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LONDON

DUBLIN

**Specific Flood Risk Assessment**  
**Adamstown – Block A,C & D**  
**County Dublin**

Client: Quintain Developments Ireland Ltd

Job No. D101

Date April 2022





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## SPECIFIC FLOOD RISK ASSESSMENT

### ADAMSTOWN – BLOCK A,C & D, COUNTY DUBLIN

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**BS 1192 FIELD**

**Document2**

Job Ref.	Author	Reviewed By	Authorised By	Issue Date	Rev. No.
D101	RFM	RFM	MMcE	06.04.2022	*

## 1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Quintain Developments Ireland Ltd to prepare a Site Specific Flood Risk Assessment to accompany a planning application for a proposed development at Adamstown – Blocks A, C & D.

In preparing this report, CS Consulting has made reference to the following:

- South Dublin County Council Development Plan 2016-2022;  
(including Strategic Flood Risk Assessment);
- Greater Dublin regional Code of Practice for Works;
- Office of Public Works Flood Maps;
- Department of the Environment Flooding Guidelines;
- Geological Survey of Ireland Maps;
- Local Authority Drainage Records.

The Site Specific Flood Risk Assessment is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with the various additional information submitted by the other members of the design team, as part of the Planning Submission.

The location of the proposed development site is shown in Figure 1, the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in Figure 2. The site is bounded to the north by Adamstown Avenue, to the east by open space, to the south Adamstown Station Road and to the east by a Blocks B & E, currently under construction.



## 2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

### 2.1 Site Location

The proposed development site is located to the north of Adamstown Station, Co. Dublin. The site is located in the administrative jurisdiction of South Dublin County Council and has a total area of approximately 2.43ha.



Figure 1 – Location of proposed development site  
(map data & imagery: EPA, OSM Contributors, Google)

The location of the proposed development site is shown in **Figure 1** above; the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in **Figure 2**.



Figure 2 – Site extents and environs  
(map data & imagery: Google)

The site is bounded to the north by Adamstown Avenue, to the east by Adamstown Park, to the south Adamstown Station Road and to the west by a greenfield.

## 2.2 Existing Land Use

The subject site is a greenfield in nature and with no previous development on the site. As part of the submission a topographical survey was undertaken to establish the levels on site. The survey indicated a fall cross the site from north to south, with levels in the range of 62.40mAOD to 61.50mAOD. no structures or water courses of note are located on the site.



Refer to CS Consulting's drawing **D101/001** for details of the existing topography of the site.

### **2.3 Proposed Development**

The proposed development consists of:

- A development to be constructed in 3no. blocks (known as Block A,C and D) ranging in height from 2 to 9 storeys including an ancillary residents Pavilion Amenity Building.
- 436no. apartments comprising 9no. studio units, 204no. 1-bedroom units, 213no. 2-bedroom units and 10no. 3-bedroom unit.
- Communal open space provided at podium and ground levels
- 220no. car parking spaces are to be provided in a mixture of on-street parking, podium and within the already permitted Block F multi-storey car park.
- The provision of 526no. bicycle parking spaces provided through stacked (416no. spaces) and Sheffield (110no. spaces) bicycle parking spaces.

The development also includes the provision of all ancillary site development and landscape works.



### 3.0 LEVEL OF SERVICE

There is an existing inherent risk of any flood event occurring during any given year. Typically, this likelihood of occurrence was traditionally expressed as a 1-in-100 chance of a 100 year storm event happening in any given year.

A less ambiguous expression of probability is the Annual Exceedance Probability (AEP), which may be defined as the probability of a flood event being exceeded in any given year. Therefore a 1-in-100-year event has a return period of 1% AEP flood event, similarly a 100% AEP can be expressed as a 1-in-1-year event.

3.1 *The Planning System and Flood Risk Management, Guidelines for Planning Authorities* set out the best practice standards for flood risk assessment in Ireland. These are summarised in Table 1 below (from Guidelines document).

Flooding Source	Drainage	River	Tidal/Coastal
Residential	1% AEP	0.1% AEP	0.1% AEP
Commercial	1% AEP	1% AEP	0.5% AEP
Water-compatible (docks, marinas)	-	>1% AEP	>0.5% AEP

**Table 1** – Summary of Level of Service – Flooding Source

Under these guidelines a proposed development site has first to be assessed to determine the flood zone category it falls under.

3.2 It is a requirement of both South Dublin County Council, Greater Dublin Strategic Drainage Study, (DCC 2005) & the Department of the Environment, community & Local Government flooding guidelines, *The Planning System and Flood Risk Management, Guidelines for Planning Authorities*, that the predicted effects of climate change are incorporated



into any proposed design. **Table 2** below indicates the predicted climate change variations.

Design Category	Predicted Impact of Climate Change
Drainage	20% Increase in rainfall
Fluvial (River flows)	10% Increase in flood flow
Tidal / Coastal	Minimum Finished Floor Level 4.0 – 4.15m AOD

**Table 2** - The predicted climate change variations.

**3.3** The flooding guidelines categorize the risks associated with flooding into three areas, Zone A, B & C. This categorisation is indicated below.

