

BYRNELOOBY

AN **ayesa** COMPANY

IRELAND | UK | UAE | BAHRAIN | KSA

Cavan Town Flood Relief Scheme

Flood Report - October 2022

Cavan County Council

Report No. W3673-BLP-R-W-003

15 August 2023

Revision 02

BYRNELOOBY
AN **ayesa** COMPANY



OPW

Óifig na
«Daireacha Poiblí
Office of Public Works



Tionscadal Éireann
Project Ireland
2040

CAVAN TOWN FLOOD RELIEF SCHEME



Document Control

Project: Cavan Town Flood Relief Scheme

Document: Flood Report - October 2022

Client: Cavan County Council

Report Number: W3673-BLP-R-W-003

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
00	28 November 2022	Issued for Information	Olivia Keady	Niall Gibbons	Seán Harrington
01	16 March 2023	Issued for Information	Niall Gibbons	Seán Harrington	Seán Harrington
02	15 August 2023	Issued for Information	Olivia Keady	Seán Harrington	Seán Harrington

Disclaimer: Please note that this report is based on specific information, instructions, and information from our Client and should not be relied upon by third parties.

Contents

1	Introduction	6
1.1	Background	6
1.2	Report Objectives.....	6
1.2.1	Overview of Flood Event of 28th October 2022.....	8
2	Impacts from Flood Events in October 2022.....	9
2.1	The Maples.....	9
2.1.1	Location.....	9
2.1.2	October 2022 Flooding.....	10
2.1.3	Restoration after flood event.....	12
2.1.4	Aftermath of Flooding in October 2022.....	13
2.2	N3 Dublin Road.....	15
2.2.1	Killygarry Chapel	15
2.2.2	McDonald’s / Kiernan’s Service Station.....	17
2.2.3	Dublin Road Roundabout	19
2.3	R212 Flooding.....	20
2.3.1	Overview.....	20
2.3.2	Cathedral Road.....	20
2.3.3	Farnham Street.....	22
2.4	Butlersbridge Road	23
2.5	Tullymongan / Laragh Crescent near Aldi Retail Store.....	24
3	Rainfall Analysis	25
3.1	Rainfall Data	25
4	Gauge Analysis.....	28
4.1	Lisdarn	28
4.1.1	Flow Analysis	28
4.1.2	Water Level Analysis.....	29
4.2	Breffni Park.....	30
4.3	Flood Extent Maps.....	31
5	Conclusions and Recommendations.....	32
5.1	Conclusion.....	32
5.2	Recommendations.....	33
	Appendix A – Flood Area Reports.....	A

Appendix B – Flood Articles	B
Appendix C – Flood Extent Maps.....	C

List of Figures

Figure 1-1 - Reported Flood Locations	7
Figure 1-2 - Cavan River Tributaries	8
Figure 2-1 – Location of The Maples Housing Estate	9
Figure 2-2 – Driveway Flooding at The Maples (28 th October)	10
Figure 2-3 - Internal Flooding of The Maples Housing Estate (28 th October)	11
Figure 2-4 - 01/11/22 – Flooding at The Maples	11
Figure 2-5 - CCC Alleviating Flood Measures	12
Figure 2-6 – Results after restoration from flood event at The Maples Housing Estate	12
Figure 2-7 - Utility provision at The Maples housing estate.....	13
Figure 2-8 - Relief route for excess water during October flood event at The Maples.....	14
Figure 2-9 - N3 Killygarry Chapel Flood	15
Figure 2-10 - Drumcraue River Channel along the N3	15
Figure 2-11 - Culvert opening near Killygarry Chapel	16
Figure 2-12 - Kiernan's Service Station (2022)	17
Figure 2-13 – KSS Flood (2020)	17
Figure 2-14 - Watercourse and culvert opening at rear of Service Station	18
Figure 2-15 - Catchment Profile at McDonalds/Service Station	18
Figure 2-16 - Watercourse flowing parallel to N3 carriageway.....	19
Figure 2-17 - R212 Flooding Locations	20
Figure 2-18 - Flooding at Cathedral Road, Cavan Town	21
Figure 2-19 - Basement Flooding of GV Maloney & Co. Solicitors.....	22
Figure 2-20 – Butlersbridge Road - Road Location	23
Figure 2-21 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan – Extract 1.....	24
Figure 2-22 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan - Extract 2	24
Figure 3-1 – Graph illustrating cumulative rainfall during storm event.....	27
Figure 3-2 - Graph illustrating rainfall during storm event.....	27
Figure 4-1 - Flow Values at Lisdarn during 9-day period.....	29
Figure 4-2 - Water Level Values at Lisdarn during 9-day period	30
Figure 4-3 - Water Level Values at Breffni Park during 9-day period	31

List of Tables

Table 1-1 - References to location of significant flood events..... 6

Table 3-1 - Maximum rainfall at respective time intervals 25

Table 3-2 - Depth Duration Frequency Rainfall Events for Cavan Town 26

Table 4-1 - Highest Flow Recordings at Lisdarn Hydrometric Station before October 2022 28

Table 4-2 - Design Peak Flows for AEP Events at 36031 – Lisdarn 29

Table 4-3 - Water Levels for AEP Events at 36031 – Lisdarn..... 30

1 Introduction

1.1 Background

The Office of Public Works (OPW) have partnered with Cavan County Council to progress a flood relief scheme for Cavan Town. The OPW authorised the Flood Relief Scheme for Cavan Town from the result of work completed in the North Western-Neagh Bann Catchment Flood Risk Assessment and Management (CFRAM) study.

ByrneLooby was officially appointed to the Cavan Town Flood Relief Scheme in May 2022. The scheme is a component of Project Ireland 2040; the government’s long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future. The aims for Cavan Town are to develop and implement a flood relief system, which is technically, socially, environmentally, and economically acceptable to alleviate the risk of flooding.

1.2 Report Objectives

Cavan Town endured heavy rainfall during a period in the month of October, which led to severe spot flooding across the Cavan Town Flood Scheme Area. A particular date of note for this rainfall period was 28th October 2022, in which several records of flooding were provided. Commentary for these respective records is provided in this report. Significant flooding was reported in ten locations within the Flood Relief Scheme Area for Cavan Town, as shown in Figure 1-1. This report will cover the areas and impacts of flooding on residential housing, local facilities, and road infrastructures.

The main areas affected are shown in Table 1-1.

Table 1-1 - References to location of significant flood events

Reference Number	Location
1	The Maples Housing Estate
2	N3 by Killygarry Chapel
3	N3 at McDonalds
4	Butlersbridge Road
5	GV Maloney & Co. Solicitors
6	L2012
7	R188 Cootehill Road from Cavan Town at Centra
8	Con Smith Park
9	L1513 Loretto Road
10	Cathedral Road

This report provides commentary on the significant flood events that were recorded and whilst there has been no media capture of flooding at a minor number of sites (Reference Numbers 6 and 7); the report provides a complete compilation of locations in which significant flooding occurred.

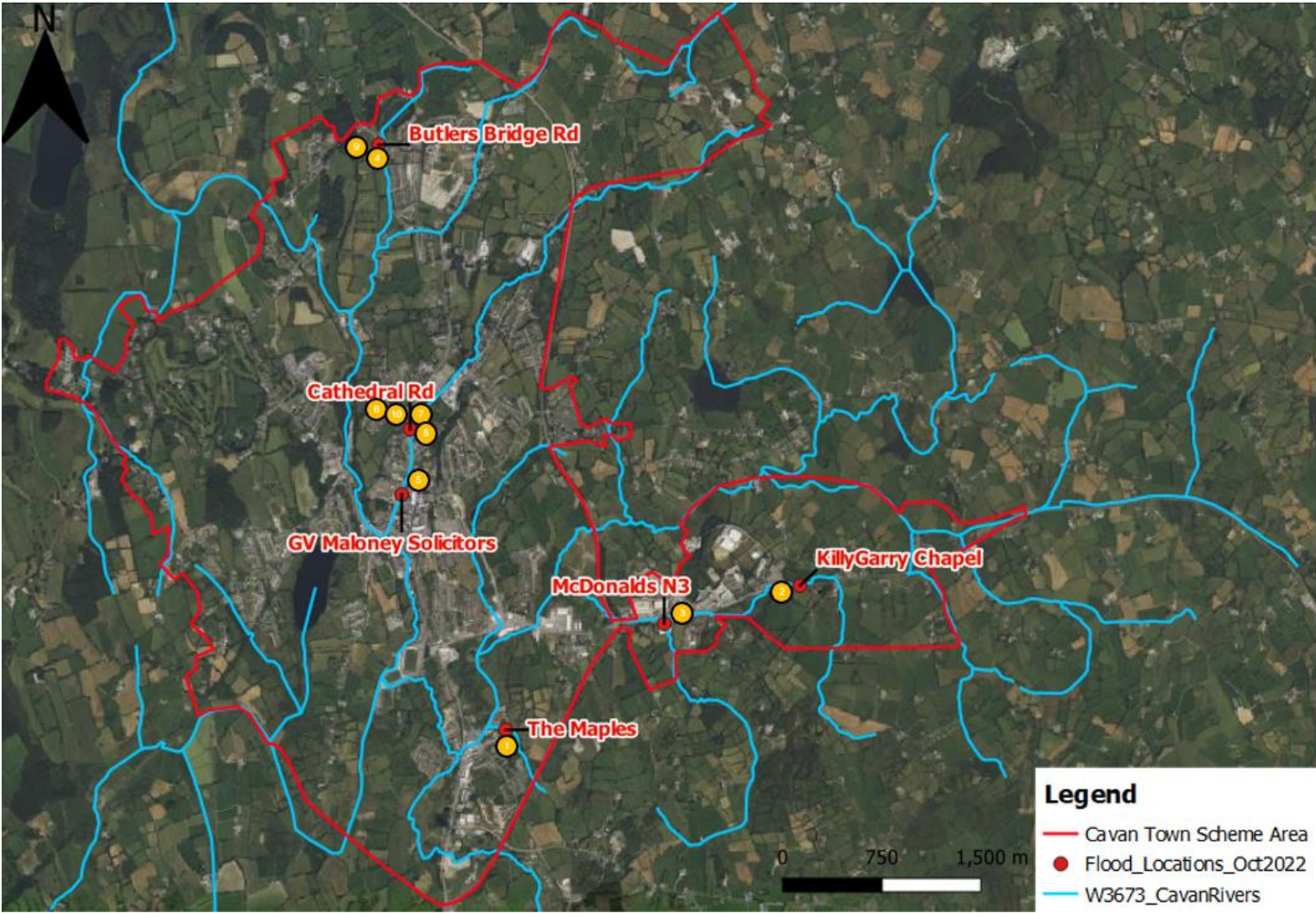


Figure 1-1 - Reported Flood Locations

1.2.1 Overview of Flood Event of 28th October 2022

Met Eireann issued a Status Orange weather warning for Cavan on 27th October valid for the period of 23:00 on 27th October 2022 until 07:00 on Friday 28th October 2022. Met Eireann warned of rain and thunderstorms forecasting “heavy rainfall with embedded thunderstorms likely to cause flooding.” The Status Orange rain and thunderstorm warning was also in place for Leinster, Monaghan, Tipperary, and Waterford. The flash floods occurred in the wake of heavy rainfall and the county was designated with a ‘Status Yellow’ rainfall warning for two days over the October Bank Holiday weekend, which led to a sustained period of flooding. Fire Services personnel and Local Authority staff responded to several incidents in Cavan Town.

Cavan Town has numerous tributaries which amalgamate to form the Cavan River which eventually flows North as shown in Figure 1-2. During a flood event, the tributaries of the Cavan River overflow their banks after heavy rain due to narrow underground and surface channels within the river network, which results in nearby roads and properties being liable to flooding.

