



Strategic Flood Risk Assessment of the Maynooth Local Area Plan 2013-2019 Proposed Amendment No. 1

Document Control Sheet

Client:	Kildare County Council		
Project Title:	Strategic Flood Risk Assessment of the Maynooth Local Area Plan 2013-2019 Proposed Amendment No. 1		
Document Title:	Strategic Flood Risk Assessment – Amendment No.1 Report		
Document No:	MDW0751Rp0007		
Text Pages:	7	Appendices:	N/A

Rev.	Status	Date	Author(s)		Reviewed By		Approved By	
F02	Final	30 th April 2018	BT	<i>Brian Tipton</i>	BC	<i>Brian O'Connell</i>	BC	<i>Brian O'Connell</i>

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TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	BACKGROUND	1
1.2	REPORT OBJECTIVES.....	1
2	STUDY AREA	1
3	FLOOD RISK.....	2
3.1	HISTORICAL FLOODING	2
3.2	FLUVIAL FLOOD RISK	2
3.3	GROUNDWATER FLOODING	3
3.4	PLUVIAL FLOODING	3
3.5	SURFACE WATER NETWORK.....	4
4	PROPOSED MATERIAL ALTERATIONS	5
5	SUMMARY	7

LIST OF FIGURES

Figure 2.1	Maynooth LAP Boundary, Watercourses and Flood Risk Information	2
Figure 3.1	Groundwater Recharge (Source GSI)	3
Figure 3.2	Indicative Pluvial Flood Extents (Source OPW PFRA Study).....	4
Figure 4.1	Mapped Proposed Amendments for the Maynooth LAP	6

LIST OF TABLES

Table 4.1	Proposed Material Alterations which have Flood Risk Implications.....	5
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1 INTRODUCTION

1.1 BACKGROUND

The Maynooth Local Area Plan 2013-2019 was adopted in August 2013. The proposed amendment consists of rezoning of ca. 52 ha of land as well as the inclusion of a new roads objective.

KCC commissioned RPS Consulting Engineers to carry out an Addendum to the Strategic Flood Risk Assessment (SFRA) report, in accordance with Guidelines for Planning Authorities on 'The Planning System and Flood Risk Management while also ensuring compliance with the flood risk management policy objectives of the County Development Plan and the existing Maynooth SFRA. This report reviews the proposed amendments and their impact on flood risk, and makes recommendations for specific objectives for inclusion in the amended LAP.

1.2 REPORT OBJECTIVES

The objective of this report is to prepare an amendment SFRA for the Maynooth LAP in accordance with The Guidelines. The SFRA provides an assessment of all types of flood risk for the proposed amendment areas. This has enabled KCC to make informed strategic land-use planning decisions and to formulate flood risk policies.

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

2 STUDY AREA

The extents for the Maynooth LAP along with the proposed amendment lands area are shown in **Figure 2.1**. Maynooth is located in north County Kildare along the banks of the River Lyreen which is a tributary of the River Rye Water. The River Lyreen catchment is approximately 88 km² which joins the Rye Water just north of the town. There are no significant watercourses flowing through the proposed amendment lands.