- **Zone A** – High Probability of Flooding. Where the average probability of flooding from rivers and sea is highest (greater than 1% annually or 1 in 100 for river flooding or 0.5% annually or 1 in 200 for coastal flooding).
- **Zone B** – Moderate Probability of Flooding. Where the average probability of flooding from rivers and sea is moderate (risk between 0.1% annually or 1 in 1000 years and 1% annually or 1 in 100 years for river flooding, and between 0.1% or 1 in 1000 years and 0.5% annually or 1 in 200 for coastal flooding).
- **Zone C** – Low Probability of Flooding. Where the probability of flooding from rivers and sea is moderate (risk is less than 0.1% annually or 1 in 1000 years for both rivers and coastal flooding).

In accordance with the *Planning Systems and Flood Risk Management Guidelines for Planning Authorities*, dwellings are classified as 'highly vulnerable developments' and buildings used for commercial and retail are classified as 'less vulnerable developments'.

3.4 Following a review of the South Dublin County Council flood maps, the subject site is located in **Flood Zone C**. See **Appendix A**.

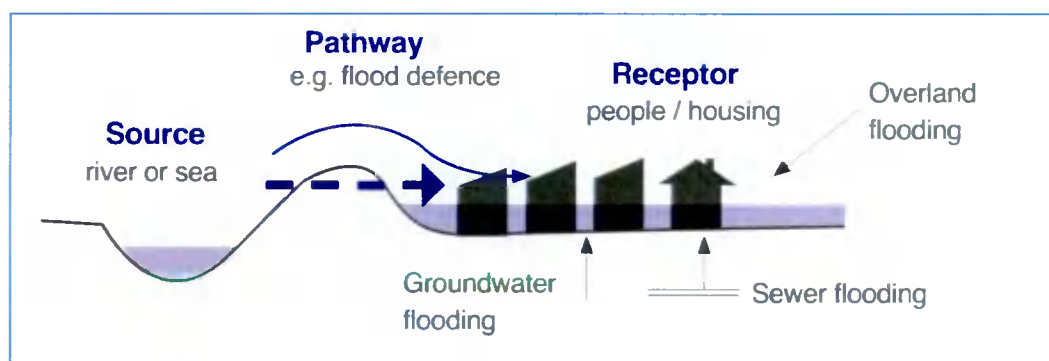


Figure 3 – Source-pathway-receptor model  
(imagery: *The Planning System and Flood Risk Management Guidelines*)

3.5 The flooding guidelines have developed an 'appropriateness' matrix for various developments and their potential risk factor. The table indicates if further analysis is required in the form of a justification test. Table 3 below outlines the conditions that require a justification test.

	Flood Zone A	Flood Zone B	Flood Zone C
Highly Vulnerable Development	<b>Justification Test</b>	<b>Justification Test</b>	Appropriate
Less Vulnerable Development	<b>Justification Test</b>	Appropriate	Appropriate
Water-compatible Development	Appropriate	Appropriate	Appropriate

**Table 3** - Flood Zone Vs Justification Test Matrix

As noted above the subject site is located within **Flood Zone C**, as such a justification test is not required. See CS Consulting drawing **D101/010** for the site location superimposed on the CRFAM Mapping.

## 4.0 FLOOD RISKS & MIGRATION MEASURES

### 4.1 Fluvial Flooding

A review of the Office of Public Works flood maps database, [www.floodmaps.ie](http://www.floodmaps.ie), for the area does not indicate historical flooding at the site. See the OPW Map-report included in **Appendix B**. Recent modelling of the area as part of the local authorities Development Plan's Strategic Flood Risk Assessment does not indicate that the site is located near any fluvial sources of flooding. See **Appendix A** for South Dublin County Council Flood Risk Map.

In addition, the *Eastern Catchment Flood Risk Assessment Mapping, CFRAM* project, indicates that the subject site is deemed to be located outside of the 0.1% AEP fluvial floodplain, based on the currently available maps. See **Appendix C** for CFRAM Fluvial Flood Extent Map.

Therefore, the risk of fluvial flooding is not deemed to be significant.

### 4.2 Tidal Flooding

The sites elevated location indicates that the subject site will not be affected by tidal flooding. In addition, the councils flood risk map does not indicate that the site is located in a tidal flood zone.

### 4.3 Pluvial Flooding

Pluvial flooding is flooding which has originated from overland flow resulting from high intensity rain fall. A high level pluvial flood map has been produced but it is of for high level use than for a specific site. Previous flood events in the area can be reviewed on the Office of Public Works web site, [www.floodmaps.ie](http://www.floodmaps.ie).

#### **4.4 Potential for Site to Contribute to Off-Site Flooding**

The site is not currently developed but has an attenuation system in the surface water drainage sub-catchments areas (Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary), provided as part of the *Adamstown SDZ Planning Scheme 2014*. As such the proposed redevelopment of the site shall not require attenuation to be provided on site, as it is to be provided off site. Therefore, the likelihood of the proposed development adversely affecting the public drainage system or contributing to downstream flooding is mitigated.

