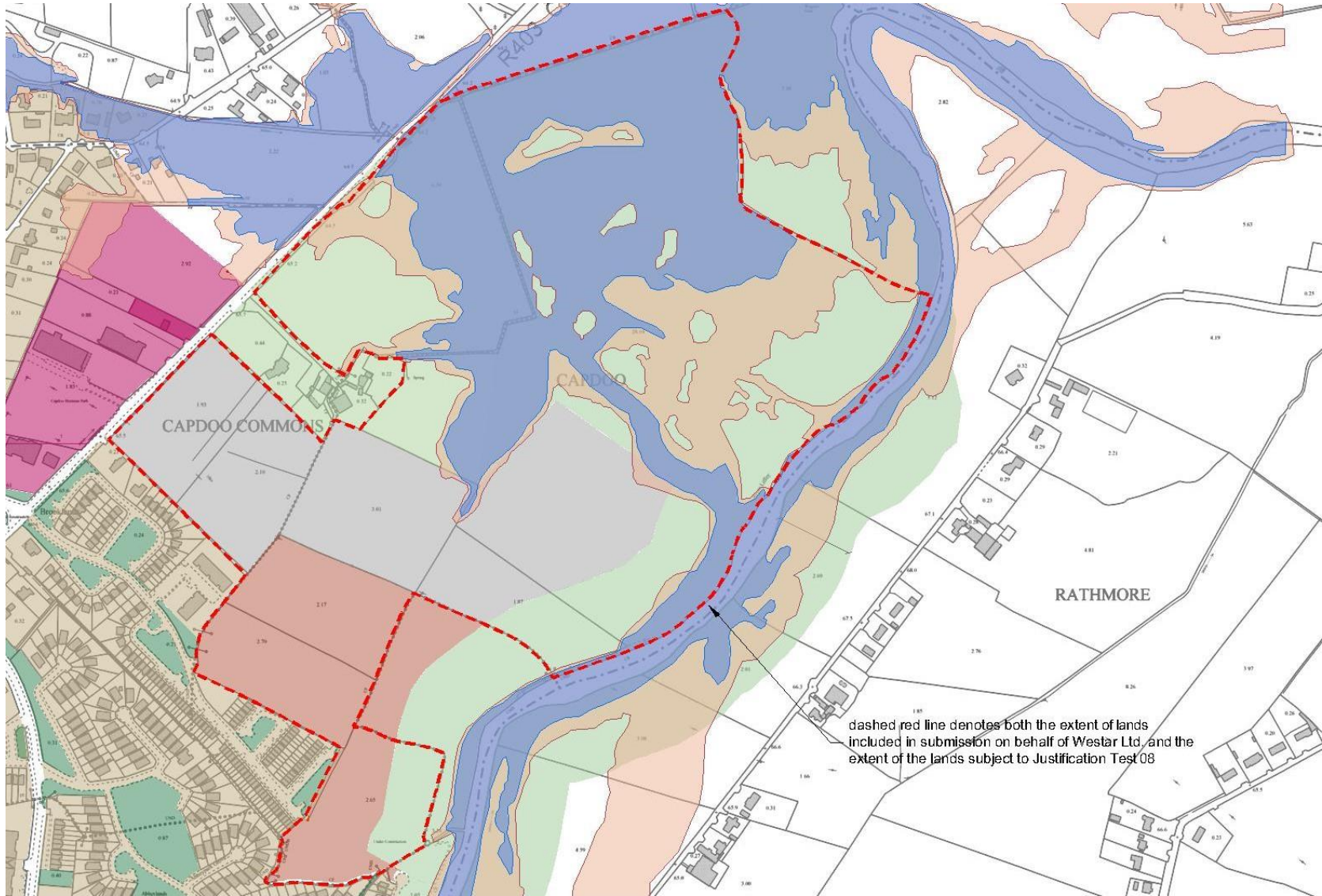
JUSTIFICATION TEST 07		
Lands southeast of the River Liffey off Sallins Road (New Residential land-use proposed in submission on behalf of McCarthy Meats Processing Limited.)		
7/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.
7/2	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 zoning of lands for residential development is necessary in order to enable the sustainable growth of Clane in compliance with the Core Strategy of the CDP. The LAP is considered to incorporate an adequate quantum of zoned lands to deliver the Core Strategy housing allocation. The zoning of the subject lands for residential development is not therefore required to achieve the proper planning and sustainable development of Clane.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and / or underutilized lands;	No
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The subject lands are not within the core of Clane. While they are relatively close to the core, it is considered that the River Liffey presents a significant barrier to movement, and effectively separates the lands from the town core.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	No
(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 other lands suitable for residential development that are not impacted upon by flood risk zones and with better accessibility to the core of Clane.	