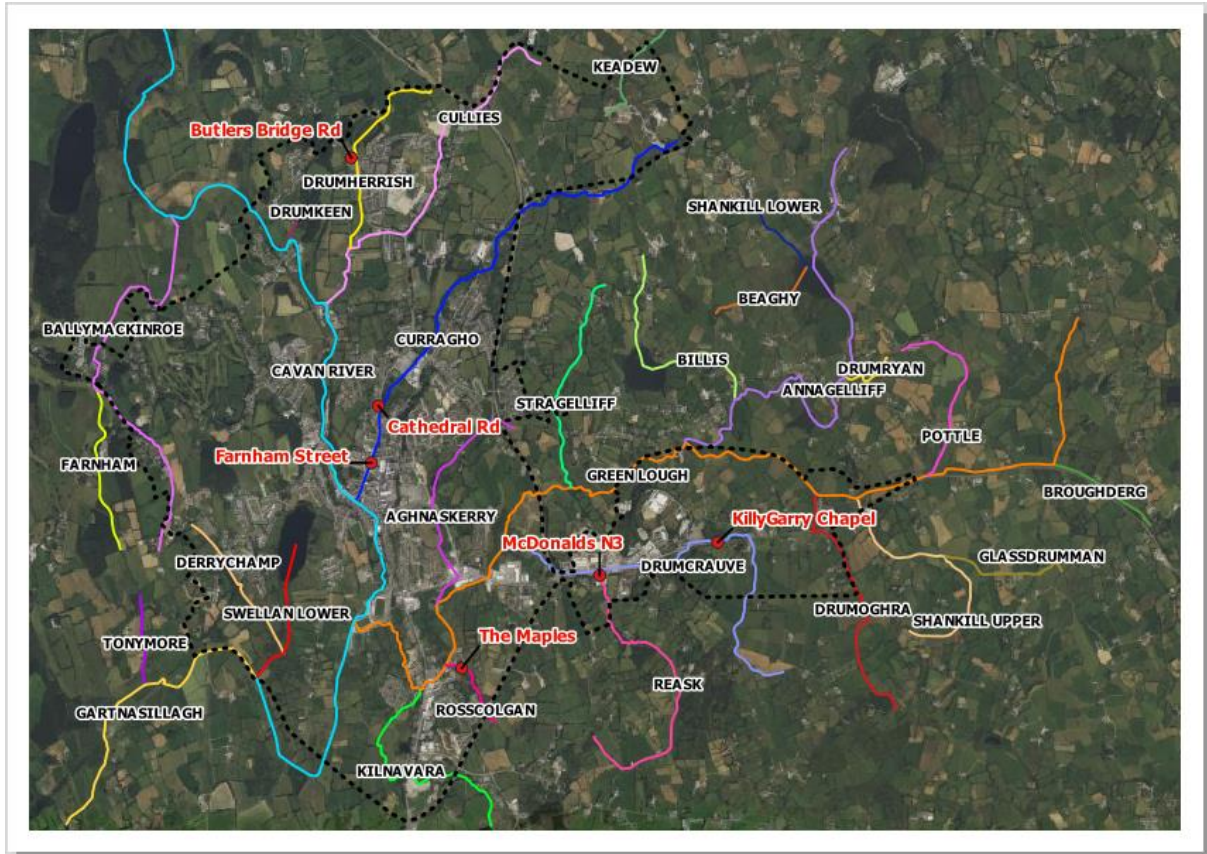


Figure 1-2 - Cavan River Tributaries

Heavy rain and wind prompted the initial flooding in Cavan Town on the 17th of October 2022. Downpours continued throughout the week which led to flooding across the Cavan Town on the 28th of October 2022.

ByrneLooby representatives attended onsite after the storm event on the 28th of October 2022 and again on the 4th of November 2022.

2 Impacts from Flood Events in October 2022

Drone footage was captured on the 28th of October from approximately 12 noon until 6pm in various locations within the Cavan Town FRS Scheme Area. This was approximately four hours after the peak water level at Lisdarn, but prior to the peak at Breffni Park.

2.1 The Maples

2.1.1 Location

The Maples housing estate in Cavan Town is situated above the River Rosscolgan and downstream of Green Lake, within the Cavan Town FRS Scheme Area, see Figure 2-1. Heavy rain causes Green Lake water levels to rise significantly. The Maples housing estate is directly affected by the annual flooding of Rosscolgan River. The homes lie below road level and after heavy downpours excessive water accumulated in driveways and conveyed into the houses of The Maples.



Figure 2-1 – Location of The Maples Housing Estate

2.1.2 October 2022 Flooding

The Maples housing estate experienced flooding on October 17th, 2022, after a Yellow Status for wind and rain. Heavy downpours continued over the course of the week resulting in a recorded peak of flood level on the 28th of October 2022. Flood wrack markers and flood levels were not surveyed on site. But recorded internal flood depth from residents, ground levels and thresholds of each of the six houses an external flood depth ranging from 316mm to 367mm was calculated. Residents had restricted access to their homes because these significantly high levels of water partially covered their access routes to property, see Figure 2-2.



Figure 2-2 – Driveway Flooding at The Maples (28th October)

Internal flooding was reported within six houses of the estate (Figure 2-3 below). Residents reported to Anglo Celt newspapers that internal flooding that occurred on the 17th of October left the floors wet but did not have a significant depth. On the 28th of October, sandbags were breached which caused water levels to rise within the six homes overnight leaving their furniture, kitchen appliances and home luxuries submerged. One house owner reported 150mm of internal flooding with the other properties recording 100mm of internal flooding, (Figure 2-3). Internal household flood depths varied due to different threshold heights and external ground profiles.

Families and residents of The Maples housing estate were left distressed due to resultant power outages and their homes and cars becoming flooded with water.



Figure 2-3 - Internal Flooding of The Maples Housing Estate (28th October)

Spot flooding continued on the 1st of November 2022, as shown in Figure 2-4. Footways, drives and routes to properties were dangerous to access as a result of deposited debris, waste, and mud from the flooding.



Figure 2-4 - 01/11/22 - Flooding at The Maples

2.1.3 Restoration after flood event

Cavan County Council (CCC) implemented restoration operations to clear The Maples housing estate of excessive water. These measures included freeing drains of debris and digging up areas surrounding the driveway to direct the flow of water into a nearby field. Effective debris removal resulted in water rapidly draining from the area (Figure 2-5 red arrow). Obstructions were removed such as fencing and branches were removed from their original position to alleviate the excess surface water. The obstruction removal increased the flow of the surface water, allowing it to be easily diverted into the nearby drain. The diversion of surface water did not result in flooding in other regions. Video footage taken the afternoon of the 2nd of November demonstrated the effective restoration of infrastructure by CCC, illustrated in Figure 2-6.



Figure 2-5 - CCC Alleviating Flood Measures



Figure 2-6 – Results after restoration from flood event at The Maples Housing Estate

2.1.4 Aftermath of Flooding in October 2022

Surrounding areas were left saturated with stagnant water remaining in driveways and properties. In the event of further heavy rain, the area would be vulnerable to reoccurring floods. There were no reports of negative environmental impacts. There were no reported loss of life or injuries attained from the flood event.

Figure 2-7 also indicated that there was loose debris several months later (23/02/2023) at The Maples housing estate which may have resulted from the flood event.



Figure 2-7 - Utility provision at The Maples housing estate

Figure 2-8 indicates the environment of the relief route that a significant amount of excess water had conveyed in order to reduce the flood depth level at The Maples housing estate after the flood event.



Figure 2-8 - Relief route for excess water during October flood event at The Maples

2.2 N3 Dublin Road

2.2.1 Killygarry Chapel

Killygarry Chapel, located on the N3 Dublin Road, in the Eastern region of the Cavan Town Flood Relief scheme area, was subjected to flooding on the 28th of October 2022. The heavy wind and rain occurred overnight on the 27th and continued into the morning of the 28th, which led to the busy national road becoming immersed in surface water, see Figure 2-9. The road was impassable for a period, then later became passable for westbound traffic with diversions for eastbound traffic via the Old Dublin Rd.



Figure 2-9 - N3 Killygarry Chapel Flood

The Drumcrauve River that runs parallel to the flooded area was unable to support the volume of water from the downpours, causing the watercourse to overtop the embankment. The Drumcrauve River has shown evidence of overflowing its banks annually, leaving the road liable to flooding. Drone footage taken on the 28th of October shows the minimal volume capacity of the river due to dense vegetation within the Drumcrauve River, see Figure 2-10.



Figure 2-10 - Drumcrauve River Channel along the N3

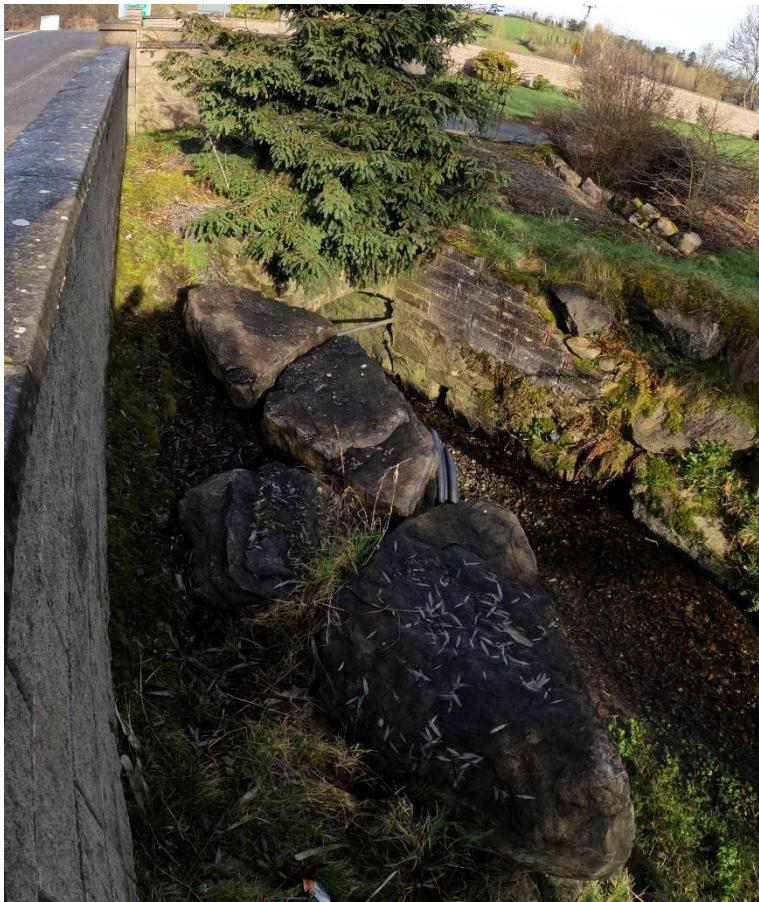


Figure 2-11 - Culvert opening near Killygarry Chapel

2.2.2 McDonald's / Kiernan's Service Station

During this flood event, fire services attended flooding west of Killygarry Chapel at Kiernan's Service station and McDonalds on the N3. 150mm of water covered the forecourt of the two service facilities; see Figure 2-12. Significant flooding in this area occurs on a recurring basis; the last recorded flooding occurred on 02/09/2020 and is illustrated in Figure 2-13. It is likely that remnants of fuel on the service station forecourt contaminated the water during these floods and may have caused negative environmental effects to the surrounding environment. Effects of contamination have not been observed or reported.



Figure 2-12 - Kiernan's Service Station (2022)



Figure 2-13 - KSS Flood (2020)

Succeeding another flood event in 2019, the owner of Kiernan's Service Station stated to the Independent Newspaper 'A local river burst its banks and flooded, which has been happening regularly over the last twelve or thirteen years, it actually never used to happen before that'. The development of the N55 Cavan By-Pass in 2006 coincides with the commencement of annually floods.

The service station and McDonalds are situated where the Reask River is culverted to join the Drumcrauve River (Figure 2-14). The associated catchment for the Reask (Figure 2-15), may be capturing extra surface water drainage from the N55 and commercial development, exceeding the culverts capacity capability, possibly causing the overspill at the entrance to the culvert. Assessing capacity, drainage profile and behaviour in due course could verify that the culvert is undersized. In order to expand the culverts diameter to increase flow of water, evaluations are to be conducted to mitigate flooding occurring on the forecourt without resulting in flooding at the confluence of the Reask and Drumcrauve River.



Figure 2-14 - Watercourse and culvert opening at rear of Service Station

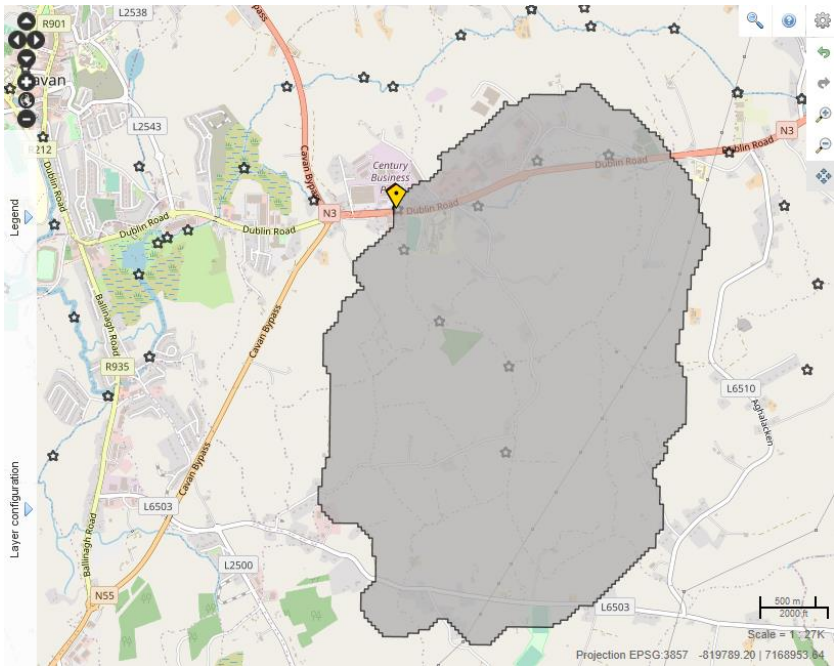


Figure 2-15 - Catchment Profile at McDonalds/Service Station

2.2.3 Dublin Road Roundabout

The N3 Dublin Road and adjoining roundabout were also flooded and were impassable or severely restricted for a period until the water levels subsided. The extent of road impacted was from the Dublin Road Roundabout to Killygarry Chapel.

