

Flood Risk Assessment

Property:

River Barrow Activity Centre,
The Park, Carlow,
Co. Carlow.

Client:

Carlow County Council
C/o KH Architects Ltd.

Date:

22/09/2021

Project Ref. No.:

K194

Directors:

Austin Dennany BA BAI DipProjMgmt PGDipABRC CEng MIEI
John Reidy BE DipProjMgmt DipConstLaw&CA CEng MIEI MCI Arb
Barry McGinn BSc (Eng) DipEng DipProjMgmt DipConstLaw&CA CEng MIEI

Associate Directors:

Brian Healy BE CEng MIEI
Robert Power BEng BSc CEng MIEI
Conor McDonagh BE MSc CEng MIEI



Table of Contents

1.0	Introduction & Background	2
2.0	The Site	3
3.0	Principles of Flood Risk Assessment.....	4
4.0	Methodology	5
5.0	Flood Zones	5
6.0	Report Inputs	6
7.0	Flood Risk Assessment	6
7.1	Stage 1: Flood Risk Identification.....	7
7.2	Stage 2: Initial Flood Risk Assessment.....	7
	7.2.1 Carlow Local Area Strategic Flood Risk Assessment 2020	7
	7.2.2 South Eastern CFRAM Study.....	8
	7.2.3 OPW – Flood Maps	8
	7.2.4 Past Flooding Events	10
7.3	Stage 3: Detailed Flood Risk Assessment	10
	7.3.1 Site Inspection – 1 st December 2020	10
8.0	Justification Test.....	12
9.0	Comments / Recommendations	12
	Appendix A – Site Location Plan	14
	Appendix B - OPW Flood Maps.....	15
	Appendix C - OPW National Flood Hazard Mapping Local Area Report.....	19

Document Control

Producer:	Date:	Verifier:	Date:	Approver:	Date:	Revision Status:
Brian Healy	29/04/21	Kevin Dunne	29/04/21	John Reidy	29/04/21	1 st
Brian Healy	22/09/21	Kevin Dunne	22/09/21	John Reidy	22/09/21	2 nd

1.0 Introduction & Background

DRA Consulting Engineers have been engaged by Carlow County Council to provide structural and civil engineering services up to Planning Stage for the River Barrow Activity Centre at The Park, Carlow, Co. Carlow. The proposed development site is located in the south west corner of the existing park on an elevated area behind an existing flood defence wall.

The proposed development will consist of the construction of the River Barrow Activity Centre at 'Site A' and the provision of a car park at 'Site B' providing 14no. car parking spaces and bicycle parking. The proposed car park at 'Site B' is located approximately 70 metres north west from the main building of 'Site A'. The main access to 'Site A' is via Barrow Street which connects to Maryborough Street. The main access to 'Site B' is at the junction of Maryborough and Sleaty Street.

Based on the proposed building layout, The River Barrow Activity Centre development at 'Site A' is a mix of single storey and 2-storey construction to be supported off piled foundations. Figure 1 and Figure 2 below shows the location of the proposed development site and the existing flood defence wall.

A site-specific flood risk assessment was carried out with this resulting report being prepared to form part of the proposed Planning Application and to inform the Local Authority on any flood risk associated with both sites and the proposed development.

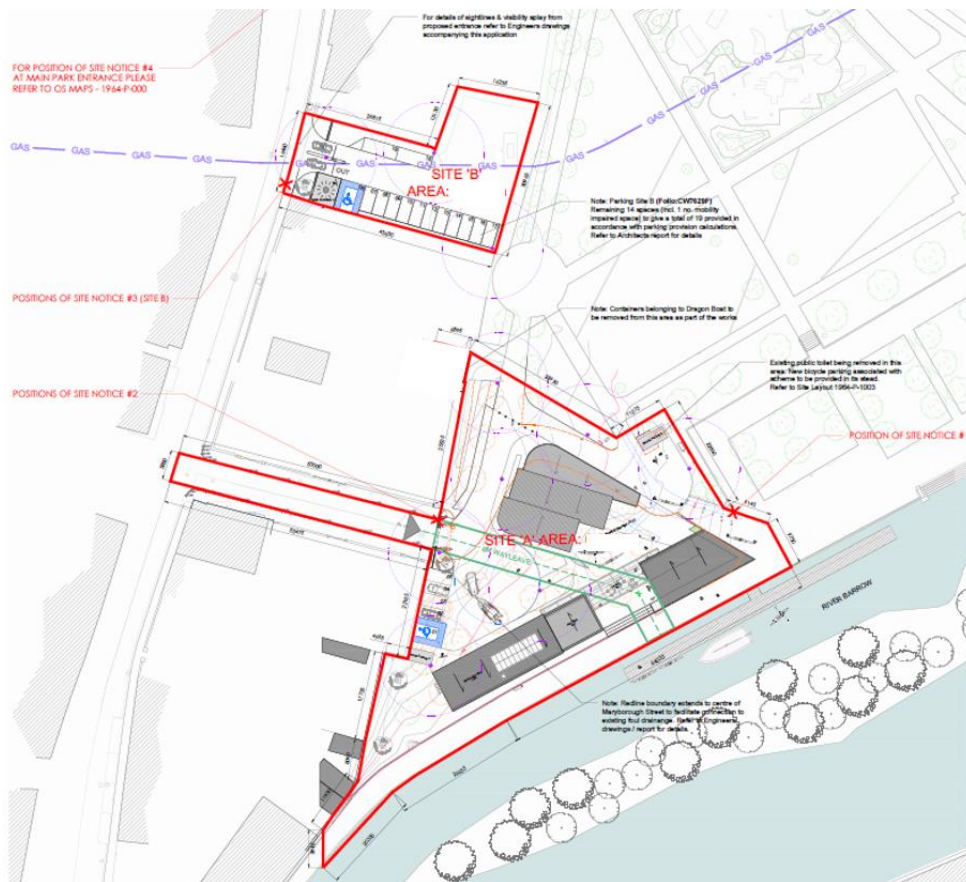


Figure 1 - Proposed Development (Site A & Site B)



Figure 2 - Existing Flood Defence at 'Site A'

2.0 The Site

The proposed 'Site A' development is located in Carlow Town Park directly adjacent to the River Barrow. The site is protected by an existing flood defence wall. The top of this wall is set at approximately +47.8m OD and as such, the site is flood protected to +47.8m OD. The proposed 'Site B' Car Park is adjacent Carlow Town Park and is in within close proximity of the River Barrow.