JUSTIFICATION TEST 07		
Lands southeast of the River Liffey off Sallins Road (New Residential land-use proposed in submission on behalf of McCarthy Meats Processing Limited.)		
7/3	<p>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>	<p>The lands are outside the boundary of the Clane Local Area Plan and thus have no land-use classification in the Plan.</p> <p>The 1000year flood risk zone covers a significant proportion of the subject lands. The 100year flood risk zone has an impact on the lands at the eastern boundary.</p> <p>Given that the site failed to pass other elements of the Justification Test, the SFRA recommends that the subject lands should <u>not</u> be classified for any use other than water-compatible development in accordance with the Flood Risk Management Guidelines.</p> <p>Development of the lands for water compatible uses must include such mitigation measure as are required to ensure that:</p> <ul style="list-style-type: none"> (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 runoff from any proposed development is to be limited to the existing (iv) Greenfield run off from the site in accordance with the GSDS.

JUSTIFICATION TEST 08

Lands located between the River Liffey and the Celbridge Road (*proposed for New Residential land-use in a submission on behalf of Westar Ltd.*)

Map showing extent of lands being assessed superimposed on zoning objective from Draft 2016 LAP



JUSTIFICATION TEST 08		
Lands located between the River Liffey and the Celbridge Road (proposed for New Residential land-use in a submission on behalf of Westar Ltd.)		
8/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.
8/2	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 zoning of lands for residential development is necessary in order to enable the sustainable growth of Clane in compliance with the Core Strategy of the CDP. The LAP is considered to incorporate an adequate quantum of zoned lands to deliver the Core Strategy housing allocation. The zoning of the subject lands for residential development is not therefore required to achieve the proper planning and sustainable development of Clane.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and / or underutilized lands;	No
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact and sustainable urban growth; and	No
	(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 other lands suitable for residential development, with lower risk of flooding and with better accessibility to the core of Clane.