Depths, sources/pathways and the flood extent in this area have not been recorded due to the flood subsiding before drone footage was captured in the afternoon of October 28th. Flood wrack marks were not evident during the site visit.



Figure 2-16 - Watercourse flowing parallel to N3 carriageway.

The Drumcraue watercourse runs parallel to the N3 before it culverts under the North exit of the Dublin Road Roundabout. Evidently, from Figure 2-14 to Figure 2-16 there is limited area for storage during a storm event causing the N3 to be vulnerable to overtopping of the river banks. Drainage behaviour and systems worked efficiently to quickly dissipate the stagnant water from road infrastructure after flow intensity decreased in the watercourse.

2.3 R212 Flooding

2.3.1 Overview

The R212 in Cavan Town flooded in two locations on October 28th, 2022. The regional road is directly affected by the Curragho River that runs parallel to this road. The watercourse is culverted under Cathedral Road and Farnham Street (Figure 2-17).



Figure 2-17 - R212 Flooding Locations

2.3.2 Cathedral Road

The Curragho River occasionally overflows its banks after heavy rain which results in Cathedral Road becoming flooded. The image in Figure 2-18 was taken on the 28th of October 2022 illustrating a flood depth that presented a significant restriction for vehicular access along Cathedral Road.



Figure 2-18 - Flooding at Cathedral Road, Cavan Town

The L2012 and the R188 Cootehill Road from Cavan Town at Centra were also susceptible to flooding in spot areas, which adjoin the Cathedral Road at their respective junctions.

2.3.3 Farnham Street

Farnham Street is located directly above the culverted Curragho River that consists of several businesses and resident housing. Many office properties such as GV Maloney & Co. Solicitors on Farnham Street are three-storey over basement properties, built c.1820.

GV Maloney & Co. Solicitors reported heavy flooding on October 28th, 2022, see Figure 2-19. Pumps extracted water at a height of approximately 300mm from the bottom level of the basement.



Figure 2-19 - Basement Flooding of GV Maloney & Co. Solicitors

Succeeding the public consultation event on the 13th of September 2022, a resident on the opposite side to GV Maloney Solicitors on Farnham Street disclosed detailed information on the occurrence of flooding within the basement of their property. It is reported that water typically enters the basement and fills up to two foot (610mm) after heavy downpours of rain and quickly dissipates when the rainfall period ends.

The resident has owned the property since 1988 and states that the culverts were repaired in 1980 due to becoming porous from wear and tear and is aware of seven other properties whose basements are liable to flooding. Assessments and surveying intended for the associated culvert will determine its conditions, strength, and capacity to validate the statement that porous material is causing the property basements along Farnham Street to flood.

2.4 Butlersbridge Road

Butlersbridge Road is a road located in the Northern region of the Cavan Town scheme area, Figure 2-20. The Drumherrish River is the main nearby watercourse that has been susceptible to overtopping of its banks, resulting in flooding.

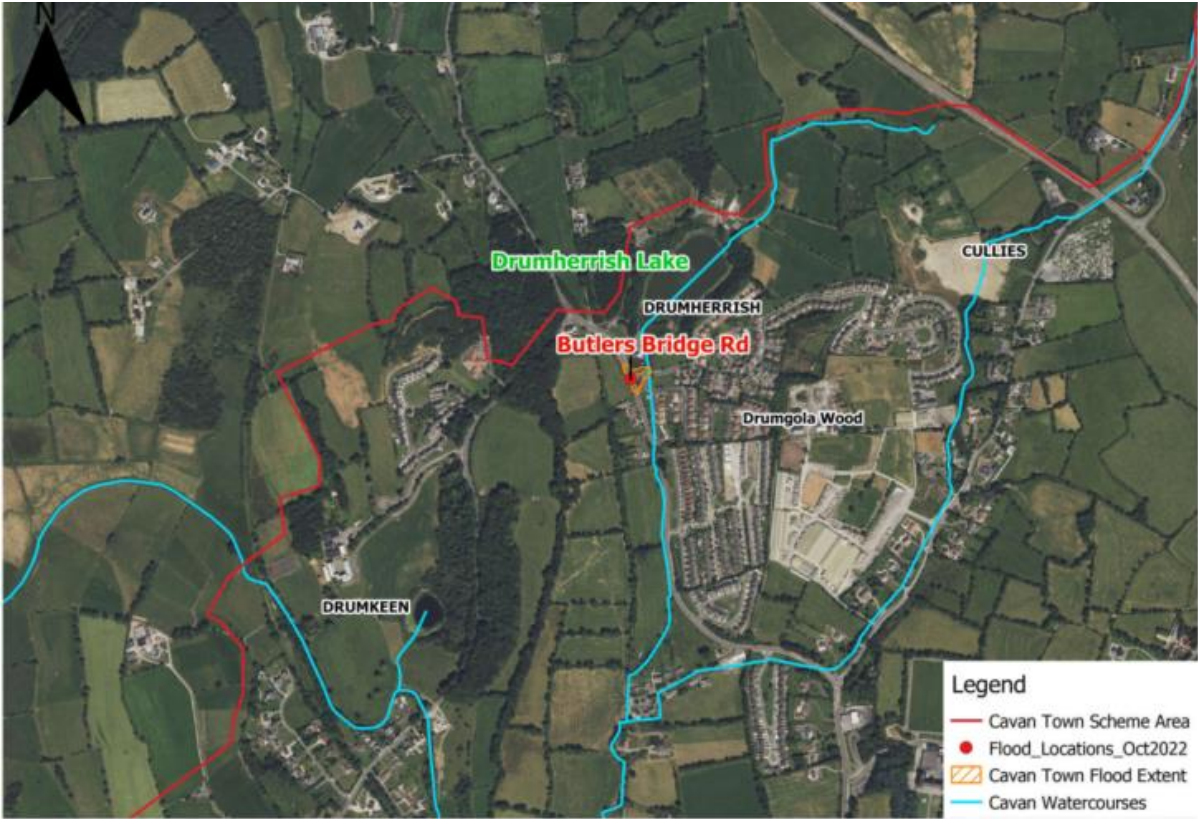


Figure 2-20 – Butlersbridge Road - Road Location

It was noted that the flooding occurred from heavy rain during the storm event that took place on 28th October 2022. This storm event resulted in the nearby roads and the entrance to the Drumgola Wood housing estate being restricted with water because of the flooding. A flood depth of 300mm was estimated from data supplied by Cavan County Council and Drumgola Wood housing estate was temporarily cut off from access due to this flood event. There was a restriction in access to the Drumgola Road as a result of this flood event.

2.5 Tullymongan / Laragh Crescent near Aldi Retail Store

Drone footage indicated that the road was flooded from the route up to Tullymongan from the Aldi supermarket at Dublin Road. Extracts from the drone footage are indicated in Figure 2-21 and Figure 2-22.



Figure 2-21 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan – Extract 1



Figure 2-22 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan - Extract 2

3 Rainfall Analysis

To analyse rainfall events sub-daily data is preferable as it can be used to define rainfall storm events at short durations. A sub-daily rainfall station was installed in Ballyhaise, 7.7km to the northeast of Cavan Town and has provided automatic recordings since 2003 to present day. This is the nearest sub-daily synoptic station to Cavan Town and is particularly useful in providing high resolution rainfall data for historic and future events over the project lifespan. It has been stated in the accompanying Hydrological Method Statement that Ballyhaise rainfall station will be used to facilitate with decision making for event magnitudes over the course of the Scheme; and this flood event in October 2022 provides another significant opportunity to assess the magnitude of a storm event.

3.1 Rainfall Data

Rainfall was measured in Ballyhaise, Co. Cavan, which is a synoptic station managed by Met Eireann. Sub-daily rainfall data was collected at Ballyhaise rainfall station after the event for review.

Table 3-1 indicates the maximum cumulative rainfall for respective time intervals that occurred during the storm event on 28/10/2022; which was recorded at Ballyhaise rainfall station.

Table 3-1 - Maximum rainfall at respective time intervals

Time Intervals	Duration									
	Minutes				Hours					
	5	10	15	30	1	2	3	4	6	9
Maximum Rainfall (mm)	2.5	3.6	4.4	5.2	10.3	22.0	28.7	34.9	38.5	39.0

Table 3-2 has been adapted from Met Éireann’s Depth Duration Frequency (DDF) Model. The national dataset provides sliding durations for a suite of return periods over 1x1km² grids. This table shows the short duration storm events for the Cavan Town area. This data can be used to attribute return periods to rainfall events or as inputs to forming the design storm for pluvial analysis. Further information about the adoption of Met Eireann’s Depth Duration Frequency (DDF) Model can be found in the Hydrological Method Statement for Cavan Town FRS.

The maximum cumulative rainfall totals were plotted on Met Eireann’s Return Period Rainfall Depths for Sliding Durations at coordinates: 241910, 304777. The values in the table are derived from Met Eireann’s Depth Duration Frequency Model, which is widely used in meteorology and hydrology. Table 3-2 illustrates the expected amount of rainfall for a particular return period of an event; and the indication of the magnitude of cumulative rainfall for the October 2022 storm event is highlighted in green.

Table 3-2 - Depth Duration Frequency Rainfall Events for Cavan Town

Cavan Rainfall Depth (mm)									
Duration	Return Period (Years)								
	0.5	1	2	5	10	20	50	100	200
5 mins	2.5	3.6	4.1	6.0	7.5	9.3	12.0	14.5	17.6
10 mins	3.5	5.0	5.8	8.4	10.5	12.9	16.7	20.2	24.5
15 mins	4.1	5.9	6.8	9.9	12.4	15.2	19.7	23.8	28.8
30 mins	5.4	7.5	8.7	12.5	15.4	18.7	23.9	28.7	34.5
1 hours	7.1	9.7	11.1	15.7	19.2	23.1	29.2	34.7	41.3
2 hours	9.2	12.5	14.2	19.7	23.9	28.4	35.5	41.9	49.4
3 hours	10.8	14.5	16.4	22.6	27.1	32.2	39.9	46.8	54.9
4 hours	12.1	16.1	18.2	24.8	29.7	35.1	43.3	50.7	59.2
6 hours	14.2	18.7	21.1	28.4	33.8	39.7	48.7	56.6	65.8
9 hours	16.6	21.7	24.3	32.5	38.4	44.9	54.6	63.2	73.1

The matrix shown in Table 3-2 illustrates the return periods for a short duration storm event approximate to less than a 1-year event. However, as the storm duration increased, it grew in magnitude and peaked to between a 1 in 10-year and 1 in 20-year return period for the duration of 3 to 9 hours. The amount of cumulative rainfall over a duration of 6 hours equated to an Annual Exceedance Probability (AEP) event between 10% and 5% (likelihood of a 1 in 10-year and 1 in 20-year storm event respectively).

The cumulative rainfall that was recorded within the 6-hour storm period was 38.5mm. Figure 3-1 illustrates the build-up of cumulative rainfall over this 6-hour period.

