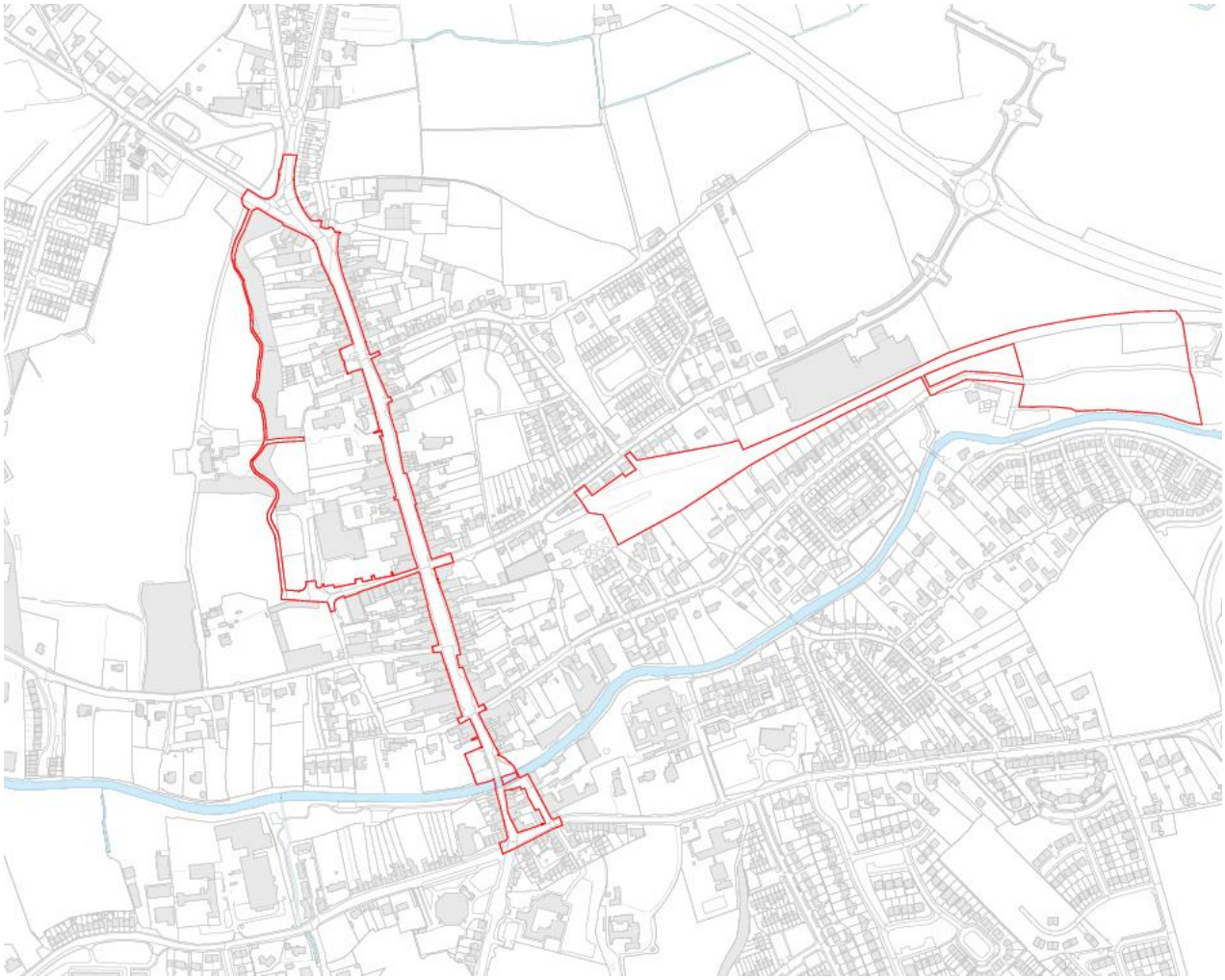
Comhairle Contae Lú
Louth County Council

ARDEE 2040 REGENERATION SCHEME

SITE-SPECIFIC FLOOD RISK ASSESSMENT



May 2025

NICHOLAS O'DWYER

LOUTH COUNTY COUNCIL

ARDEE 2040 REGENERATION SCHEME

SITE-SPECIFIC FLOOD RISK ASSESSMENT

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May 2025

PROJECT NO. 30421					
Revision	**Reason for Revision**	**Prepared by**	**Reviewed by**	**Approved by**	**Issue Date**
-	Issue for Internal Review	KH	DR	KH	27.03.2023
A	Issue for Internal Review	KH	DR	TF	26.06.2023
B	Issue for Internal Review	DR	TF	TF	12.12.2023
C	Issue for Internal Review	DR	TF	TF	18.05.2025

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1 INTRODUCTION

This Site Specific Flood Risk Assessment Report has been prepared by Nicholas O'Dwyer Ltd., on behalf of Louth County Council, to accompany a planning application for a regeneration project in Ardee, Co. Louth.

This assessment has been undertaken to determine the following:

- Identify whether flood risk is an issue and the degree to which it is an issue;
- Identify flood zones if not already identified.
- Develop appropriate flood risk mitigation and management measures for the development site.

The assessment is undertaken over three stages in increasing detail depending on the outcome of each stage. The procedures carried out are in accordance with the 2009 guidance document and technical appendices referenced in Section 1.3 below.

1.1 Development Description

The proposed development works consist of the positive regeneration of Ardee through the enhancement of public realm, creation of a new transformative gateway / arrival space, public spaces and pedestrian linkages.

The proposed development is situated on a site of c7.79 hectares in Ardee, County Louth, covering the following areas:

1. Lands at Golf Links Road, Dundalk Road, Main Street (including Irish Street, Market Street, Castle Street), and Ash Walk.
2. Lands to the rear of 4 no. dwellings on Sean O'Carroll Street (with no specific house numbers available – Eircodes: A92 W684, A92 ND36, A92 V260, & A92 A6P2); no's 1 – 5 Cappocksgreen, Sean O'Carroll Street; east of Mid-Louth Garage, Old Railway Station, Sean O'Carroll Street; north of no's 1 – 5 The Avenue; north of 7 no. dwellings on Tierney Street (with no specific house numbers available – Eircodes: A92 D528, A92 XH77, A92 CP80, A92 KW80, A92 YD35, A92 AF86, A92 DP68), and no's 1 - 13 Cappocksgreen, Tierney Street.
3. Lands to the east of Greenvale House, Old Dawsons Demesne, Tierney Street (Eircode A92 RH76); to the west of Ardee Wastewater Treatment Works and north of the River Dee.
4. HSE lands at St. Joseph's Hospital between Golf Links Road and Ash Walk.

The redline boundary of the proposed site is shown in Figure 1-1 and the 4 nr identified Character Areas included within the planning application are shown in Figure 1-2.

There is a slight change in the topography along Irish Street southwards towards Drogheda Road' 'Main Street' with an elevational difference of approximately 4m, varying between 24.00m - 28.88m AOD.

The subject site is approximately 7.79 hectares as denoted by the outer red line in Figure 1-1.