JUSTIFICATION TEST 08

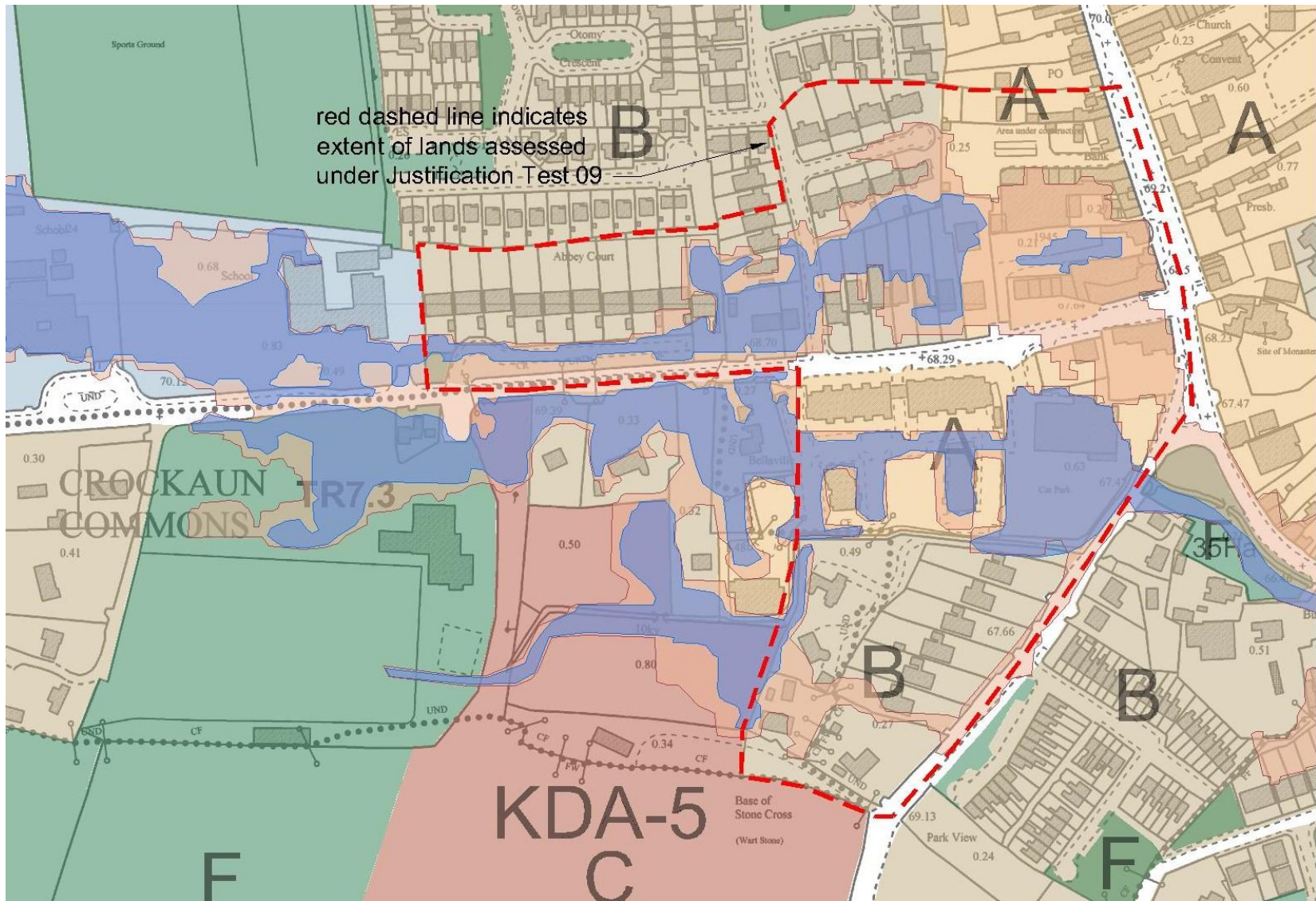
Lands located between the River Liffey and the Celbridge Road (*proposed for New Residential land-use in a submission on behalf of Westar Ltd.*)

<p>8/3</p>	<p>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>	<p>Given that the site failed to pass other elements of the Justification Test, the SFRA recommends that the requested zoning amendments in respect of the subject lands should not be made.</p>
-------------------	--	--

JUSTIFICATION TEST 09

Lands zoned 'Existing Residential and 'Town Centre' on the Prosperous Road and Millicent Road

Map showing extent of lands being assessed superimposed on zoning objective from Draft 2016 Clane LAP



