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FLOOD RISK ASSESSMENT FOR SUBSTITUTE CONSENT APPLICATION AT MOUNT USHER VIEW, ASHFORD, CO. WICKLOW

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Architect: Concept Design Partnership

Client: Vartry Developments Ltd.

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1. INTRODUCTION

1.1. Background

Vartry Developments Ltd. seeks substitute consent for development at Mount Usher View, Ashford, Co. Wicklow.

This application is made on foot of a grant of leave to make substitute consent under ref. ABP-309566-21. The application site occurs over a site of approximately 1.19 ha. site for which planning permission was granted and taken up under Reg. Ref. 081704 (extended under Reg. Ref. 14118) for a mixed use residential, retail and office development consisting of 24 no. residential units (20 no. 3 bed terraced houses above either retail or office space and 4 no. 4 bed semi-detached houses) in 5 no. blocks.

Development for which substitute consent is sought consists of the development permitted under Reg. Ref. 081704. Development under Reg. Ref. 081704 was not completed and currently consists of:

- Blocks A & B consisting of 9 no. 2.5 storey terraced houses with retail (total 528 sqm below) are to pad or first floor plate level only;
- Blocks C and D consisting of 11 no. 3 storey terraced houses with ground floor offices are complete;
- and Block E consisting of 2 no. 2.5 storey semi-detached houses is complete to roof level but not weather tight.

Vehicular access to the site is from two points on the northern and southern corners of the site from Mount Alto Road (L1096).

Site services have been installed, or lands cleared for that purpose over an area of approx. 0.93 ha. to facilitate ancillary site development works that will be completed in accordance with Reg. Ref. 081704.Molony Millar Consulting Civil & Structural Engineers has prepared this Site-Specific Flood Risk Assessment (FRA) to demonstrate that the Consent Application, Mount Usher View, Ashford, 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 in 100-year return period storm event – rivers;
- Subject to flooding in the 1 in 200-year return period event – coastal/ tidal areas.

Flood Zone B (Moderate Probability)

- Subject to flooding in the 1 in 1000-year return period storm event – rivers;
- Subject to flooding in the 1 in 1000-year return period event – coastal/ tidal areas.

Flood Zone C (Low Probability)

- Subject to flooding only for events storm greater than the 1 in 1000-year return period. 33

The guidelines set out the different types of development appropriate to each zone, as shown in Table 1.1 Housing is 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. LOCAL DEVELOPMENT PLAN AND ZONING

Wicklow County Council has produced a Draft Local Development Plan for 2016-2022, outlining the plans for future orderly, sustainable development of the area, with guidelines included on good urban design, and delivery of a 'sense of space', while adhering to the Land Use Zoning imperatives. There is a specific section within the Plan which relates directly to Flood Risk Assessments, the Indicative Flood Zone Map, Appendix III, clearly shows the subject site to be in Zone C. There are no specific flood related excerpts which are of relevance to this site.

3. 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 Catchment Flood Risk Assessment and Management Study (CFRAMS) and Flood Risk Mapping;
- The Wicklow County Development Plan 2016-2022 Strategic Flood Risk Assessment Report; and
- OPW Preliminary Ground Water Flood Hazard Map for Ireland (2010).

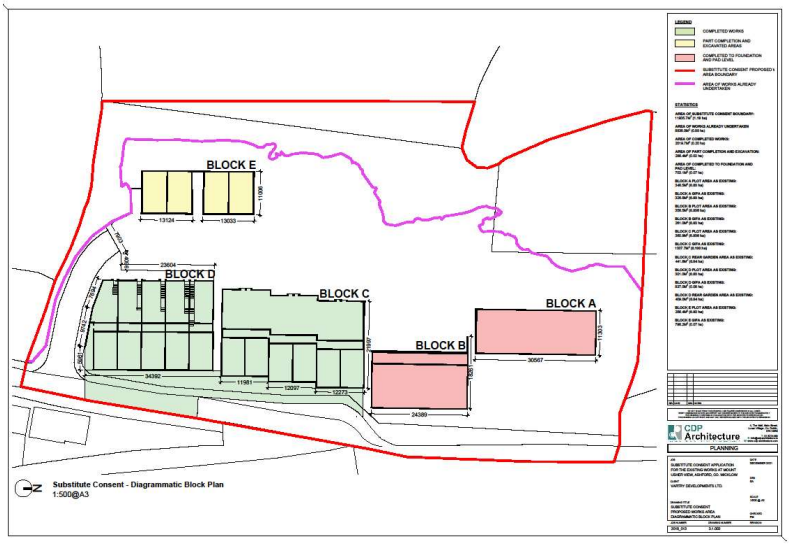


Figure 2.1 – Ordinance Survey Map, showing the extent of the Site at Mount Usher View, Main Street, Ashford