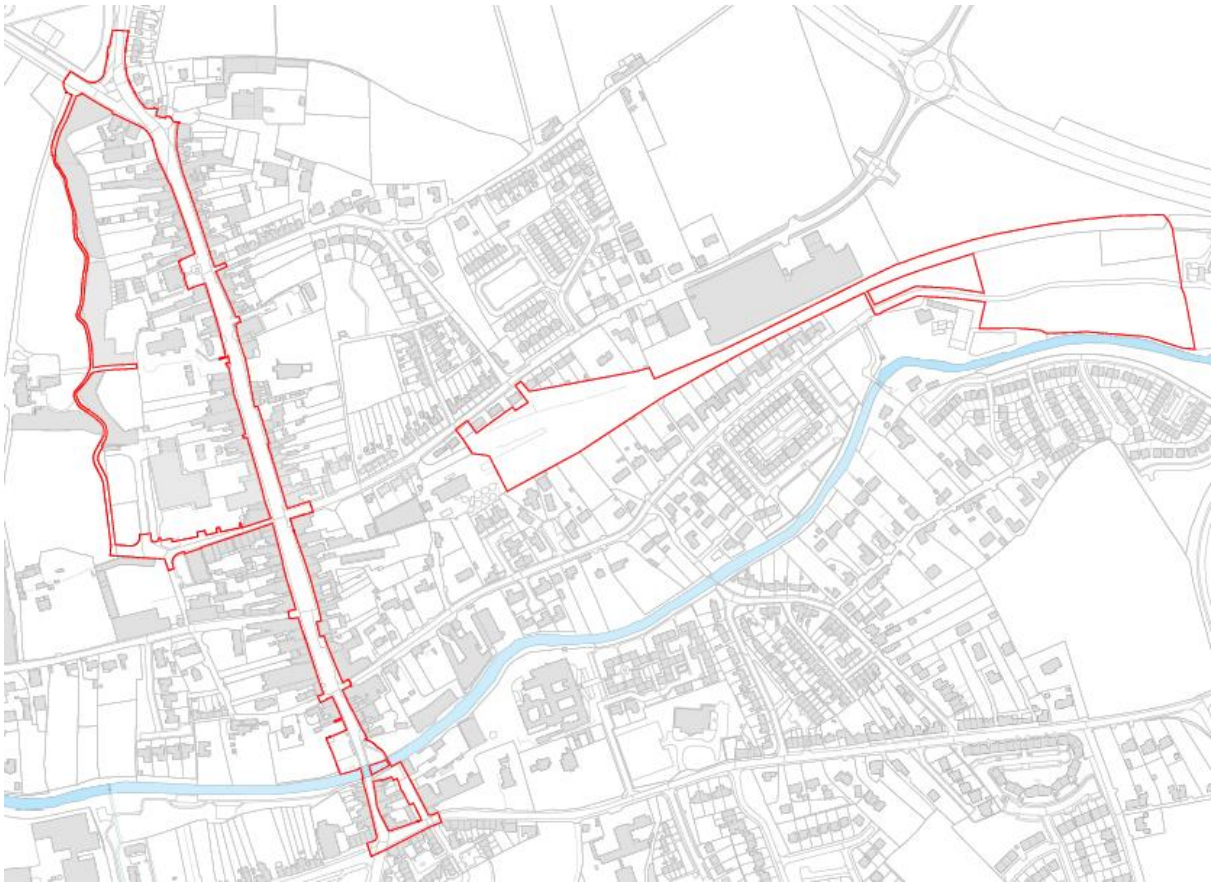


Figure 1-1: Location of proposed development (red line boundary)

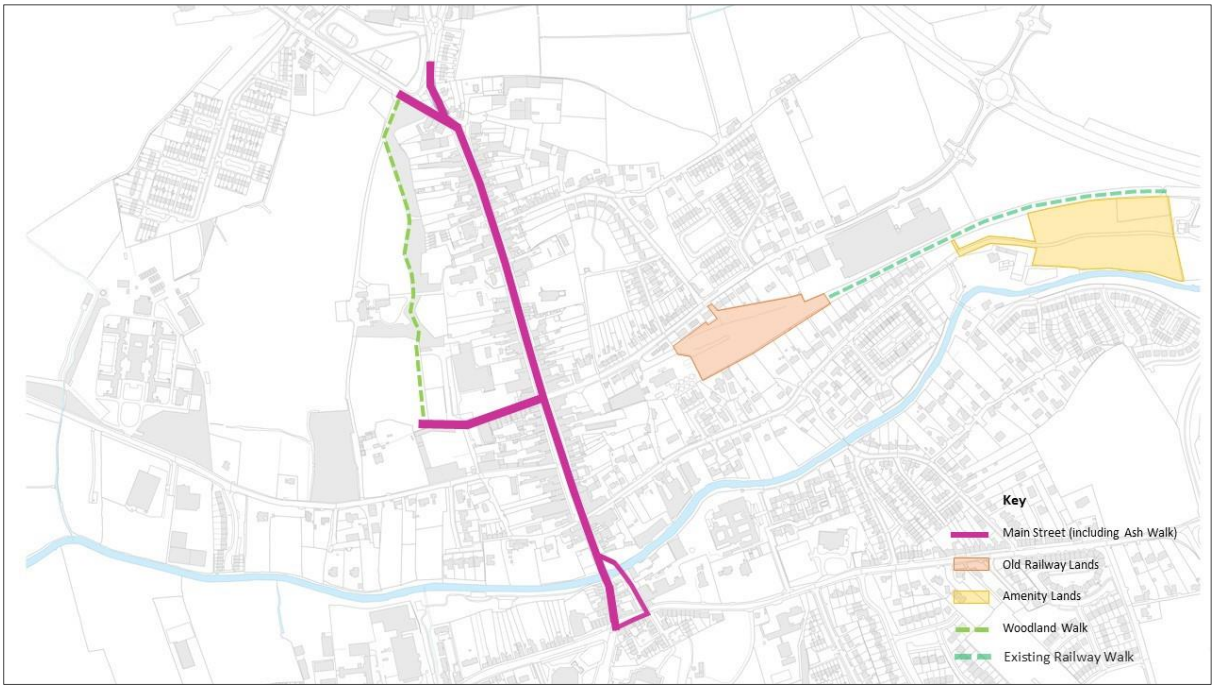


Figure 1-2: Indicative Location of development areas

1.2 Description of Proposed Works

The following summarises the key elements of the proposed development in each Character Area:

Character Area 1 - Main Street including Ash Walk

- Development of a pedestrian friendly area with reduced traffic speeds. Existing and proposed services will be located underground.
- Creation of a new cycle lane and upgrades to the junction, Golf Links Road and N2 junction and Ash Walk junction.
- Resurfacing of existing footpaths along Main street.
- Resurfacing of the carpark just outside of Ardee library.
- The extension of Ash Walk with a creation of a new road and footpath connection to the link road and resurfacing of the existing footpaths.
- Resurfacing the current car park situated north of the existing bridge and incorporating a hard/soft landscape area around it.

The Old Railway Lands

- The development of a muti-use town park comprising of a garden/ /allotments/open lawn area.
- Development of a temporary café/storage building,
- Development of paved public realm areas and a children's play area,

- a new public lighting scheme,
- The existing access from O'Carroll Street will be upgraded to allow for vehicular access to the site for deliveries/drop-offs
- a new vehicular access has been proposed to the north west corner of the site. A new car park will be included in this area. Existing access to be retained.
- Increase the usable urban space around the Railway lands to create a flexible open space;

Amenity Lands

- The development of a communal sports and recreational facilities,
- Upgrades and the re-alignment of the existing access road to the WWTP,
- A new public car park/car parking bays,
- a Pavilion building and external paved plaza,
- 200 metre grass running track with a 100 metre sprint track,
- a bowling green with boundary railing and picnic tables and outdoor games area,
- The proposal includes pedestrian footpaths traversing the site which will link the site to the proposed River Greenway and community park at the Old Railway Lands.

Woodland Walk

- The route follows the alignment of an established path through the wooded area and connects to Golf Link Road in the north.
- The current pathway connecting St. Joseph's Hospital to the rear of Ardee Day Care Centre will undergo resurfacing.

Relevant Guidelines

The relevant guidelines used by the Planning Authorities for Flood Assessment, '*The Planning System and Flood Risk Management'*, was published by the Department of Housing, Planning and Local Government (DECLG) in 2009. The purpose of the guidelines is to ensure that where relevant, flood risk is a key consideration in preparing development plans and assessing planning applications to avoid inappropriate development in areas at risk of flooding or increasing flood risk elsewhere as a result of development.

This report follows the DECLG guidance for the staged approach to flood risk management as follows:

- Stage 1 Flood risk identification – to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application levels;

- Stage 2 Initial flood risk assessment – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped; and
- Stage 3 Detailed flood risk assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures

(Source: Extract from Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009 DEHLG/OPW).

2 FLOOD RISK ASSESSMENT

2.1 Stage 1 Flood Risk Identification

Stage 1 identifies whether there are any flooding or surface water management issues related to the area indicated from Regional Planning Guidelines or Development Plans that may warrant further investigation. This will provide a general indication of the potential flood risk to the site and identify whether there are any flooding or surface water management issues that may warrant further investigation work in the form of a Stage 2 (Initial Flood Risk Assessment) and Stage 3 (Detailed Flood Risk Assessment) as required.

The following risks were considered during this assessment

a. Fluvial Flooding
b. Pluvial Flooding
c. Coastal Flooding
d. Surface Water Flooding
e. Groundwater Flooding

The following data sources were used to determine the flood risk in the area of interest:

a. OPW Flood Hazard Mapping
b. CFRAM Indicative Flood Zone Maps
c. Strategic Flood Risk Assessment
d. Site Walkover and other Background Information

2.1.1 OPW Flood Hazard Maps – Past Flooding Events

The OPW flood hazard mapping was accessed through www.floodinfo.ie to establish if any flood events were documented in the vicinity of the site. A recurring flood event is recorded along the River Dee downstream of the N2 road bridge. The flood source is the river (fluvial). There is no information available on dates or frequency recurrence of the flooding. Figure 2-1 below shows the location of this recurring flood event.

