Flood Risk Assessment

Proposed Residential Development, Brookfield Road, Fettercairn, Tallaght, Dublin 24

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Waterman Moylan Consulting Engineers Limited
Block S, Eastpoint Business Park, Alfie Byrne Road, Dublin 3
www.watermangroup.com

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Issue	Date	Prepared by	Checked by	Approved by
No. 1	Nov 23	J Burger	I Worrell	IAn Worrell

Comments

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1. Introduction

1.1 Background

This report has been prepared by Waterman Moylan, on behalf of South Dublin County Council, as part of a S179A planning submission to South Dublin County Council, for the proposed 16-unit residential development on a site located at, Brookfield Road, Fettercairn, Tallaght, Dublin 24.

The proposal includes two new Social Housing apartment blocks, separated by a new entrance road and gate to the Brookfield Enterprise Centre and grouped around a communal garden space.

Block 1 is three storeys consisting of 11 separate apartments units with own-door access. Block is two storeys with a three-storey corner pop-up, consisting of 5 separate apartment units with own-door access.

Each unit is provided with a private front entrance along street boundaries and private bin storage. The ground floor units have private back garden space and private open space for the first floor and second floor apartments are provided with balcony spaces, designed in accordance with DHPLG guidelines. Private terrace spaces vary throughout – recessed terraces featuring in both blocks of the scheme.

This Flood Risk Assessment has been carried out in accordance with the DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management published in November 2009. This Assessment identifies and sets out possible mitigation measures against potential risks of flooding from various sources. Sources of possible flooding include coastal, fluvial (rivers), pluvial (direct heavy rain), and groundwater.

This report provides an assessment of the subject site for flood risk purposes only.

1.2 Site Description & Proposed Development

The site is located along Brookfield Road, Fettercairn, Tallaght, Dublin 24. The site is surrounded by various elements including Brookfield Road, an open green space and private houses to the west; the junction of Brookfield Road and Rossfield Avenue as well as residential apartments to the North; Brookfield Health Centre and Brookfield Enterprise Centre and Pharmacy to the South; and additional private residences to the East.

The subject site is currently in a brownfield state, consisting of an existing building, access road, hardstanding, footpaths and unsurfaced natural planted areas (mostly overgrown).

The existing site topography has a continuous gradient of approximately 1:50 from the southeastern corner of the site to the northwestern boundary. The highest existing level on the site is approximately 108.144m OD Malin, which is found along the southern boundary whilst the lowest existing level is 106.676m OD Malin along the northern boundary of Rossfield Avenue.

The approximate coordinates for the centroid of the site are N53°17’19’’ W06°24’13’’. Figure 1-1 shows the general site location of the proposed development.

The proposed overall development plan for the land holding consists of 16 no. residential units on approximately 0.2365 Hectares. The access to the proposed units will be off the exiting junction and access road which bisects the site off of Rossflied Avenue.

The proposal includes the provision of car parking, private open spaces with associated landscaping, boundary treatments, an entrance road, water supply, foul water drainage, surface water drainage and all associated site works.

Figure 1-1: Site Location Map

2. Flood Risk

2.1 Introduction

The flood risk assessment of a development should be carried out in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (2009), published by the Department of Environment, Heritage and Local Government in conjunction with the Office of Public Works (EHLG/OPW). This document will be referred to as the 'Guidelines (EHLG/OPW)' in this report.

The types of possible flooding to be considered in the identification and assessment of flood risk are described in Chapter 2 of the Guidelines (EHLG/OPW) and are summarised below:

- Coastal – flooding from higher sea levels than normal
- Fluvial – flooding from watercourses
- Pluvial – flooding from heavy rainfall/surface water
- Ground Water – flooding from springs / raised groundwater
- Human/mechanical error – flooding due to human or mechanical error

Each type of potential flooding will be investigated from a Source, Pathway and Receptor perspective, followed by an assessment of the likelihood of a flood occurring, and the possible consequences. An illustration of this model can be seen in Figure 2-1, taken directly from the Guidelines (EHLF/OPW).

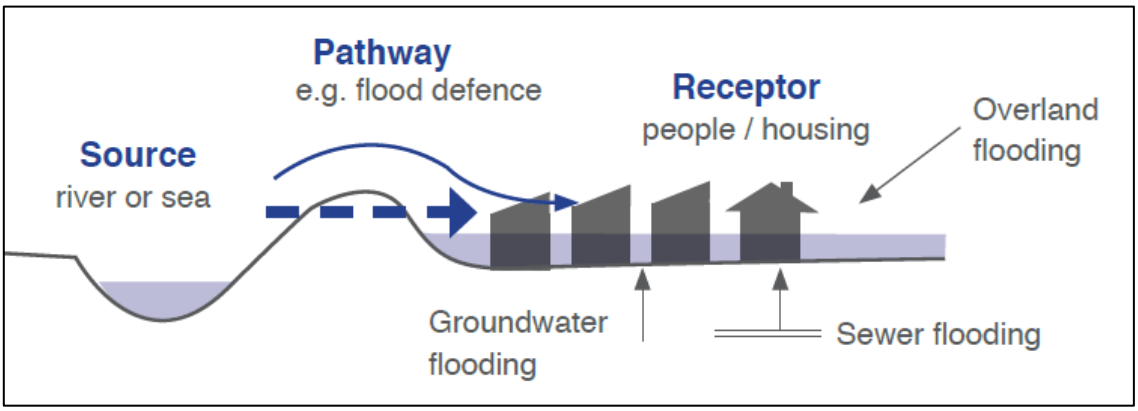


Figure 2-1: Source-Pathway-Receptor S-P-R Model

A flood risk assessment combines these above components and maps or describes the risks on a spatial scale so that the consequences can then be analysed.

