

PROPOSED LARGE SCALE
RESIDENTIAL DEVELOPMENT AT THE
FORMER DELL EMC PREMISES,
INNISHMORE,
BALLINCOLLIG, CORK

SITE SPECIFIC FLOOD RISK ASSESSMENT

DATE 16/02/2026

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1 Introduction

1.1 General

Denis O’Sullivan & Associates (DOSA), Consulting Engineers were commissioned to carry out a Site-Specific Flood Risk Assessment for the proposed Large Scale Residential Development (LRD) at the former DELL EMC premises, Innishmore, Ballincollig, Cork. This Report will assess the risk to the proposed Development from all potential sources of flooding and propose suitable mitigation measures where appropriate. This FRA should be read in conjunction with DOSA’s Infrastructure Report.

1.2 Objectives

The aim of the FRA is to identify, quantify and communicate to decision makers and other stakeholders the risk of flooding associated with the proposed development.

The FRA has been carried out in accordance with ‘The Planning System and Flood Risk Management Guidelines’ (hereafter referred to as the FRM Guidelines) published in November 2009 jointly by the then Department of the Environment, Heritage and Local Government, DEHLG, (now the Department of the Environment, Community and Local Government, DECLG) and the Office of Public Works (OPW) and the report assesses the site in accordance with the requirements of “The Planning System and Flood Risk Management Guidelines for Planning Authorities”.

1.3 Site Location

The subject site is located at the former Dell EMC facility in Innishmore, Ballincollig, Cork. It lies within the western suburbs of Cork City, approximately 9 km from the city centre. The site is surrounded by established residential estates, including Westcliffe and Innishmore Court, and is within walking distance of Ballincollig Town Centre, which offers a wide range of retail, educational, recreational, and community services. The area is well served by public transport, with regular bus services operating along the corridor. The site can be accessed via Innishmore Road to the east, as well as the existing entrance off Mechtersadt Road to the southwest. It comprises previously developed lands that are served by existing infrastructure, making it suitable for integration into the surrounding urban context.

1.4 Site Description

The proposed development site comprises the lands formerly occupied by the Dell EMC facility in Innishmore, Ballincollig, Cork. It is a brownfield site, previously developed and currently vacant, with remnants of existing infrastructure and hardstanding areas still present. The site is generally rectangular in shape and is bounded by residential properties to the north and east, with access points from Innishmore Lawn to the east and an existing entrance to the southwest. The topography of the site is relatively flat, with ground levels ranging from approximately 16.14 metres Ordnance Datum (OD) at the southwestern entrance to a low point of 15.50 metres OD towards the northeast corner. The minimal variation in levels supports ease of construction and drainage design. The site is enclosed by mature boundary treatments and benefits from existing connections to public utilities and road infrastructure.

A snapshot of the application boundary is outlined in Figure 1.1 below.