For 'Site A', the topographic survey shows the finished ground levels on the site vary between approximately +46.6m and +47.8m OD. The proposed finished floor levels of the new buildings vary between +47.375m and +47.75m OD.

For 'Site B', the topographic survey shows the finished ground levels on the site vary between approximately +46.27m at Maryborough Street to +46.95m OD at the east boundary line. The proposed finished ground levels of the car park range between +46.2m at the site entry/exit point to +46.45m OD at the east boundary line.

Reference to the Ordnance Survey Ireland 6-inch Historic map series (Figure 3 below) shows that the proposed developments at 'Site A' and 'Site B' were prone to flooding historically prior to the erection of the flood defence wall.



Figure 3 – OSI 6 Inch Historic Map 1837-1842 (Source: OSI GeoHive Mapping)

3.0 Principles of Flood Risk Assessment

Flood Risk is related to the probability of flooding and the magnitude of the consequences. Flood Risk Assessments aim to identify, quantify and communicate to decision makers and other stakeholders the risk of flooding to land, property & people. This assessment is a site-specific flood risk assessment pertaining to the proposed works at Carlow Activity Centre and Community Centre.

This Flood Risk Assessment & report have been prepared in accordance with the principles of flood risk assessment as scheduled in the Department of Environment, Heritage & Local Government / Office of Public Works (OPW) publications:

- *The Planning System and Flood Risk Management* - Nov 2009; and
- *The Planning System and Flood Risk Management Guidelines for Planning Authorities: Technical Appendices* - Nov 2009

The flood risk assessment requires an understanding of the sources of flood water, the people and assets (known as receptors) affected by the flooding and the pathways by which the flood water reaches those receptors. This is known as the Source-Pathway-Receptor (S-P-R) Model. Flood Risk Assessments require identification and assessment of all three components including:

- The probability and magnitude of the sources (e.g. high river levels, sea levels).
- The performance and response of pathways and barriers to pathways.
- The consequences to receptors such as people, properties and the environment.

Normally, site-specific flood risk assessments include hydraulic modelling of the river or coastal cell across a wide enough area to appreciate the catchment wide impacts and hydrological processes involved. The Flood Risk

Assessment should however be proportionate to the risk, scale, nature and location of the proposed development. This particular development will be shown to be at a low risk of flooding and it is held that hydraulic modelling of the river catchment is not necessary for this Flood Risk Assessment given the extent of information available, as detailed later in this report, and the size & nature of the proposed development.

4.0 Methodology

The Flood Risk Management Guidelines document outlines three stages in the assessment of flood risk as follows:

Stage 1 Flood risk identification – to identify whether there may be any flooding or surface water management issues related to a plan area or proposed development site that may warrant further investigation;

Stage 2 Initial flood risk assessment – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to determine what surveys and modelling approach is appropriate to match the spatial resolution required and complexity of the flood risk issues.

Stage 3 Detailed risk assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

This report has been prepared generally in accordance with these stages.

5.0 Flood Zones

The Planning System and Flood Risk Management, Guidelines for Planning Authorities document defines three flood zone types as follows:

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); and

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 zone type is determined based on current water surface levels without allowance for climate change.

The Guidelines divide developments into three vulnerability classes as follows:

- Highly vulnerable developments
- Less vulnerable developments
- Water compatible developments

The Guidelines include a matrix that determines the appropriateness of different types of development based on their vulnerability classification and the Flood Zones in which they are located. The matrix is reproduced in Table 1.

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

Table 1 - Vulnerability Matrix

Where the matrix indicates that a development is not appropriate it may still be justified based on a procedure described as a Justification Test.

The proposed 'Site A' development is for accommodation that is classified as a less vulnerable development. Also, as will be seen in section 7 of this report, the proposed development is located within Flood Zone B. For these reasons the proposed development is deemed appropriate and as such, a Justification Test is not required.

The proposed 'Site B' car park is local transport infrastructure that is classified as a less vulnerable development. Also, as will be seen in section 7 of this report, the proposed development is located within Flood Zone C. For these reasons the proposed development is deemed appropriate and as such, a Justification Test is not required.

6.0 Report Inputs

This report has been prepared based on information obtained from the following sources:

- Strategic Flood Risk Assessment – Carlow Local Area Plan 2020
- South Eastern CFRAM Study
- National Flood Hazard Mapping by the OPW – www.floodinfo.ie
- Catchment Flood Risk Assessment and Management (CFRAM) studies – South Eastern CFRAM Study
- Author's inspection of the relevant premises on 1st December 2020

7.0 Flood Risk Assessment

The proposed development sites (Site A & Site B) are located at Carlow Town Park, Co. Carlow. The main channel of the River Barrow is located circa 20 metres from the 'Site A' and circa 67 metres from 'Site B'. A site location map is included in Appendix A of this report for reference.