The likelihood and the consequences of flooding (overall risk) falls into three categories; low, moderate and high, as described in the Guidelines (EHLF/OPW) and set out in Table 1.

The ultimate aim of a flood risk assessment is to establish the risk of flooding for a subject site, this can be assessed using two components, summarised below:

Flood Risk = Likelihood of flooding X Consequences of flooding

2.1.1 Assessing Likelihood

The likelihood of flooding falls into the categories of low, moderate and high, which are described in the Guidelines (EHLF/OPW) as follows:

Table 1: Guidelines for Assessing Likelihood

LIKELIHOOD	LOW	MODERATE	HIGH
Coastal	Probability < 0.1%	0.5% > probability > 0.1%	Probability > 0.5%
Fluvial	Probability < 0.1%	1.0% > probability > 0.1%	Probability > 1.0%
Pluvial	Probability < 0.1%	1.0% > probability > 0.1%	Probability > 1.0%

Note: Probability denotes the likelihood of occurrence in a given year.

For groundwater flooding and flooding from human/mechanical error, the limits of probability are not defined and therefore professional judgment is used. However, the likelihood of flooding is still categorised as low, moderate and high for these components.

2.1.2 Assessing Consequence

There is no defined method used to quantify a value for the consequences of a flooding event. Therefore, in order to determine a value for the consequences of a flooding event, the elements likely to be adversely affected by such flooding will be assessed, with the likely damage being stated, and professional judgment will be used to determine a value for consequences. Consequences will also be categorized as low, moderate, and high.

2.1.3 Assessing Risk

Based on the determined 'likelihood' and 'consequences' values of a flood event and the above equation of Flood Risk = Likelihood of flooding X Consequences of flooding, the 3x3 Risk Matrix seen in Table 2 will then be used to determine the overall risk of a flood event.

Table 2: 3x3 Risk Matrix

		CONSEQUENCES		
		LOW	MODERATE	HIGH
LIKELIHOOD	LOW	Extremely Low Risk	Low Risk	Moderate Risk
	MODERATE	Low Risk	Moderate Risk	High Risk
	HIGH	Moderate Risk	High Risk	Extremely High Risk

2.2 Flood Zones

Flood zones are used to identify the likelihood, and therefore vulnerability, of flooding in a particular area. The zones are geographical areas with associated ranges of the likelihood of flooding and are essential in

the creation of flood risk management plans. According to the Guidelines (DEHLG/OPW) flood zones can be categorised into 3 types or levels of flood zones, namely:

Table 3: Flood Zone Types according to the Guidelines (DEHLF/OPW)

Type	Description	Probability of flooding
Zone A	Where the probability of flooding from rivers and the sea is highest	Less than 1% (1:100 year) for fluvial flooding, or <0.5% (1:200 year) for coastal flooding
Zone B	Where the probability of flooding from rivers and the sea is moderate	Between 0.1% (1:1000 year) & 1% (1:100 year) for fluvial flooding, and 0.1% (1:1000 year) & 0.5% (1:200 year) coastal flooding
Zone C	Where the probability of flooding from rivers and the sea is low	Less than 0.1% (1:1000 year) for both fluvial and coastal flooding

Flood zone maps are used to establish the level of flooding for a site, an example of this can be seen in the indicative map shown in Figure 2-2.

Figure 2-2: Indicative flood zone map extract from the Guidelines (DEHLF/OPW)

2.3 Review of Strategic Flood Risk Assessment (SFRA) for South Dublin County Council Council Development Plan 2022 – 2028

The subject site is located within the High Vulnerability Zonings identified as Jobstown – Killinarden, as extracted below. It is noted that although the subject site is within the general area of Jobstown, the subject site is not within any of the denoted flood risk zones as identified in the SDCC SFRA and is located in Flood Zone C, refer to Figure 2-3.