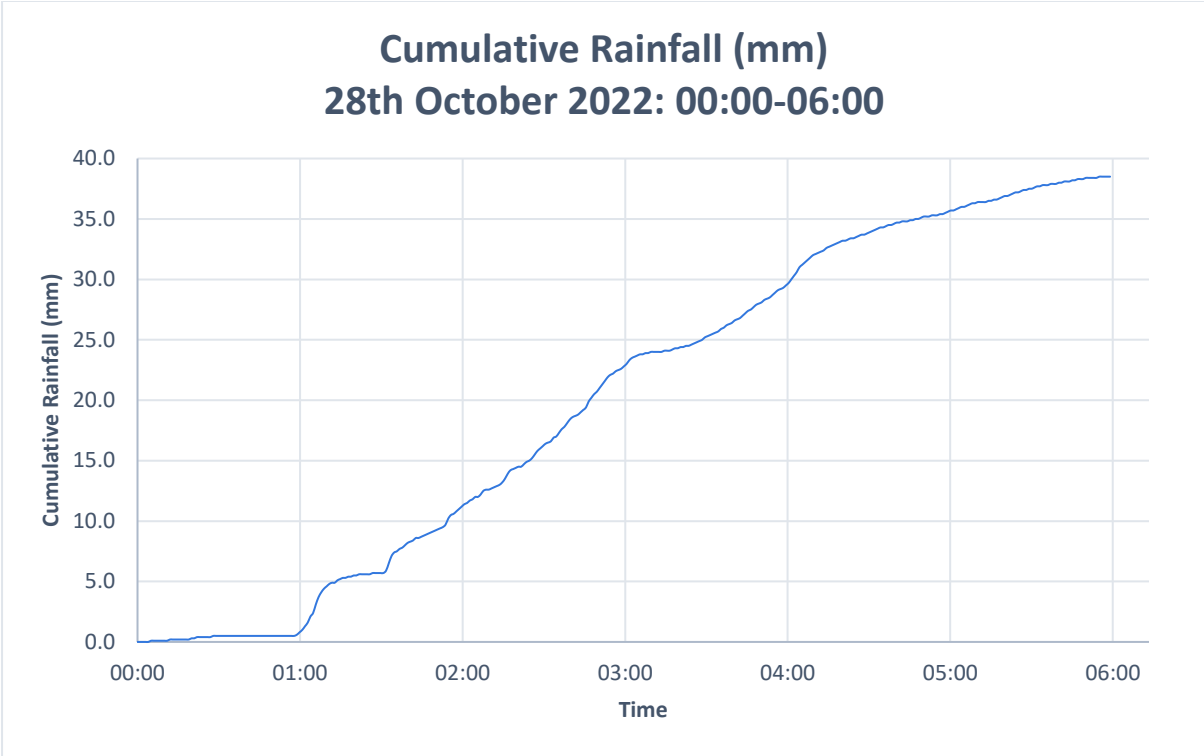


Figure 3-1 – Graph illustrating cumulative rainfall during storm event.

A breakdown of the rainfall measurements across the 6-hour period is provided in Figure 3-2.

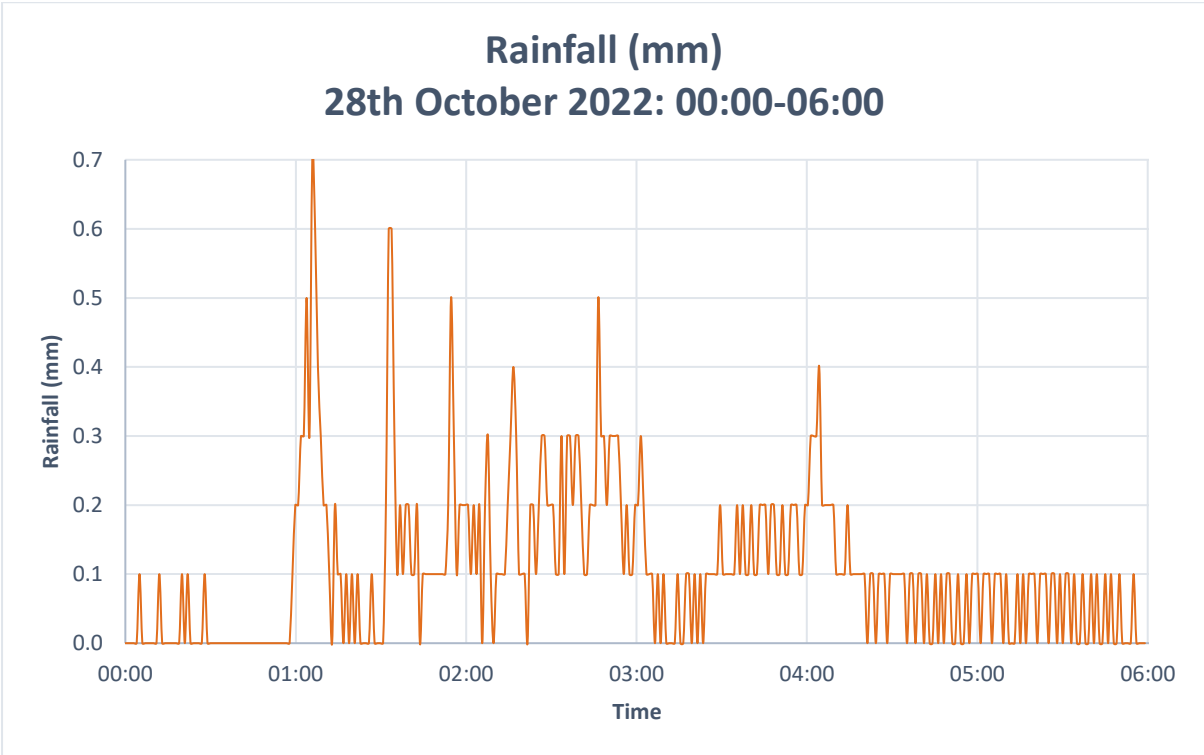


Figure 3-2 - Graph illustrating rainfall during storm event.

4 Gauge Analysis

The gauges considered most significant and reliable to the Cavan Town FRS were reviewed as part of the analysis. The results of two respective gauges were reviewed; Lisdarn (36031) and Breffni Park (36042).

4.1 Lisdarn

Lisdarn is a hydrometric station in which gauge data is recorded by the EPA. The primary purpose of this gauge is to monitor the low flow conditions at this location. However, high flows have been recorded at Lisdarn when flood events did occur as outlined in the Hydrological Method Statement. The gauge has recorded data and not malfunctioned, performing suitably during high flow conditions. The gauge is therefore considered to be useful based on previous events.

4.1.1 Flow Analysis

The gauge at Lisdarn hydrometric station provides water level readings and flow readings. The peak flow was 9.70 m³/s which occurred on 28/10/2022 at 08:00. This value illustrates the severity of the flood event that occurred in October 2022. The peak flow has been ranked as the third highest flow value ever recorded within the entire flow record collection provided at Lisdarn. Table 4-1 indicates the highest historical flow recordings recorded at Lisdarn before the October 2022 flood event.

Table 4-1 - Highest Flow Recordings at Lisdarn Hydrometric Station before October 2022

Rank	Date	Flow [m ³ /s]
1	22/10/1987	14.3
2	19/10/2002	10.7
3	08/01/2005	9.38

Flow recordings were extracted from a 9-day period from 27th October 00:00 until 5th November 00:00 and evaluated. The flow values for the entire 9-day period are represented in Figure 4-1 below.

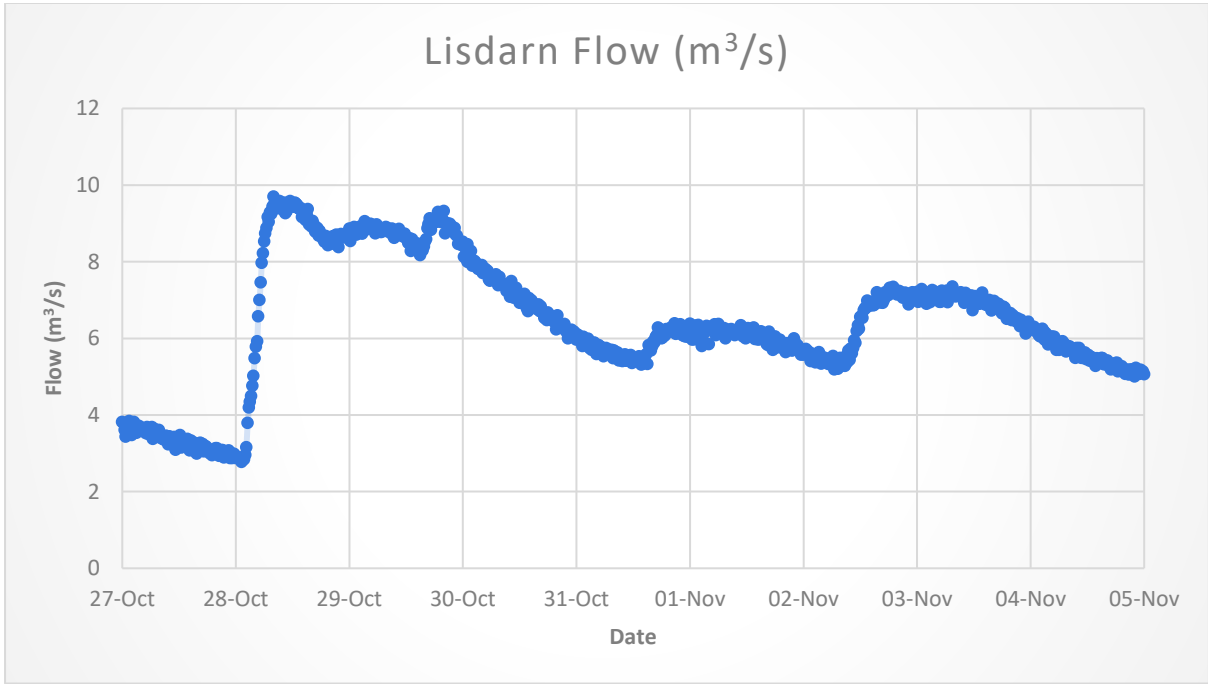


Figure 4-1 - Flow Values at Lisdarn during 9-day period

The lead time from the rainfall event on the 28th of October 00:00 – 06:00 to the time of the peak flow recording lasted several hours, which demonstrated a significant influence from rainfall to the flow recordings. The flow recordings start to significantly increase from 02:00 on 28/10/2022 from a flow value of 2.96 m³/s to the peak flow of 9.70 m³/s at 08:00 on 28/10/2022; a six-hour period.

The peak flow value recorded on 28th October 2022 of 9.70m³/s was evaluated in comparison to the typical return periods at Lisdarn hydrometric station. Design peak flows were extracted from the CFRAM GIS data which provides output information at the CFRAM Nodes. The range of values are shown in Table 4-2.

Table 4-2 - Design Peak Flows for AEP Events at 36031 – Lisdarn

	Annual Exceedance Probability (AEP) Event					
	50%	20%	10%	5%	2%	1%
Design Peak Flows (m ³ /s)	6.87	8.94	10.55	12.24	14.70	17.65

Comparison of the recorded peak water level value with the design water levels in Table 4-2, the peak flow is in between the 20% and 10% AEP event. The equivalent return period corresponds to a 1 in 5-year to 1 in 10-year event.

4.1.2 Water Level Analysis

The water level recordings were extracted from a nine-day period from 27th October 00:00 until 5th November 00:00. The highest water level recorded was 53.671mOD Malin. The water level values for the entire 9-day period are shown in Figure 4-2 below.

The time taken to increase in water levels was relatively short; rising from 52.744mOD Malin to the peak water level of 53.671mOD Malin; an increase of 0.927m in water levels in a six-hour period.

The water levels were extracted from the Geographical Information System (GIS) files which provide information about the CFRAM Nodes, and the range of values are shown in Table 4-3.

Table 4-3 - Water Levels for AEP Events at 36031 – Lisdarn

	Annual Exceedance Probability (AEP) Event					
	50%	20%	10%	5%	2%	1%
Design Water Levels (mOD Malin)	53.43	53.62	53.75	53.88	54.06	54.20

Upon comparison of the recorded peak water level value with the design water levels in Table 4-3, the peak water level is in between the 20% and 10% AEP event. The equivalent return period corresponds to a 1 in 5-year and 1 in 10-year period.