Other information on the OPW portal relating to flooding in the Ardee area is recorded as follows:

- Ardee Bog floods on a regular basis acting as attenuation for main channel… Significant lands flooded and occasional flooding of roads, agricultural buildings and 5 houses.
- Localised flooding on streams primarily related to development and culverting… Flooding of roads and lands.

Other information relating to the flooding described above, such as exact locations and flooding extents, is not presented on the portal.

Figure 2-1: OPW Hazard Mapping Portal – Past Flood Event Locations

2.1.2 OPW Fluvial Flood Hazard Maps

The fluvial flood risk extents from the River Dee for the proposed development site are displayed in an extract from the OPW Hazard Mapping Portal drawing, see Figure 2-2.

This map demonstrates the following:

- For a 10% Fluvial AEP event (1 in 10 year storm return period), there are no areas within the redline boundary that are shown to be at risk from flooding.
- For a 1% Fluvial AEP event **(Flood Zone A equating to 1 in 100 year storm return period)**, according to the flood map, there are no areas within the redline boundary that are shown to be at risk from flooding.
- For a 0.1% Fluvial AEP event **(Flood Zone B equating to a 1 in 1000 year storm return period)**, according to the flood map, there are no areas within the redline boundary that are shown to be at risk from flooding.

The OPW Fluvial Flood Hazard Mapping reveals that specific portions of the proposed development site, particularly sections of the Riverfront area and Amenity lands, are situated near River Dee. Despite not being designated as flood zones on the map, the Riverfront area is positioned close to a multiple recurring flood event, as indicated on the map. It is essential to acknowledge that, due to their proximity to the river, these areas might still be vulnerable to flooding during significant events, even though they are not explicitly marked as flood zones on the OPW Map.

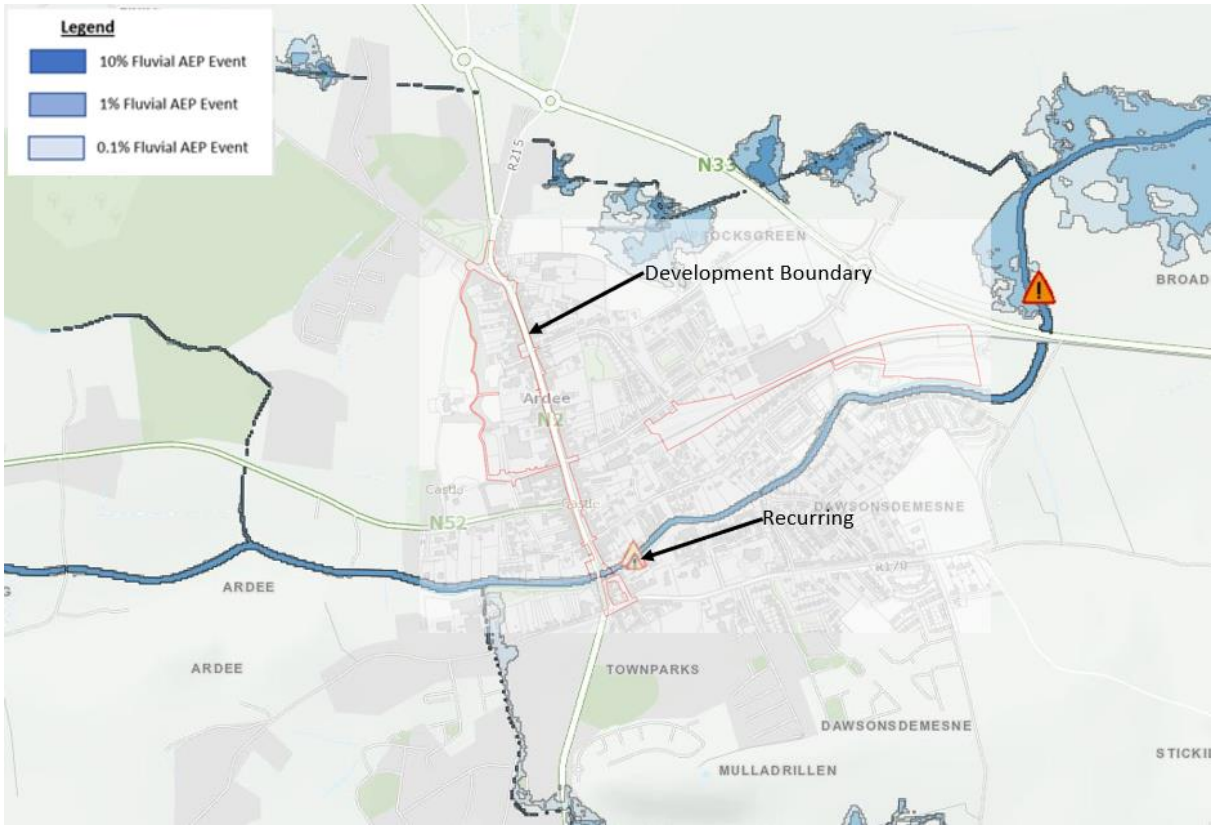


Figure 2- 2: OPW Hazard Mapping Portal – Fluvial Flood Extents

2.1.3 OPW Coastal Flood Hazard Maps

The proposed site is approximately 12 kilometers away from the Irish Sea, and based on the available information, it is unlikely to experience significant coastal flooding.

Coastal flooding is a type of flooding that occurs when ocean water exceeds its usual level and enters the coastal areas, causing damage to the infrastructure and property. Coastal flooding can be caused by various factors such as high tides, storm surges, and sea-level rise.

However, since the proposed site in Ardee is located at a considerable distance from the ocean, the risk of coastal flooding is significantly lower. The town is situated inland, and the nearest significant water body is the River Dee, which flows through the town. Refer to the section on Fluvial Flooding 2.1.2.

In addition to its inland location, the topography of the proposed site can also play a significant role in reducing the risk of coastal flooding. If the site is located at an elevation that is above the expected flood level, the chances of flooding are further reduced.

Overall, based on the available information, it can be concluded that the proposed site in Ardee is unlikely to experience significant coastal flooding due to its inland location. However, it is still essential to conduct a thorough site assessment using the most up to

date flood mapping databases and take appropriate measures to mitigate any potential risks associated with flooding.

2.1.4 CFRAM Indicative Flood Zone Maps

Ardee is one of eight designated 'Areas for Further Assessment' and has been included in the comprehensive Catchment Flood Risk Assessment and Management (CFRAM) programme. The CFRAM programme aims to assess and manage flood risks within these identified areas, providing a detailed understanding of flood hazards and supporting the development of effective flood risk management strategies. As a result, Ardee, at the time of this report, is currently undergoing a thorough analysis to re-evaluate its susceptibility to flooding and to determine appropriate measures for mitigating potential flood impacts on the community and infrastructure.

Figure 2-3 illustrates the northern section of the N2 within the site boundary, situated near node 0603M00126. This node has recorded water levels of 22.19 (OD) at a 10% Annual Exceedance Probability (AEP), 22.40 (OD) at a 1% AEP, and 22.62 (OD) at a 0.1% AEP. These measurements indicate the varying water levels experienced at different probabilities of occurrence for this particular location.

Figure 2-4 depicts the riverfront area with node points on both sides of the boundary. The details for the two closest nodes are provided below:

- Node 0602M01927 is situated outside and to the east of the boundary. It has a water level of 21.98m (OD) at a 10% AEP, 22.18m (OD) at a 1% AEP, and 22.44m (OD) at a 0.1% AEP.
- Node 0602M01974 is located outside and to the west of the boundary. It registers a water level of 22.64m (OD) with a flow of 32.14 m3/s at a 10% AEP, 23.10m (OD) with a flow of 37.34 m3/s at a 1% AEP, and 23.36m (OD) with a flow of 45.05 m3/s at a 0.1% AEP.

Figure 2-5 displays two nodes in close proximity to the outer boundary of the Amenity lands. The details of these nodes are as follows:

- Node 0602M01927 is located southwest of the amenity lands. It records a water level of 21.98m (OD) at a 10% AEP, 22.18m (OD) at a 1% AEP, and 22.44m (OD) at a 0.1% AEP.
- Node 0602M01874 is situated to the east of the amenity lands. It measures a water level of 21.34m (OD) at a 10% AEP, 21.54m (OD) at a 1% AEP, and 21.77m (OD) at a 0.1% AEP.