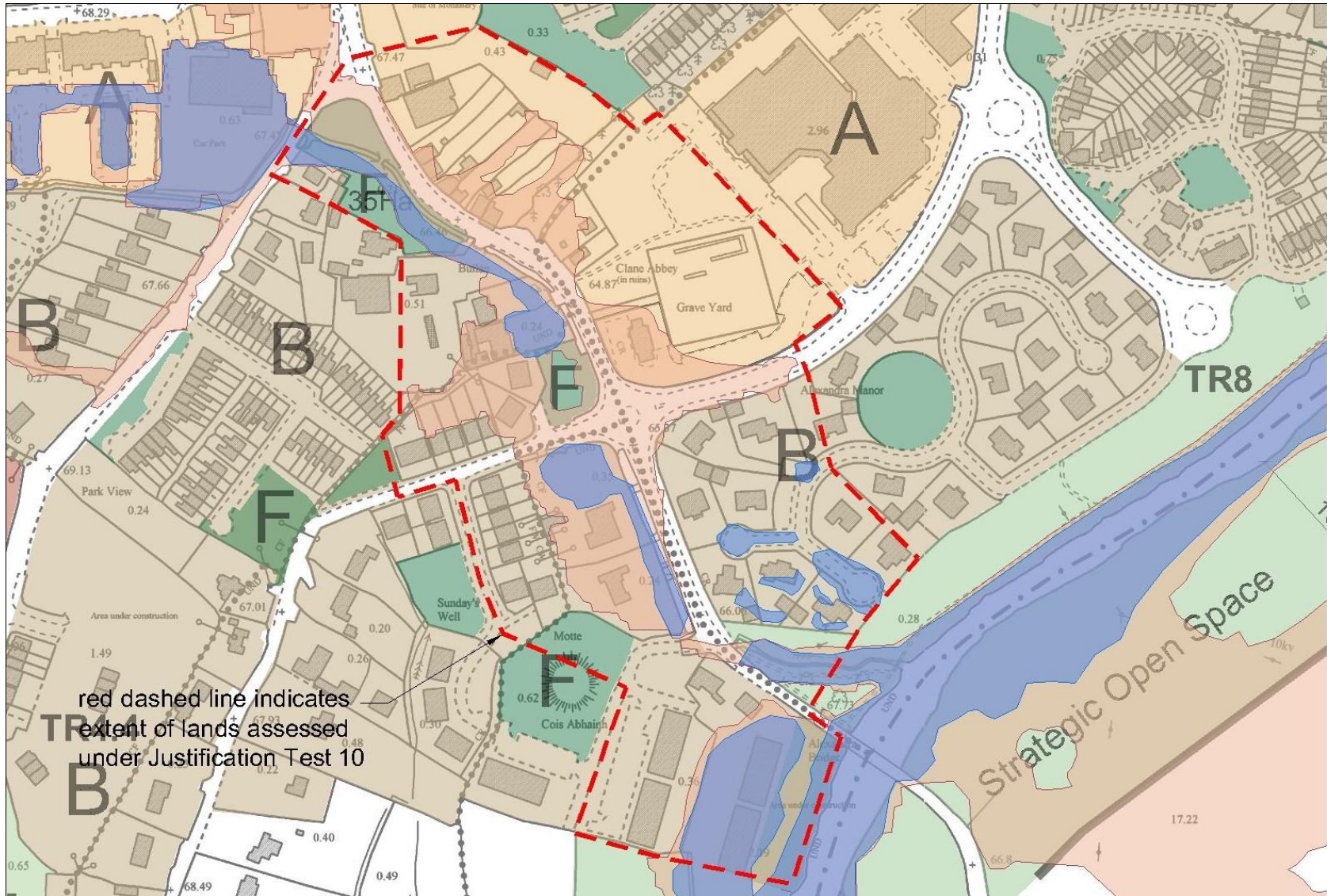
JUSTIFICATION TEST 09		
Lands zoned 'Existing Residential' and 'Town Centre' on the Prosperous Road and Millicent Road		
8/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	<p>Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.</p> <p>The subject site had three zoning objectives, (F – 'Open Space and Recreation', 'T General Development' and 'C - New Residential') under the 2009 LAP. The lands are zoned New Residential under the Draft LAP 2017~2023, with small portions zoned Existing Residential/Infill and Town Centre.</p>
8/2	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 zoning of this area is for 'B Existing Residential' and 'A Town Centre' which is intended to reflect the existing uses along the Prosperous Road and Millicent Road.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The land is currently in use as for Open Space and Recreation, Residential and General Development and Town Centre purposes. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
	(ii) Comprises significant previously developed and / or underutilized lands;	The land is currently in use for residential and town centre purposes.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located in the town centre of Clane
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The continued development of this land is essential in achieving compact and sustainable urban growth as it provides town centre development and residential use in Clane.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The zoning of this land reflects the existing uses on the site, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.