#### **4.5 Existing Off Site Drainage**

It is the understanding of CS Consulting that at present there are no issues with the local drainage arrangements, as the local infrastructure has been design in accordance with the SDZ master plan to accommodate the proposed development.

#### **4.6 Groundwater Flooding**

According to the Geological Survey of Ireland interactive maps, the subject site is underlain with *Dark limestone & shale*. The area is listed as overlaying a locally important aquifer which has bedrock which is *moderately productive only in local zones*. The groundwater vulnerability assessment of the site shows that the vulnerability of groundwater in the area is *extreme*. A review of the GSI *Historical Groundwater Flood Map* for Ireland does not indicate previous flooding from groundwater sources. The proposed development and the general geology of the subject lands means that the potential risk from groundwater is deemed acceptable.

Refer to **Appendix D** for GSI mapping information & Historic Groundwater Flood Map.

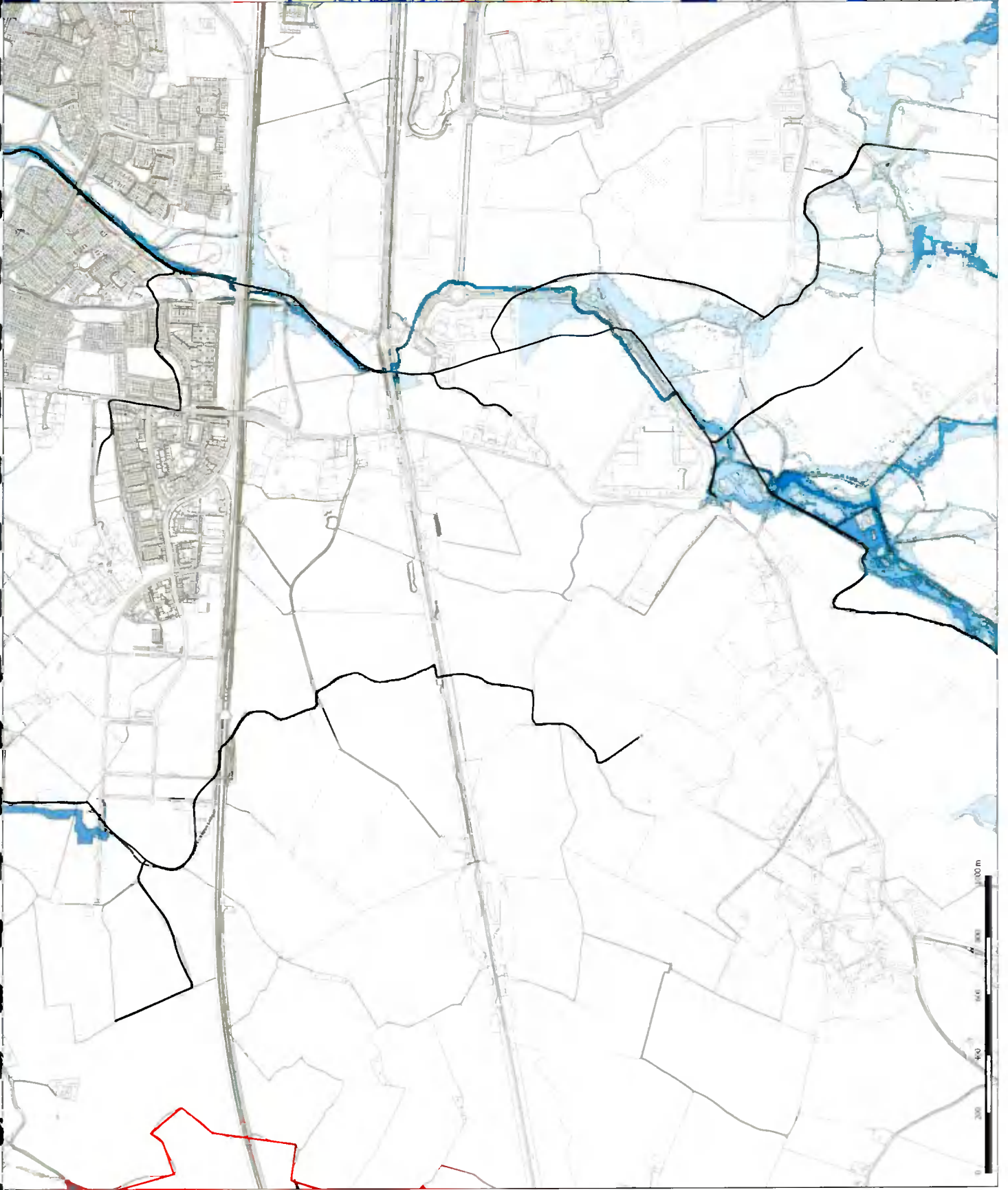


## 5.0 CONCLUSION

- The site historically has no recorded flood events as noted in the OPW's historical flood maps for pluvial or fluvial events.
- Predicted flood mapping for pluvial / tidal & Fluvial flood events will not affect the subject lands.
- The site is deemed to be located in **Flood Zone 'C'**, outside the predicated 1-in-1000 year flood zone.
- The existing surface water drainage sub-catchments areas (Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary), provided as part of the *Adamstown SDZ Planning Scheme 2014* shall significantly reduce the volume of storm water leaving the SDZ lands during extreme storm events.
- In addition, The Tobermacclugg Stream and Griffeen River since the Planning Scheme was adopted which have significantly reduced flood risk in this area.
- The likelihood of onsite flooding from groundwater due to hydrogeological conditions are deemed to be minor and within acceptable levels.