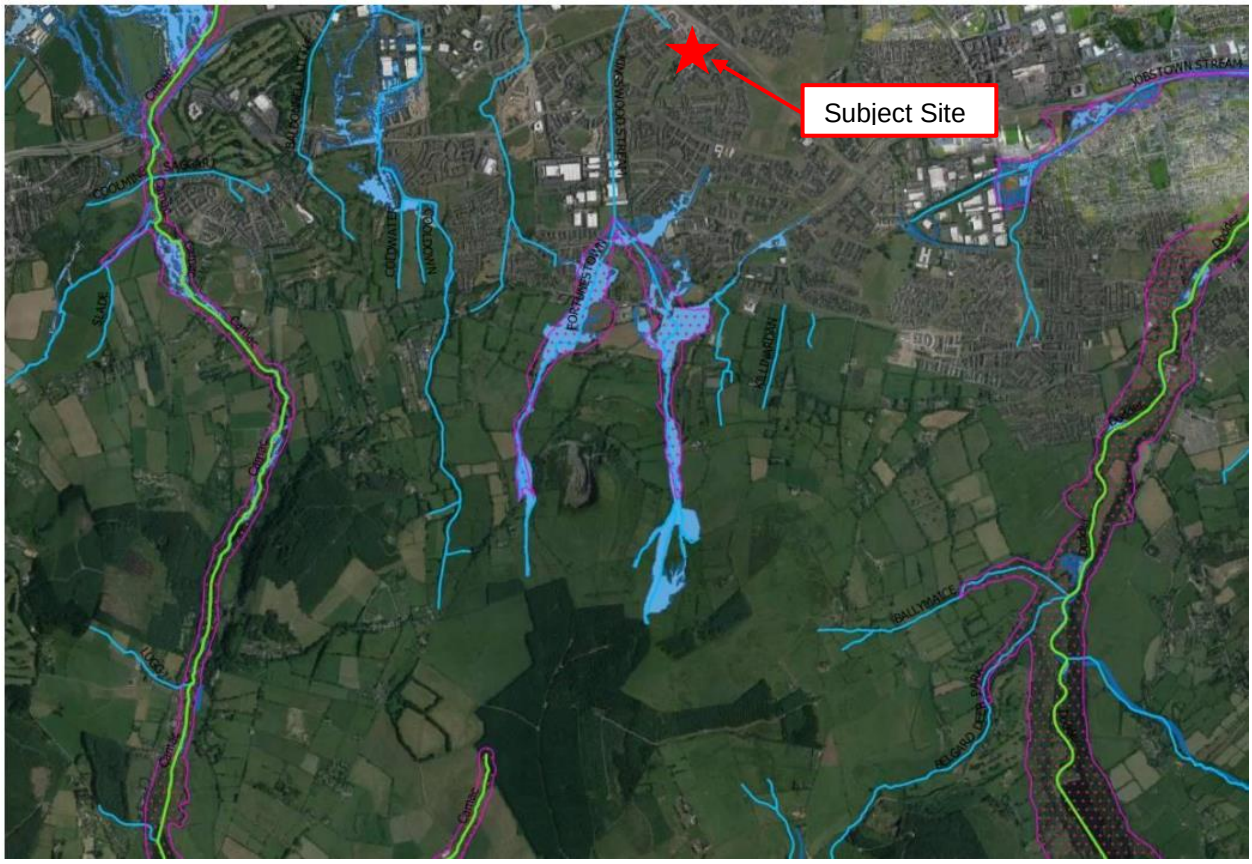


Figure 2-3: Indicated flood risk areas and Riparian Corridors (in pink) for Jobstown – Killinarden – as per the South Dublin County Council Strategic Floord Risk Assessment

Jobstown – Killinarden High Vulnerability Flood Risk Zone is described in the SDCC SFRA as extracted below;

"Fluvial flooding emanating from the Kingswood Stream and its tributaries is indicated in areas south of Blessington Road up until residential areas east and south of Mount Seskin Community College (Belfry Green). Fluvial flooding from the Jobstown Stream is indicated south of Tallaght Bypass and between Whitestown Way and Old Bawn Road. Indicated flooding affects areas currently zoned as "RU – To protect

and improve rural amenity and to provide for the development of agriculture“, “OS – To preserve and provide for open space and recreational amenities“, “EE – To provide for enterprise and employment related uses“, “RES – To protect and/or improve residential amenity“, “HA-DM - To protect and enhance the outstanding natural character and amenity of the Liffey Valley, Dodder Valley and Dublin Mountains areas” and “RES-N – To provide for new residential communities in accordance with approved area plans“.”

2.4 Sequential Approach and Justification Test

2.4.1 Sequential Approach

A sequential approach to planning is a vital tool in ensuring that development, particularly new development, is first and foremost directed towards the land that is at low risk of flooding. Sequential approaches are already established and working effectively in other areas in the plan-making and development management processes. The sequential approach principles are described in Figure 2-5, taken from the Guidelines (DEHLF/OPW). The sequential approach should be applied to all stages of the planning and development management process, particularly the planning stage. The mechanism for the use of the sequential approach can be seen in Figure 2-5.

