



**MOLONY MILLAR**  
Consulting Civil and Structural Engineers

**FLOOD RISK ASSESSMENT FOR  
DEVELOPMENT OF AN APARTMENT BUILDING  
AT  
BALL ALLEY HOUSE, LEIXLIP ROAD,  
LUCAN, CO. DUBLIN**

PROJECT NUMBER: 930-344			Document Ref: Flood Risk Assessment			
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Architect: Concept Design Partnership

Client: Gerry Teague

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### APPENDICES

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## 1. INTRODUCTION

### 1.1. Background

Molony Millar Consulting Civil & Structural Engineers has prepared this Site-Specific Flood Risk Assessment (FRA) to demonstrate that the proposal to develop an Apartment Building at Ball Alley House, Leixlip Road, Lucan, Co. Dublin including associated facilities, is in full compliance with the requirements of "The Planning System & Flood Management Guidelines" published by the Department of Environment, Heritage and Local Government in November 2009.

### 1.2. Flood Risk Management Guidelines

"The Planning System and Flood Risk Management Guidelines" (hereafter referred to as FRM Guidelines) was published by the government in November 2009. The core principle of the guidelines is to adopt a risk based sequential approach to managing flood risk and to avoid new development in areas that are at risk. The guidelines set out the following description of flood risk zones;

#### Flood Zone A (High Probability)

- Subject to flooding in the (1% AEP) 1 in 100 year return period storm event – rivers;
- Subject to flooding in the (0.5% AEP) 1 in 200 for year return period event – coastal/ tidal areas.

#### Flood Zone B (Moderate Probability)

- Subject to flooding in the (0.1% AEP) 1 in 1000 year return period storm event – rivers;
- Subject to flooding in the (0.1% AEP) 1 in 1000 for year return period event – coastal/ tidal areas.

#### Flood Zone C (Low Probability)

- Subject to flooding only for events storm greater than the (>0.1% AEP) 1 in 1000 year return period.

The guidelines set out the different types of development appropriate to each zone, as shown in Table 1.1 Apartments are considered highly vulnerable development and is considered "Appropriate" for location in Flood Zone C without the need for a justification test.

	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

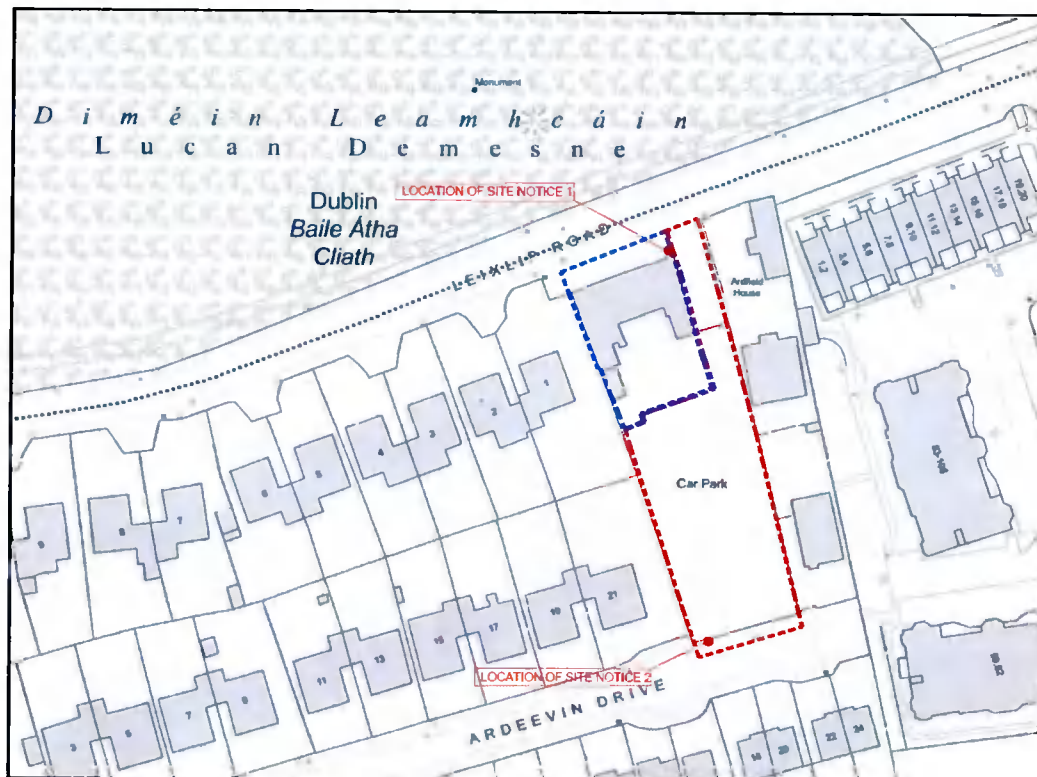
**Table 1.1 – Development in Flood Zones**