JUSTIFICATION TEST 09	
Lands zoned 'Existing Residential' and 'Town Centre' on the Prosperous Road and Millicent Road	
8/3	<p>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> <p>The lands passed other elements of the Justification Test.</p> <p>A significant part of the land is located in a flood risk zone. However, the lands are already substantially developed and it is anticipated that flood risk will not undermine the strategic decision to classify the lands in accordance with their existing use.</p> <p>An emergency evacuation plan and defined access / egress routes should be developed for extreme flood events.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts. Only flood resilient construction materials and fittings must be incorporated in any such approved developments.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

JUSTIFICATION TEST 10

Lands zoned 'Existing Residential' and 'Town Centre' on the Sallins Road


Map showing extent of lands being assessed superimposed on zoning objective from Draft 2016 Clane LAP 2009 LAP



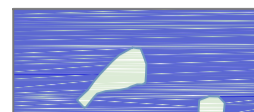
JUSTIFICATION TEST 10		
Lands zoned 'Existing Residential' and 'Town Centre' on the Sallins Road		
8/1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	Clane is designated as a Small Town in the Kildare County Development Plan (KCDP) 2011-2017 and in the Draft Kildare County Development Plan 2017-2023. Clane has a housing allocation of 780 residential units under the Core Strategy of the Draft CDP 2017-2023.
8/2	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 zoning of this area for 'B Existing Residential' and 'A Town Centre' which is intended to reflect the existing uses along the Prosperous Road and Sallins Road.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The land is currently in use as for residential and town centre purposes. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
	(ii) Comprises significant previously developed and / or underutilized lands;	The land is currently in use for residential and town centre purposes.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located in the town centre of Clane
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The continued development of this land is essential in achieving compact and sustainable urban growth as it provides town centre development and residential use in Clane.
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The zoning of this land reflects the existing uses on the site, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.	

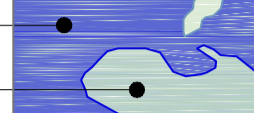
JUSTIFICATION TEST 10		
Lands zoned 'Existing Residential' and 'Town Centre' on the Sallins Road		
8/3	<p>SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.</p>	<p>The lands passed other elements of the Justification Test.</p> <p>A significant part of the land is located in a flood risk zone. However, the lands are already developed and it is anticipated that flood risk will not undermine the strategic decision to classify the lands in accordance with their existing use.</p> <p>An emergency evacuation plan and defined access / egress routes should be developed for extreme flood events.</p> <p>Applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use must include a flood risk assessment of appropriate detail to demonstrate that they would not have adverse flood risk impacts. Only flood resilient construction materials and fittings must be incorporated in any such approved developments.</p> <p>It is recommended that any future proposed development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. The Site Specific Flood Risk Assessment must also demonstrate:</p> <ul style="list-style-type: none"> • The quantified loss of floodplain storage arising from the development proposal • The provision of compensatory storage located within or adjacent to the proposed development • The measures proposed to ensure that water vulnerable elements of the development will not be flooded during the 1000 year flood (in this regard a freeboard of 500m shall be provided) • That existing flow paths for flood water will not be compromised.

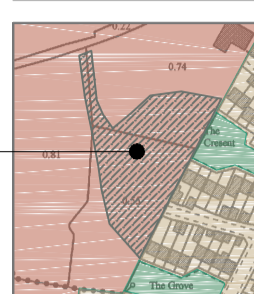
APPENDIX III
DRAFT LAND-USE MAP FOR CLANE LAP 2017~2023
WITH FLOOD RISK ZONES SUPERIMPOSED

Development Plan boundary 






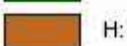



Fluvial Flood Risk Zones
(as determined by Detailed FRA and the Eastern CFAM Study)

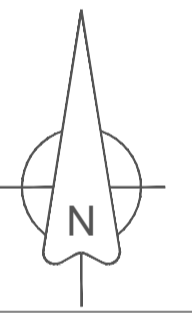
Flood Risk Zone A (1.0% AEP) 

Flood Risk Zone B (0.1% AEP) 

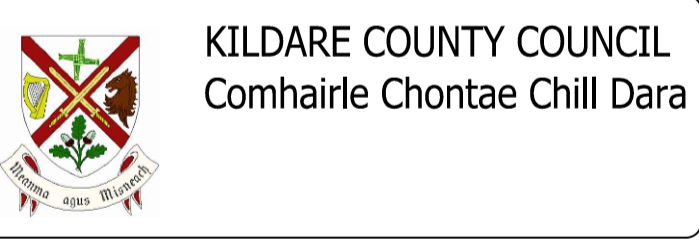
Pluvial Flood Risk Zone 

LAND-USE LEGEND

-  A: Town Centre
-  B: Existing Residential
-  C: New Residential
-  E: Community and Institutional
-  F: Open Space and Amenity
-  F2: Strategic Open Space
-  H: Light Industry & Warehousing
-  I: Agriculture
-  Q: Business and Technology
-  SR: Strategic Reserve