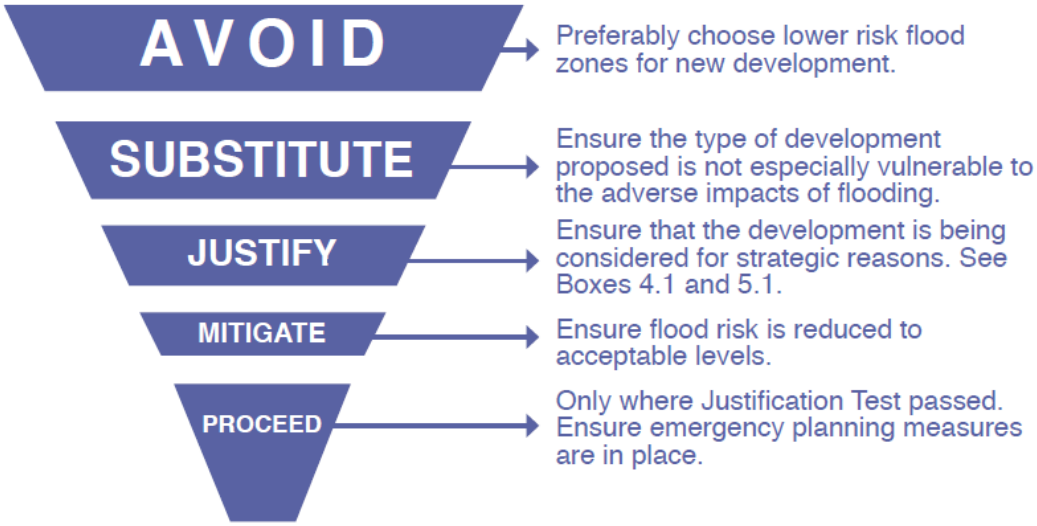


Figure 2-4: Sequential Approach Principles in Flood Risk Management

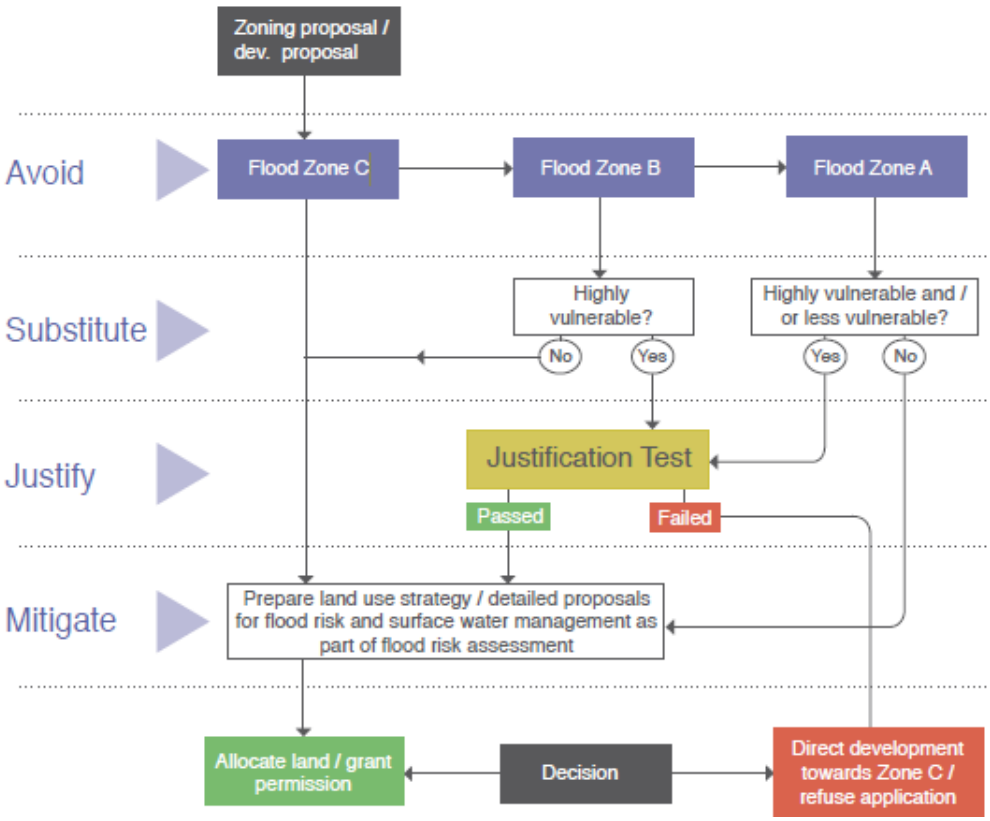


Figure 2-5: Sequential Approach Mechanisms

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

Figure 2-6: Vulnerability Classes

The proposed development at Brookfield Road, Jobstown, Dublin is:

- Classed as a highly vulnerable development;
- Entirely within Flood Zone C: Low Probability of Flooding.

As stated in "The Planning System and Flood Risk Management Guidelines for Planning Authorities" published by the Office of Public Works in November 2009, Justification Tests are required for development in Flood Zone A & B only.

See Table 4, extracted from "The Planning System and Flood Risk Management Guidelines for Planning Authorities" which is the Matrix of vulnerability versus flood zone to illustrate appropriate developments and those that are required to meet the Justification Test.

Table 4: Flood Zone Types according to the Guidelines (DEHLF/OPW)

Type	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water compatible development	Appropriate	Appropriate	Appropriate

The site boundary area is within **Flood Zones C** and the site is classed 'highly vulnerable. Hence, as the site falls within Flood Zones C, a Justification Test is not required.