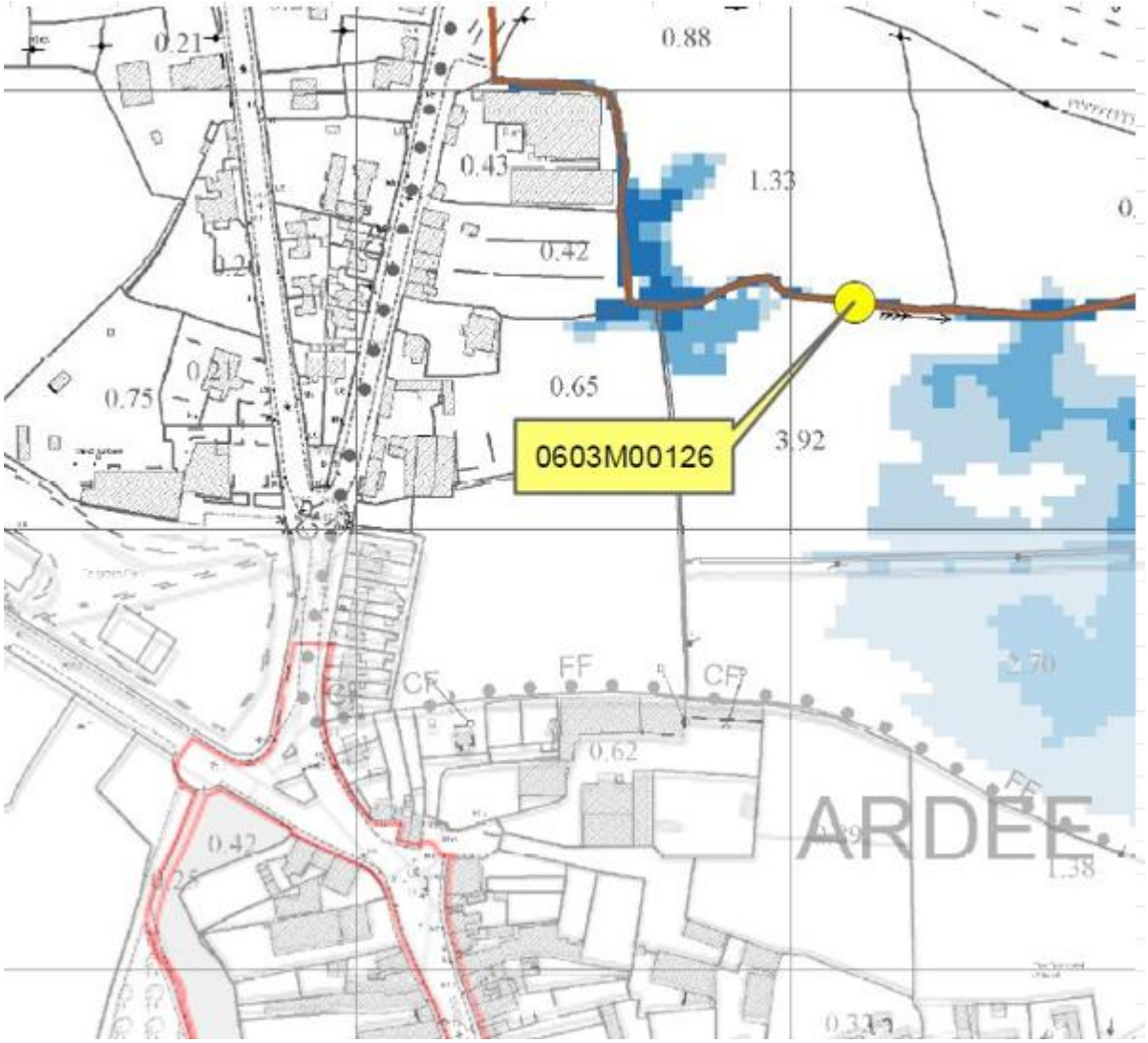


Figure 2-3: CFRAM Indicative Flood Zone Maps (Fluvial)

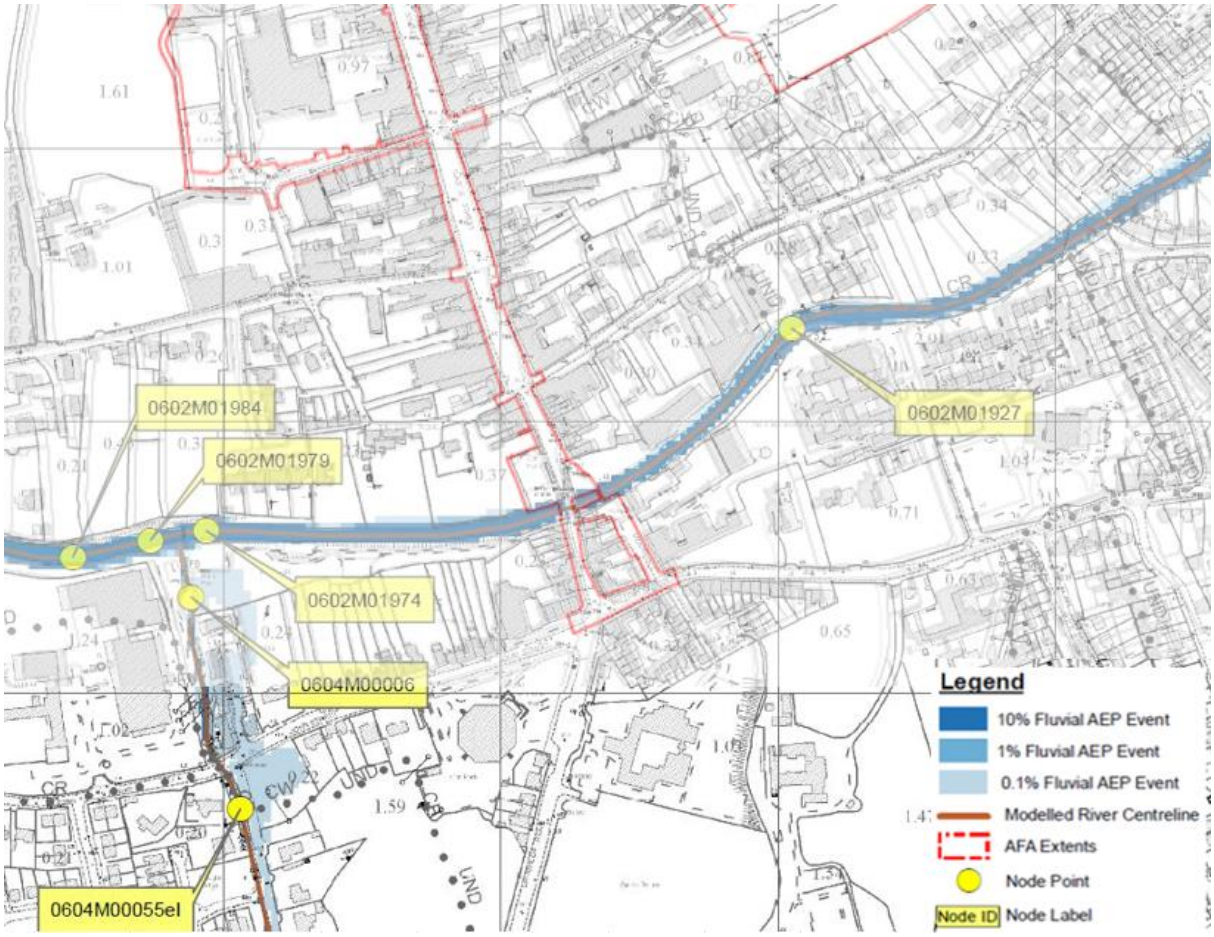


Figure 2-4: CFRAM Indicative Flood Zone Maps (Fluvial)