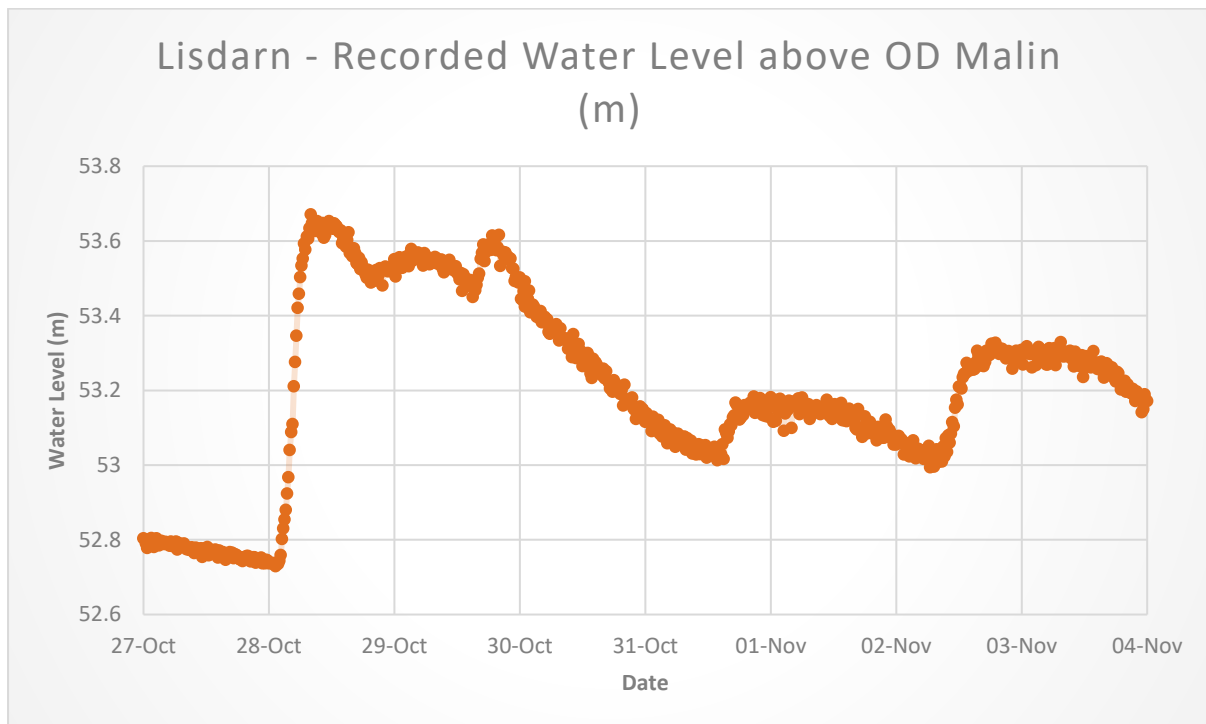


Figure 4-2 - Water Level Values at Lisdarn during 9-day period

4.2 Breffni Park

The gauge at Breffni Park provides water level readings. The water level recordings were extracted from a 9-day period from 27th October 00:00 until 5th November 00:00. The highest water level recorded was 62.739mOD Malin on 29/10/2022 at 02:15, as shown in Figure 4-3. The time taken to increase to the peak water level was of a much longer duration at Breffni Park; rising from 61.697mOD Malin on 27th October at 23:45 to the peak water level of 62.739mOD Malin on 29th October at 02:15; an increase of 1.042m in water levels over a period of 26.5 hours.

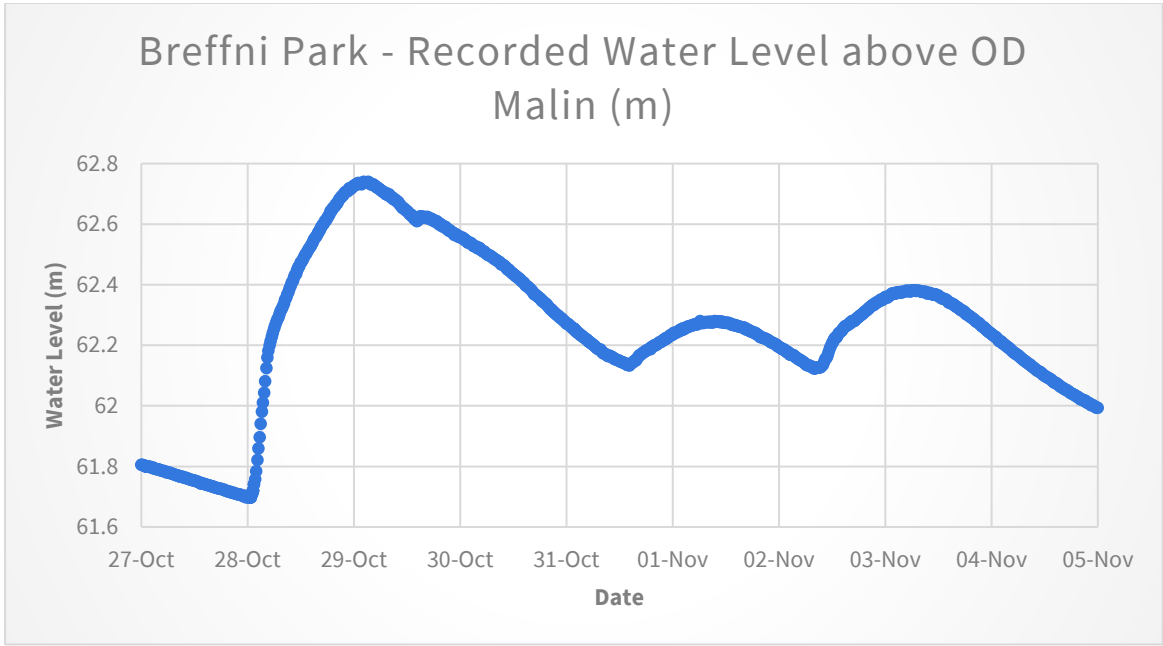


Figure 4-3 - Water Level Values at Breffni Park during 9-day period

The results illustrate a much greater lead time from the rainfall event on the 28th of October 00:00 – 06:00 until the peak flow which is approximately 24 hours after the rainfall event. The time taken to increase from its base water level to the respective peak water level is relatively long; approximately a 24-hour period. This may indicate that areas downstream of Breffni Park are a major contributing source to peak flows at Lisdarn gauging station, or that significant storage is occurring upstream of Breffni Park. This will become apparent during the hydraulics modelling and calibration.

4.3 Flood Extent Maps

Flood Extent Maps describe the characteristics of the flood event in a visual format; setting out the extent of the area that was susceptible to flooding. The recorded flood extents that occurred during the October 2022 flood event have been produced in a Geographic Information System (GIS) format and supplement this report in addition to the Technical Forms in Appendix A that provided further information on the flood events.

5 Conclusions and Recommendations

5.1 Conclusion

Cavan Town endured heavy rainfall for a sustained period in the month of October, which led to severe spot flooding across the Cavan Town Flood Scheme Area.

Heavy rain and wind prompted the initial flooding in Cavan Town on the 17th of October 2022. Downpours continued throughout the week which led to severe flooding across Cavan Town on the 28th of October 2022. Significant flooding was reported in ten locations within the Flood Relief Scheme Area for Cavan Town. Internal flooding was recorded in six homes of The Maples housing estate and property basements along Farnham Street. External flooding caused access difficulties for Drumgola Woods Estate and Pullamore Business Park which facilities food, retail, and car services.

Road networks and access such as sections of the N3, Butlersbridge Road and R212 were impassable, due to significant flood depths, within the early hours of 28th of October 2022. Further assessment and surveys are to continue to valid if bridge locations, culvert quality and size and river capacity etc. are hindering the flow of the watercourses during a storm event which results in backflow and spot flooding.

Rainfall was measured in Ballyhaise, Co. Cavan, which is a synoptic station managed by Met Eireann. The cumulative rainfall that was recorded within the 6-hour storm period was 38.5mm. The duration of the storm event took place on 28/10/2022 at 00:00 – 06:00. The cumulative rainfall over the duration of six hours equated to an Annual Exceedance Probability (AEP) event between 10% and 5% (likelihood of a 1 in 10-year and 1 in 20-year storm event respectively).

The data from two gauges were reviewed; Lisdarn (36031) and Breffni Park (36042). The flow and water level recordings were extracted from a 9-day period from 27th October until 5th November. The peak flow was 9.70 m³/s which occurred on 28/10/2022 at 08:00. The peak flow has been ranked as the third highest flow value recorded at Lisdarn.

The highest water level recorded at Breffni Park was 62.739mOD Malin on 29/10/2022 at 02:15. The time taken to increase to the peak water level was of a much longer duration at Breffni Park; rising from the lowest recorded water level of 61.697mOD Malin on 27th October at 23:45 to the peak water level of 62.739mOD Malin on 29th October at 02:15; an increase of 1.042m in water levels over a period of 26.5 hours. The time taken to increase from its base water level to the respective peak water level is comparatively long compared to Lisdarn. This may indicate the effect of storage within the catchment.

The extreme flow and water level values illustrated in this report highlight that the fluvial network was relatively overburdened during this storm event; indicating that the watercourses were too full to convey runoff from the sustained period of rainfall to alleviate flooding. As a result, drainage systems were unable to discharge to the rivers and pluvial flooding also occurred.

5.2 Recommendations

Based on the review completed the following recommendations are proposed:

- Given the frequency of flooding that is apparent at The Maples, a separate review of quick wins in this location and a review of the measures undertaken by CCC to alleviate flooding should be undertaken.
- Consideration should be given to fast-tracking the hydrology and hydraulic modelling of the catchment within which The Maples lies as it represents an isolated flood cell, unaffected by other watercourses, which could be addressed quickly.
- The owners of the property on Farnham Street should be engaged with to establish if non-return valves have been fitted within the property. This may require a site survey of the property with the owner.
- Hydrological assessment for potential pluvial flooding within outstanding areas of the scheme area to be conducted including an estimation of rainfall depths and intensities for a range of design rainfall events, point discharges from urban storm water drainage systems, AEP, and duration of storm event data. Further assessment would benefit optioneering by determining profiles, behaviours, and capacity for the Cavan Town FRS scheme area. Surveys of problematic areas have also been conducted to establish regions where flood defences, removal of vegetation, repairs/expansions/cleaning of culverts and storage areas should be allocated.

Appendix A – Flood Area Reports

Flood Event Report Form

FLOOD EVENT REPORT FORM (Excel format)
Version 3.2 - Help Note No. 1.0
edited



SECTION 1:- To be completed by person submitting report

Name of Person Submitting Report	Niall Gibbons	Name and Address of Organisation	ByrneLooby Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork
Signature	<i>NGibbons</i>	Telephone Number	021 2407988
Report Date	23/11/2022	e-mail CavanTownFRS@ByrneLooby.com	
Site Visit Date	28/10/2022		

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes

[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

Drumgola Wood
Butlers Bridge Road
Cavan Town
Co. Cavan

[Help Note No. 2.1](#)

2.2 Grid Reference

	Easting	Northing
Irish Grid Co-ordinates	241,863.00	307,747.00

[Help Note No. 2.2](#)

2.3 Flood Dates and Time

	Flood Start	Flood Peak	Flood End
Date	28-Oct-22	28-Oct-22	28-Oct-22
Time	2:00 AM	2:00 PM	6:00 PM

[Help Note No. 2.3](#)

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available? YES ▼
(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list	Select Flood Cause from list
Lake ▼	Surface Water Drainage ▼
(i.e. from where the flood waters originated)	(i.e. what caused the flood to occur)
Name of Catchment (if applicable)	Name of Waterbody (if applicable)
Erne Catchment	Drumherrish River

Please give a brief description of the flooding cause and source

The flooding occurred from a heavy rainfall event on the 28th October 2022 which is likely to have caused the overtopping of nearby lake and connected underground river route banks. This resulted in excess surface water at the nearby roads and Drumgola Wood housing estate being inundated with excess surface water. Drumgola Wood housing estate was inaccessible because the respective access roads were flooded.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			Estimates based on the video footage provided by Cavan County Council.
Flood Depth (metres)	0.3		
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			

Has flooding occurred at this location before ? NOT KNOWN ▼

Details of Flooding Frequency Other ▼

Comments

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

N/A

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Number of People Affected	Details
Residential	<input type="text" value="YES"/>	70		Drumgola Wood housing estate had 0.4m at the entrance to the estate. No internal flooding was recorded

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Hospital / Care Home	<input type="text" value="NO"/>		
School	<input type="text" value="NO"/>		
Gov / Local Administration	<input type="text" value="NO"/>		
Fire Station	<input type="text" value="NO"/>		
Garda Station	<input type="text" value="NO"/>		
Other	<input type="text" value="YES"/>	1	The Creche location within the housing estate was affected by flooding within the housing estate.

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Office	<input type="text" value="NO"/>		
Shop / Retail	<input type="text" value="NO"/>		
Public House	<input type="text" value="NO"/>		
Fast Food/ Restaurant	<input type="text" value="NO"/>		
Garage / Vehicle Service	<input type="text" value="NO"/>		
Industry	<input type="text" value="NO"/>		
Leisure Facility	<input type="text" value="NO"/>		
Warehouse / Storage	<input type="text" value="NO"/>		
Other	<input type="text" value="NO"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
<input type="text" value="Local"/>	Drumgola Road	0.2	Drumgola road located north of Cavan town was immersed in 0.3m of surface water arising from flooding
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
Forestry	Good / Moderate	0.5	Surrounding areas of Butlersbridge Road were flooded.
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

There are no records of any oils or hydrocarbons causing any environmental impacts.

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	YES	QGIS map showing the extent of the flooding.
Video Footage	YES	Footage of flood depth near access road to housing estate
Photographs	NO	
Press Articles	NO	
Rainfall Data	NO	
Other	NO	

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Dist.