3. Coastal – Irish Sea

3.1 Source

Coastal flooding is caused by elevated sea levels or overtopping by wave action.

3.2 Pathway

The subject site is approximately 13.8km away from the Irish Sea. The lowest existing ground level on the site is approximately 106.68m OD Malin.

Node North East Point NE23, as per the OPW Coastal Flood Assessment "National Coastal Extreme Water Level Estimation Points (ICWWS 2018 – Phase 1)", indicates a water level of 5.22m OD Malin for the 0.1% H++EFS AEP (1:1000 year flood). The lowest site elevation is approximately 101.46m above the high-end future forecast coastal level. Refer to Figure 3.2 for an extract for the Node North East Point NE23 estimated water levels.

The Dublin Coastal Flooding Protection Project indicated that the 2002 high tide event reached 2.95m OD Malin.

Based on the distance away from the Irish Sea and significant elevation above the Irish Sea, the is effectively no pathway for coastal flooding for the site.

North East Point NE23

Water Level (OD Malin OSGM15 in meters)

	Scenario				
AEP	Present Day	MRFS	HEFS	H+EFS	H++EFS
50%	2.67	3.17	3.67	4.17	4.67
20%	2.75	3.25	3.75	4.25	4.75
10%	2.81	3.31	3.81	4.31	4.81
5%	2.87	3.37	3.87	4.37	4.87
2%	2.95	3.45	3.95	4.45	4.95
1%	3.01	3.51	4.01	4.51	5.01
0.5%	3.07	3.57	4.07	4.57	5.07
0.1%	3.22	3.72	4.22	4.72	5.22

Figure 3-1: National Coastal Extreme Water Level Estimation Points (ICWWS 2018 – Phase 1)

3.3 Receptor

The receptor of potential coastal flooding is the proposed internal access road and residential buildings on the site.

3.4 Likelihood

Based on the distance away from the Irish Sea and significant elevation above the Irish Sea, the is an **low likelihood** of coastal flooding on the subject site.

3.5 Consequence

Should the flood level exceed 106.8m OD Malin within the subject site, then flooding of the proposed residential buildings will occur which will cause damage to buildings, loss of amenities and risk the health of any residents on the site during the flooding event.

Based on the distance away from the Irish Sea and significant elevation above the Irish Sea, the consequence of flooding above the 1:1000-year flood level is considered to be **low**.

3.6 Risk

Taking the flood risk equation from the Guidelines (FLOOD RISK = LIKELIHOOD OF FLOODING x CONSEQUENCES OF FLOODING), there is an **extremely low risk** anticipated to the proposed site as a whole with regards to coastal flooding.

3.7 Flood Risk Management

Due to the extremely low risk of coastal flooding, no flood risk management is required for the site.

3.8 Residual Risk

There is an **extremely low** residual risk of flooding from potential coastal flooding.

4. Fluvial

4.1 Source

Fluvial flooding is caused by rivers, watercourses or ditches exceeding their capacity and excess water spilling out onto the adjacent floodplain.

4.2 Pathway

There are no existing ditches or rivers within the immediate vicinity of the subject site as the site is located within a well-developed urban area.

The closest fluvial watercourse and potential fluvial pathway is the drainage line indicated on the SDCC SFRA and EPA Maps GIS 190m to the northeast of the subject site, within the Sheely Skeffington Meadows development, as indicated in Figure 4-1.

The proposed finished floor levels for the development will be set to 4.75m OD Malin and will be accessed from the central dividing access road with levels varying from 106.880m at the northern end of the site, connecting into Rossfield Avenue, to 107.639m at the high point to the south of the site.