A desktop study was carried out under the following headings and we have established that the relevant site is located in an area which is susceptible to flooding. Details of the desktop study are listed below:

7.1 Stage 1: Flood Risk Identification

The purpose of this stage is to identify whether there may be any flooding issues relating to the subject sites (Site A & Site B).

Source / Pathway	Significant	Comment / Reason
Tidal / Coastal	No	Both subject sites are located 54km inland from the Irish Sea.
Fluvial	Yes	The subject sites are bounded by the River Barrow along the eastern boundary.
Pluvial (Urban Drainage)	Possible	There is urban drainage and water supply infrastructure located in the vicinity of both sites.
Pluvial (Overland Flow)	No	Both sites are not surrounded by significantly elevated lands and does not provide an important surface water discharge point to adjacent lands.
Blockage	No	There are three bridges (Bridge Street, William Dargan Road and a pedestrian footbridge) located on the River Barrow in the general vicinity of the sites.
Groundwater	No	There are no significant springs or groundwater discharges mapped or recorded in the immediate vicinity of the site.

Table 2 – Possible Types of Flooding at Subject Site

The primary potential flood risk to 'Site A' and 'Site B' can be attributed to an extreme fluvial flood event in the River Barrow located along the eastern boundary. Secondary flood risk can be attributed to a potential surcharge of the urban drainage infrastructure within the vicinity of both sites.

In accordance with 'The Planning System and Flood Risk Management – Guidelines for Planning Authority – DOEHLG 2009', these potential flood risks are analysed in the subsequent 'Stage 2: Initial Flood Risk Assessment' and 'Stage 3: Detailed Flood Risk Assessment' sections of this study report.

7.2 Stage 2: Initial Flood Risk Assessment

The purpose of this stage of the assessment is to establish the level of flooding risk that may affect the subject sites (Site A & Site B) and to appraise the adequacy of the existing or historical information and data which may indicate the level or extent of any flood risk.

The following information and data was collated as part of the Initial Flood Risk Assessment for the proposed development site.

7.2.1 Carlow Local Area Strategic Flood Risk Assessment 2020

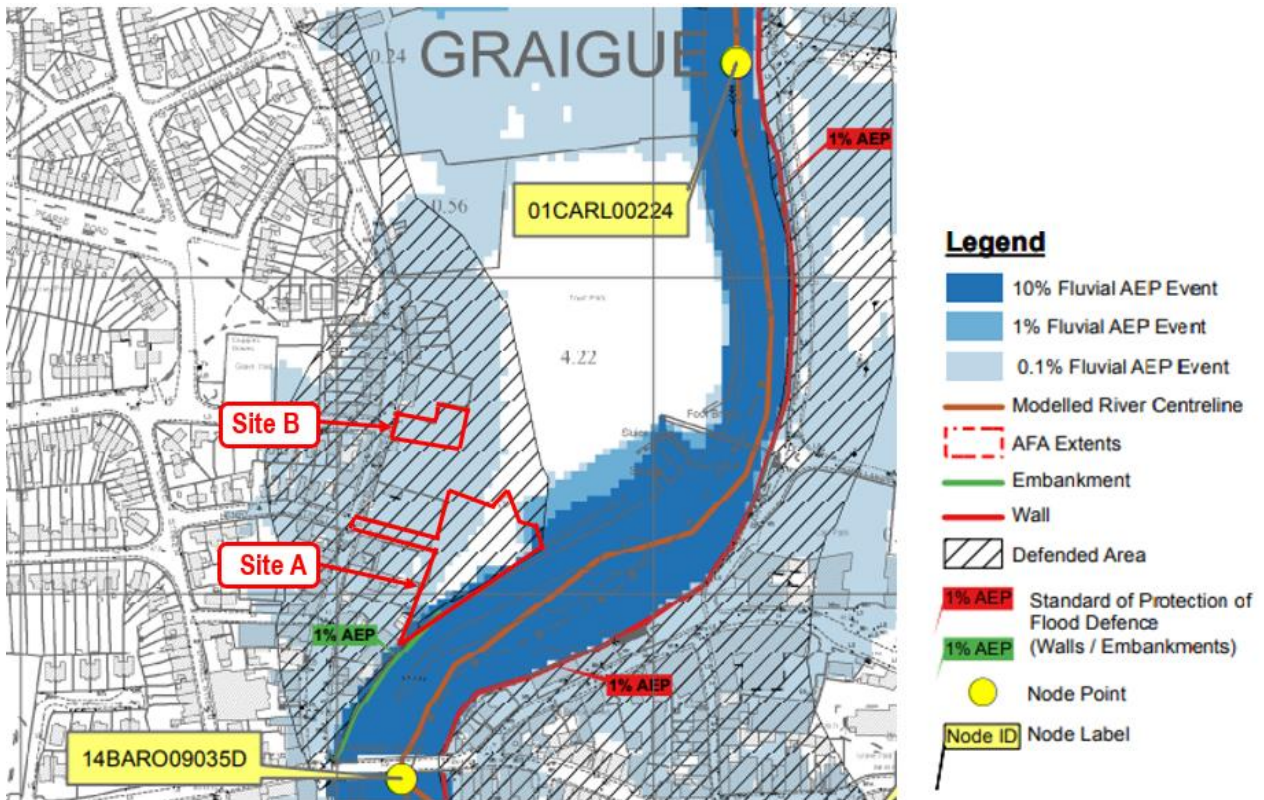
The Strategic Flood Risk Assessment (SFRA) for Carlow Local Area Plan 2015 - 2021 confirms that Carlow town has flooded frequently from the River Barrow, the worst event occurring in 1947 which has been plotted in www.floodmaps.ie. A flood alleviation scheme has been carried out on the River Barrow in Carlow.