**Appendix A: South Dublin County Council Flood Risk Map**

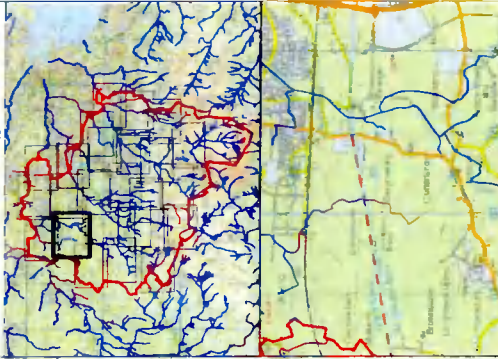




**Legend**

- Flood Zone A - 1% AEP Flood Extent (1 in 100 chance in any given year)
- Flood Zone B - 1% AEP Flood Extent (1 in 1000 chance in any given year)
- Defended Area
- Watercourse Centreline
- Indicative Flood Extents
- County Boundary

**DRAFT**



Project Strategic Flood Risk Assessment

Title

Fluvial Flood Zone Mapping

Figure

MDW657\_0004



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Drawn:	BT	Project No.	MDW657
Checked:	JH	File Ref.	MDW657Q0010502
Approved:	JH	Drawing No.	Projection
Scale:	1:6000 @ A1	4 of 26	IG
Date:	14/01/2016		

NOTES 1. The viewer of this map should refer to the SP88 Report and Database  
2. Ordnance Survey Ireland License No. EN 0005019  
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**Appendix B: Office of Public Works Historic Flood Report**

**Summary Local Area Report**

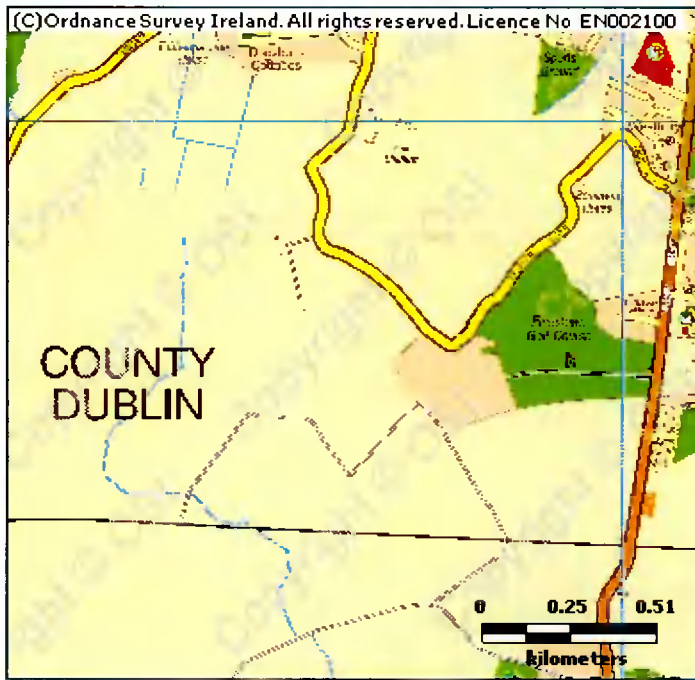
This Flood Report summarises all flood events within 2.5 kilometres of the map centre.

The map centre is in:

County: Dublin

NGR: O 022 333

This Flood Report has been downloaded from the Web site [www.floodmaps.ie](http://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 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.

Map Scale 1:21,045

**8 Results**

	1. Liffey Lower - Dec 1954 County: Kildare, Dublin Additional Information: Reports (4) Press Archive (2) More Mapped Information	Start Date: 08/Dec/1954 Flood Quality Code:2
	2. Griffeen River 24th Oct 2011 Lucan County: Dublin Additional Information: Reports (1) More Mapped Information	Start Date: 24/Oct/2011 Flood Quality Code:2
	3. Liffey Lucan June 1993 County: Dublin Additional Information: Photos (2) Reports (1) Press Archive (2) More Mapped Information	Start Date: 10/Jun/1993 Flood Quality Code:2
	4. Griffeen November 2000 County: Dublin Additional Information: Photos (6) Reports (9) Press Archive (6) More Mapped Information	Start Date: 05/Nov/2000 Flood Quality Code:1
	5. Griffeen June 1993 County: Dublin	Start Date: 11/Jun/1993 Flood Quality Code:2