3.1. Historical Record

OPW Flood Hazard Mapping show no records of flooding within 2.5km of the site. Figure 2.2 shows the locations of past recorded flood events, with the full report contained in Appendix I.

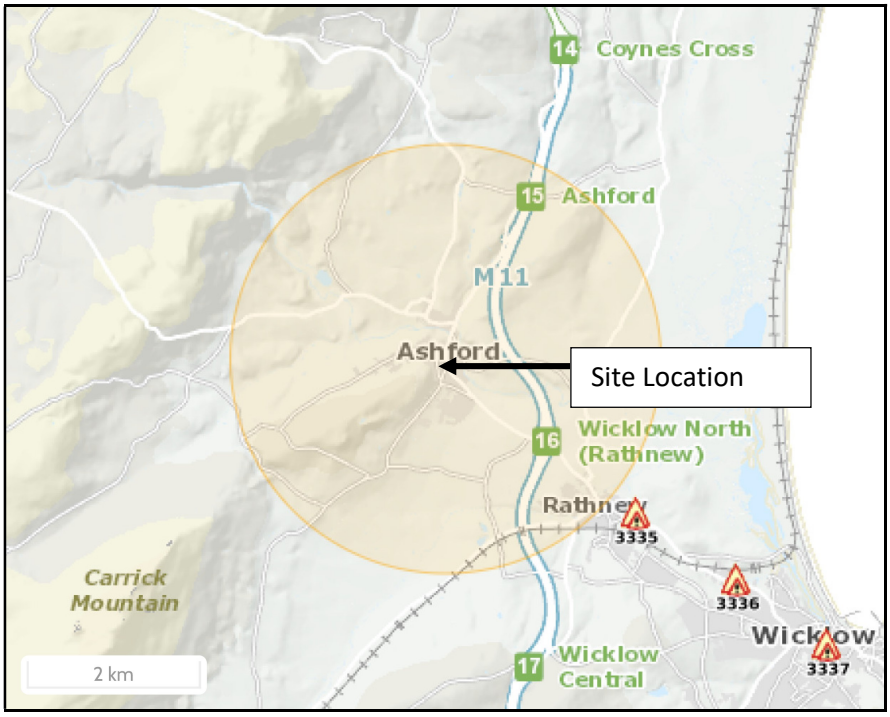


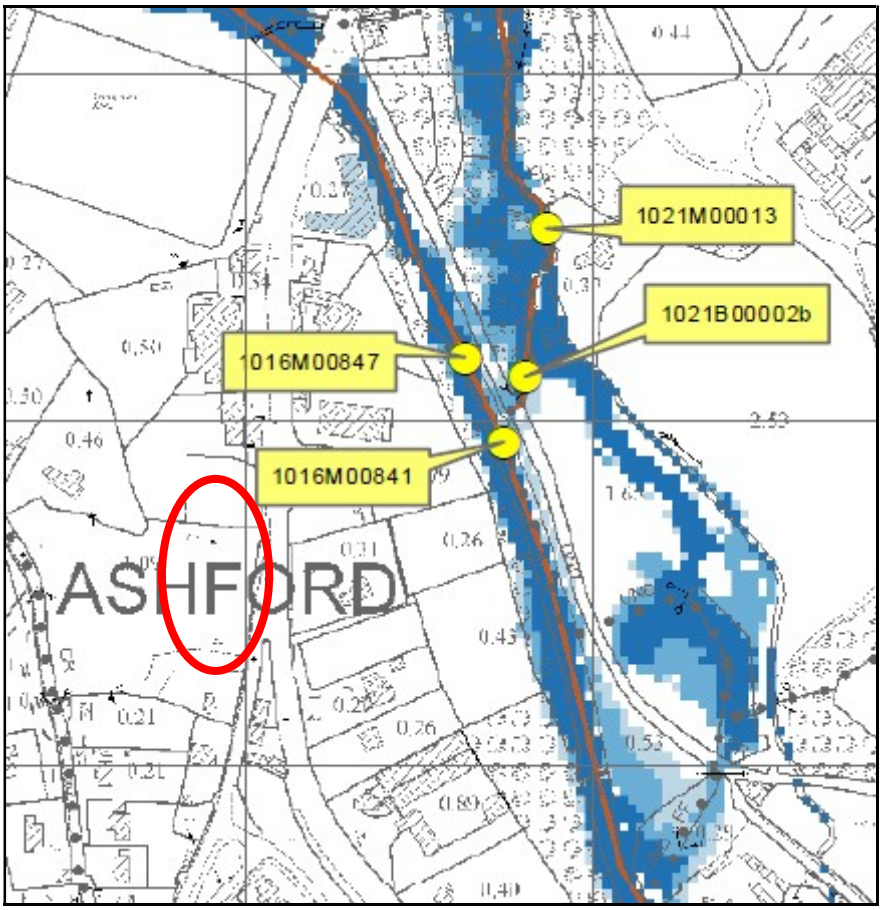
Figure 2.2 – Historical Flooding – Extract OPW Flood Hazard Mapping