Exceptions to the restriction of development are provided for through the use of the Justification Test as noted in the Table 1.1, whereby the planning need and the sustainable management of flood risk must be demonstrated for a new development. This recognises that there is need for new development in existing towns and urban centres that lie within flood risk zones and that the avoidance of all new development in these areas would be unsustainable.

## 2. REVIEW OF POTENTIAL FLOOD RISK

We have reviewed the main sources of potential flood risk to determine the Flood Risk Zoning applicable to this development. The site extent reviewed as part of this flood risk assessment is shown in Figure 2.1. All potential flood risks and sources of flood water have been considered. In establishing extent of the flood risk, a number of sources of information have been considered:

- The Office of Public Works (OPW) Flood Hazard Mapping website;
- The OPW CFRAMS Study and Flood Risk Mapping;
- The South Dublin County Council (SDCC) Development Plan 2016-2022 Strategic Flood Risk Assessment Report; and
- OPW Preliminary Ground Water Flood Hazard Map for Ireland (2010).



**Figure 2.1 – Ordnance Survey of the site at Ball Alley House, Leixlip Road, Lucan**

### 2.1. Historical Record

OPW Flood Hazard Mapping show records of flooding in the general vicinity of the site. Figure 2.2 shows the locations of past recorded flood events, with the full report contained in Appendix I.

Further study of the records, show significant flooding in two locations, namely the Liffey to the North and the Griffeen River, west of the site. Flooding of the Liffey is confined to lands north of the site and will be studied in greater detail in Section 2.2. Flooding of the Griffeen Catchment occurs west of the site and is confined to lands well below the site, detailed in section 2.2 to follow.