Additional Information: Photos (2) Reports (5) More Mapped Information

---



6. Griffeen Aug 1986

Start Date: 25/Aug/1986

County: Dublin

Flood Quality Code:4

Additional Information: Reports (3) More Mapped Information

---



7. Griffeen Nov 2002

Start Date: 15/Nov/2002

County: Dublin

Flood Quality Code:4

Additional Information: Reports (1) More Mapped Information

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8. Peamount R134 R120 junction Nov 2000

Start Date: 05/Nov/2000

County: Dublin

Flood Quality Code:3

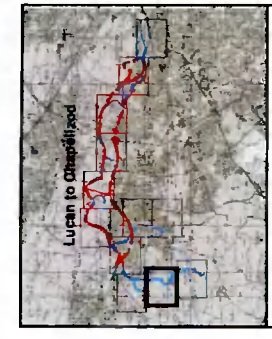
Additional Information: Reports (1) Press Archive (1) More Mapped Information



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S.V.P.



**Appendix C: Eastern Catchment Flood Risk Assessment and Management  
(CFRAM) Fluvial Map**



**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

**FINAL**

REV    NOTE    DATE

**OPW**    **RPS**

The Office of Public Works  
 74, Bowdler Road  
 Jonathan Swift Street  
 Trim  
 Co. Meath  
 B1726Z    E.issac@opw.gov.ie

**CFRAM**

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

**Map Type:** EXTENT

**Source:** FLUVIAL

**Map Area:** HPW

**Scenario:** CURRENT

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

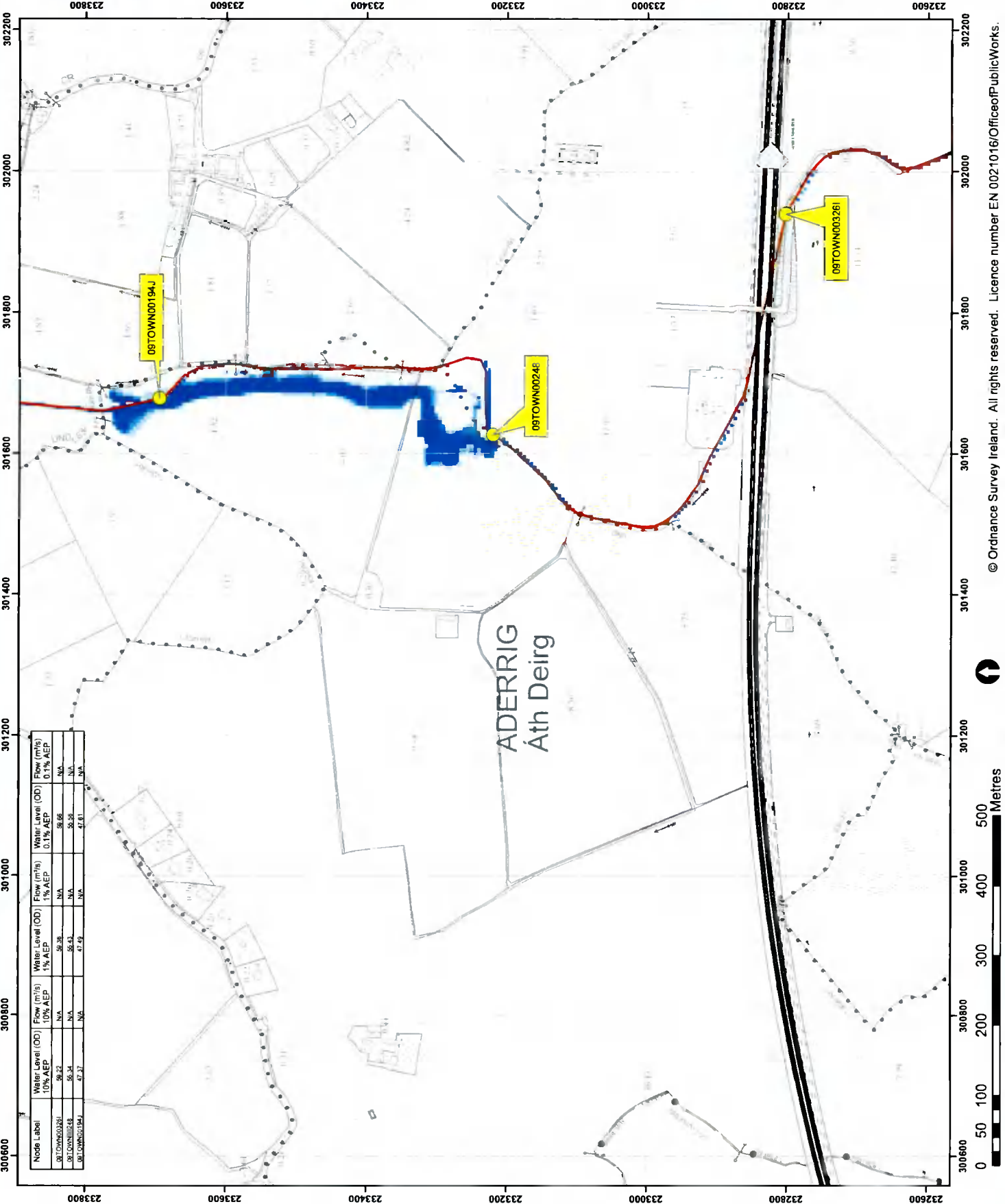
**Checked By:** S.P.    **Date:** 27 July 2016