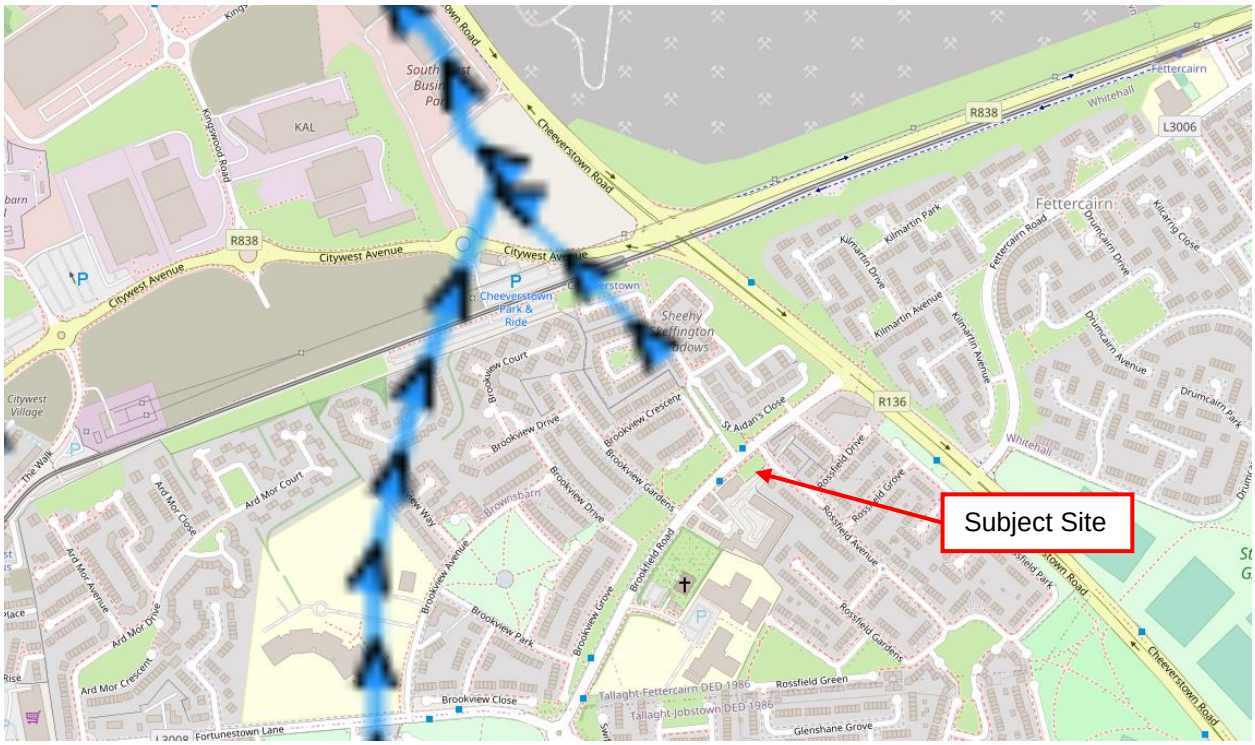


Figure 4-1: Closest Fluvial Watercourse, taken from EPA maps

4.3 Receptor

The receptor of potential fluvial flooding is the proposed access road and higher-seated residential buildings on the site.

4.4 Likelihood

The OPW fluvial flood info website has no dedicated fluvial flood map for this area. According to the fluvial flood plains on Floodinfo.ie, the subject site is entirely within Flood Zone C, as per Figure 4-2.

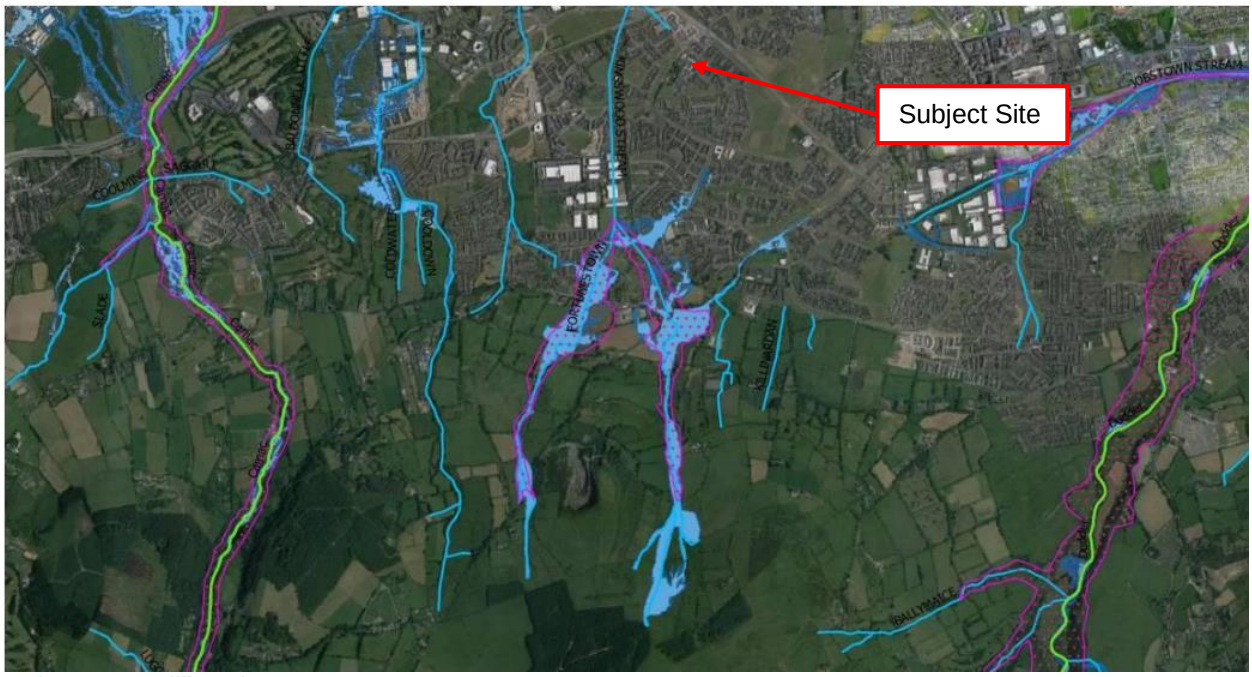
.

Figure 4-2: OPW CFRAM Fluvial Floodmap Extract - showing High-Level River and Fluvial flood estimations.