7.2.2 South Eastern CFRAM Study

The South Eastern CFRAM Study outlines that there were a large number of historic flooding events which have occurred within the Carlow AFA. However, all of these events occurred before the Carlow Flood Relief Scheme was completed.

7.2.3 OPW – Flood Maps

The OPW maintain a national flood mapping resource which is available for review via their website; www.floodinfo.ie. On review of the Carlow Fluvial Flood Map on this resource, it was found that the proposed development at ‘Site A’ & ‘Site B’ are located in an area susceptible to flooding however the development area is located on an elevated site which is protected by existing flood defences.



Node Label	Water Level (OD) 10% AEP	Flow (m ³ /s) 10% AEP	Water Level (OD) 1% AEP	Flow (m ³ /s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m ³ /s) 0.1% AEP
14BURN00047	46.90	26.23	47.23	37.68	47.70	51.84
14BURN00030	46.29	N/A	46.70	N/A	47.43	N/A
14BURN00003	46.20	N/A	46.60	N/A	47.07	N/A
01CARL00224	46.49	N/A	46.99	N/A	47.55	N/A
14BARO09035D	46.27	N/A	46.68	N/A	47.16	N/A
01CARL00164	46.24	176.15	46.64	251.15	47.12	355.98
01CARL00144	46.12	N/A	46.48	N/A	46.91	N/A
01CARL00124	46.07	196.28	46.40	279.26	46.79	389.56
01CARL00094	45.98	N/A	46.30	N/A	46.67	N/A

Figure 4 - Extract Carlow Fluvial Flood Map

The nearest upstream flood model node to the proposed 'Site A' development (01CARL00224), located adjacent to Andy Murphy Road and is about 330m from the site. The nearest downstream flood model node to the proposed development (14BARO09035D), located near Bridge Street is about 100m from the site. The flood model nodes indicated the following flood levels;

Node 01CARL00224	10% AEP	1.0% AEP	0.1% AEP
Water Level m OD	46.49	46.99	47.55

Node 14BARO09035D	10% AEP	1.0% AEP	0.1% AEP
Water Level m OD	46.27	46.68	47.16

'Site A' lies between Node 01CARL00224 and Node 14BARO09035D. By interpolating between these nodes, we have estimated the 10% AEP, 1.0% AEP and 0.1 AEP% flood event at the development site. The results are presented below.

'Site A' by Interpolation	10% AEP	1.0% AEP	0.1% AEP
Water Level m OD	46.34	46.78	47.30

As described in section 2 above, the proposed floor levels of the proposed 'Site A' buildings vary between +47.375m OD and +47.75m OD and the site is protected by existing defences to 47.8mOD. By interpolation, the buildings based on their proposed finished floor levels are located in flood zone C while the site itself is located in flood zone B.

If the flood model levels were translated to 'Site A', the proposed buildings would be protected up to the 0.1% AEP event having a freeboard of 75mm, even if there was localised failure of the existing flood defence wall.

'Site B' lies between Node 01CARL00224 and Node 14BARO09035D. By interpolating between these nodes, we have estimated the 0.1 AEP% flood event at the development site. The site is not affected by the 10% AEP and 1.0% AEP flood events. The results are presented below.

'Site B' by Interpolation	10% AEP	1.0% AEP	0.1% AEP
Water Level m OD	N/A	N/A	47.355

As described in section 2 above, the proposed finished ground levels of the car park range between +46.2m at the site entry/exit point to +46.45m OD at the east boundary line.

Based on the Carlow Fluvial Flood Map provided in the Carlow Flood Map, the proposed 'Site B' car park may be susceptible to fluvial flooding in an 0.1% AEP Event (1 in 1000 year fluvial flooding event) up to a maximum depth of 1.15m. The development at 'Site B' is a carpark and will not increase the risk of fluvial flooding in the surrounding area. As far as is practical, all hardstanding areas have been designed as self-draining permeable pavements, thereby providing temporary water storage underground.

Copies of the OPW Flood Maps are contained in Appendix B of this report.

7.2.4 Past Flooding Events

The OPW maintain flood hazard maps which contain information on previous flood events in a particular location. This information is available on their website www.floodmaps.ie. A Local Area Report was generated for Carlow Town which showed a number of past events, most recently in October 2000 and in November 2009. A copy of this Summary Local Area Report is contained in Appendix C of this report.

7.3 Stage 3: Detailed Flood Risk Assessment

The purpose of this stage is to identify possible flood risks and to implement the necessary level of appraisal to assess these possible risks in order to ensure that these can be adequately addressed in the Flood Risk Assessment, to address the potential impact on flood risk elsewhere and the effectiveness of any proposed mitigation measures.

In consideration of the information collated as part of this assessment, and the availability of other information and data specific to the subject site, it is considered that sufficient quantitative information to complete an appropriate flood risk assessment can be derived from the information collated. In particular, the final flood extent maps for the area produced as part of the Eastern CFRAM Study are based on the results of detailed hydraulic modelling undertaken along the River Barrow, and, therefore provide a reasonably accurate delineation of flood zones and prediction of flood depths in the general vicinity of the subject site.

The assessment indicates that the primary risk to the subject site can be attributed to potential fluvial flooding from the adjacent River Barrow. A secondary flood risk can be attributed to a surcharge due to a potential surcharge of the urban drainage infrastructure within the vicinity of the site.

The initial Flood Risk Assessment undertaken as part of this Site Specific Flood Risk Assessment has determined that 'Site A' and 'Site B' are not at risk of coastal/tidal, pluvial (overland flow) or groundwater flooding. Therefore, coastal/tidal, pluvial (overland flow) and groundwater flooding risk to the subject site will not be assessed further as part of this Site Specific Flood Risk Assessment.