3.2. 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. The Vartry River is both North and East of the site.

Figure 2.3 – Watercourses in proximity to the Site

The full CFRAM Fluvial Flood Extent Map for this location can be referred to in Appendix II. An extract is shown overleaf.



10% AEP* Event Water Level (m OD) at location	1016M00847	15.72m
1.0% AEP Event Water level (m OD) at location	1016M00847	16.08m
0.1% AEP Event Water level (m OD) at location	1016M00847	16.48m

*AEP – Annual Exceedance Probability – The % chance that this level of flooding may occur in any one year.

Figure 2.4 – Extract of CFRAM Fluvial Flood Extent Map

The lowest ground floor level of the site is 20.780m, which is 4.7m higher than the medium probability (1.0% AEP) water level of 16.080m taken from Figure 2.4. The low probability (0.1% AEP) water level is 16.480m, 4.3m below the lowest ground floor level. It can be seen from Figure 2.4 that both the 1 in 100-year storms and the 1 in 1000-year storms would not cause flooding in the area, including the site in question.

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

3.3. Pluvial/ Storm Water Flood Risk

Pluvial flooding is the result of rainfall-generated overland flows, which arise before run-off 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 an underground reinforced concrete surface water attenuation tank, with a hydrobrake controlled release of storm water (equivalent green-field runoff rate) to the Vartry River, via a new 300mm diameter surface water sewer. The outfall is located 200mm above the 0.1% AEP level. This SUDS system has been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS). The design of the system is addressed in the accompanying engineering services report.

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

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

3.4. 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.

According to the Eastern CFRAM study, Tidal influence ceases some 3km downstream from Ashford and as such no Coastal Flood extent maps for Ashford exist on the OPW website.

The site is not at risk of coastal flooding.

3.5. 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.

Utilising Groundwater Data Maps available on the GSI website, the underlying bedrock is Dark blue-grey slate, phyllite and schist.

The groundwater of Ashford is described as ‘locally important gravel aquifer’.

There are no springs or wells in proximity to the site. The Waterford co-op well outside of Ashford indicate gravels to depths greater than 12m. The main discharge mechanism is indicated as ‘Groundwater will leave this aquifer where the water table is

above river stage and a permeable riverbed exists. There is also likely to be groundwater seepage from the extremities of the gravel body at the lower elevations, which may appear as springs, seeps or a rise in baseflow to a river. Water may also come to the surface where there is a boundary to groundwater flow, e.g. a less permeable layer of till within the gravel deposit.'

Considering the topography of the site and height above the Vartry River, lack of recorded springs in proximity to the site, the risk of flooding due to Groundwater can be considered to be low. No basements are proposed and all buildings are provided with minimum thresholds. Any groundwater seepage which may occur would follow the natural watershed of the roadways and parking areas, discharging into the surface water system.

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.