The South Dublin County Council Strategic Flood Risk Assessment indicates that the entire subject site is outside of potential fluvial flooding and therefore within Flood Zone C. Refer to Figure 4-3 for the SDCC SFRA Floodmap Extract - Indicating flood risk areas for Jobstown – Killinarden.

The likelihood of fluvial flooding potentially impacting the proposed finished floor levels set at 4.75m OD Malin is considered to be **low**.

Figure 4-3: SDCC SFRA Floodmap Extract - Indicating flood risk areas and Riparian Corridors (in pink) for



Jobstown – Killinarden

4.5 Consequence

Should the flood level exceed 106.68m OD Malin level, then flooding of the access road will occur which may cause damage to roads, restriction of site access, loss of amenities and risk the health of any residents on the site during the flooding event.

Should the flood level exceed 4.75m OD Malin level within the subject site, then flooding of the proposed residential buildings will occur which may cause damage to buildings, loss of amenities and risk the health of any residents on the site during the flooding event.

The entire site is located outside of all potential fluvial flooding as per the OPW and SDCC SFRA fluvial flood mapping, therefore the the site is within Flood Zone C and has a **low** consequence of fluvial flooding.

4.6 Risk

Taking the flood risk equation from the Guidelines (FLOOD RISK = LIKELIHOOD OF FLOODING x CONSEQUENCES OF FLOODING), the resulting risk is considered to be **extremely low**.

4.7 Flood Risk Management

Due to the low risk of fluvial flooding, no flood risk management is required for the site.

4.8 Residual Risk

There is an **extremely low** residual risk of flooding from potential fluvial flooding.

5. Pluvial

5.1 Source

The source of pluvial flooding is from heavy rainfall.

5.2 Pathways & Receptors

During periods of extreme prolonged rainfall, pluvial flooding may occur through the following pathways:

Table 5: Pluvial Pathway and Receptor Summary

	Pathway	Receptor
1	Surcharging of the proposed internal drainage systems during heavy rain events leading to internal flooding	Proposed development – properties and roads
2	Surcharging from the existing surrounding drainage system leading to flooding within the subject site by surcharging surface water pipes	Proposed development – properties and roads
3	Surface water discharging from the subject site to the existing drainage network leading to downstream flooding	Downstream properties and roads
4	Overland flooding from surrounding areas flowing onto the subject site	Proposed development – properties and roads
5	Overland flooding from the subject site flowing onto surrounding areas	Downstream properties and roads

It is proposed to discharge surface water from the proposed site at a restricted rate into the existing 450mm diameter surface water sewer to the south of the subject site.

5.3 Likelihood

5.3.1 Surcharging of the proposed internal drainage systems during heavy rain events leading to internal flooding:

The proposed on-site surface water drainage network has been designed to accommodate flows from a 1:5-year return event. The proposed drainage system may surcharge during rainfall events with a return period in excess of 5 years. All drainage and flood risk calculations include a 20% climate change allowance in accordance with South Dublin County Council Requirements. The SUDS storage volume onsite is such that there is sufficient attenuation storage volume within the SUDS mechanisms to prevent onsite flooding.

The likelihood of surcharging of the proposed internal drainage systems during heavy rain events leading to internal flooding is considered to be **low** for the proposed dwellings.

5.3.2 Surcharging from the existing surrounding drainage system leading to flooding within the subject site by surcharging surface water pipes:

There are no recorded instances of flooding on the subject site as a result of onsite flooding or from the immediate surrounding area. The proposed drainage design and SUDS measures will reduce the current

runoff from the site to greenfield conditions and therefore reduce the current pressures on the existing receiving drainage network, reducing the current pressure on the existing surface water network.

The likelihood of surcharging from the existing surrounding drainage system leading to flooding within the subject site by surcharging surface water pipes is therefore considered to be **low**.

5.3.3 Surface water discharging from the subject site to the existing drainage network leading to downstream flooding:

The site is currently brownfield with approximately 62% of the site being hardstanding. The proposed development will increase the hardstanding to 88%, however, 44% of the proposed development will be covered with SUDS features (including the future green roof).

The proposed surface water and SUDS design shall restrict the post-development runoff to the greenfields runoff rate for the proposed development which will reduce the current brownfields surface water runoff rate. Where the proposed drainage system shall reduce the current surface water discharge, the potential resultant downstream flooding will be decreased.

The proposed SUDS strategy includes green roofs, permeable paving parking, permeable paving in private hardstanding areas, bio-retention tree pits, bio-retention rain gardens and a filter strip. The proposed SUDS interventions will reduce the run-off from the site, with priority given to infiltration and groundwater recharge, subject to the findings of a detailed ground investigation.

The likelihood of surface water discharging from the subject site to the existing drainage network leading to downstream flooding is **low**.

5.3.4 Overland flooding from surrounding areas flowing onto the subject site:

The OPW past flood event local area summary report identifies all flood events within the immediate vicinity of the subject site, refer to Figure 5-1 for an extract of this information. The detailed report provided by OPW can be seen in Appendix D.

There are several past flood events within a 2km radius of the subject site, 3 no. of which are reoccurring. It is therefore considered that there is a **moderate** likelihood of overland flooding from surrounding areas flowing onto the subject site.