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

**Drawing No.:** E09LUC\_EXFCD\_F0\_02

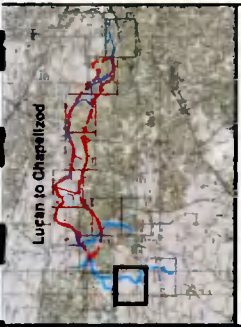
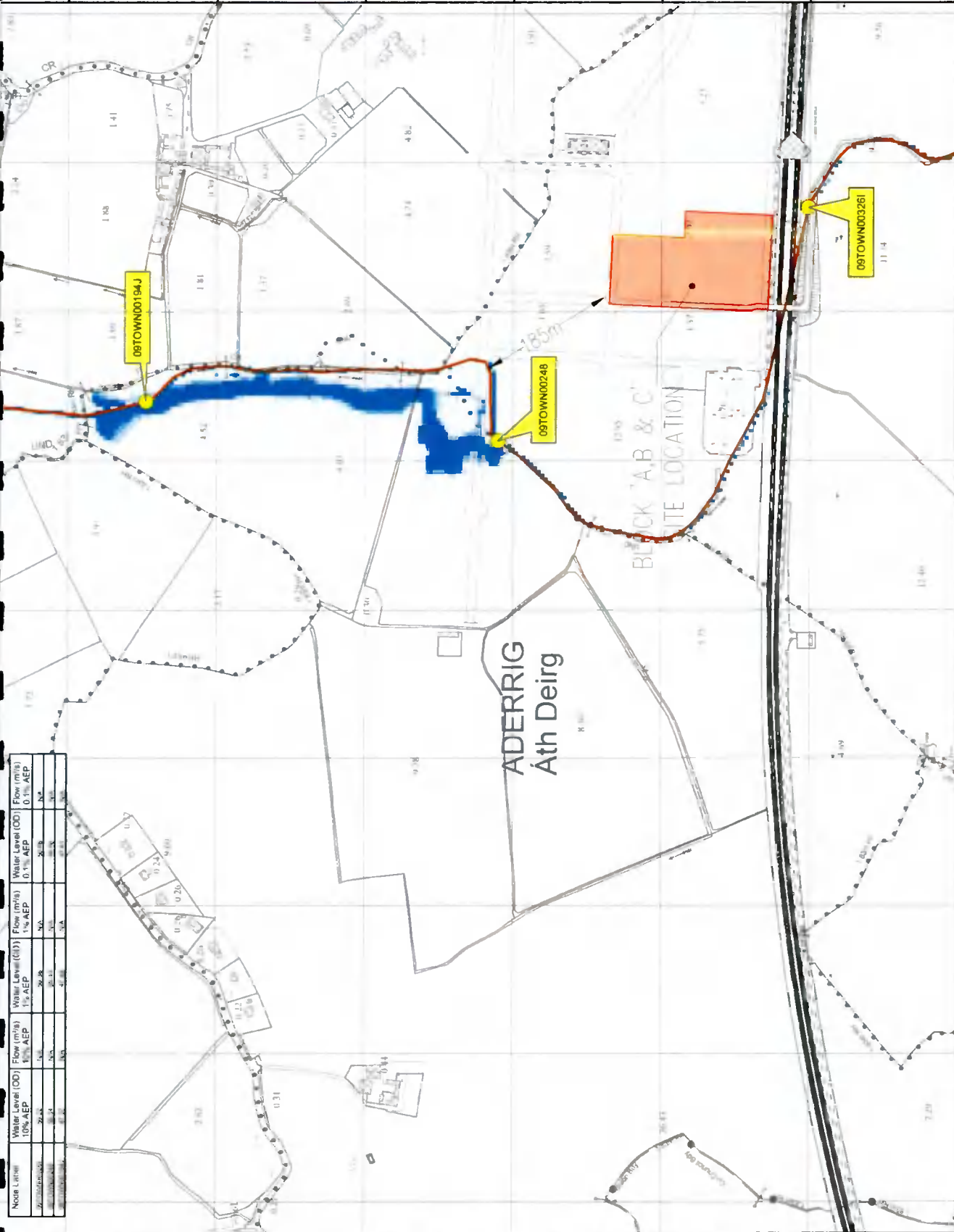
**Map Series:** Page 2 of 12

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



Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
09TOWN00326I	59.22	N/A	58.45	N/A	58.66	N/A
09TOWN00248	55.34	N/A	58.43	N/A	55.56	N/A
09TOWN00194J	47.37	N/A	47.49	N/A	47.61	N/A