4. 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 mixed-use (including 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

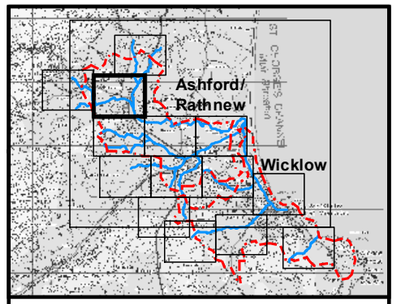
B.E., C.Eng., M.I.E.I., Eur. Ing., M.Cons.E.I.

Date: 8th November 2021

APPENDIX I

OPW CFRAMS Flood Risk Mapping

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
1016M00992	27.58	16.68	27.83	26.91	28.11	40.96
1016M00983	26.93	16.71	27.15	27.32	27.38	41.46
1016M00901	19.40	N/A	19.79	N/A	20.16	N/A
1016M00847	15.72	18.83	16.08	30.90	16.48	49.08
1016M00841	15.64	20.28	15.98	34.18	16.34	57.27
1022M00000	26.93	5.25	27.15	9.24	27.38	15.95
1021A00010	29.16	3.75	29.36	6.67	29.56	11.32
1021B00002b	16.81	4.51	17.27	8.45	17.51	14.50
1021M00090	28.62	1.75	28.69	3.35	28.78	4.54
1021M00082	27.81	5.15	27.99	9.63	28.11	14.23
1021M00013	18.16	6.14	18.24	11.04	18.34	14.40



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
- Embankment
- Wall
- Defended Area
- 1% AEP — Standard of Protection of Flood Defence (Walls / Embankments)
- 1% AEP
- Node Point
- Node ID — Node Label

FINAL

REV:	NOTE:	DATE:

EASTERN CFRAM STUDY
CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT

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Map:	Ashford/ Rathnew Fluvial Flood Extents
Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By : C.C.	Date : 15 November 2017
Checked By : D.I.	Date : 15 November 2017
Approved By : S.P.	Date : 15 November 2017
Drawing No. :	E10WIC_EXFCD_F2_02
Map Series :	Page 2 of 15
Drawing Scale :	1:5,000 @A3

0 50 100 200 300 400 500 Metres

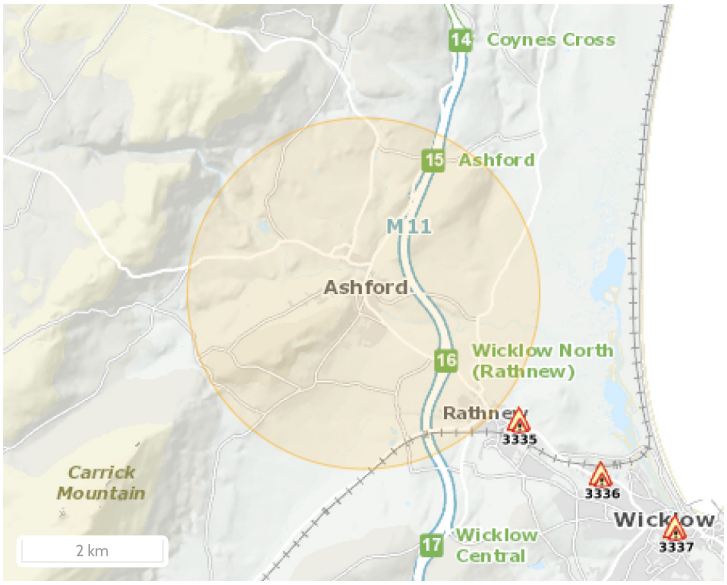
APPENDIX II

OPW Flood Hazard Mapping

Past Flood Event Local Area Summary Report

Report Produced: **1/6/2021 10:42**

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



Map Legend

- Single Flood Event
- Recurring Flood Event
- Past Flood Event Extents
- Drainage Districts Benefited Lands*
- Land Commission Benefited Lands*
- Arterial Drainage Schemes Benefited Lands*