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore,
Ballincollig, Cork

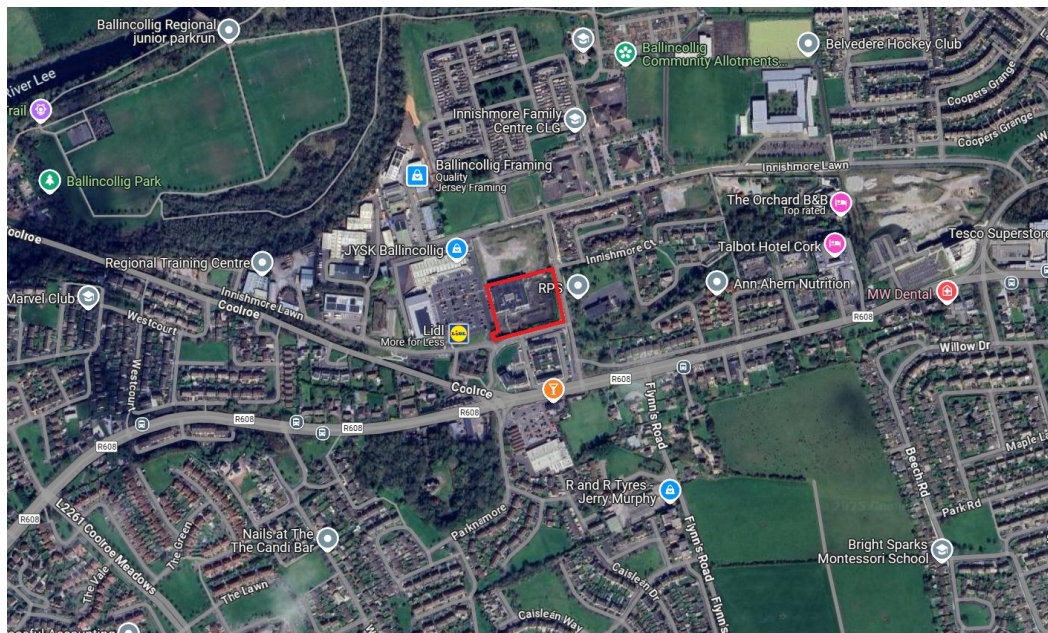


Figure 1-1 - Site Location (Google Maps)

1.5 Site Topography

The topography of the site is relatively flat. With levels ranging between 16.14m OD at the end of the existing entrance to a low of 15.50m OD towards the northeast of the site. There is a gentle incline at the southwest of the site, making up the existing entrance which connects to the public road at 16.73m OD.

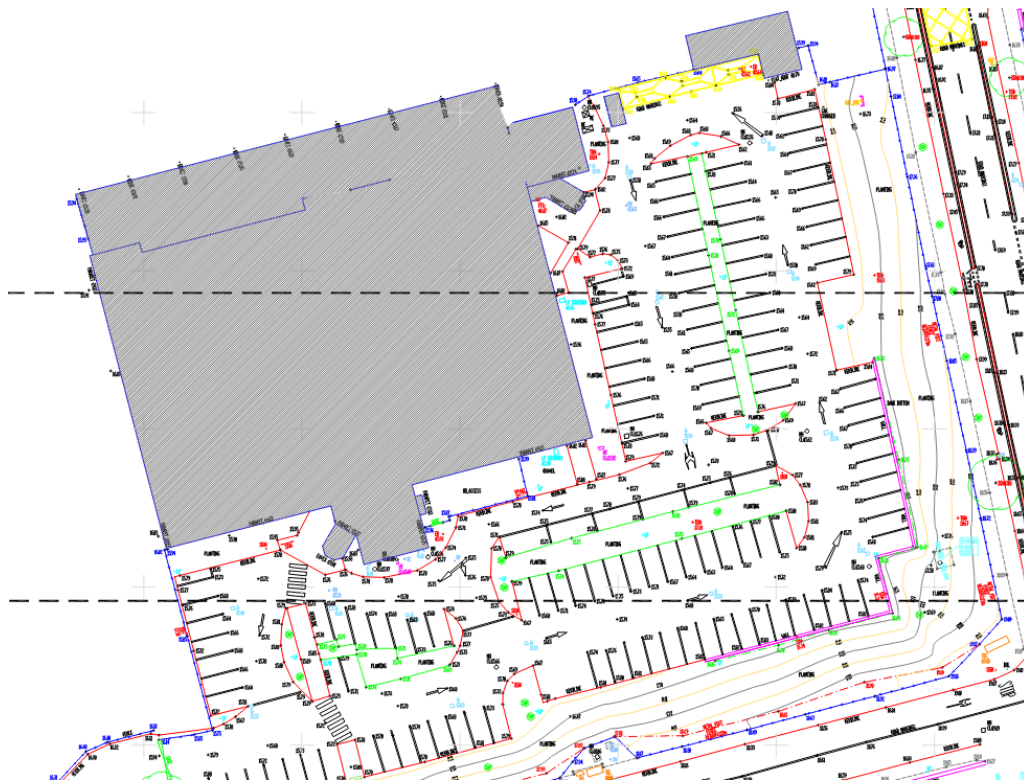


Figure 1-2 - Site Topography

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore,
Ballincollig, Cork

1.6 Proposed Development

Castle Peak Properties Ltd intend to apply for planning permission for a Large-Scale Residential Development (LRD) at this c. 1.0 ha site of the former DELL EMC premises, Innishmore, Ballincollig, Cork.

The proposed development will consist of the demolition of the existing former 2 no. storey DELL EMC building (c. 3882 sq m) and ancillary plant area, with associated site clearance works. The proposed development will provide for the 130 no. residential units, arranged in 3 no. blocks in a development ranging in height from 3 to 6 no. storeys.