The above assessment indicates that the subject site may be susceptible to pluvial flooding (urban drainage) and fluvial flooding (River Barrow).

7.3.1 Site Inspection – 1st December 2020

The author visited the relevant sites on this date to assess the potential flood sources, pathways and assess the consequences on receptors. It was apparent prior to the property visit that the area was at risk from flooding (fluvial) and pluvial flooding (urban drainage) based on our desktop study.

- a) The findings of our 'Site A' and 'Site B' inspection in terms of primary Flood Risk are as follows:

Source:

The flood risk source is fluvial and pertains to the River Barrow located directly adjacent to the proposed development sites.

Pathways:

For a flood event to occur on 'Site A', an overbank breach of the River Barrow would need to occur followed by a breach of the existing flood defences resulting in surface water affecting the relevant property.

For a flood event to occur on 'Site B', an overbank breach of the River Barrow would need to occur.

Receptors:

The receptors relevant to 'Site A' are the proposed new structures, its occupants and the associated site works, including foul & surface water drainage.

The receptors relevant to 'Site B' are its users.

As described in section 2 above, the proposed floor levels of the proposed buildings on 'Site A' vary between +47.375m OD and +47.75m OD and the site is protected by existing defences to +47.8mOD. If the flood model levels were translated to our site, the proposed buildings would be protected up to the 0.1% AEP event, even if there was localised failure of the existing flood defence wall.

The development at 'Site B' will not increase the risk of fluvial flooding in the surrounding area. As far as is practical, all hardstanding areas have been designed as self-draining permeable pavements, thereby providing temporary water storage underground.

The following table summarises our flood risk assessment outcomes pertaining to the proposed development sites.

Source	Pathway	Receptor	Likelihood	Consequence	Risk
Fluvial	Flood Defence Overtopping	New Premises	Low	Medium	Low

- b) The findings of our 'Site A' and 'Site B' inspection in terms of secondary Flood Risk are as follows:

Source:

The flood risk source is pluvial and due to a potential surcharge of the urban drainage infrastructure within the vicinity of 'Site A' and 'Site B'.

Pathways:

For a flood event to occur on 'Site A', an overflow breach of the existing combined and/or stormwater systems would need to occur followed by a breach of the existing floor defences resulting in surface/waste water affecting the relevant property.

For a flood event to occur on 'Site B', an overflow breach of the existing combined and/or stormwater systems would need to occur.

Receptors:

The receptors relevant to 'Site A' are the proposed new structures, its occupants and the associated site works.

The receptors relevant to 'Site B' are its users.

The likelihood of a potential surcharge for both sites from the existing combined sewer system on Maryborough Street is unlikely, due to the presence of a 600mm diameter concrete combined sewer overflow discharging into the River Barrow. This combined sewer overflow is running through 'Site A'.

All wastewater and surface water drains / sewers servicing the proposed 'Site A' development will be fitted with non-return valves to mitigate flood waters from rising up drains during extreme flood events. Overall, the pluvial flood risk to the proposed development at 'Site A' and 'Site B' is considered to be low and no further mitigation measures are proposed.

The following table summarises our flood risk assessment outcomes pertaining to the proposed development site.

Source	Pathway	Receptor	Likelihood	Consequence	Risk
Pluvial	Urban Drainage Surcharge	New Premises	Low	Medium	Low

8.0 Justification Test

As stated above, in accordance with Table 3.2 of the Planning System & Flood Risk Management - Guidelines for Planning Authorities (2009), a 'less vulnerable' accommodation development in Flood Zone 'B' or 'C' does not require a Justification Test to be carried. Therefore, the proposed development at Site 'A' and 'Site B' is considered appropriate and therefore, does not require a Justification test.

9.0 Comments / Recommendations

The author is satisfied, based on our desktop study, site inspection and local knowledge that the proposed development at 'Site A' and 'Site B' are located in an area susceptible to flooding however the proposed building structures and site works are set at a level which provides protection from flooding up to and above the 0.1% AEP.

A flood risk assessment for both sites has been carried out which demonstrates that the flood risk to the proposed development is low and that the proposed works would not have an impact on flooding in the area in terms of obstructing important flow paths. In addition, the proposed development would not impede access to the existing watercourses nor would it result in increased flood risk elsewhere due to flood water displacement.

The new building structures at 'Site A' may be susceptible to flooding in extreme events (beyond the 0.1% AEP) and we believe that the following measure should be incorporated in to the design;

- All wastewater and surface water drains / sewers servicing the proposed development should be fitted with non-return valves to mitigate flood waters from rising up drains during extreme flood events.
- Proposed structures will be constructed using water resilient materials

The 'Site B' car park may be susceptible to fluvial flooding in an 0.1% AEP Event (1 in 1000 year fluvial flooding event). The development at 'Site B' is a carpark set at the existing grade and will not increase the risk of fluvial flooding in the surrounding area

We trust you find the above to be of use however, should you have any queries or require any further information, please don't hesitate to contact us.