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Flood Event Report Form

FLOOD EVENT REPORT FORM
(Excel format)
Version 3.2 - Help Note No. 1.0
edited



SECTION 1:- To be completed by person submitting report

Name of Person Submitting Report	<input type="text" value="Niall Gibbons"/>	Name and Address of Organisation	<input type="text" value="ByrneLooby"/> <input type="text" value="Building 2100, Unit K, Ground Floor"/> <input type="text" value="Cork Airport Business Park"/> <input type="text" value="Kinsale Road"/> <input type="text" value="Cork"/>
Signature	<input type="text" value="N.Gibbons"/>	Telephone Number	<input type="text" value="021 2407988"/>
Report Date	<input type="text" value="23/11/2022"/>	e-mail	<input type="text" value="CavanTownFRS@ByrneLooby.com"/>
Site Visit Date	<input type="text" value="28/10/2022"/>		

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes

[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

Cathedral Road
Cavan Town
Co. Cavan

[Help Note No. 2.1](#)

2.2 Grid Reference

Irish Grid Co-ordinates

Easting	Northing
<input type="text" value="241,991.00"/>	<input type="text" value="305,529.00"/>

[Help Note No. 2.2](#)

2.3 Flood Dates and Time

	Flood Start	Flood Peak	Flood End
Date	<input type="text" value="28-Oct-22"/>	<input type="text" value="28-Oct-22"/>	<input type="text" value="28-Oct-22"/>
Time	<input type="text" value="2:00 AM"/>	<input type="text" value="2:00 PM"/>	<input type="text" value="6:00 PM"/>

[Help Note No. 2.3](#)

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available? ▼
(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list <input type="text" value="Heavy Rainfall - Prolonged"/> ▼ (i.e. from where the flood waters originated)	Select Flood Cause from list <input type="text" value="Overtopping"/> ▼ (i.e. what caused the flood to occur)
Name of Catchment (if applicable) <input type="text" value="Erne Catchment"/>	Name of Waterbody (if applicable) <input type="text" value="Curragho"/>

Please give a brief description of the flooding cause and source

The Curragho River that runs alongside the R212 had overtopped its river banks; which resulted in excess surface water forming along the R212. The road surface was not visible along some parts of the road because of the amount of excess surface water; which caused some cars to be partially submerged when commuting via this road. The L2012 and the R188 Cootehill Road from Cavan Town at Centra was also susceptible to flooding in spot areas; which adjoin the Cathedral Road at their respective junctions.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)	<input type="text"/>	<input type="text"/>	<input type="text" value="Estimates based on the photo evidence provided by Cavan County Council."/>
Flood Depth (metres)	<input type="text" value="0.3"/>	<input type="text" value="0.1"/>	
Flood Flow (m ³ /s)	<input type="text"/>	<input type="text"/>	
Flood Velocity (m/s)	<input type="text"/>	<input type="text"/>	

Has flooding occurred at this location before ? ▼

Details of Flooding Frequency ▼

Comments

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Number of People Affected	Details
Residential	<input type="text" value="YES"/>	30	100	Road access was restricted and significant parts of car was submerged in excess surface water on road. The access to private driveways were more inaccessible too.

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Details
Hospital / Care Home	<input type="text" value="NOT KNOW"/>		
School	<input type="text" value="NOT KNOW"/>		
Gov / Local Administration	<input type="text" value="NOT KNOW"/>		
Fire Station	<input type="text" value="NOT KNOW"/>		
Garda Station	<input type="text" value="NOT KNOW"/>		
Other	<input type="text" value="NOT KNOW"/>		

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Details
Office	<input type="text" value="NOT KNOW"/>		
Shop / Retail	<input type="text" value="NOT KNOW"/>		
Public House	<input type="text" value="NOT KNOW"/>		
Fast Food/ Restaurant	<input type="text" value="NOT KNOW"/>		
Garage / Vehicle Service	<input type="text" value="NOT KNOW"/>		
Industry	<input type="text" value="NOT KNOW"/>		
Leisure Facility	<input type="text" value="NOT KNOW"/>		
Warehouse / Storage	<input type="text" value="NOT KNOW"/>		
Other	<input type="text" value="NOT KNOW"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
<input type="text" value="Regional"/>	R212	0.3	0.3 km of road was affected by flooding. Approximately 0.05 km of this road was not visible due to flood depth of 0.3m
<input type="text" value="Regional"/>	R188	0.1	R188 Cootehill Rd from Cavan town at Centra – road flooded on inbound lane
<input type="text" value="Local"/>	L2012	0.1	L2012 – road flooded, impassable and closed to traffic.
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
None	Not Known		
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

There are no records of any oils or hydrocarbons causing any environmental impacts.

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	YES	QGIS map showing flood extents
Video Footage	NO	
Photographs	YES	Photographs provided by Cavan County Council
Press Articles	YES	Article written by Anglo-Celt on 02/11/2022
Rainfall Data	NO	
Other	NO	

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Dist.

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Flood Event Report Form

FLOOD EVENT REPORT FORM (Excel format)
Version 3.2 - Help Note No. 1.0 edited



SECTION 1:- To be completed by person submitting report

Name of Person Submitting Report	Niall Gibbons	Name and Address of Organisation	ByrneLooby Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork
Signature	<i>N. Gibbons</i>	Telephone Number	021 2407988
Report Date	23/11/2022	e-mail CavanTownFRS@ByrneLooby.com	
Site Visit Date	28/10/2022		

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes
[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

GV Maloney and Co. Solicitors
Farnham St
Cavan Town
Co. Cavan

[Help Note No. 2.1](#)

2.2 Grid Reference

Irish Grid Co-ordinates

Easting	Northing
241,928.00	305,036.00

[Help Note No. 2.2](#)

2.3 Flood Dates and Time

	Flood Start	Flood Peak	Flood End
Date	28-Oct-22	28-Oct-22	28-Oct-22
Time	2:00 AM	2:00 PM	6:00 PM

[Help Note No. 2.3](#)

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available? YES ▼
(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list: Select Flood Cause from list:

Heavy Rainfall- Prolonged ▼ (i.e. from where the flood waters originated)	Surface Water Drainage ▼ (i.e. what caused the flood to occur)
--	---

Name of Catchment (if applicable): Name of Waterbody (if applicable):

Erne Catchment	Curragho
----------------	----------

Please give a brief description of the flooding cause and source

Heavy rainfall occurred during the storm event on the 28th October. Basements of properties are flooded on either side of Farnham Street. Definitive cause not known but there has been indications of perforation of water through the culvert after extreme rainfall events and/or surcharge around culvert opening at Con Smith Park; resulting in flooding.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3		Internal Flooding of depths 0.3m were recorded in the basement of an office house on Farnham Street.
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			

Has flooding occurred at this location before ? YES ▼

Details of Flooding Frequency: Occasionally ▼

Comments

After heavy rainfall, water from the underground culvert breaches the basement threshold of this property and neighbouring basements.

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Number of People Affected	Details
Residential	<input type="text" value="NOT KNOWN"/>			

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Details
Hospital / Care Home	<input type="text" value="NOT KNOWN"/>		
School	<input type="text" value="NOT KNOWN"/>		
Sov / Local Administratio	<input type="text" value="NOT KNOWN"/>		
Fire Station	<input type="text" value="NOT KNOWN"/>		
Garda Station	<input type="text" value="NOT KNOWN"/>		
Other	<input type="text" value="NOT KNOWN"/>		

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Office	<input type="text" value="YES"/>	5	The basement of GV Maloney and Co. Solicitors was heavily flooded. Properties on either side of street were affected.
Shop / Retail	<input type="text" value="NOT KNOWN"/>		
Public House	<input type="text" value="NOT KNOWN"/>		
Fast Food/ Restaurant	<input type="text" value="NOT KNOWN"/>		
Garage / Vehicle Service	<input type="text" value="NOT KNOWN"/>		
Industry	<input type="text" value="NOT KNOWN"/>		
Leisure Facility	<input type="text" value="NOT KNOWN"/>		
Warehouse / Storage	<input type="text" value="NOT KNOWN"/>		
Other	<input type="text" value="NOT KNOWN"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
None	Not Known		
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

There are no records of any oils or hydrocarbons causing any environmental impacts.

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	YES	QGIS Map of flood extents.
Video Footage	NO	
Photographs	YES	Flooding in the property of GV Maloney and Co. Solicitors
Press Articles	NO	
Rainfall Data	NO	
Other	NO	

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display as the Flood Dist.

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Flood Event Report Form

FLOOD EVENT REPORT FORM (Excel format)
Version 3.2 - Help Note No. 1.0
edited



SECTION 1:- To be completed by person submitting report

Name of Person Submitting Report	Niall Gibbons	Name and Address of Organisation	ByrneLooby Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork
Signature	<i>NGibbons</i>	Telephone Number	021 2407988
Report Date	23/11/2022	e-mail	CavanTownFRS@ByrneLooby.com
Site Visit Date	28/10/2022		

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes

[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

Kiernans Service Station / McDonalds
Dublin Road N3
Cavan Town
Co. Cavan

[Help Note No. 2.1](#)

2.2 Grid Reference

	Easting	Northing	
Irish Grid Co-ordinates	244,049.00	304,104.00	Help Note No. 2.2

2.3 Flood Dates and Time

	Flood Start	Flood Peak	Flood End	
Date	28-Oct-22	28-Oct-22	28-Oct-22	Help Note No. 2.3
Time	2:00 AM	2:00 PM	6:00 PM	

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available? YES ▼
(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list	Select Flood Cause from list
Heavy Rainfall- Prolonged ▼	Surface Water Drainage ▼
(i.e. from where the flood waters originated)	(i.e. what caused the flood to occur)
Name of Catchment (if applicable)	Name of Waterbody (if applicable)
Erne Catchment	Drumcraue

Please give a brief description of the flooding cause and source

Heavy rainfall led to the pooling of water along the sides of the N3 road. This pooling of water intruded significantly into the carriageways which vehicles had to pass through.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3	0.15	
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			

Has flooding occurred at this location before ? YES ▼

Details of Flooding Frequency	Occasionally ▼	
		<p style="text-align: center;">Comments</p> <p>Local river burst its banks after heavy rainfall causing water to overflow on the forecourt of commercial properties nearby.</p>

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Number of People Affected	Details
Residential	<input type="text" value="NO"/>			

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Hospital / Care Home	<input type="text" value="NOT KNOWN"/>		
School	<input type="text" value="NOT KNOWN"/>		
Gov / Local Administration	<input type="text" value="NOT KNOWN"/>		
Fire Station	<input type="text" value="NOT KNOWN"/>		
Garda Station	<input type="text" value="NOT KNOWN"/>		
Other	<input type="text" value="NOT KNOWN"/>		

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Office	<input type="text" value="NOT KNOWN"/>		
Shop / Retail	<input type="text" value="YES"/>	4	Flooding occurred in Pullamore Business Park, the forecourt was immersed in 0.3m; affecting electrical, fireplace, home lighting and bathroom tile stores located in the vicinity.
Public House	<input type="text" value="NOT KNOWN"/>		
Fast Food/ Restaurant	<input type="text" value="YES"/>	1	McDonalds share the same forecourt their entrance was partially flooded
Garage / Vehicle Service	<input type="text" value="YES"/>	4	Auto Point N3, NCT Car Test Centre, Speed Wash, Kiernans Service station
Industry	<input type="text" value="NOT KNOWN"/>		
Leisure Facility	<input type="text" value="NOT KNOWN"/>		
Warehouse / Storage	<input type="text" value="NOT KNOWN"/>		
Other	<input type="text" value="NOT KNOWN"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
<input type="text" value="National Primary"/>	N3	1.0	Flooding from the forecourt conveyed onto the N3, covering a section of road directly in front of the business park
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
Forestry	Not Known		
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

Although there hasn't been any reports or visual affects of water contamination, it is likely that residues of hydrocarbons and fuels on the service station forecourt intercepted into the surface water arising from the flood. There has not been any water sampling conducted to verify whether contamination has occurred or not.

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	YES	QGIS Map of flood extents
Video Footage	YES	Drone footage provided in afternoon of 28th October - flood event. Video Footage on youtube
Photographs	NO	
Press Articles	YES	Anglo Celt 'Serious Flooding after Downpour' 28/10/22
Rainfall Data	NO	
Other	NO	

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Dist.

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Flood Event Report Form

FLOOD EVENT REPORT FORM
(Excel format)
Version 3.2 - Help Note No. 1.0 edited



SECTION 1:- To be completed by person submitting report

<p>Name of Person Submitting Report: <input type="text" value="Niall Gibbons"/></p> <p>Signature: <input type="text" value="N. Gibbons"/></p> <p>Report Date: <input type="text" value="23/11/2022"/></p> <p>Site Visit Date: <input type="text" value="28/10/2022"/></p>	<p>Name and Address of Organisation: <input type="text" value="ByrneLooby"/> <input type="text" value="Building 2100, Unit K, Ground Floor"/> <input type="text" value="Cork Airport Business Park"/> <input type="text" value="Kinsale Road"/> <input type="text" value="Cork"/></p> <p>Telephone Number: <input type="text" value="021 2407988"/></p> <p>e-mail: <input type="text" value="CavanTownFRS@ByrneLooby.com"/></p>
---	---

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes

[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

<input type="text" value="Killygarry Chapel"/>
<input type="text" value="Dublin Rd N3"/>
<input type="text" value="Cavan Town"/>
<input type="text" value="Co. Cavan"/>

[Help Note No. 2.1](#)

2.2 Grid Reference

Easting	Northing
<input type="text" value="245,407.00"/>	<input type="text" value="304,417.00"/>

[Help Note No. 2.2](#)

2.3 Flood Dates and Time

Flood Start	Flood Peak	Flood End
Date: <input type="text" value="28-Oct-22"/>	Date: <input type="text" value="28-Oct-22"/>	Date: <input type="text" value="28-Oct-22"/>
Time: <input type="text" value="2:00 AM"/>	Time: <input type="text" value="2:00 PM"/>	Time: <input type="text" value="6:00 PM"/>

[Help Note No. 2.3](#)

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available?