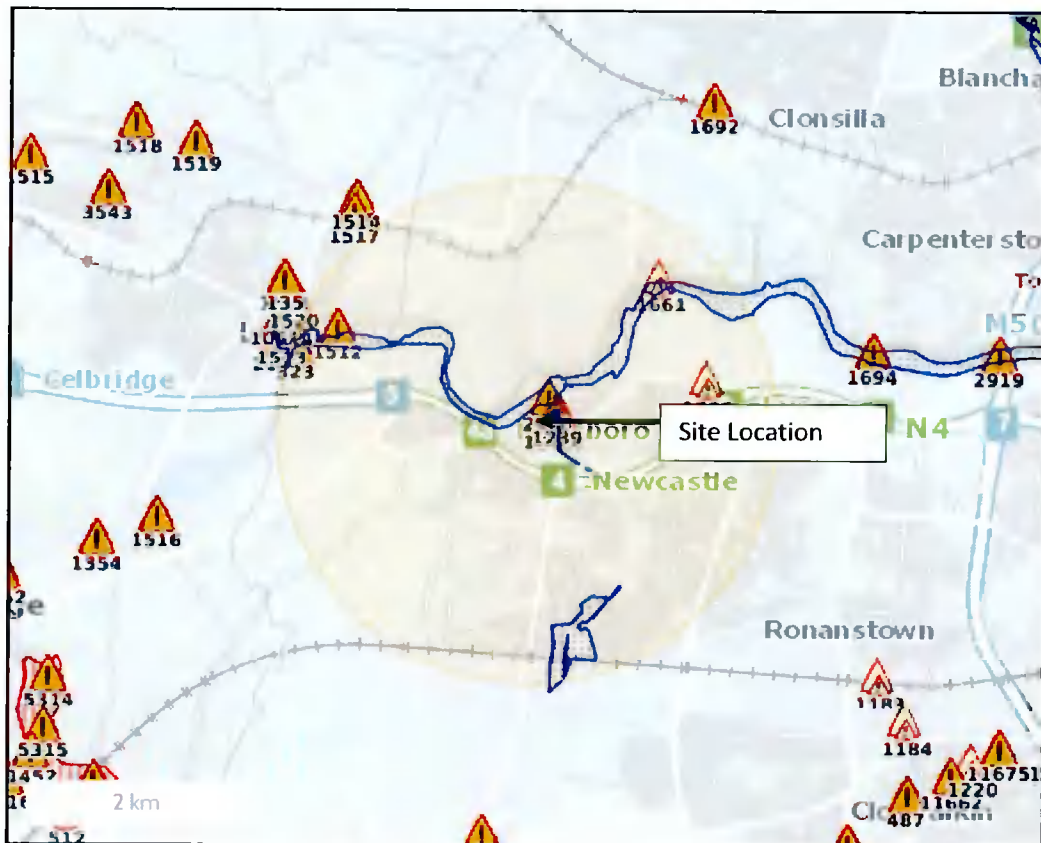


Figure 2.2 – Historical Flooding – Extract OPW Flood Hazard Mapping

## 2.2. Fluvial Flood Risk

Fluvial Flooding is the result of a watercourse (river, stream, etc.) exceeding its capacity and excess water spilling out onto the adjacent floodplain. Figure 2.3 from the EPA Maps, below indicates the watercourses in proximity to the site. There are two watercourse, namely the Liffey River and the Griffeen River.

The full CFRAM Fluvial Flood Extent Map for this location can be referred to in Appendix II, an extract is shown in Figure 2.4. Detailed study show that the site located at approximately 33 to 34mOD. The 0.1% AEP flood event on the Liffey occurs at a level of between 22.16 (node ref. 09LIFF01917) and 21.57mOD (node ref. 09LIFF01863) and on the Griffen River at 24.05mOD (node ref. 09GRIF00029E).

With the site almost 10m above the 0.1% AEP Fluvial levels, the site can be classified as being in Zone C (subject to flooding only for events storm greater than the (>0.1% AEP) 1 in 1000 year return period).

Based on the above consideration there should be no risk of flooding from fluvial sources.