The development will comprise a mix of 108 no. apartments (total apartment blocks area - c. 10,657 sqm), arranged in 2 no. blocks, providing a unit mix of 52 no. 1-bed and 56 no. 2-bed apartment units. In addition, the proposed development will provide 22 no. duplex units (total duplex block area - c. 2,159 sqm), arranged in 1 no. block, providing a unit mix of 4 no. 1-bed, 9 no. 2-bed, and 9 no. 3 beds.

Vehicular, cyclist and pedestrian access to the proposed development will be via 2 no. entrances from Innishmore Lawn (to the north east) and Mechterstadt Road (to the south west) and the development will include for pedestrian and cyclist permeability. Additionally, pedestrian access points are provided to the west of the subject site and to the south, off Mechterstadt Road.

The development will also include the provision of private, communal and public open space (including all balconies); car parking at ground floor level and undercroft; bicycle parking; internal roads and pathways; bin stores; hard and soft landscaping; boundary treatments; the provision of new surface water and foul drainage pipes and any associated pipe diversion works; retaining walls; changes in level; services provision and related ducting, piping and cabling; electric vehicle charging points; attenuation tanks; SUDS; signage; 1 no. ESB substation; wayfinding structures; public realm works including public lighting; and all site development and excavation works above and below ground. The application contains a statement setting out how the proposal will be consistent with the objectives of the Cork City Development Plan 2022-2028.



Figure 1-3 Proposed Site Layout

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore, Ballincollig, Cork

2 Flood Risk Assessment Methodology

2.1 Methodology

The methodology used for the flood risk assessment for the proposed development is based on 'The Planning System and Flood Risk Management, Guidelines for Planning Authorities' (2009)'. The FRM Guidelines require the planning system at national, regional and local levels to:

- Avoid development in areas at risk of flooding, particularly floodplains, unless there are proven wider sustainability grounds that justify appropriate development.
- Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and then mitigation of flood risk; and
- Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

The sequential approach (see Figure 3.1 of the FRM Guidelines below) in flood risk management requires the following three steps to identify the necessity for the justification test for a development:

- Step 1: Identification of the Flood Zone at the proposed development site (Section 2.23 of the FRM Guidelines);
- Step 2: Identification of the vulnerability of the type of the proposed development (Table 3.1 of the FRM Guidelines); and
- Step 3: Using the matrix of vulnerability versus Flood Zone (Table 3.2 of the FRM Guidelines), identify the necessity for the justification test for the proposed development.