(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list:

Select Flood Cause from list:

(i.e. from where the flood waters originated) (i.e. what caused the flood to occur)

Name of Catchment (if applicable):

Name of Waterbody (if applicable):

Please give a brief description of the flooding cause and source

Heavy rainfall led to the pooling of water along the sides of the N3 road; any pooling of water was not apparent in the mid-point of the width of the road; which is likely due to the significant camber in the road. This pooling of water intruded significantly into the carriageways which vehicles had to pass through.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Flood Depth (metres)	<input type="text" value="0.3"/>	<input type="text" value="0.15"/>	<input type="text"/>
Flood Flow (m ³ /s)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Flood Velocity (m/s)	<input type="text"/>	<input type="text"/>	<input type="text"/>

Has flooding occurred at this location before?

Details of Flooding Frequency:

Comments

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Number of People Affected	Details
Residential	<input type="text" value="NO"/>			

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Hospital / Care Home	<input type="text" value="NO"/>		
School	<input type="text" value="NO"/>		
Gov / Local Administration	<input type="text" value="NO"/>		
Fire Station	<input type="text" value="NO"/>		
Garda Station	<input type="text" value="NO"/>		
Other	<input type="text" value="NO"/>		

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Office	<input type="text" value="NO"/>		
Shop / Retail	<input type="text" value="YES"/>		
Public House	<input type="text" value="NO"/>		
Fast Food/ Restaurant	<input type="text" value="YES"/>		
Garage / Vehicle Service	<input type="text" value="NO"/>		
Industry	<input type="text" value="NO"/>		
Leisure Facility	<input type="text" value="NO"/>		
Warehouse / Storage	<input type="text" value="NO"/>		
Other	<input type="text" value="NO"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
National Primary <input type="text" value=""/>	N3	1.0	
None <input type="text" value=""/>			
None <input type="text" value=""/>			
None <input type="text" value=""/>			
None <input type="text" value=""/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
None	Not Known		
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	NO	
Video Footage	YES	Drone Footage illustrates pooling of water along roadside
Photographs	NO	
Press Articles	NO	
Rainfall Data	NO	
Other	NO	

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Dist...

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Flood Event Report Form

FLOOD EVENT REPORT FORM (Excel format)
Version 3.2 - Help Note No. 1.0
edited



SECTION 1:- To be completed by person submitting report

Name of Person Submitting Report	<input type="text" value="Niall Gibbons"/>	Name and Address of Organisation	<input type="text" value="ByrneLooby"/> <input type="text" value="Building 2100, Unit K, Ground Floor"/> <input type="text" value="Cork Airport Business Park"/> <input type="text" value="Kinsale Road"/> <input type="text" value="Cork"/>
Signature	<input type="text" value="N.Gibbons"/>	Telephone Number	<input type="text" value="021 2407988"/>
Report Date	<input type="text" value="23/11/2022"/>	e-mail <input type="text" value="ngibbons@byrneLooby.com"/>	
Site Visit Date	<input type="text" value="28/10/2022"/>		

NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes
[Help Note No. 1.0](#)

SECTION 2:- LOCATION OF FLOOD EVENT

2.1 Location of Flood Event

<input type="text" value="The Maples"/>
<input type="text" value="Tirquin"/>
<input type="text" value="Cavan Town"/>
<input type="text" value="Co. Cavan"/>

[Help Note No. 2.1](#)

2.2 Grid Reference

Easting	Northing
<input type="text" value="242,710.00"/>	<input type="text" value="303,252.00"/>

[Help Note No. 2.2](#)

2.3 Flood Dates and Time

	Flood Start	Flood Peak	Flood End
Date	<input type="text" value="17-Oct-22"/>	<input type="text" value="28-Oct-22"/>	<input type="text" value="#####"/>
Time	<input type="text" value="6:00 PM"/>	<input type="text" value="1:00 PM"/>	<input type="text" value="6:00 PM"/>

[Help Note No. 2.3](#)

2.4 Additional Information

(i) Is a map showing the location and extent of the flood available? ▼
(If a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.)

SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT

Select Flood Source from list	Select Flood Cause from list
<input type="text" value="Heavy Rainfall- Prolonged"/> ▼	<input type="text" value="Surface Water Drainage"/> ▼
(i.e. from where the flood waters originated)	(i.e. what caused the flood to occur)
Name of Catchment (if applicable)	Name of Waterbody (if applicable)
<input type="text" value="Erne Catchment"/>	<input type="text" value="Rosscolgan"/>

Please give a brief description of the flooding cause and source

The area flooded significantly due to heavy rain; flooding houses and roads in The Maples housing estate in Cavan Town. The nearby watercourse is the River Rosscolgan which overtopped its banks and flowed down the road for The Maples housing estate.

[Help Note No. 3.0](#)

SECTION 4:- FLOOD DATA

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)	<input type="text"/>	<input type="text"/>	The maximum depth recorded in this area was 0.367m on the 28th of October.
Flood Depth (metres)	<input type="text" value="0.367"/>	<input type="text"/>	
Flood Flow (m ³ /s)	<input type="text"/>	<input type="text"/>	
Flood Velocity (m/s)	<input type="text"/>	<input type="text"/>	

Has flooding occurred at this location before ? ▼

Details of Flooding Frequency ▼

Comments

[Help Note No. 4.0](#)

SECTION 5:- IMPACTS OF FLOODING EVENT

5.1 IMPACTS TO PEOPLE

(i) Was there any loss of life ?

(ii) Were there any serious injuries ?

(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)

5.2 IMPACTS TO PROPERTY

5.2.1 Residential

Were any residential properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Number of People Affected	Details
Residential	<input type="text" value="YES"/>	6		Maximum internal flooding recorded was 0.15m. Internal flooding affected all six properties

[Help Note No. 5.2.1](#)

5.2.2 Community

Were any of the following community properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties Affected	Details
Hospital / Care Home	<input type="text" value="NO"/>		
School	<input type="text" value="NO"/>		
Gov / Local Administration	<input type="text" value="NO"/>		
Fire Station	<input type="text" value="NO"/>		
Garda Station	<input type="text" value="NO"/>		
Other	<input type="text" value="NO"/>		

[Help Note No. 5.2.2](#)

5.2.3 Commercial

Were any of the following commercial properties affected by the flooding event and if so please give details ?

Property Type	Yes / No	Number of Properties	Details
Office	<input type="text" value="NO"/>		
Shop / Retail	<input type="text" value="NO"/>		
Public House	<input type="text" value="NO"/>		
Fast Food/ Restaurant	<input type="text" value="NO"/>		
Garage / Vehicle Service	<input type="text" value="NO"/>		
Industry	<input type="text" value="NO"/>		
Leisure Facility	<input type="text" value="NO"/>		
Warehouse / Storage	<input type="text" value="NO"/>		
Other	<input type="text" value="NO"/>		

[Help Note No. 5.2.3](#)

5.3 TRANSPORT INFRASTRUCTURE

5.3.1 ROAD

Were any roads affected by the flooding event and if so please give details ?

Road Category	Road Name	Length of Road Affected (km)	Details
<input type="text" value="Local"/>	The Maples	0.15	Section of road affected by flooding; length of approximately 150m
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			
<input type="text" value="None"/>			

[Help Note No. 5.3.1](#)

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail Category	Rail Name / Description	Length of Rail Affected (km)	Details
None			
None			

Rail Infrastructure	Description	Details
None		

[Help Note No. 5.3.2](#)

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.4](#)

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
Underground Cables	Local	Unknown	There is a low voltage underground cable connected to the six houses. A power outage was recorded on the 28th by a resident. Restoration time has not been disclosed
None	National		
None	National		

[Help Note No. 5.5](#)

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.6](#)

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply

Were any of the following Water Supply facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details ?

Type	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None	National		

[Help Note No. 5.7](#)

5.8 WATER QUALITY & HERITAGE

5.8.1 Water Quality

Was Water Quality affected by the flooding event, if so please give details ?

Type	Water Body Affected	Details
None		
None		

5.8.2 Heritage

Were any Built or Natural Heritage sites affected by the flooding event, if so please give details

Type	Name / Ref of Site	Details
None		
None		

[Help Note No. 5.8](#)

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land

Was any Agricultural Land affected by the flooding event, if so please give details

Type	Land Quality	Area of Land (Hectares)	Details
Pasture	Good / Moderate	0.1	An area of land inbetween Green Lake and The Maples housing estate was flood
None	Not Known		
None	Not Known		
None	Not Known		

[Help Note No. 5.9](#)

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

SECTION 6:- ADDITIONAL INFORMATION

If you have any additional information regarding the flood event please give details in the box below.

Do you have any additional information ?

Data Type	Yes / No	Details
Map of Location & Extent	NO	
Video Footage	YES	Videos from Cavan County Council illustrating Internal & External Flood
Photographs	YES	Photos from Cavan County Council illustrating Internal & External Flood
Press Articles	YES	Anglo-Celt articles: 28th October 2022 and 2nd November 2022
Rainfall Data	YES	Rainfall data taken from Ballyhaise synoptic station for storm event peri
Other	NO	

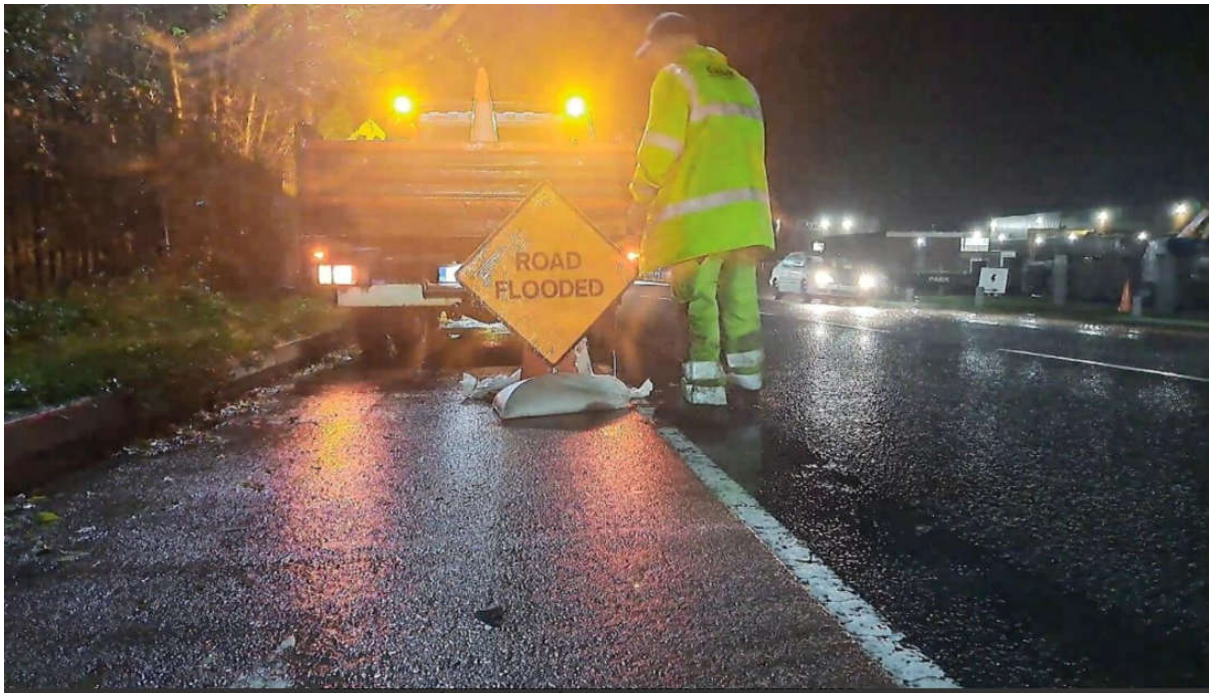
Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Dist

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood Risk Management website please give details in the box below.

[Help Note No. 6](#)

Appendix B – Flood Articles



Council counts the cost of flooding as further warning issued

Data to inform the development of flood prevention measures

Homeowners and motorists are being advised of further flash flooding today as a 'Status Yellow' wind and rain warning comes into effect for all of Ireland, including Cavan.