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained on Floodinfo.ie

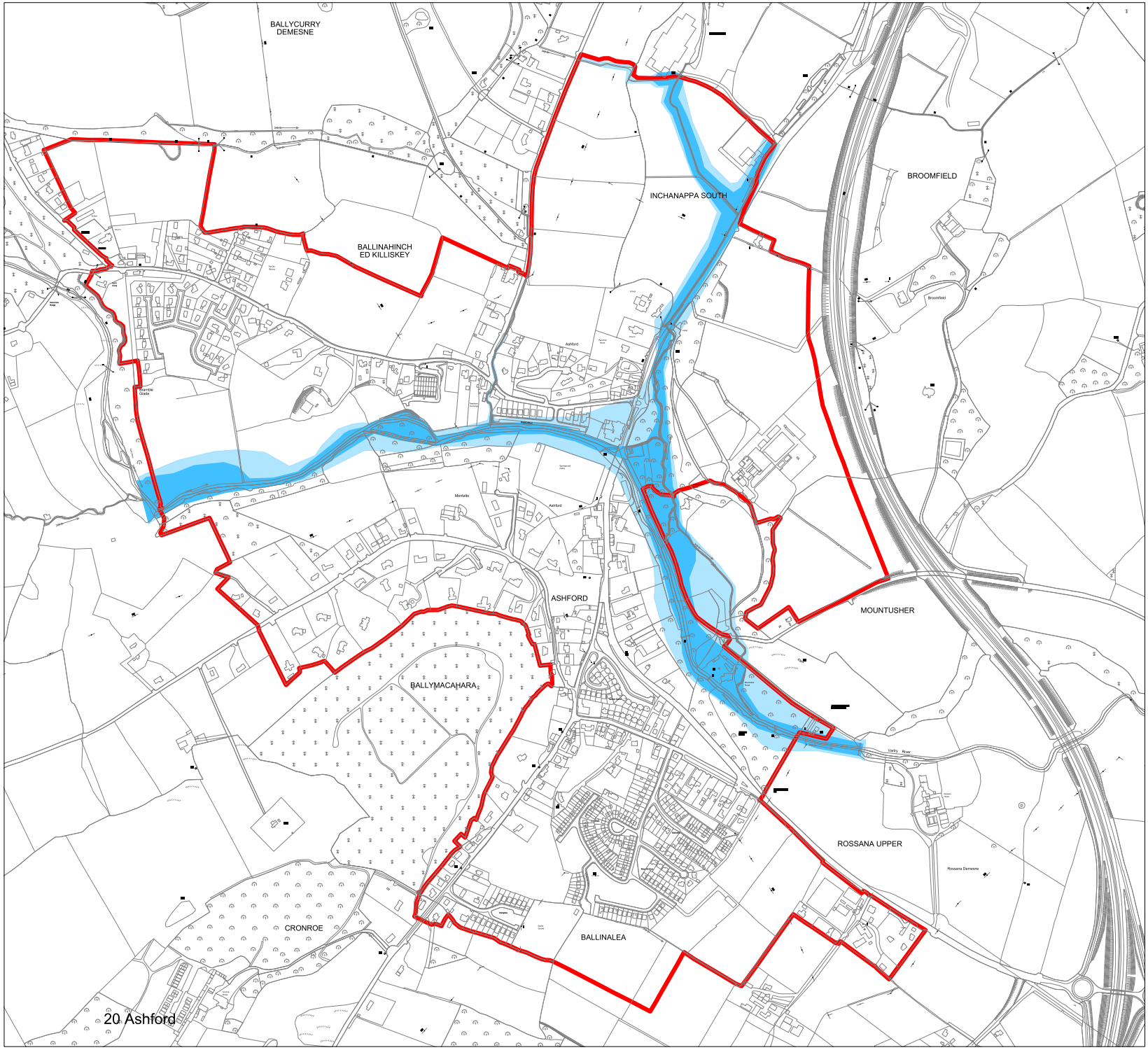
0 Results

Name (Flood_ID)	Start Date	Event Location

APPENDIX III

Wicklow County Council Local Development Plan for 2016-2022

Indicative Flood Zone Map No. 3



20 Ashford

Ashford Town Plan

WICKLOW COUNTY DEVELOPMENT PLAN 2016-2022

Settlement Boundary

Flood Zone A: High probability of flooding

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: Moderate probability of flooding

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

Disclaimer

These Indicative Flood Zones were based on information available at the time of drafting and amending this plan. Any new data and analysis carried out after this date has not been integrated into this map but should be used in conjunction with this map for development proposals. All information may be substantially altered in light of future data and analysis.

Full Disclaimer is included in SFRA

Title: Indicative Flood Zones
Map No.: 3

Maps are not to scale

Wicklow County Council
Planning Department