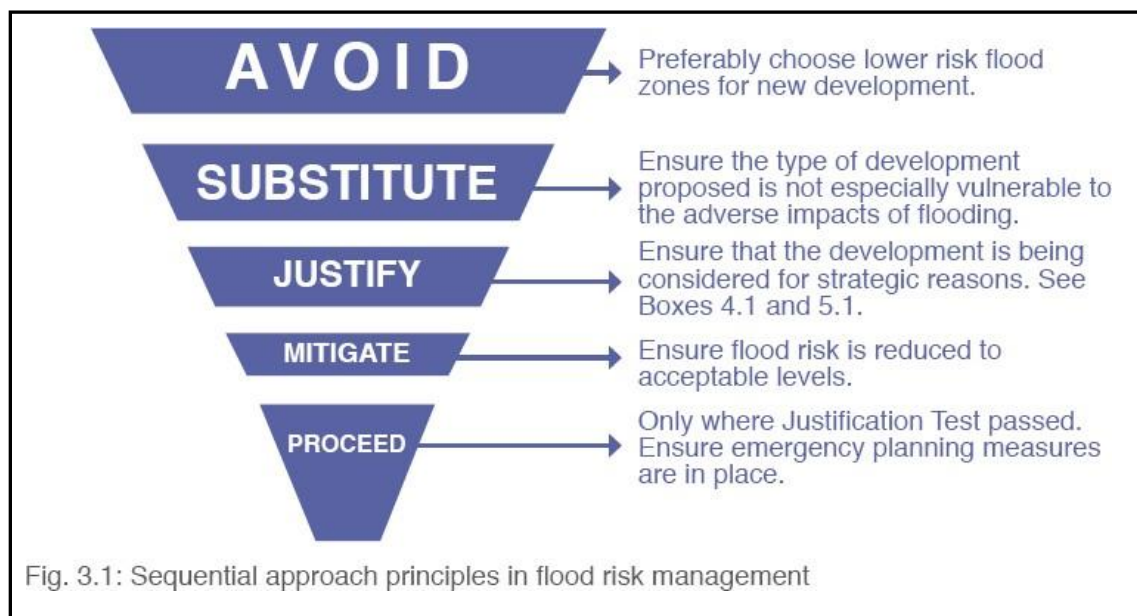


Figure 2.1 – Extract of Figure 3.1 of the FRM Guidelines

While Figure 2.1 of The FRM Guidelines sets out the broad philosophy underpinning the sequential approach in the flood risk management, Figure 3.2 of the Guidelines (shown below) describes the mechanism of the sequential approach for use in the planning process.

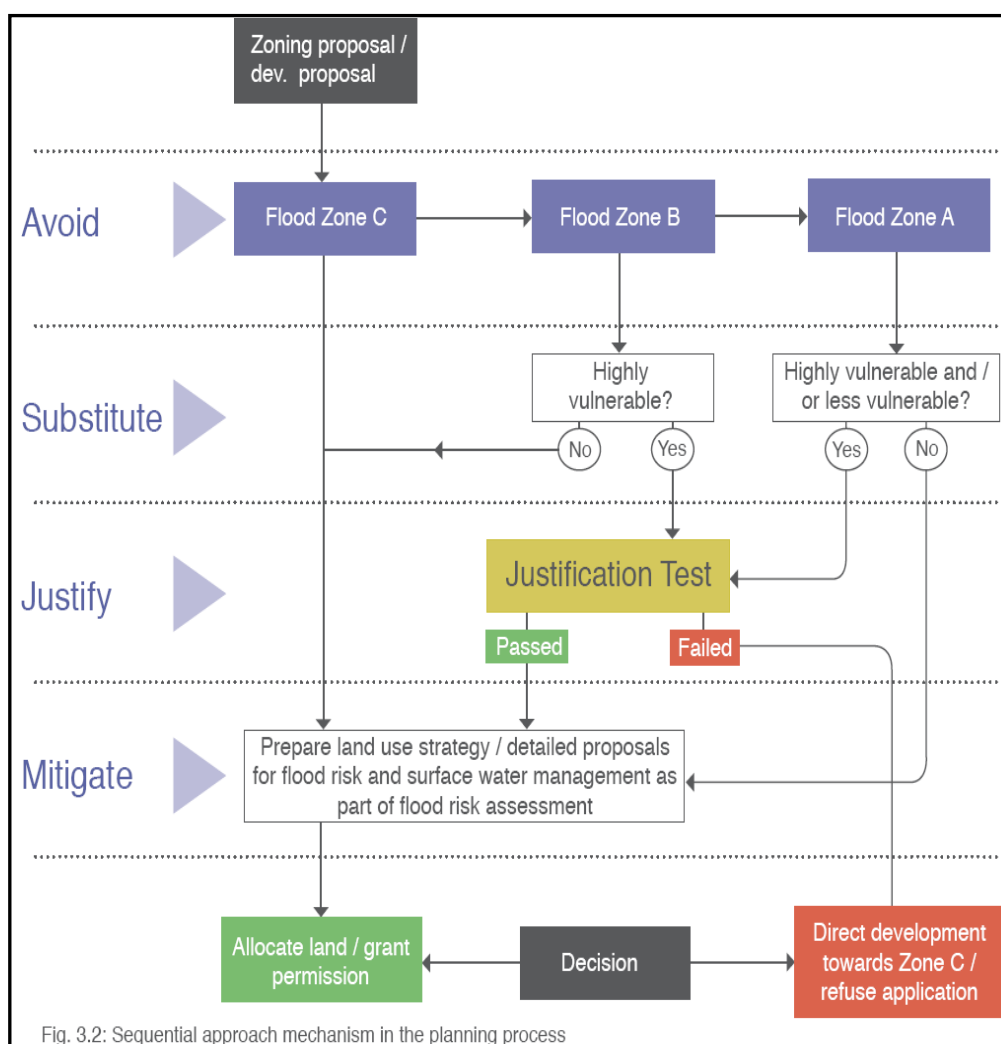


Figure 2.2 – Extract of Figure 3.2 of the FRM Guidelines

According to the FRM Guidelines, Flood Zones are graphical areas within which the likelihood of flooding is in a particular range. They are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning. There are three Flood Zones, namely,