DR2	09/12/16	PB	Colour Scheme for Flood Risk Zones amended
DR1	07/12/16	PB	For issue with draft report issue 07
REV	DATE	BY	DETAILS



STATUS
DRAFT REPORT

CLIENT
KILDARE COUNTY COUNCIL

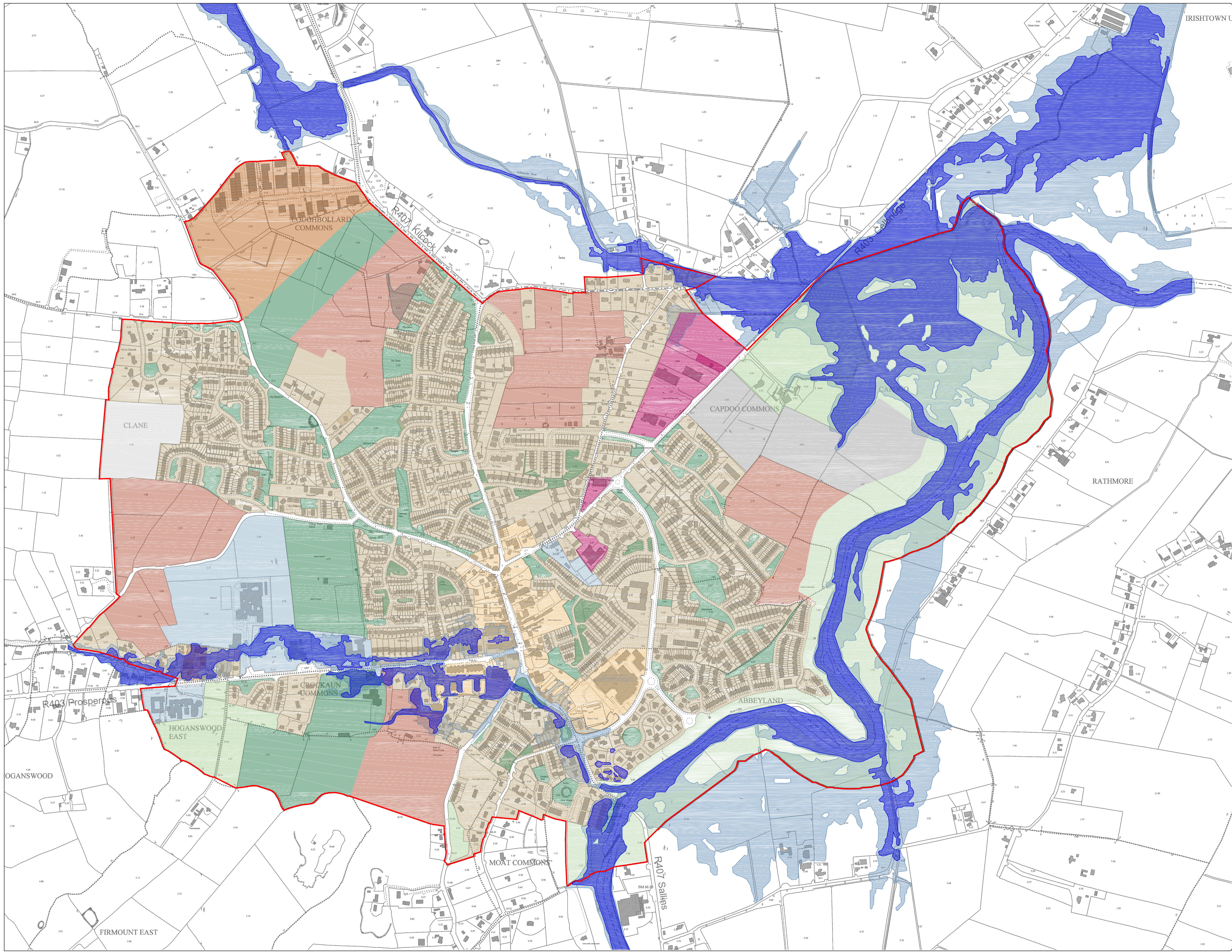
PROJECT
STRATEGIC FLOOD RISK ASSESSMENT
CLANE DRAFT LOCAL AREA PLAN
2017- 2023

TITLE
FLOOD RISK ZONES SUPERIMPOSED ON ZONING
OBJECTIVES FROM DRAFT 2017 - 2023 LAP

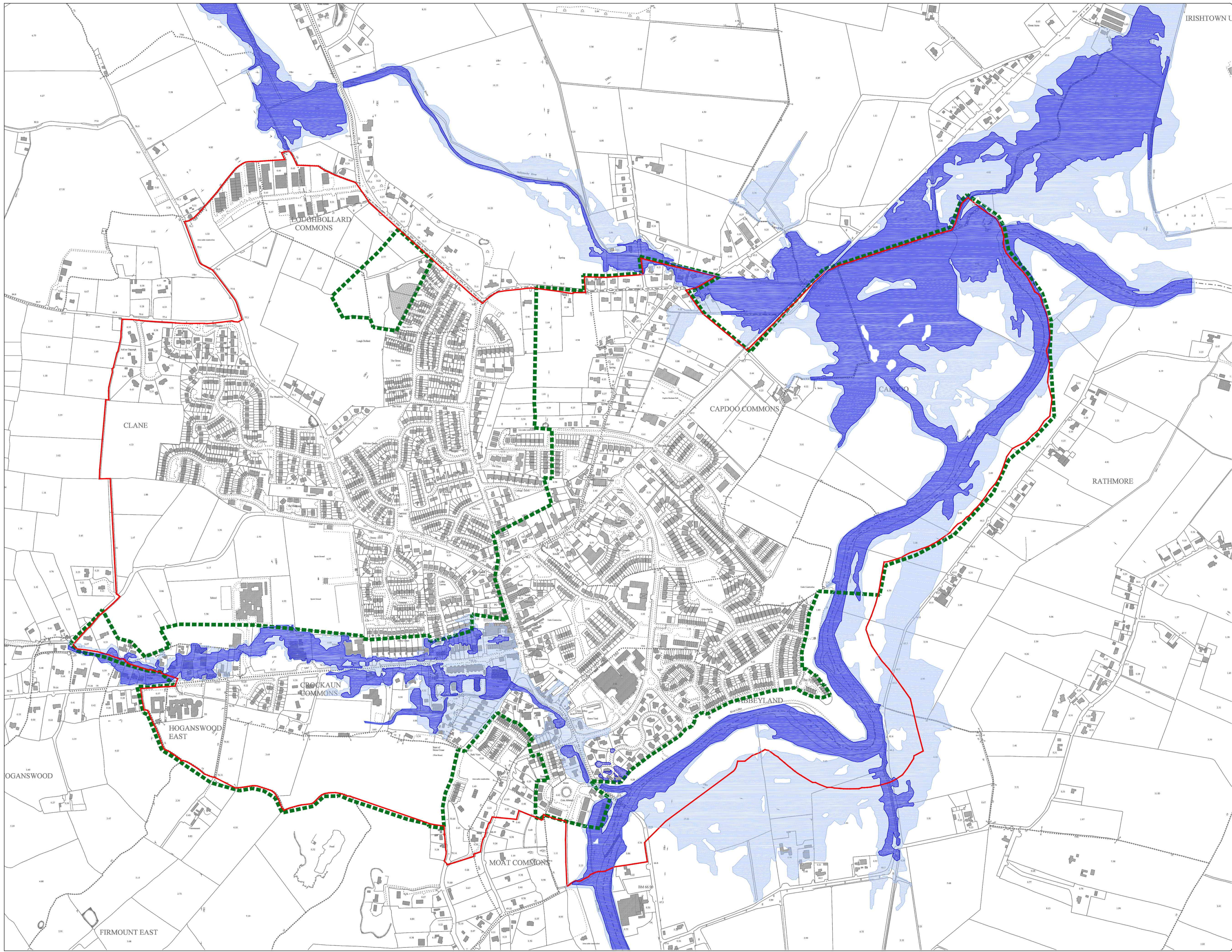


KILGALLEN & PARTNERS
KYLEKIPROE, WELL ROAD, PORTLAOISE, CO. LAOIS