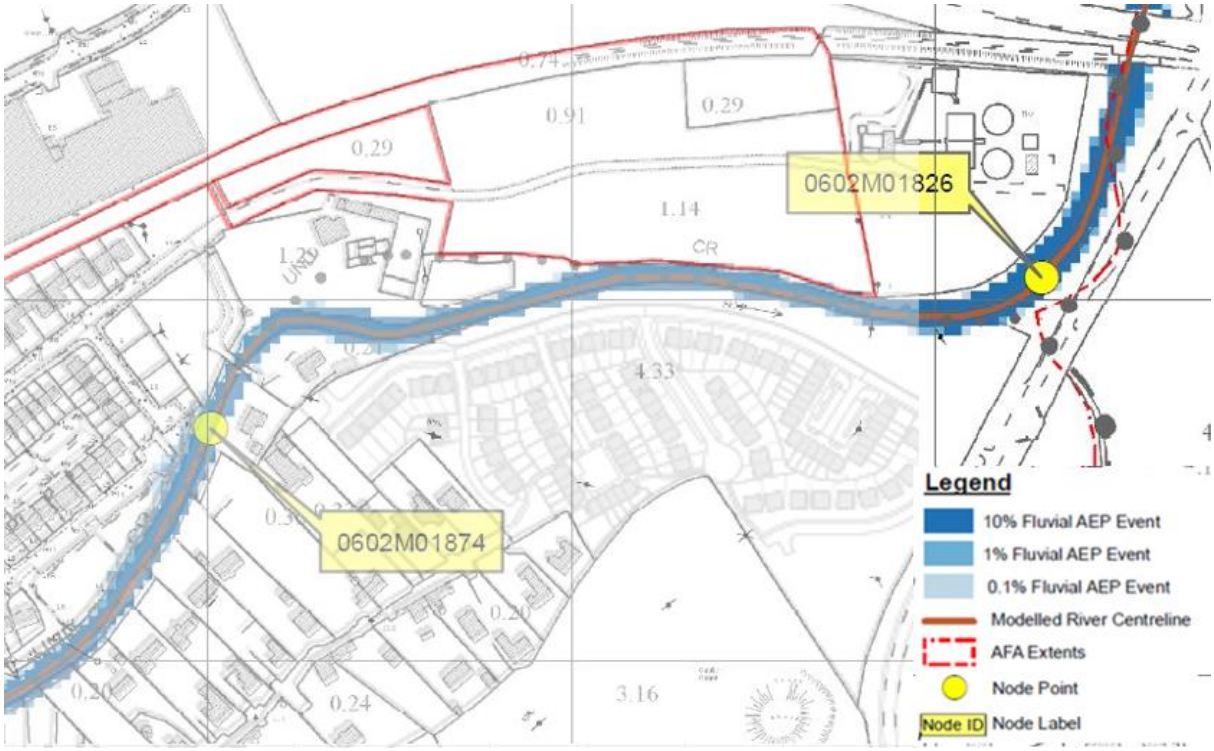


Figure 2-5: CFRAM Indicative Flood Zone Maps (Fluvial)

2.1.5 Other Background Information

Below is a summary of past flood events in the area taken from the OPW Past Flood Event Local Area Summary Report:

River Dee Downstream Ardee November 1968 (ID-222): This flood event occurred on 31st October 1968 at an approximate point. It has one report and no press archive.

Ardee Recurring (ID-3276): This is a recurring flood event in the area with an unspecified start date. It has one report and 10 press archives, 2 of which are related to the flood event in that specific area south of the main road close to the River Dee.

Flooding at Ardee on 30/12/2015 (ID-13497): This flood event took place on 30th December 2015 at an approximate point. There are no reports or press archives available for this event.

None of these flooding events make reference to flooding within the proposed development area, however small scale or localised flooding cannot be discounted.

2.1.6 Conclusion from Stage 1 Assessment

From the above assessment, it is established the predominant source of flood risk within the proposed development site is fluvial flooding from the River Dee along the Riverfront area. Therefore, a more detailed analysis of fluvial flood levels is required as part of a Stage 2 Initial Flood Risk Assessment.

2.2 Stage 2: Initial Flood Risk Assessment

2.2.1 Sources of Flooding

A Stage 2 Initial Flood Risk Assessment involves a qualitative appraisal to develop and understand the risk of flooding to the site and the potential impacts the development may have on flood risk elsewhere.

The sources of flooding to the site that require to be reviewed and assessed include:

1. Fluvial Flooding;
2. Coastal Flooding;
3. Pluvial Flooding - Surface Water Runoff;
4. Groundwater Flooding; and
5. Human / Mechanical Error.

2.2.2 Appraisal of Flood Sources

A brief appraisal of the potential sources of flooding and their impact on the aforementioned sites are summarised in Table 2-1**.** The review of the information collated for Stage 1 indicates that the main source of flood risk is fluvial.

Table 2-1: Appraisal of Flood Risk Sources

Source	Pathway	Receptor	Likelihood	Consequence	Risk= Likelihood x consequence
Fluvial	Adjacent to River Dee	People/ property	Probable	High	Significant
Coastal	Adjacent to river that is non-tidal	People/ property	Probable	Low	Very Low
Pluvial	Blockage and/or surcharging of drainage network	People/ property	Possible	Low	Low
Groundwater	Rising water level	People/ property	Rare	Low	Low
Human / Mechanical Error	Gate Left Open	People / property	Negligible	Low	Very Low

The sources, pathways and receptors identified above will be assessed further in this initial flood risk assessment stage, with exception to Human / Mechanical Error which is considered to be a negligible risk in this instance.

2.2.3 Fluvial and Coastal

The fluvial and coastal flood risks are considered together in this section of the Report, as the flood mapping and background information presented in Stage 1 above demonstrate that the both the fluvial and coastal mechanisms overlap.

A significant level of risk has been assessed for fluvial flooding as part of the Source-Pathway-Receptor model.
The site in Ardee, County Louth is not located near the coast, making it unlikely to experience coastal flooding. Additionally, the section of the River Dee within Ardee is not tidal, further reducing the possibility of coastal flooding in the area.

The OPW Flood Hazard maps, CFRAM maps and background information, particularly reporting and mapping produced following the past flooding events that occurred in 1968, provide some information to help identify the areas of the proposed development site which are at risk from fluvial flooding.

In particular, the CFRAM Fluvial map in Appendix 1 identifies a few nodes on the River Dee in close proximity to the proposed site. These nodes state flood levels at these particular locations and they are provided in Table 2-2 below.

Table 2-2: CFRAM Maps Node Levels

Node Label	Water Level (OD) 10% AEP	Flow (m^3/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m^3/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m^3/s) 0.1% AEP
0602M01984	22.77	N/A	23.18	N/A	23.43	N/A
0602M01979	22.68	30.04	23.12	36.16	23.38	41.49
0602M01974	22.64	32.14	23.10	37.34	23.36	45.05
0602M01927	21.98	N/A	22.18	N/A	22.44	N/A
0602M01874	21.34	N/A	21.54	N/A	21.77	N/A
0602M01826	20.85	N/A	21.07	N/A	21.26	N/A
0604M00079J	31.79	2.17	32.26	2.75	32.45	2.89
0604M00071aI	31.09	2.56	31.38	4.11	31.64	6.24
0604M00055eI	25.62	N/A	25.90	N/A	26.11	N/A
0604M00006	23.56	2.74	23.78	4.42	24.02	6.64
0605A00010	31.73	0.22	32.17	0.38	32.31	0.88

The levels presented above can be cross referenced against the topographic survey completed for the proposed development site to provide a more accurate analysis of the flood risk areas.

2.2.4 Pluvial

A moderate level of risk has been assessed for pluvial flooding / surface water runoff as part of the Source-Pathway-Receptor model.

This risk of flooding from surface water would arise from accumulation of rainfall runoff across the site and surrounding areas. There are no records of surface water flooding having been encountered within the proposed development area.

The existing site has a surface water drainage system to ensure no localised surface water flooding events occur within the site. It is not proposed to undertake any modification works to the main drainage infrastructure.

A vast portion of the regeneration works are proposed within existing hardstanding areas where minimum re-profiling of levels will take place. It is proposed the current drainage regime will be followed for the development of these hardstanding areas. Indeed, a reduction in surface water runoff can be expected with the adoption of some new green spaces in existing hardstanding areas and the adoption of SuDS techniques as part of the surface water management design.

SuDS will be employed in the proposed existing green spaces as needed to ensure no discharge to the existing surface water drains increases runoff. Given the nature of the proposed development and the significant mitigation measures mentioned above, a detailed risk assessment for pluvial flooding is deemed unnecessary, and the risk is classified as low.

2.2.5 Groundwater

A nationwide groundwater flood hazard map was produced by the OPW under the National Preliminary Flood Risk Assessments Groundwater Flooding Report in 2010. The proposed development site is not located in an area at risk of groundwater flooding.