- **Flood Zone A** – where the probability of flooding from rivers and the sea is highest (greater than 1% AEP or 1 in 100 year for river flooding or 0.5% or 1 in 200 for coastal flooding);
- **Flood Zone B** – where the probability of flooding from rivers and the sea is moderate (between 0.1% AEP or 1 in 1000 year and 1% AEP or 1 in 100 year for river flooding and between 0.1% AEP or 1 in 1000 year and 0.5% AEP or 1 in 200 year for coastal flooding); and
- **Flood Zone C** – where the probability of flooding from rivers and the sea is low (less than 0.1% AEP or 1 in 1000 for both river and coastal flooding).

Flood Zones A, B and C are based on the current assessment of the 1% AEP and the 0.1% AEP fluvial events and the 0.5% AEP and 0.1% AEP tidal events, without the inclusion of climate change

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore, Ballincollig, Cork

factors. Table 3.1 of the FRM Guidelines (see below) shows the classification of the vulnerability to flooding of different types of development.

Vulnerability class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry; Waste treatment (except landfill and hazardous waste); Mineral working and processing; and Local transport infrastructure.
Water-compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
*Uses not listed here should be considered on their own merits	

Table 3.1 Classification of vulnerability of different types of development

Figure 2.3 – Extract of Table 3.1 of the FRM Guidelines

Table 3.2 of the FRM Guidelines (shown below) identifies the types of development that would be appropriate for each Flood Zone and those that would be required to meet the Justification Test. Since dwelling houses are classified as 'Highly vulnerable development' the section highlighted in Table 3.2 presents the required actions for each flood zone.

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore, Ballincollig, Cork

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

Table 3.2: Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test.

Figure 2.4 – Extract of Table 3.2 of the FRM Guidelines

The FRM Guidelines (Chapter 2) outlines the following three stages of flood risk assessment:

- Stage 1: Flood risk identification – to identify whether there may be any flooding or surface water management issues relating to the proposed development site that may warrant further investigations.
- Stage 2: Initial flood risk assessment – to confirm sources of flooding that may affect the proposed development site, to appraise the adequacy of existing information and to determine what surveys and modelling approach is appropriate to match the spatial resolution required and complexity of the flood risk issues. This stage involves the review of existing studies and hydraulic modelling to assess flood risk and to assist with the development of FRM measures.
- 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, of its potential impacts on flood risk elsewhere and of the effectiveness of any proposed mitigation measures. This will typically involve use of an existing or construction of a hydraulic model across a wide enough area to appreciate the catchment wide impacts and hydrological process involved.

2.2 Data Collection

Data required for the flood risk assessment was obtained from various sources, as described below.

- The historic flood data was obtained from the National Flood Hazard Mapping website www.floodmaps.ie;
- The Subsoil and Aquifer vulnerability data was obtained from the Geological Survey of Ireland website www.gsi.ie;
- National CFRAM Study;
- Greater Dublin Strategic Drainage Study

3 Existing Hydrological Environment

3.1 Relevant Hydrological Features

A review of Historical Ordnance Survey Ireland information (www.osi.ie) was conducted to determine if the OSI 6- inch Maps indicated historic water courses / surface water features within the site. The maps do not indicate any record of a water course within the site. The main hydrological feature of the area is the River Lee to the north of the site. This is located about 350 m from the northern boundary of the site.



Figure 3.1: Hydrological Features of the Area

3.2 Existing Geology and Hydrogeology of the Area

The Geological Survey of Ireland (GSI) website provides information on their public online mapping service at www.gsi.ie on aquifer vulnerability. The map presented in Figure 3.2 depicts the aquifer vulnerability for the proposed development site.