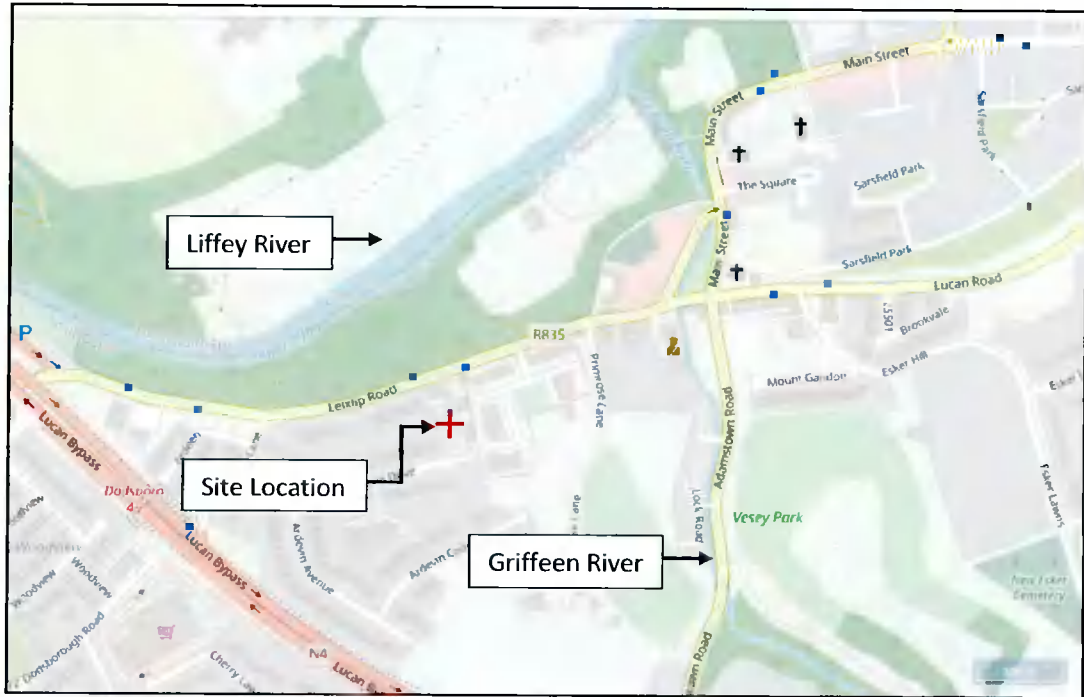


Figure 2.3 – Watercourses in proximity to the Site

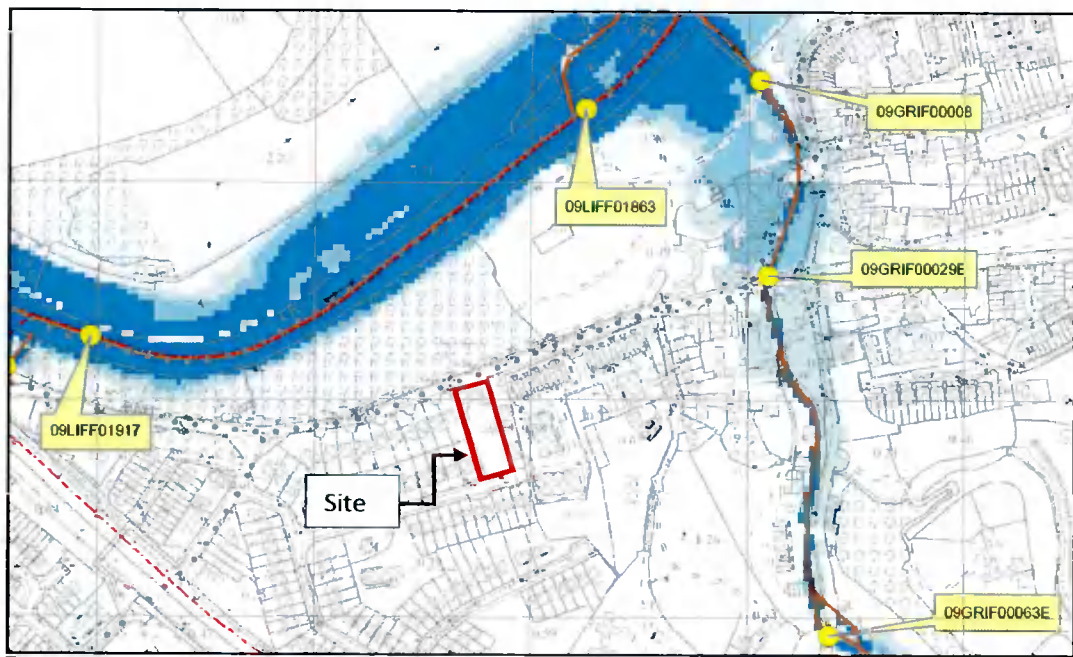


Figure 2.4 – Extract OPW Fluvial Flood Extent Map

**2.3. Pluvial/ Storm Water Flood Risk**

Pluvial flooding is the result of rainfall-generated overland flows, which arise before runoff enters a watercourse or sewer (i.e. storm flows). Pluvial flood risk at this site will be addressed by the provision of a sustainable urban drainage system (SUDS) that will collect and discharge storm water to the local SW sewer system. The proposed

reduced flow of 1.43 l/s will be a drastic improvement on the currently unthrottled discharge from an almost entirely hard surfaced area. This SUDS system has been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS). The design of the SUDS system is addressed in the accompanying engineering services report.

In addition, the topography of the site provides a natural watershed away from the apartment with raised thresholds at all entrances.

Based on the above there should be little to no risk of flooding from pluvial sources.

#### **2.4. Coastal/ Tidal Flood Risk**

Coastal/ Tidal Flooding is the result of a high tide or a high tide combined with a storm surge that results in inundation of the floodplain. The site is not located on the coast or on the tidal reach of a river, so the site is not at risk of coastal flooding.

#### **2.5. Groundwater Flood Risk**

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from groundwater flowing from abnormal springs. This type of flooding tends to occur after very long periods of sustained high rainfall and typically manifests itself as winter lakes or turloughs. For this site, our review of hydro-geological mapping and the Office of Public Works (OPW) Preliminary Ground Water Flood Hazard Map for Ireland (2010) has determined that groundwater flooding is not a key risk at this site.

### **3. CONCLUSION**

All existing information has been reviewed regarding flood risk in the location of the proposed development. We are fully satisfied, based on the available information, that the site of this proposed development is located in Flood Zone C (low risk) for all sources of flood risk. The proposals for a residential development on this site therefore achieve full compliance with the requirements of "The Planning System & Flood Management Guidelines" published by the Department of Environment, Heritage and Local Government in November 2009.