Tel: +353 57 86 62860, Fax: +353 57 86 62861
E-mail: info@kilgallen.ie, Web: www.kilgallen.ie

DRN:	SCALE:	DRAWING NO.:	REV.:
DQ	1:5000 @ A1		
CHKD:	DATE:	11049-CLA-702	DR3
PB	07.12.16		

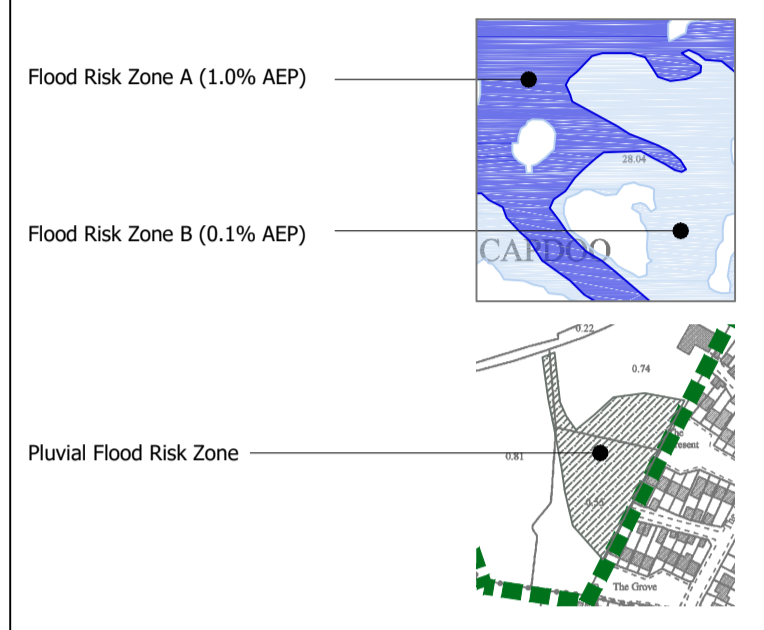


APPENDIX IV
MAP SHOWING AREAS FOR WHICH SITE SPECIFIC FRA IS RECOMMENDED



LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment in accordance with the Flood Risk Management Guidelines and 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.