The interactive web-mapping site classifies the aquifer vulnerability in this region as having a high vulnerability rating. The GSI state that “Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities”. The GSI further describes that the vulnerability of groundwater depends on:

- The time of travel of infiltrating water (and contaminants);
- The relative quantity of contaminants that can reach the groundwater; and
- The contaminant attenuation capacity of the geological materials through which the water and contaminants infiltrate

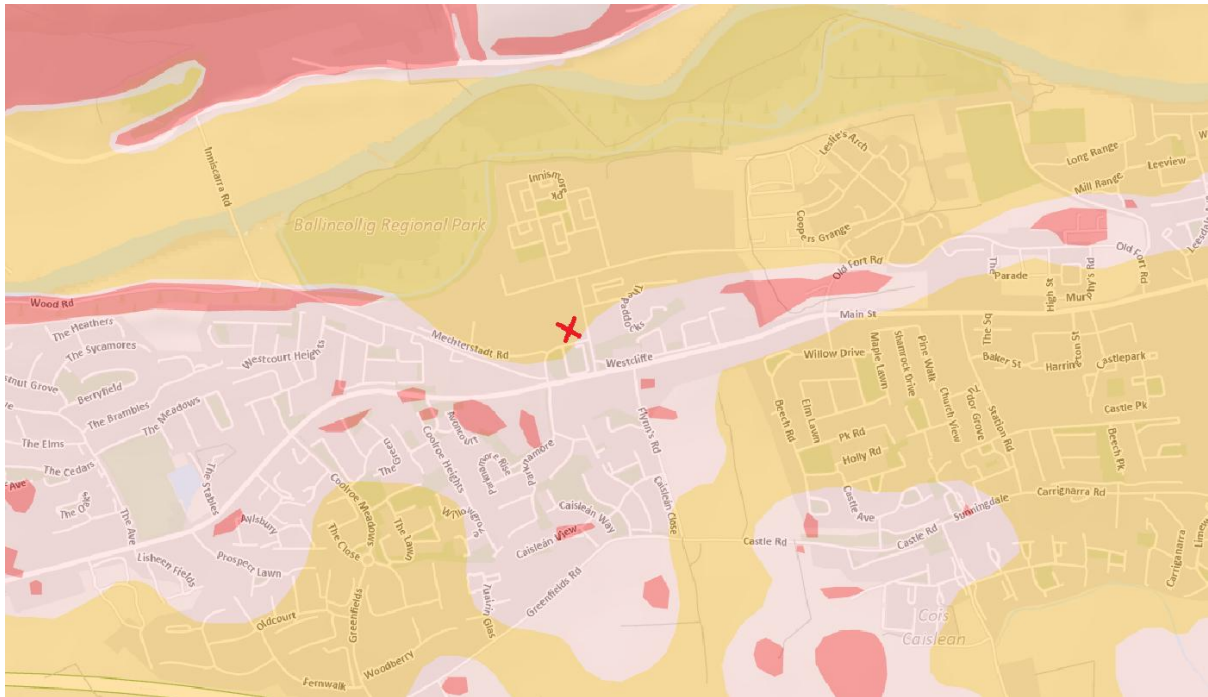


Figure 3.2: GSI Aquifer Vulnerability Mapping of the Area

3.3 Area Flooding

The National Flood Hazard Mapping Website www.floodmaps.ie does not show any records of historic flooding occurring at the proposed development site, as shown in figure 3.4. As a result, the risk of flooding to the residential development is minimal. The subject site is not contained within any existing available CFRAM maps or Cork city council Flood maps.