End of Report

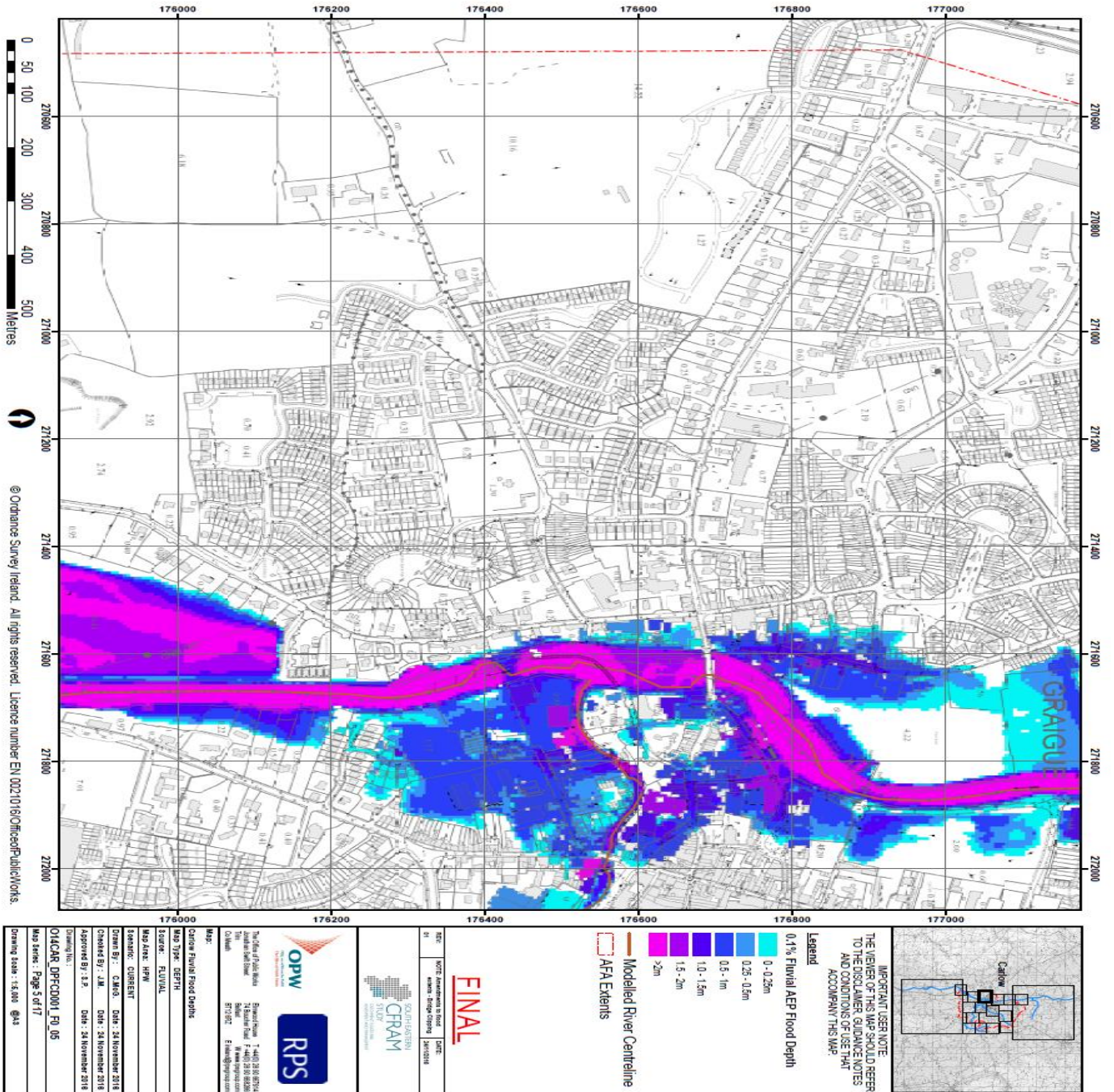


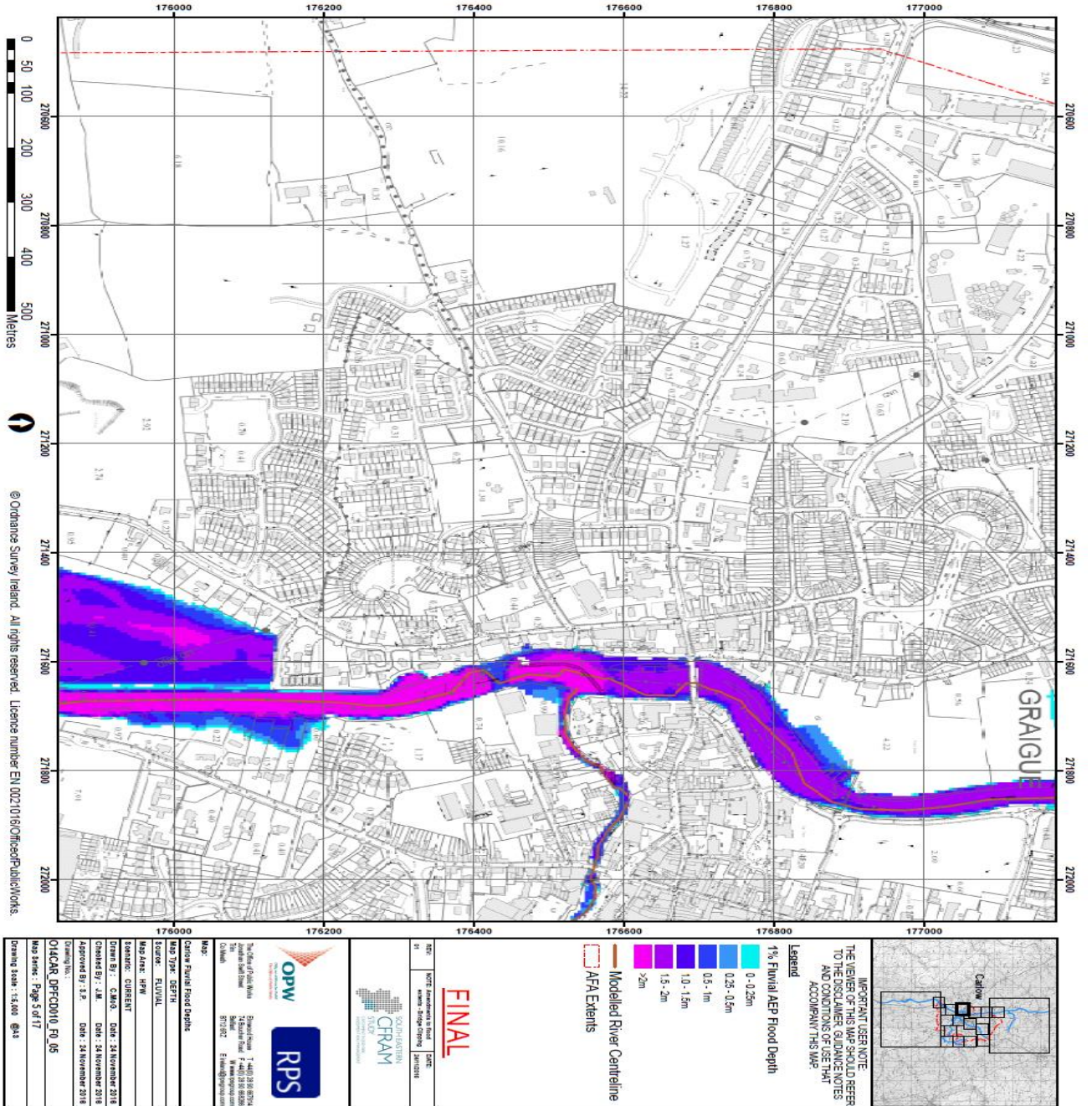
Signed: _____

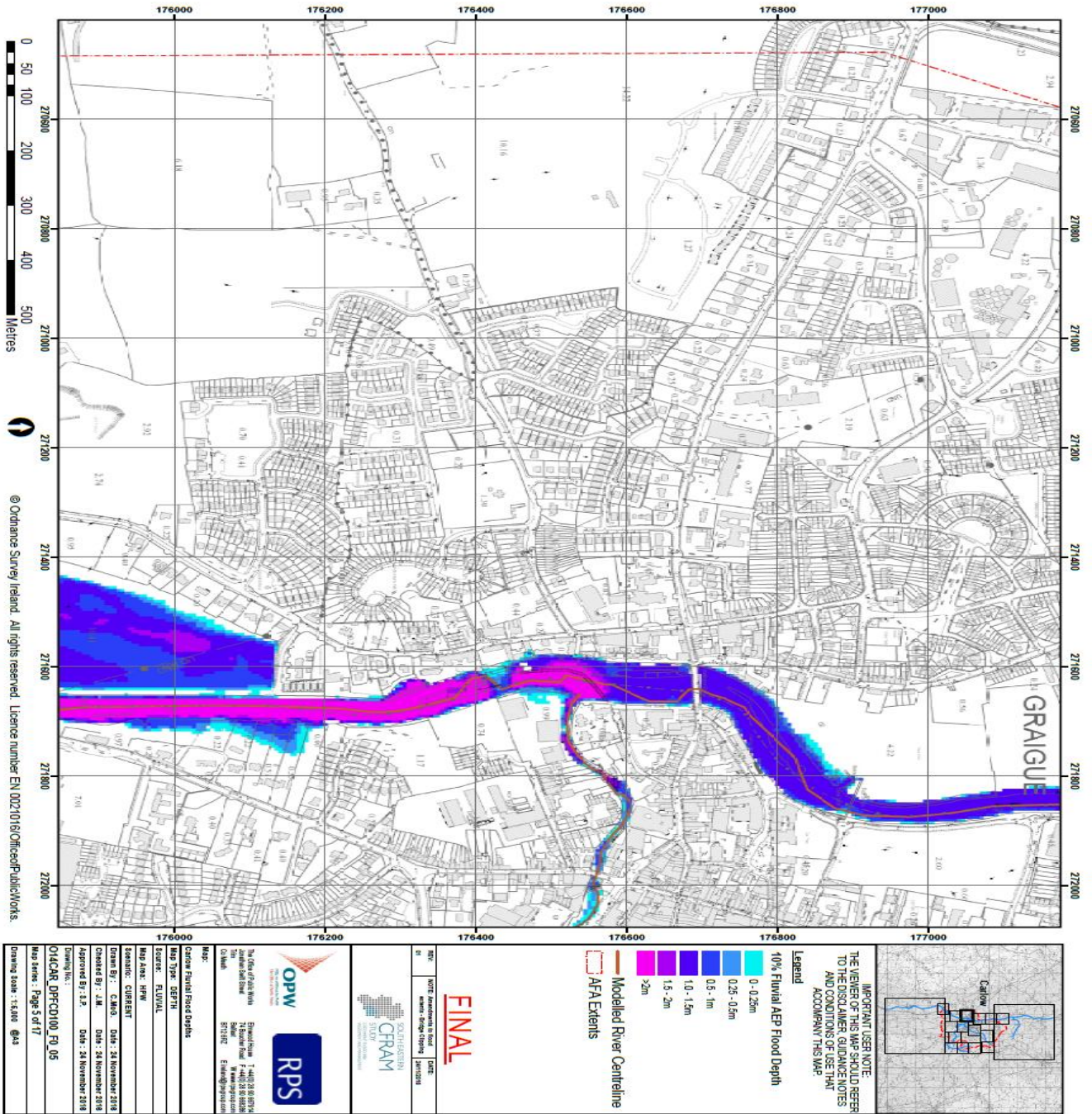
Date: 22nd-September-2021

Brian Healy *BE CEng MIEI*
Chartered Engineer

For and on behalf of DRA Consulting Engineers







Appendix C - OPW National Flood Hazard Mapping Local Area Report

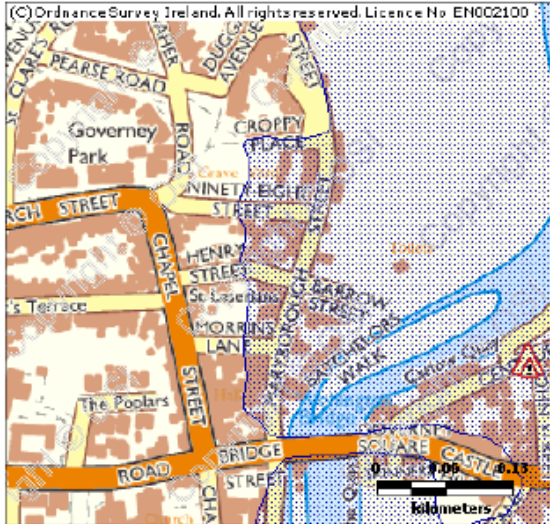
OPW National Flood Hazard Mapping

Summary Local Area Report

This Flood Report summarises all flood events within 2.5 kilometres of the map centre.











The map centre is in:
 County: Carlow
 NGR: S 715 768

This Flood Report has been downloaded from the Web site www.floodmaps.ie. The users should take account of the restrictions and limitations relating to the content and use of this Web site that are explained in the Disclaimer box when entering the site. It is a condition of use of the Web site that you accept the User Declaration and the Disclaimer.








Map Scale 1:5,229

Map Legend

-  Flood Points
-  Multiple / Recurring Flood Points
-  Areas Flooded
-  Hydrometric Stations
-  Rivers
-  Lakes
-  River Catchment Areas
-  Land Commission *
-  Drainage Districts *
-  Benefiting Lands *

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained in the Glossary.

20 Results

	1. Barrow Carlow 19th to 26th Nov 2009 County: Carlow Additional Information: Reports (12) More Mapped Information	Start Date: 19/Nov/2009 Flood Quality Code: 2
	2. Barrow Carlow Town March 1947 County: Carlow Additional Information: Reports (6) More Mapped Information	Start Date: 17/Mar/1947 Flood Quality Code: 1