Node ID	Water Level (OD)	Flow (m <sup>3</sup> /s)	Water Level (OD)	Flow (m <sup>3</sup> /s)	Water Level (OD)	Flow (m <sup>3</sup> /s)
	10% AEP	1% AEP	1% AEP	1% AEP	0.1% AEP	0.1% AEP
09TOWN00194J	29.24	0.24	29.24	0.24	29.24	0.24
09TOWN00248	29.24	0.24	29.24	0.24	29.24	0.24
09TOWN00326I	29.24	0.24	29.24	0.24	29.24	0.24



**IMPORTANT USER NOTE**  
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**Legend**

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

**FINAL**

REV	NOTE	DATE



The Office of Public Works  
 An tSeirbhís Oibre  
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 F: +353 (0)1 269 0000  
 W: www.opw.ie  
 E: info@opw.ie

Map	Lucan to Chapelizod Fluvial Flood Extents
Map Type	EXTENT
Source	FLUVIAL
Map Area	HPW
Scenario	CURRENT
Checked By	S.P.
Drawn By	C.C.
Date	27 July 2016
Date	27 July 2016
Date	27 July 2016
Approved By	S.G.

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Client	Quinn Developments Ireland Ltd
Project	Adamsdown - Block AC&D
Map	Flood Zone Mapping
Scale	1:1000
Drawn By	S.P.
Checked By	S.G.
Date	27 July 2016
Revision	D101/010

**NOTES**

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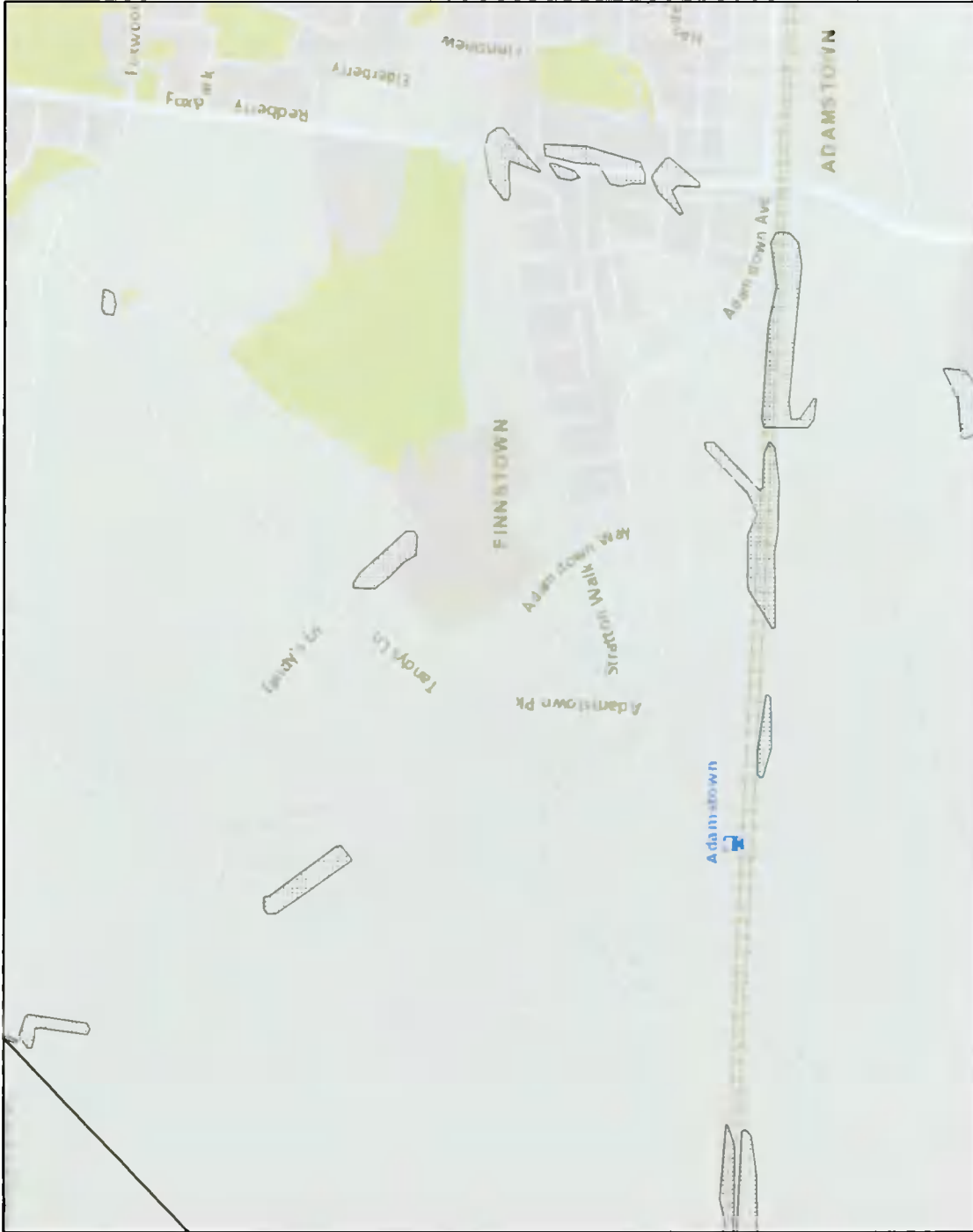