Accordingly, the risk of groundwater flooding is considered low and a further detailed risk assessment for groundwater flooding is not considered necessary.

2.2.6 Requirement for a Stage 3 – Detailed Flood Risk Assessment

Table 2-3 illustrates the circumstances in which the Justification Test is required for a proposed development, depending on the flood zone where the development is located and on the vulnerability classification of the development. The flood zones are geographical areas within which the likelihood of flooding is in a particular range.

Table 2-3 Requirement for Detailed Flood Risk Assessment

	Flood Zone A	Flood Zone B	Flood Zone C
High Vulnerability	Justification Test	Justification Test	Appropriate
Low Vulnerability	Justification Test	Appropriate	Appropriate
Water Compatible	Appropriate	Appropriate	Appropriate

The three defined levels of flood zones are outlined in Table 2-4.

Table 2-4 Flood Zone Classifications

Flood Zone	Return Period in years
A	1:100 from rivers and 1:200 from Sea
B	1:1000 from Rivers and Sea
C	<1:1000 from rivers, sea, and estuaries

Table 2-5 describes the vulnerability classification of the proposed site. The vulnerability to flooding depends on the nature of the development, its occupation and the construction methods used. The classification of different land uses and types of development as highly vulnerable, less vulnerable and water-compatible is influenced primarily by the ability to manage the safety of people in flood events and the long-term implications for recovery of the function and structure of buildings.

Table 2-5 Type of Development or Vulnerability Class

Class	Type of Development
Highly Vulnerable	Residential, Hospitals, Schools, fire stations, etc.
Less Vulnerable	Buildings for retail, leisure, warehouses, commercial, industrial, and non-residential institutions etc.
Water-Compatible	Flood Control Structures, Docks, etc.

It has been established in Section 2.2.3 above that the proposed development areas not within Flood Risk areas A,B, or C.

The nature of the activity work, namely public realm and urban regeneration type work, is assessed as Less Vulnerable type development, in accordance with Table 3.1 of the Flood Risk Management Guidelines published in 2009 by the OPW and the then Department of the Environment, Heritage & Local Government.

From Table 2-3 above:

- A Justification Test is required for the development works to a section of main street area that is close to the River Dee.
- A Justification Test is not required for other areas of the proposed development.

2.2.7 Conclusion from Stage 2 Assessment

A Stage 3 Detailed Flood Risk Assessment is not needed for the proposed development areas, as they are situated outside the 0.1% AEP (i.e. in Flood Zone C), indicating a low flood risk. Given that the development involves public realm and urban regeneration projects with minimal alterations to existing site levels, a more detailed risk assessment for fluvial and coastal flooding is not deemed necessary.

A Justification Test is necessary for the development activities in a portion of the main street area located near the River Dee and the Amenity Lands area.

2.2.8 Justification Test

The Planning Guidelines on the Planning System and Flood Risk requires that where a planning authority is considering proposals for new development in areas at a high or moderate risk of flooding, that includes types of development that are vulnerable to flooding, then they must be satisfied the development satisfies all of the criteria of the Justification Test.

It has been established in Section 2.2.6 above that Justification Test is required for the Riverfront area and Amenity lands area. This is presented in Table 2-6 below:

Table 2-6: Justification Test

Box 5.1 Justification Test for Development Management
1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
The subject site includes a mixture of zoned land uses including town centre, open space, institutional lands and new residential, as designated in Ardee Composite Map from the Louth County Development Plan 2021 – 2027.We consider that the proposed uses are compliant with the 'Generally Acceptable Uses' as set out within the LCDP 2021 – 2027. See the Planning Statement submitted as part of the planning application package for further details.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates: i. The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;
The development generally replaces existing hardstanding and there are minimal changes to existing levels. The initial and detailed flood risk assessment stages above have determined there is no increase to flood risk elsewhere.
ii. The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
The development proposal will include measures to minimise the flood risk.
iii. The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and
The development proposal will include measures to ensure that residual risks to the area and/or development can be managed to an acceptable level.
iv. The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.
The purpose of this scheme is to regenerate the Ardee area through the enhancement of public realm, creation of a new transformative gateway / arrival space, public spaces and pedestrian linkages.
Conclusion: The proposed development site passes the Justification Test.

3 CONCLUSION

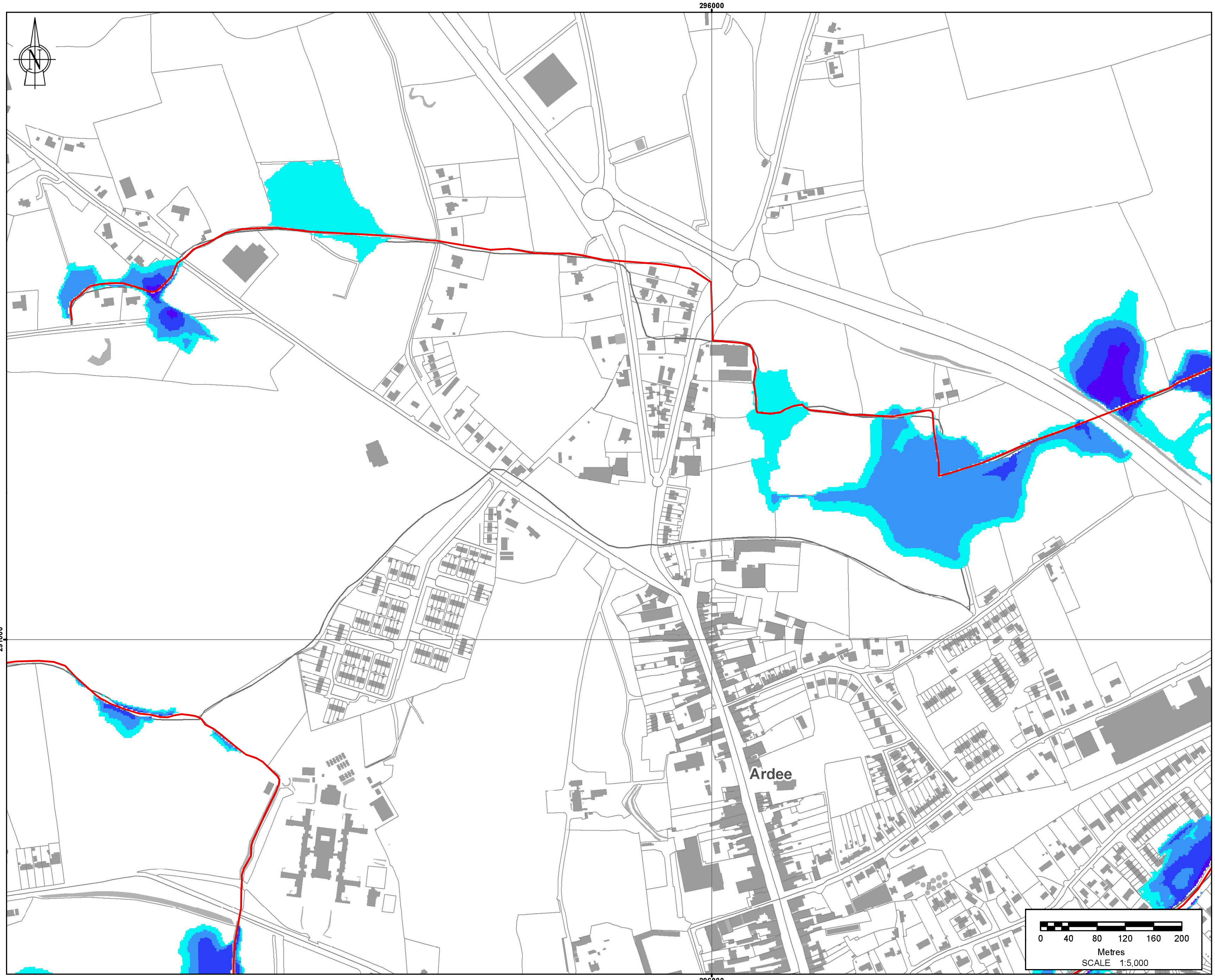
The completion of a Site Specific Flood Risk Assessment for the Ardee regeneration project has provided valuable insights into the flood risk profile of the area. The assessment revealed that the primary source of flood risk is fluvial flooding from the River Dee along the Riverfront and Amenity Lands area of the proposed development. To further evaluate this risk, a more detailed analysis of fluvial flood levels was undertaken as part of a Stage 2 Initial Flood Risk Assessment.