**Signed:** \_\_\_\_\_

**RAYMOND GOGGIN**

**B.E., C.Eng., M.I.E.I., Eur. Ing., M.Cons.E.I.**

**Date:** 25<sup>th</sup> July 2021



**APPENDIX I**

**OPW CFRAMS Flood Risk Mapping**

**APPENDIX II**

**OPW Flood Hazard Mapping**



Report Produced: 30/6/2021 6:04









This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from [www.floodinfo.ie](http://www.floodinfo.ie) (the "Website"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.

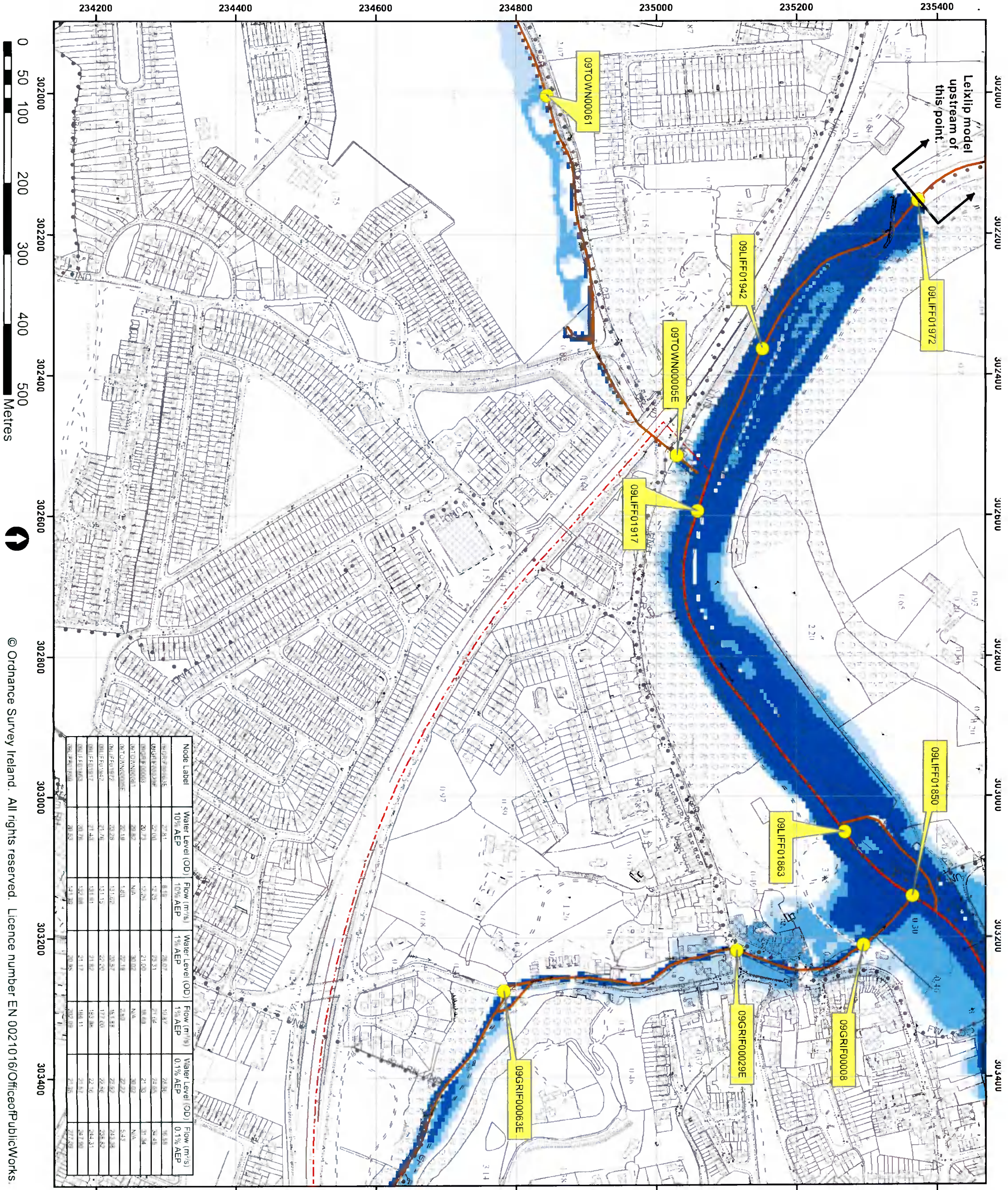


## 14 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Griffeen November 2000 (ID-1237)	05/11/2000	Area
	Additional Information: <a href="#">Reports (16)</a> <a href="#">Press Archive (6)</a>		
2.	Griffeen Aug 1986 (ID-1239)	25/08/1986	Approximate Point
	Additional Information: <a href="#">Reports (3)</a> <a href="#">Press Archive (0)</a>		
3.	Griffeen June 1993 (ID-1240)	11/06/1993	Approximate Point
	Additional Information: <a href="#">Reports (7)</a> <a href="#">Press Archive (0)</a>		
4.	Liffey Nov 1965 (ID-323)	17/11/1965	Approximate Point
	Additional Information: <a href="#">Reports (4)</a> <a href="#">Press Archive (0)</a>		
5.	Liffey Nov 1968 (ID-324)	01/11/1968	Approximate Point
	Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>		
6.	Griffeen Nov 2002 (ID-350)	15/11/2002	Approximate Point
	Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>		

Name (Flood_ID)	Start Date	Event Location
7.  Lucan St Edmonsbury Road Recurring (ID-1222) Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>	n/a	Approximate Point
8.  Silleachain Mill Lane Leixlip Nov 2002 (ID-1512) Additional Information: <a href="#">Reports (3)</a> <a href="#">Press Archive (0)</a>	14/11/2002	Approximate Point
9.  Liffey Lr Lucan Rd R109 Strawberry Beds Recurring (ID-1661) Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (0)</a>	n/a	Exact Point
10.  Silleachain Mill Lane Leixlip Nov 2000 (ID-1778) Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (1)</a>	05/11/2000	Approximate Point