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**Appendix D: Geological Survey of Ireland Geology & Hydrogeological Mapping, and Historic Groundwater Flooding Mapping.**

## Legend

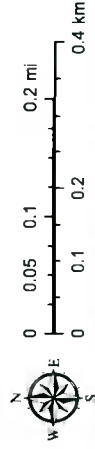
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-  Fault
-  Lucan Formation



Scale: 1:10,000

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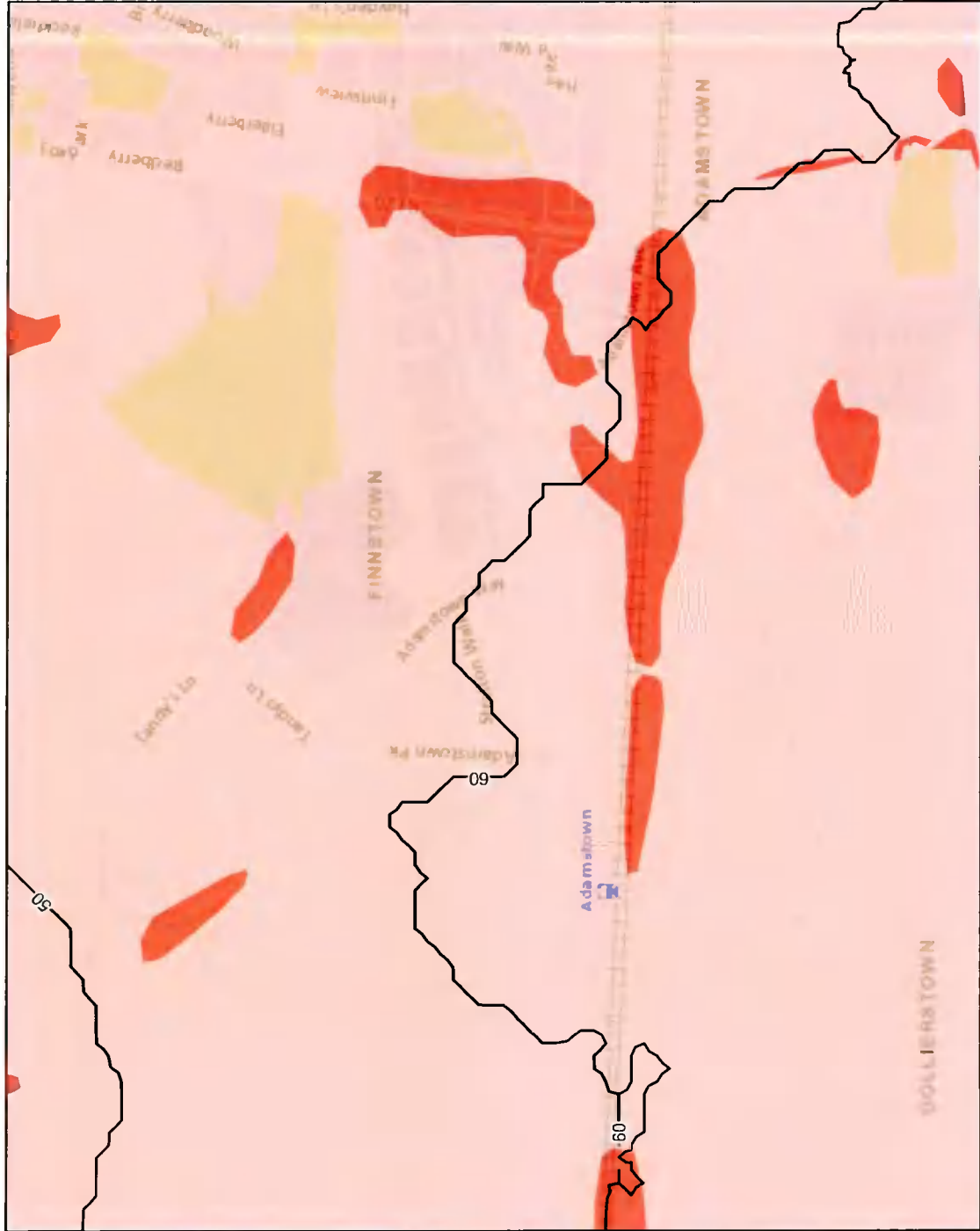




# Job No. D078 Hydrogeology

## Legend

- EPA Contours
- National Groundwater Vulnerability Ireland**
- VULNERABILITY**
- Rock at or near Surface or Karst
- Extreme



Scale: 1:10,000

### Geological Survey Ireland



Map Centre Coordinates (ITM) 702,367 733,053  
11/29/2019, 1:50:23 PM



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