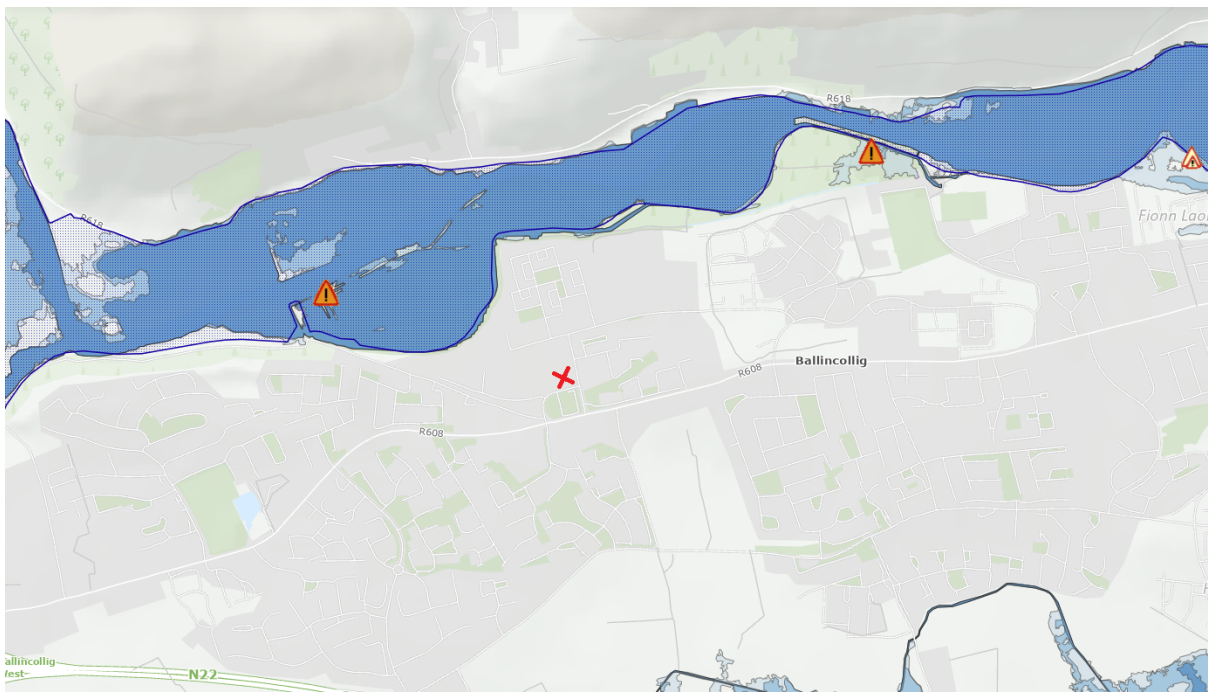


Figure 3.3- Floodmaps.ie Map

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore, Ballincollig, Cork

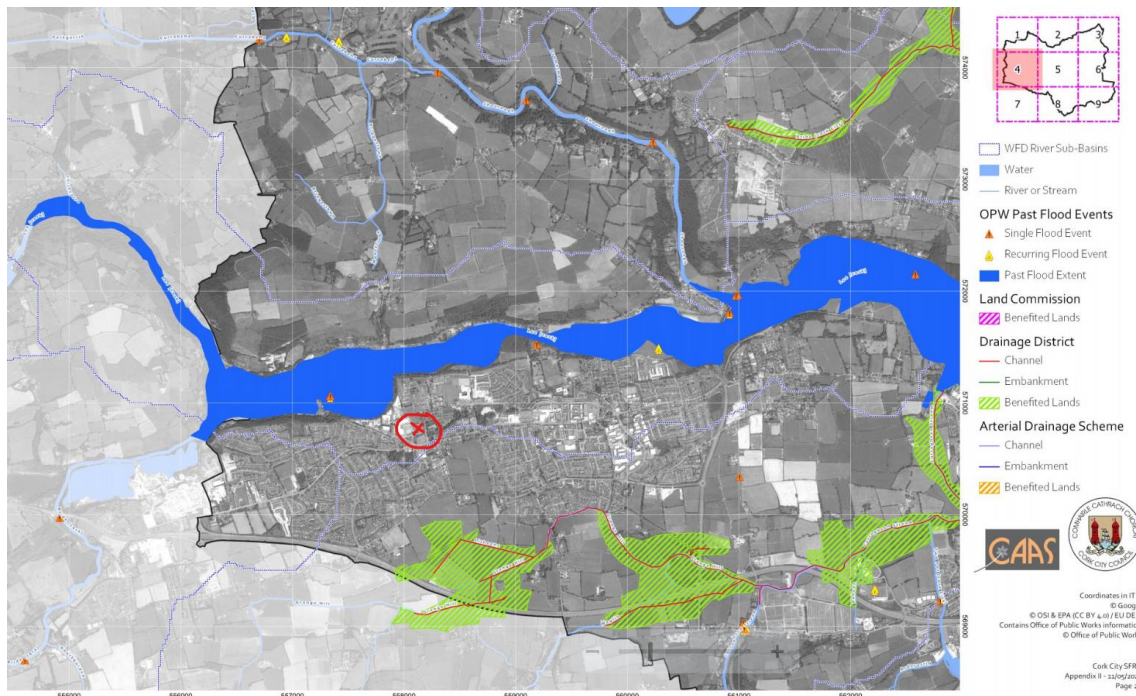


Figure 3.4 Flood Mapping - Appendix II Flood Risk Assessment Cork city council

4 Flood Risk Assessment

4.1 Introduction

As outlined in Section 2 of this report the FRM guidelines identifies three stages of Flood Risk Assessment namely;

- Stage 1: Flood Risk Identification
- Stage 2: Initial Flood Risk Assessment
- Stage 3: Detailed Flood Risk Assessment

4.2 Flood Risk Identification

According to the FRM Guidelines, flood risk identification is the process for deciding whether a plan or project requires further investigation. This is a desk-based exercise based on existing information. All the existing information is described in Section 3 and the identification of flood risk from each of the five sources of flooding (coastal, fluvial (river), groundwater, pluvial (rainfall) and from artificial drainage systems) is considered.