It's a blow to Cavan County Council, which is already counting the cost of flooding damage over the past week.

Fire Services personnel and outdoor staff responded to scores of incidents around the county since last Friday and are braced to deal with further flood-related incidents over the coming days.

The local authority is, meanwhile, set to use the data to inform the development of flood relief measures in future.

Over the past week, six houses in the Gortnakesh area flooded, a number of roads were waterlogged, some impassable, while 17 flooding incidents were reported in the Ballyjamesduff Municipal District alone.

The flash floods occurred in the wake of heavy rain fall when the county was covered by a 'Status Yellow' rainfall warning on two days over the October Bank Holiday weekend.

As the clean up operation continued yesterday (Tuesday), a spokesperson for Cavan County Council confirmed in relation to the Gortnakesh homes:

“MD staff have been in constant contact with residents and have implemented temporary mitigation measures and are investigating preventative measures.”

Cavan Belturbet MD staff attended incidents at the N3 at Killygarry, the N3 at Pollamore, the R212 at Cathedral Road and Cullies, between Drumalee cross and the Conaty Centre, and the N54 at Leggykelly.

Seventeen flooding incidents were reported in the Ballyjamesduff Municipal District between October 24-28 in Munterconnaught, Bruskey, Cornafean, Ballinagh, Main St, Virginia Town; R194 Ballyjamesduff, and Gowna.

Roads affected in the Cootehill-Bailieborough MD area included the R191 Tonyhull and Dernakesh, R188 Corranure, L-5555 Ballyhaise, L-1503 Drumeena, L-7600 Lismagiril.

“The extent of flash flooding, contributing factors, and any mitigation measures is currently being assessed by the Municipal District teams,” confirmed the spokesperson yesterday afternoon.

The Cavan Town area was particularly impacted with approach roads on the N3 on the Dublin side dramatically flooded last Friday with traffic backed up and motorists struggling to get through.

In that regard, Cavan County Council, in partnership with The Office of Public Works (OPW), is currently advancing the Cavan Town Flood Relief Scheme.

“These flood records help to inform future planning and development and can assist emergency response preparation. Data collected from within the AFA from last week's events will also be used to calibrate hydraulic models for Cavan Town flood relief scheme,” confirmed the spokesman.

In a statement, the council further confirmed: ‘Cavan County Council has commissioned ByrneLooby Consulting Engineers to develop and implement the Flood Relief Scheme for Cavan Town. This project will be delivered over five stages with works on Stage one, the identification and development of a preferred scheme, having commenced in June 2022.

‘Stage one will broadly comprise of hydrometric and environmental surveys, hydrological and hydraulic analysis of the watercourses within the AFA, flood relief options appraisal and selection, all environmental assessments and public consultation.’

Further information and updates relating to the Cavan Town Flood Relief scheme are available on the project website:

<https://www.floodinfo.ie/frs/en/cavan-town/home/>



WATCH: Serious flooding after downpour

Heavy rain last night and this morning has led to flooding across County Cavan.

Meanwhile fire service were in attendance at the Hotel Kilmore roundabout. They are advising motorists the road is not passable from the roundabout at Cavan Crystal to Killygarry.

There's flooding on the forecourts of McDonalds and Kiernan's service station.

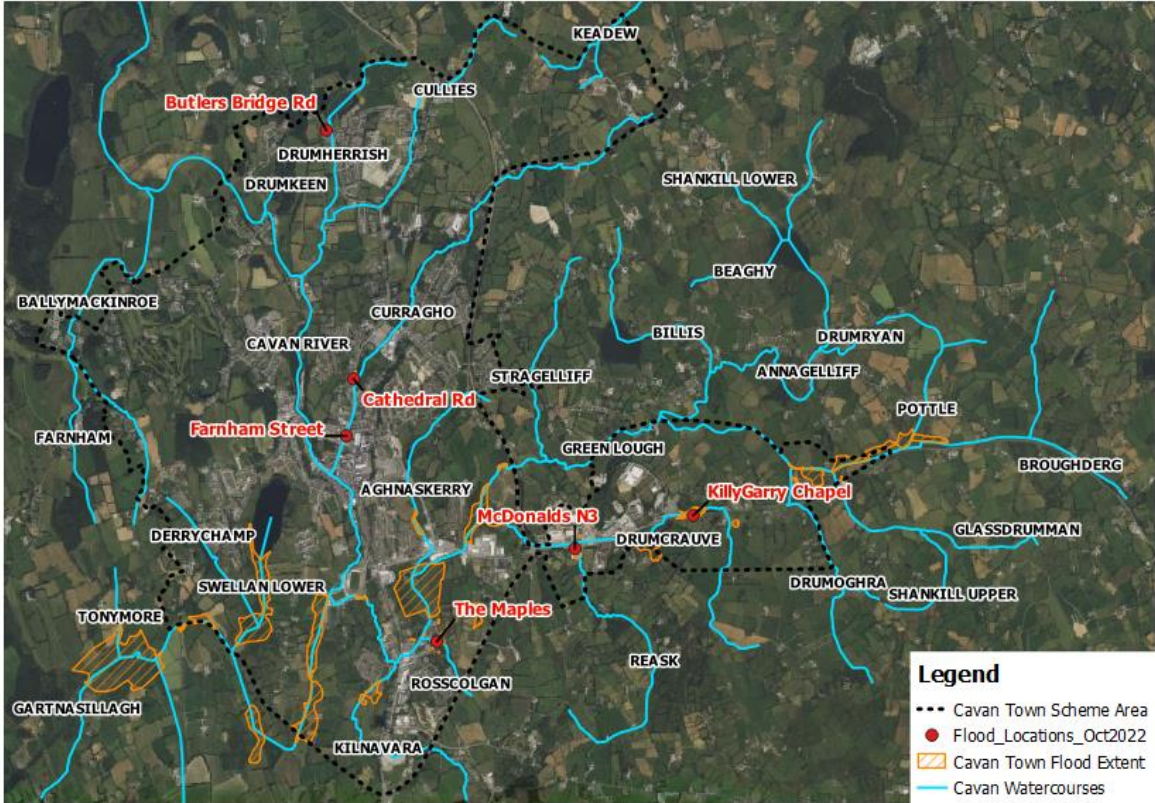
Other roads flooded are the R212 at Cullies, R188 Cootehill Road, L1532 at Drumgola from Drumalee Cross to St Pat's.

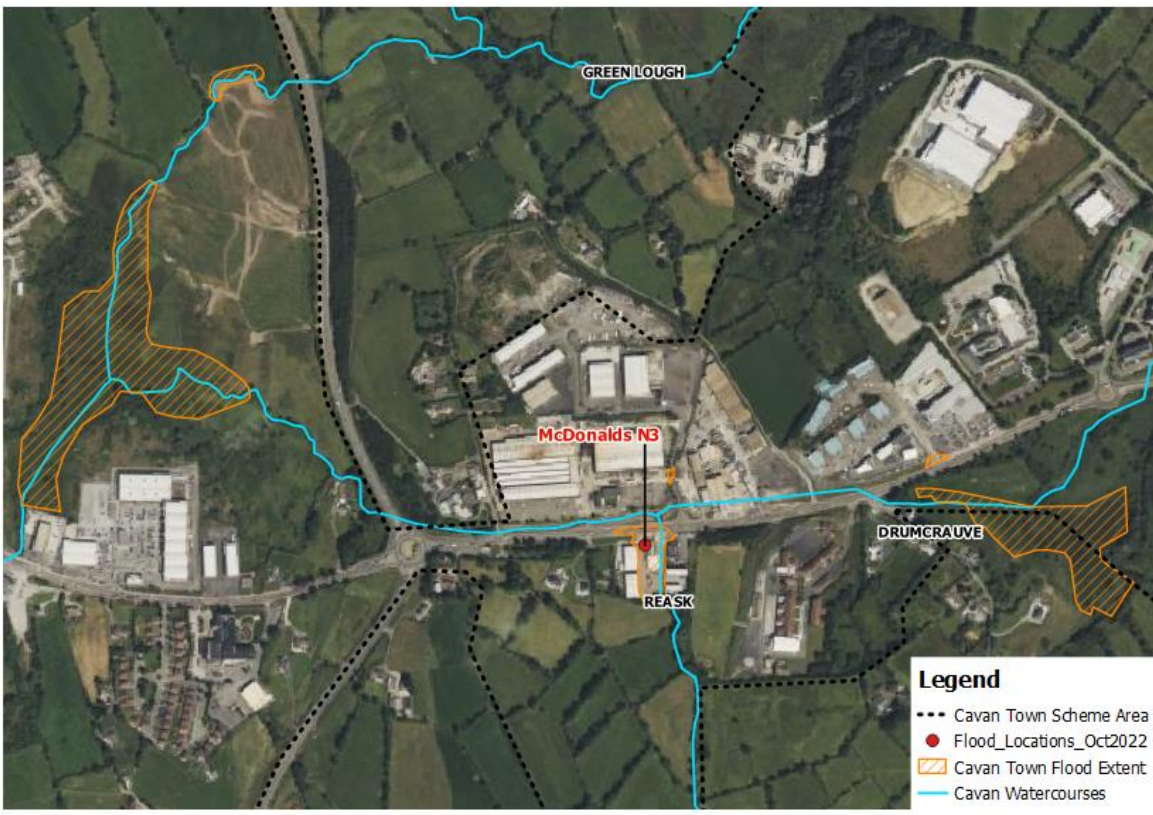
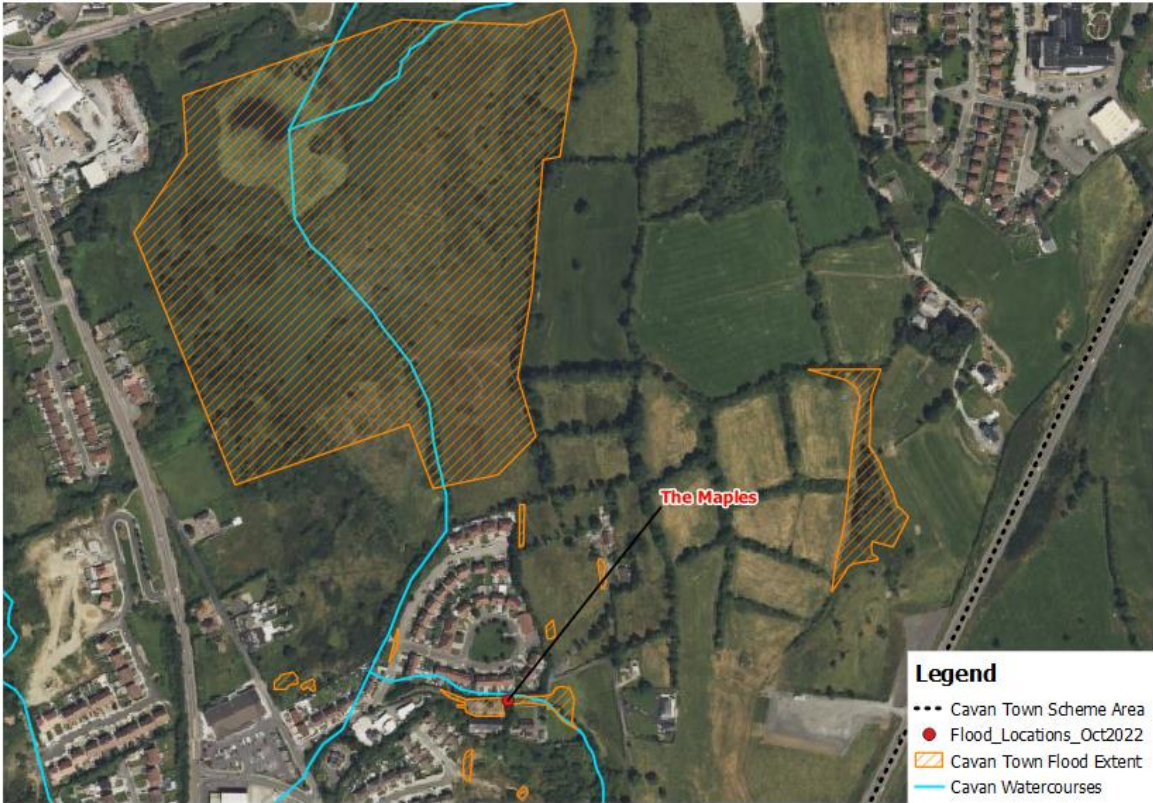


<https://youtu.be/YVbR3SD7LIM>

<https://www.anglocelt.ie/2022/11/02/watch-spot-flooding-leads-to-warning-to-drive-carefully/>

Appendix C – Flood Extent Maps











IRELAND | UK | UAE | BAHRAIN | KSA

BYRNELOOBY

AN **ayesa** COMPANY

www.byrnelooby.com

www.ayesa.com/en/

Email: info@byrnelooby.com