However, the assessment also confirmed that the proposed development areas are located outside the 0.1% Annual Exceedance Probability (AEP), indicating a low flood risk. As a result, a Stage 3 Detailed Flood Risk Assessment is not necessary. The risk of pluvial flooding, groundwater flooding, and flooding from human/mechanical error was also found to be low.

The overall assessment confirms that the proposed development areas align with the Planning Need and that flood risk can be effectively managed to an acceptable level. However, it is important to highlight that the assessment was conducted based on the most recent CFRAM mapping available during its production. To ensure ongoing accuracy in the flood risk assessment, it is recommended to obtain the latest maps from Louth County Council.

Additionally, we have sourced preliminary flood mapping data, from the ongoing flood modelling at the time of this report, which indicates that certain sections of the amenity lands are situated within the 0.1% fluvial AEP event, with most of the lands experiencing small depths ranging from 0 to 0.25 meters. However, it should be noted that these maps have not yet received official approval and adoption from the Office of Public Works (OPW). As a result, they could not be included as part of the overall flood risk assessment. Instead, they have been annexed to this report solely for informational purposes and should not be utilized for any other intent.

Annexture 1: Preliminary Flood mapping 0.1% Fluvial Flood Depth - Sheets 1 to 4



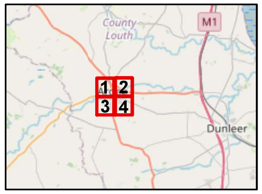
Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

Legend:

0.1% FLUVIAL AEP EVENT (1 IN 1000 YEAR)

- 0 - 0.25 M
- 0.25 - 0.5 M
- 0.5 - 1.0 M
- 1.0 - 1.5 M
- 1.5 - 2 M
- > 2 M
- MODEL RIVER CENTRELINE

NOTE: This map has been distributed as a layered pdf. Layer selection for printing is at the discretion of the client.



SAFETY HEALTH AND ENVIRONMENT INFORMATION

CONSTRUCTION

MAINTENANCE / CLEARING / OPERATION

DECOMMISSIONING / DEMOLITION

Rev	Drawn	Chkd	Rvwd	Apprvd	Date	Description
P01	RV	POW	FS	JM	28/10/2021	SUITABLE FOR INFORMATION
P02	MA	POW	FS	JM	15/11/2022	SUITABLE FOR INFORMATION

Designed by: RV Date: OCTOBER 2021

Status: S2

Client: Comhairle Contae Lú Louth County Council

Client Drawing No. | Revision

Binnies UK Limited
Registered Office
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR UK
Tel: +44(0)1737 774155

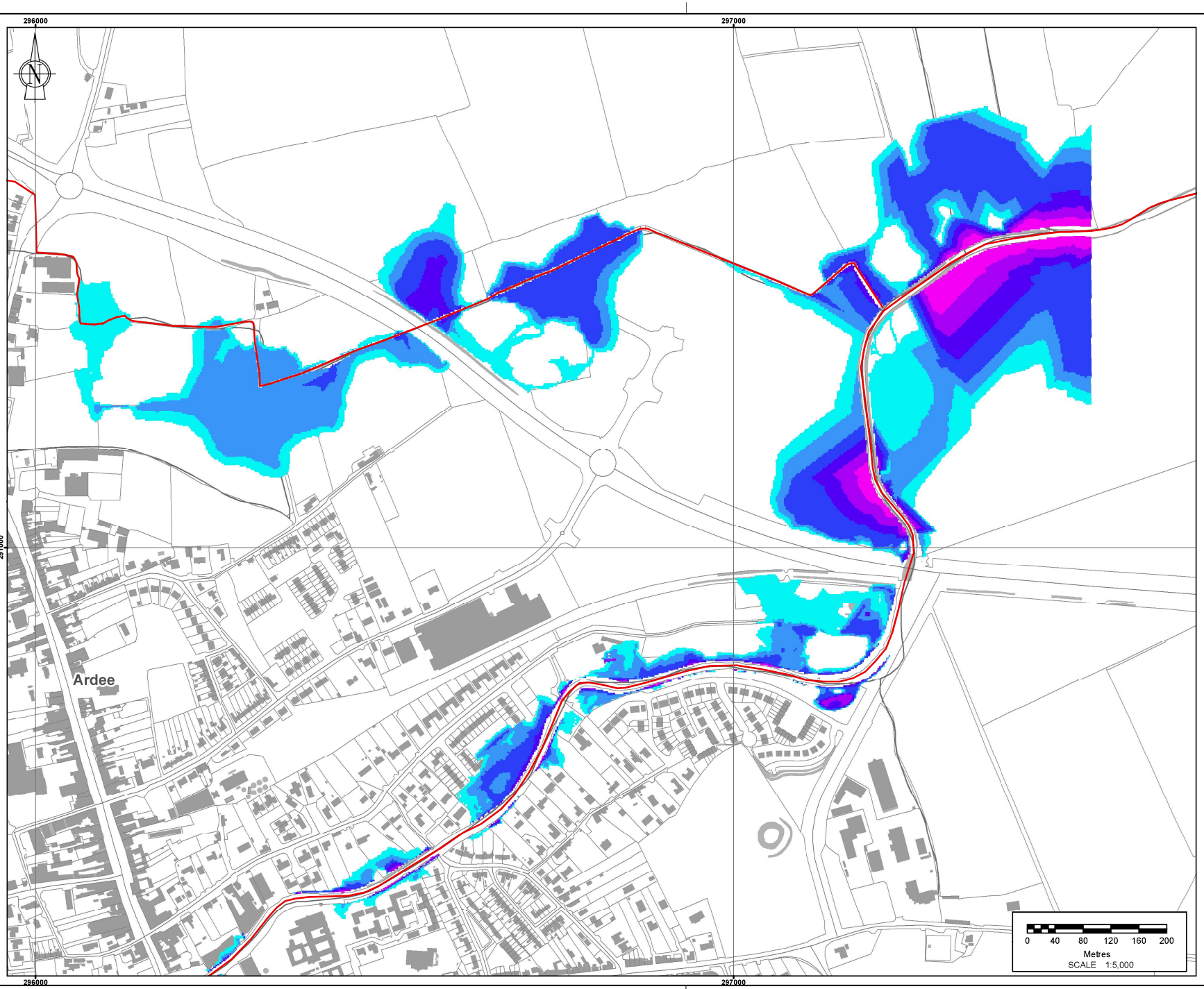
Project: ARDEE FRS

Drawing title: 0.1% FLUVIAL FLOOD DEPTH SHEET 1 OF 4

Drawing scale: 1:5,000 Sheet size: A3

Drawing no. 123160-BUK-ZZ-00-DR-HY-00004 Revision P02

Print Version: Print Quality (300dpi @ A3)



Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

Legend:

0.1% FLUVIAL AEP EVENT (1 IN 1000 YEAR)

- 0 - 0.25 M
- 0.25 - 0.5 M
- 0.5 - 1.0 M
- 1.0 - 1.5 M
- 1.5 - 2 M
- > 2 M
- MODEL RIVER CENTRELINE

NOTE: This map has been distributed as a layered pdf. Layer selection for printing is at the discretion of the client.

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Rev.	Drawn	Chkd	Rvwd	Apprvd	Date	Description
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P02	MA	POW	FS	JM	15/11/2022	SUITABLE FOR INFORMATION

Designed by: RV Date: OCTOBER 2021

Status: S2

Client

Comhairle Contae Lú
Louth County Council

Client Drawing No. | Revision

binnies

Binnies UK Limited
Registered Office
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR UK
Tel: +44(0)1928 754155

Project:

ARDEE FRS

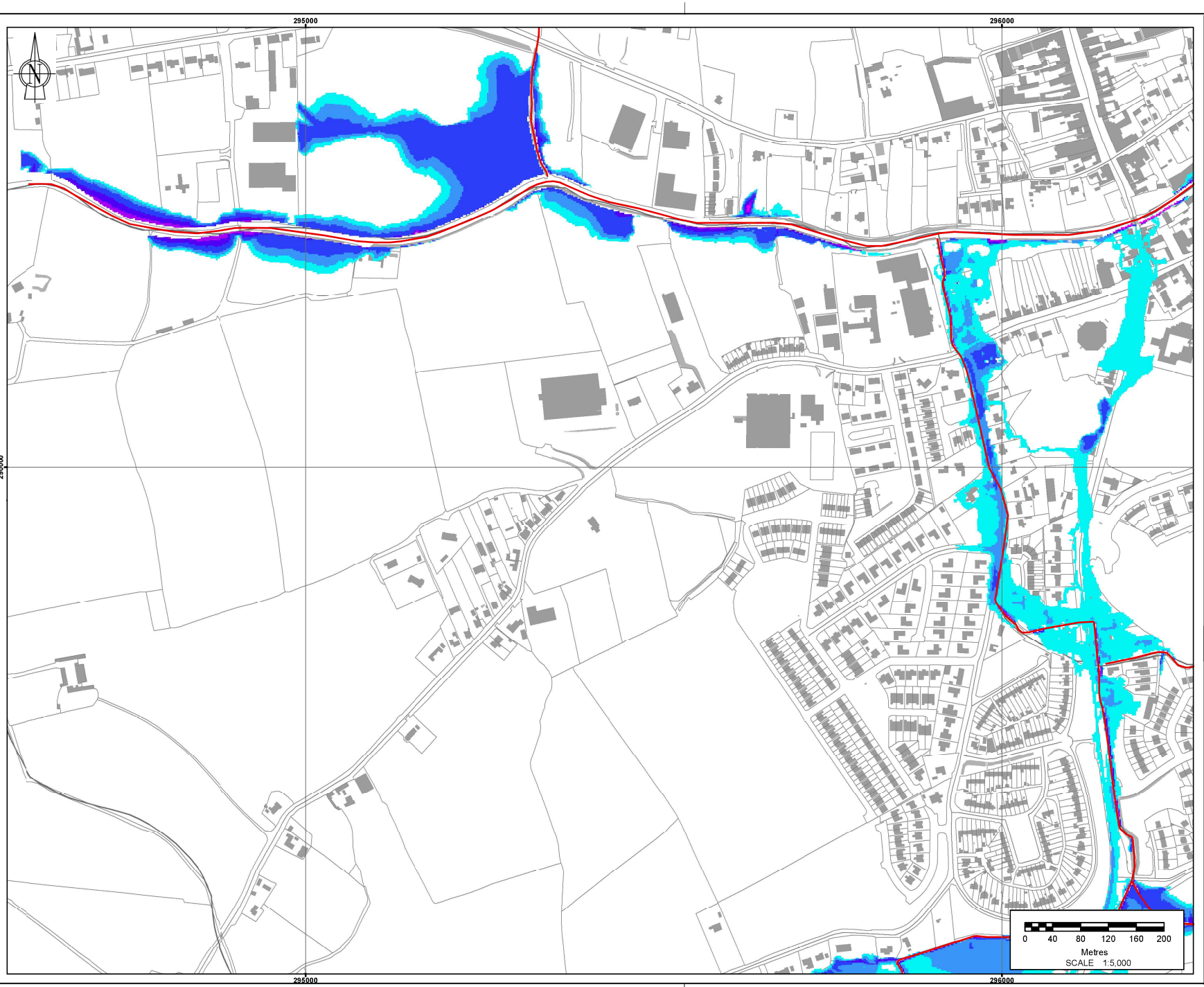
Drawing title:

0.1% FLUVIAL FLOOD DEPTH
SHEET 2 OF 4

Drawing scale: 1:5,000 Sheet size: A3

Drawing no. 123160-BUK-ZZ-00-DR-HY-00004 Revision P02

Print Version: Print Quality (300dpi @ A3)



Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

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Legend:

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Rev.	Drawn	Chkd	Rvwd	Apprvd	Date	Description
P01	RV	POW	FS	JM	28/10/2021	SUITABLE FOR INFORMATION
P02	MA	POW	FS	JM	15/11/2022	SUITABLE FOR INFORMATION

Designed by: RV Date: OCTOBER 2021

Status: S2

Client: Comhairle Contae Lú Louth County Council

Client Drawing No. | Revision

Binnies UK Limited
Registered Office
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR UK
Tel: +44(0)1928 726215

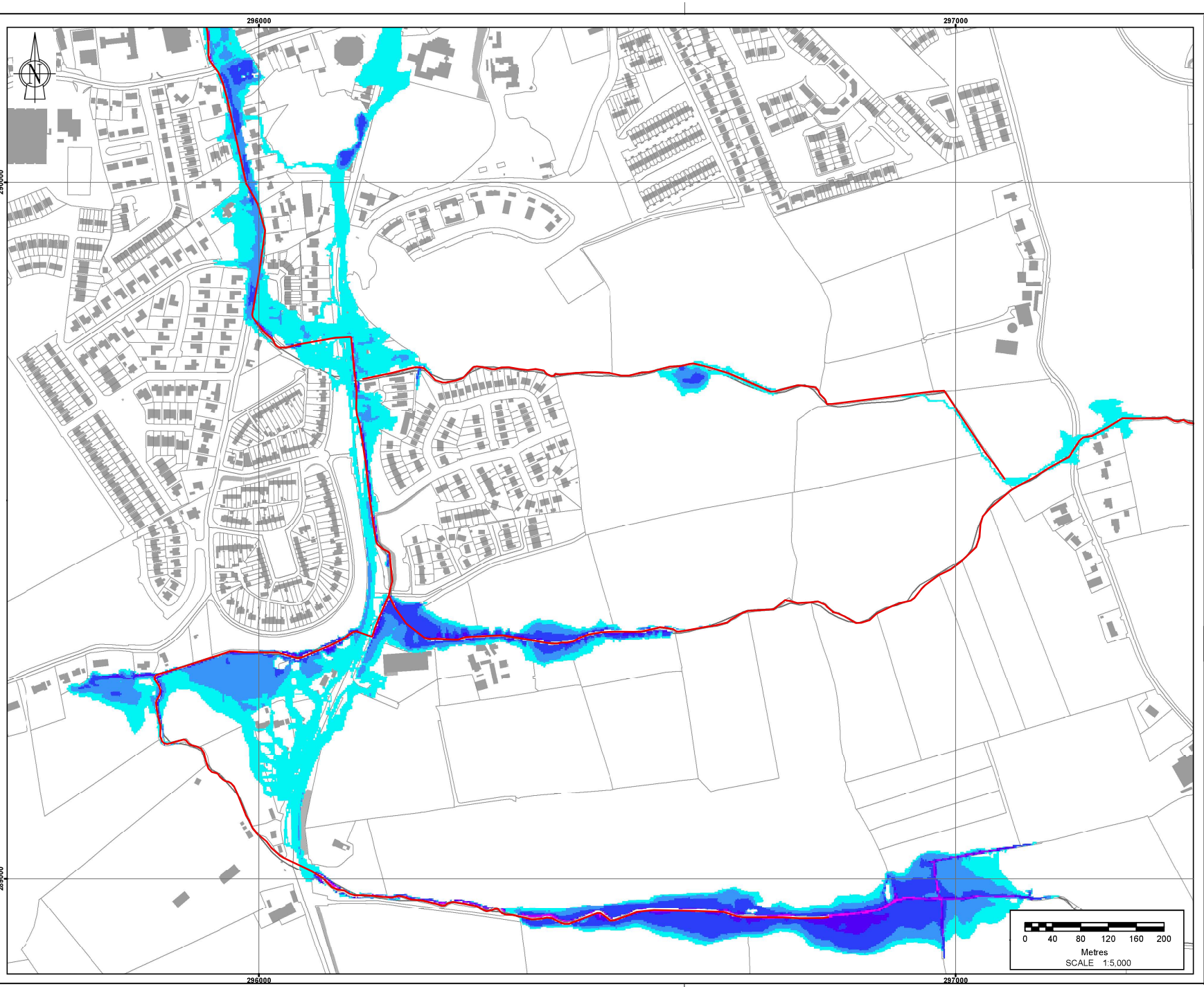
Project: ARDEE FRS

Drawing title: 0.1% FLUVIAL FLOOD DEPTH SHEET 3 OF 4

Drawing scale: 1:5,000 Sheet size: A3

Drawing no. 123160-BUK-ZZ-00-DR-HY-00004 Revision P02

Print Version: Print Quality (300dpi @ A3)



Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

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Legend:

0.1% FLUVIAL AEP EVENT (1 IN 1000 YEAR)

- 0 - 0.25 M
- 0.25 - 0.5 M
- 0.5 - 1.0 M
- 1.0 - 1.5 M
- 1.5 - 2 M
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P01	RV	POW	FS	JM	28/10/2021	SUITABLE FOR INFORMATION
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Drawing scale: 1:5,000 Sheet size: A3

Drawing no. 123160-BUK-ZZ-00-DR-HY-00004 Revision P02

Print Version: Print Quality (300dpi @ A3)