11.  Liffey Leixlip November 2000 (ID-8) Additional Information: <a href="#">Reports (2)</a> <a href="#">Press Archive (9)</a>	06/11/2000	Approximate Point
12.  Liffey Lower - Dec 1954 (ID-241) Additional Information: <a href="#">Reports (5)</a> <a href="#">Press Archive (2)</a>	08/12/1954	Area
13.  Liffey Lucan June 1993 (ID-2918) Additional Information: <a href="#">Reports (3)</a> <a href="#">Press Archive (2)</a>	10/06/1993	Approximate Point
14.  Griffeen River 24th Oct 2011 Lucan (ID-11487) Additional Information: <a href="#">Reports (1)</a> <a href="#">Press Archive (0)</a>	24/10/2011	Approximate Point





Node Label	Water Level (OD) 10% AEP	Flow (m <sup>3</sup> /s) 10% AEP	Water Level (OD) 1% AEP	Flow (m <sup>3</sup> /s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m <sup>3</sup> /s) 0.1% AEP
09TOWN00061	27.84	8.18	28.07	10.87	28.36	14.98
09LIF01942	27.60	12.28	27.83	18.63	28.18	31.94
09TOWN0005E	28.82	N/A	29.05	N/A	29.32	N/A
09LIF01917	28.18	1.83	28.41	2.87	28.72	5.43
09LIF01863	28.28	11.12	28.51	15.88	28.82	24.38
09LIF01850	27.76	12.15	27.99	17.92	28.28	29.82
09GRIF00029E	27.82	12.81	28.05	17.87	28.34	31.31
09GRIF00008	28.78	152.88	29.01	198.11	29.28	261.82
09GRIF00063E	28.82	152.88	29.05	198.11	29.32	261.82

**IMPORTANT USER NOTE:**  
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

**Legend**

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Node Point
- Node ID
- Node Label

**OPW**  
The Office of Public Works  
74 Bowdoin Street  
Dublin 8  
D08 W8H8

**RPS**  
Eimwood House  
74 Bowdoin Road  
Belfry  
B112 8RZ  
Eireland@rpsgroup.com

**CFRAM**

**FINAL**

REV	NOTE	DATE

**Map:** Lucan to Chapelizod Fluvial Flood Extents

**Map Type:** EXTENT

**Source:** FLUVIAL

**Map Area:** HPW

**Scenario:** CURRENT

**Drawn By:** C.C.      **Date:** 27 July 2016

**Checked By:** S.P.      **Date:** 27 July 2016

**Approved By:** G.G.      **Date:** 27 July 2016

**Drawing No.:** E09LUC\_EXPCD\_F0\_04

**Map Series:** Page 4 of 12

**Drawing Scale:** 1:5,000 @ A3

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