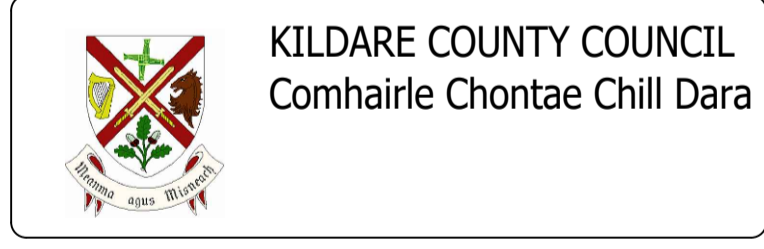


Flood Risk Zone A (1.0% AEP)

Flood Risk Zone B (0.1% AEP)

Pluvial Flood Risk Zone

DR1	07/12/16	PB	For issue with draft report issue 07
REV	DATE	BY	DETAILS



STATUS
DRAFT REPORT

CLIENT
 KILDARE COUNTY COUNCIL

PROJECT
 STRATEGIC FLOOD RISK ASSESSMENT
 CLANE DRAFT LOCAL AREA PLAN
 2017- 2023

TITLE
 RECOMMENDATIONS FOR SITE SPECIFIC FRA AND
 FLOOD RISK ZONES



DRN:	SCALE:	DRAWING NO.:	REV.:
DQ	1:5000 @ A1		
CHKD:	DATE:	11049-CLA-704	DR1
PB	07.12.16		