	3. Barrow Burrin Carlow Town Jan Mar 1995 County: Carlow Additional Information: Photos (50) Reports (7) Press Archive (1) More Mapped Information	Start Date: 25/Jan/1995 Flood Quality Code: 1
	4. Barrow Carlow Town, Jan 1996 County: Carlow Additional Information: Photos (3) Reports (3) Press Archive (1) More Mapped Information	Start Date: 05/Jan/1996 Flood Quality Code: 1
	5. Barrow Carlow November 2000 County: Carlow	Start Date: 05/Nov/2000 Flood Quality Code: 3

Additional Information: Reports (1) Press Archive (4) More Mapped Information		
	6. Barrow Carlow Town Feb 1990 County: Carlow	Start Date: 08/Feb/1990 Flood Quality Code:1
Additional Information: Reports (2) Press Archive (7) More Mapped Information		
	7. Burrin Carlow Paupish Lane Dec 1998 County: Carlow	Start Date: 30/Dec/1998 Flood Quality Code:2
Additional Information: Reports (1) More Mapped Information		
	8. Barrow Carlow Town, June 1993 County: Carlow	Start Date: 15/Jun/1993 Flood Quality Code:1
Additional Information: Reports (4) More Mapped Information		
	9. Barrow Carlow town centre recurring County: Carlow	Start Date: Flood Quality Code:2
Additional Information: Photos (19) Reports (6) Press Archive (78) More Mapped Information		
	10. Barrow Carlow Town 18th August 2008 County: Carlow	Start Date: 17/Aug/2008 Flood Quality Code:2
Additional Information: Reports (2) More Mapped Information		
	11. Barrow Carlow Town & Area Jan 2008 County: Carlow	Start Date: 10/Jan/2008 Flood Quality Code:2