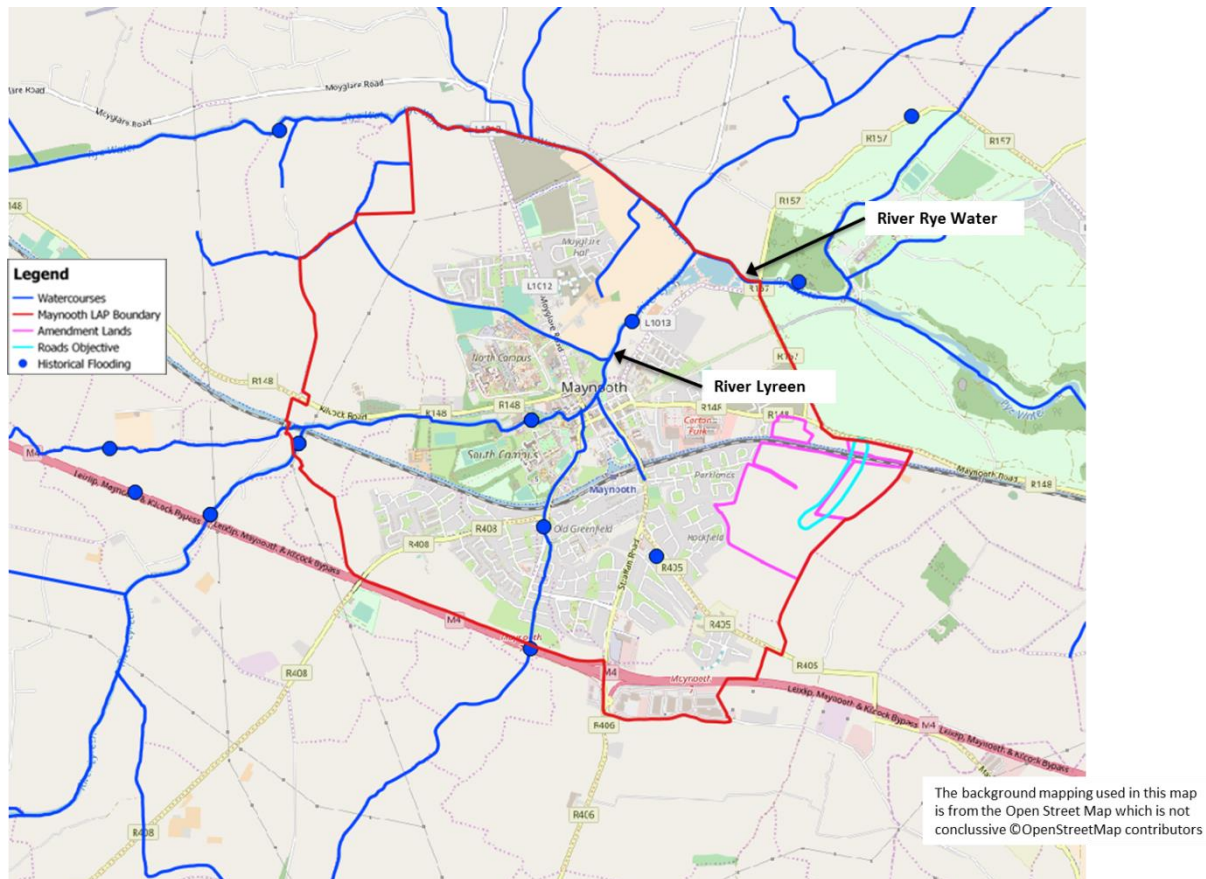


Figure 2.1 Maynooth LAP Boundary, Watercourses and Flood Risk Information

3 FLOOD RISK

3.1 HISTORICAL FLOODING

A review of historical flood data was carried out for the Eastern CFRAM Studies using information provided on floodmaps.ie and in consultation with KCC. The main sources of flooding in the town are fluvial and pluvial flooding. Figure 2.1 show the locations of previous flood events within Maynooth. Flooding is generally confined to areas adjacent to the River Lyreen and its tributaries. The closet historical flooding to the amendment lands is that on Laurence’s Avenue where there is reported regular flooding due to surface water pipes overflowing. The local KCC area office is also not aware of any historical flooding issues in this area.

3.2 FLUVIAL FLOOD RISK

The Eastern CFRAM study did not identify any fluvial flood extents on the proposed amendment lands. There are also no significant watercourses flowing through the amendment lands. All desktop study evidence points towards these lands being located in Flood Zone C. Fluvial flood risk in Maynooth is confined to lands adjacent to the River Lyreen and its tributaries.

3.3 GROUNDWATER FLOODING

Groundwater flooding occurs when the natural underground drainage system cannot drain rainfall away quick enough, causing the water table to rise above the ground surface. The OPW Preliminary Flood Risk Assessment (PFRA) carried out a national scale Groundwater Flooding Report which concludes that ground water flooding is largely confined to the limestone lowlands to the west of the Shannon. This is due to the presence of karst limestone bedrock which is effectively impermeable leaving minimal amount of soil to store excess rainfall runoff. The vast majority of Irish limestones are also relatively low-lying, with the water table within a few metres of the ground surface. Therefore typically for ground water flooding risk it is combination of low storage (permeable soil underlain by impermeable subsoil) and shallow depth to water table.

Figure 3.1 below shows the groundwater recharge potential for the amendment lands. In this case the amendment lands have a very low potential for recharge (51mm - 150mm). This is due to the presence of moderate permeability subsoil overlain by well-drained soil and poorly drained soil. There are also no karst features in the area. These factors would indicate that risk of groundwater flooding is very low to the amendment lands but it should still be examined at detailed FRA level particularly if the development includes proposals for basements.



Figure 3.1 Groundwater Recharge (Source GSI)

3.4 PLUVIAL FLOODING

The OPW PFRA study also provides a national level screening of areas that are at potential risk of pluvial flooding. For a thorough assessment of pluvial risk in Kildare a more detailed assessment at a countywide scale (taking into consideration of local factors and parameters) would need to be

carried out. Nonetheless, the national PFRA maps can be used to identify areas that may be at risk and that may require a pluvial flooding assessment to be carried out for planning applications. Figure 3.2 below shows for the majority of the lands small pockets of potential pluvial flooding, shown in orange, to the amendment lands indicating a very low risk. Nevertheless recommendations and guidelines from the GSDS should be implemented in these areas to reduce the risk of pluvial flooding.

Lands which are being added to the Master Plan Scope have a larger indicative pluvial flooding extent. The pluvial flooding risk to these lands should be further explored during a detailed FRA to assess if any pluvial flood mitigation measures are required.