4.2.1 Fluvial Flood Risk

The available Flood Map database indicate that the proposed development site lies outside of the 0.1% AEP fluvial flood event and hence is located within Flood Zone C for fluvial flood risk, where the risk of flooding is low.

4.2.2 Groundwater Flood Risk

The aquifer vulnerability map (refer to Figure 3.2) classifies the site as having high vulnerability and there is no historical evidence of groundwater flooding at the site. There is no indication on the maps of any springs or wells on this site. Groundwater risk is therefore not considered to be significant.

4.2.3 Pluvial Flood Risk

The Flood Maps data shows no indication of previous pluvial related flooding at the site. During extreme rainfall events the application of SuDS principles will ensure surface water is managed sufficiently and sustainably discharged to the drainage network in accordance with the GDSDS. With these mitigation measures in place pluvial flood risk is not considered to be significant.

4.3 Initial Flood Risk Assessment

The Flood Risk Assessment has identified that there is a low flood risk to the site. Under the sequential approach identified in the FRM Guidelines a three-step approach is required to confirm the appropriateness of the development in terms of flood risk.

Step 1: Identification of the Flood Zone at the proposed development site

Using the Flood Zone criteria from the FRM Guidelines and as defined in previously, the flood zones for the site were determined.

- **Flood Zone A** – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100-year for river flooding or 0.5% or 1 in 200 for coastal flooding);
- **Flood Zone B** – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 year and 1% or 1 in 100-year for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200-year for coastal flooding); and
- **Flood Zone C** – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000-year for both river and coastal flooding).

As discussed previously, the proposed development site lies within **Flood Zone C** – where risk of flooding is lowest.

Step 2: Identification of the vulnerability of the type of the proposed development (Table 3.1 of the FRM Guidelines)

The different types of proposed infrastructure are then assigned a vulnerability classification according to the definitions in 'Table 3.1 – Classification of vulnerability of different types of development' of the FRM Guidelines. As described in Section 1.2 above, the proposed development is dwelling houses. This is classified as 'highly vulnerable development'.

Step 3: Using the matrix of vulnerability versus Flood Zone (Table 3.2 of the FRM Guidelines), identify the necessity for the justification test for the proposed development

The proposed development site is located in Flood Zone C and is categorized as Highly Vulnerable Development. Table 3.2 of the FRM guidelines and Figure 3.3 – Sequential approach mechanism in the planning process (FRM guidelines) stipulate that a justification test is not required for such a

development and is deemed appropriate development for the flood zone categories. Table 4.3 below highlights the matrix of vulnerability versus flood zone.

	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate

Table 3.2: Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test.

Table 4.3: Matrix of Vulnerability versus Flood Zone to illustrate appropriate development

5 Conclusions

5.1 Summary of Results

A flood risk assessment for the proposed residential development at Innishmore, Ballincollig, Cork has been undertaken in accordance with the methodology recommended in the FRM Guidelines.

The site including all proposed residential dwellings is located in Flood Zone C as defined by the requirements of “The Planning System and Flood Risk Management, Guidelines for Planning Authorities” and its Technical Appendices.

Following from Stage 2 – Initial Flood Risk Assessment, it was determined that there is no requirement to undertake a detailed flood risk assessment on the proposed development. The vulnerability matrix as shown in Figure 4.3 identifies that there is no need for a Justification Test to be undertaken.

It is concluded that:

- Proposed residential development is appropriate for the site’s flood zone category.
- The sequential approach outlined in Planning System and Flood Risk Management Guidelines has been adhered to.
- The proposed development will not increase run-off rates when compared with the existing site and satisfies the requirement of the SSFRA to not increase flooding.

In conclusion, the proposed development is considered to have a minimal risk of flooding and to have the required level of flood protection up to and including the 1% AEP storm event.