Additional Information: Reports (1) More Mapped Information		
	12. Burren Paupish Lane Hanover Cres Carlow recurring County: Carlow	Start Date: Flood Quality Code:2
Additional Information: Reports (2) Press Archive (14) More Mapped Information		
	13. Barrow Carlow Town North recurring County: Carlow	Start Date: Flood Quality Code:3
Additional Information: Photos (2) Reports (1) Press Archive (78) More Mapped Information		
	14. Barrow Crossneen recurring County: Laois	Start Date: Flood Quality Code:3
Additional Information: Reports (2) More Mapped Information		
	15. Barrow Sleaty recurring County: Laois	Start Date: Flood Quality Code:4
Additional Information: Reports (1) More Mapped Information		
	16. Green Lane Carlow recurring County: Carlow	Start Date: Flood Quality Code:4
Additional Information: Reports (1) Press Archive (1) More Mapped Information		
	17. Dr Cullen Road Carlow recurring County: Carlow	Start Date: Flood Quality Code:4
Additional Information: Reports (1) More Mapped Information		
	18. Askagh Drive Pollerton Carlow recurring County: Carlow	Start Date: Flood Quality Code:4
Additional Information: Reports (1) Press Archive (3) More Mapped Information		



19. Fushoge Oldderrig Bridge Recurring

County: Laois

Additional Information: [Reports \(1\)](#) [More Mapped Information](#)

Start Date:

Flood Quality Code:4



20. Fushoge Ballykillen Bridge recurring

County: Laois

Additional Information: [Reports \(1\)](#) [More Mapped Information](#)

Start Date:

Flood Quality Code:4