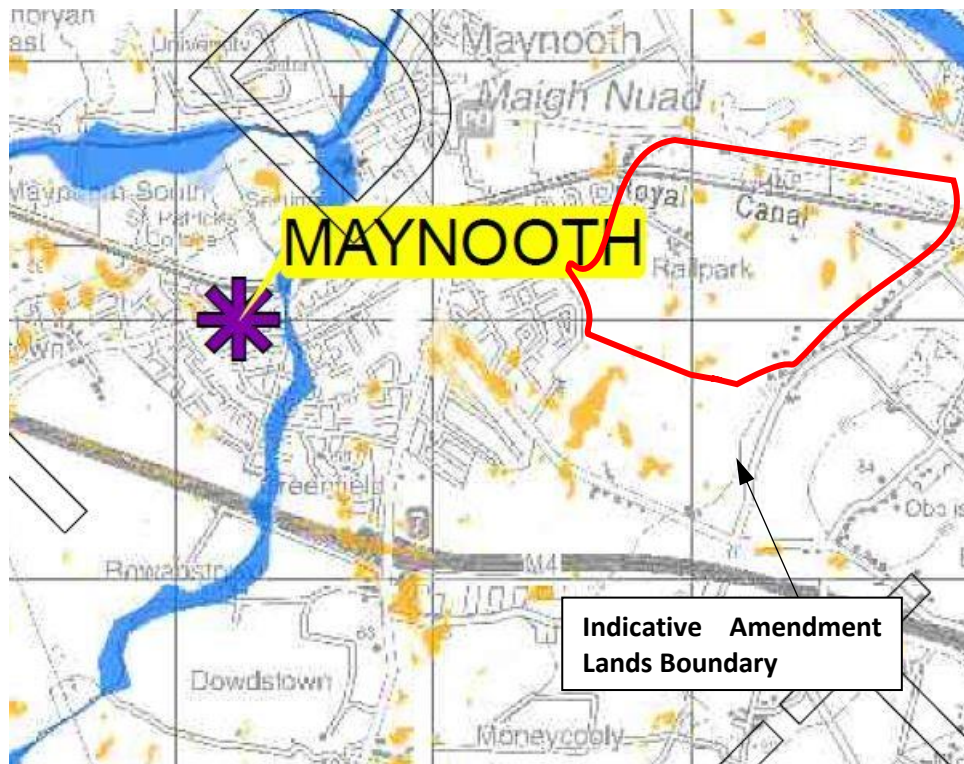


Figure 3.2 Indicative Pluvial Flood Extents (Source OPW PFRA Study)

3.5 SURFACE WATER NETWORK

KCC have indicated that a surface water sewer may have been constructed running from south to north towards the canal to service some of the proposed amendment lands connecting to an existing siphon under the canal. The location, capacity, condition and design of this private surface water sewer would need to be checked prior to any future connections. Additionally the impact any surface water connections may have on the capacity of the existing receiving network, north of the canal/ railway would have to be considered.

4 PROPOSED MATERIAL ALTERATIONS

Table 4.1 below outlines a summary of the proposed material alterations to the LAP, and flood risk implications and how they apply to the Guidelines. Figure 4.1 below shows the Mapped Proposed Amendments for the Maynooth LAP

Table 4.1 Proposed Material Alterations which have Flood Risk Implications

Amendment	Type of Change	Implications on Flood Risk
1	Amend H4 Zoning (Commercial) to C Zoning (New Residential).	The lands have been deemed to be located in Flood Zone C with a very low flood risk for all types of flooding. However all development will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Maynooth LAP and Kildare County Development Plan.
2	Extend LAP Boundary and inset I zoning (Agricultural).	No material impact as the zoning is not changing the land type, the land will remain agricultural which flood compatible and additionally no flood risk has been identified for the area
3	Amend I Zoning (Agricultural) to B Zoning (Existing residential)	No material impact as the zoning is not changing the land type, the land will remain existing but will formally recognised within the plan.
4	Insert Local Roads Objective	The lands have been deemed to be located in Flood Zone C with a very low flood risk for all types of flooding. However the road will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Maynooth LAP and Kildare County Development Plan.
5	Amend I Zoning (Agricultural) to C Zoning (New Residential).	The lands have been deemed to be located in Flood Zone C with a very low flood risk for all types of flooding (small pockets of potential pluvial flooding were identified but the risk is low). However all development will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Maynooth LAP and Kildare County Development Plan. The location, capacity, condition and design of a potential private surface water sewer needs to be checked prior to any future connections. Additionally the impact any surface water connections may have on the capacity of the existing receiving network needs to be considered.

5 SUMMARY

RPS have reviewed the proposed amendment lands with respect to the Guidelines and analysis is provided in **Table 4.1** above. The risk of fluvial, pluvial and groundwater flooding was all deemed to be low. The most likely source of flooding is due to pluvial flooding but this is deemed to be low risk as all development will be required to be built in accordance with SuDS principles and in compliance with the surface water and drainage policies of the Maynooth LAP and Kildare County Development Plan. Therefore in light of the above assessments in the opinion of RPS, the proposed alterations are deemed suitable from a flood risk management perspective and compliant with the *Planning System and Flood Risk Management Planning Guidelines 2009*.