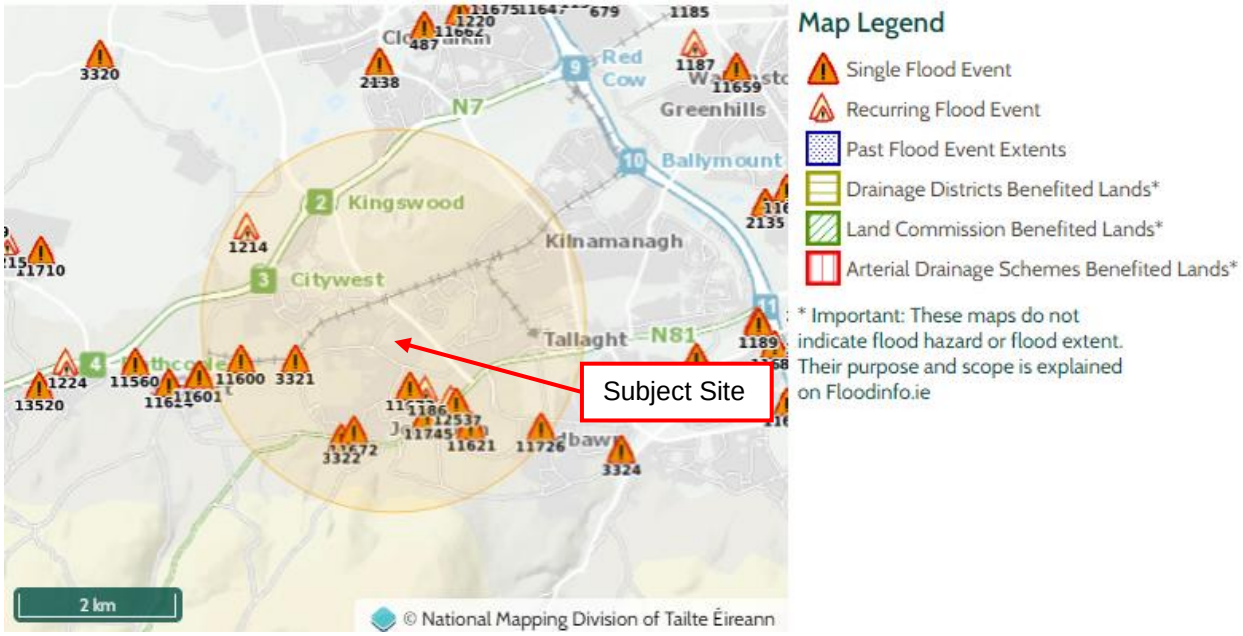


Figure 5-1: Overland Flooding from the surrounding areas

5.3.5 Overland flooding from the subject site flowing onto surrounding areas:

The site is currently brownfield with approximately 62% of the site being hardstanding. The proposed development will increase the hardstanding to 88%, however, 44% of the proposed development will be covered with SUDS features (including the future green roof).

The current site has an overland flow path designed into the surrounding road network which shall be maintained in the proposed development.

The proposed drainage system and SUDS measures cater for the 1:100-year storm including an additional 20% for climate change. Where the proposed development will discharge surface water at a lower rate than the existing brownfield development, the likelihood of flooding the surrounding area is lower than the current brownfield development. The likelihood of overland flooding from the subject site flowing onto and impacting the surrounding areas is considered to be **low**.

5.4 Consequence

Given the brownfield nature of the current site and the proposed reduction in surface water discharging from the proposed development, the consequence of surface water flooding arising from the 5 pathway types is considered **low**.

5.5 Risk:

5.5.1 Surcharging of the proposed internal drainage systems during heavy rain events leading to internal flooding:

With a low likelihood and low consequence of flooding the site from surcharging the on-site drainage system causing flooding for the proposed dwellings, the resultant risk is **extremely low**.

5.5.2 Surcharging from the existing surrounding drainage system leading to flooding within the subject site by surcharging surface water pipes:

With a low likelihood and low consequence of flooding the site from the existing surrounding surface water network, the resultant risk is **extremely low**.

5.5.3 Surface water discharging from the subject site to the existing drainage network leading to downstream flooding:

With a low likelihood and low consequence of flooding downstream of the site due to excess discharge surface water from the site, the resultant risk is **extremely low**.

5.5.4 Overland flooding from surrounding areas flowing onto the subject site:

With a moderate likelihood and moderate consequence of overland flooding from surrounding areas, the resultant risk is **low**.

5.5.5 Overland flooding from the subject site flowing onto surrounding areas:

With a low likelihood and low consequence of overland flooding from the subject site, the resultant risk is **extremely low**.

5.6 Flood Risk Management

Due to the low risk of fluvial flooding, no flood risk management is required for the site. Pulivia flood-risk management is inherent to the engineering design with the inclusion of SUDS measures, adequate attenuation storage and overland flow paths.

5.7 Residual Risk

There is an **extremely low** residual risk of flooding from potential pluvial flooding.

6. Ground Water

6.1 Source

During periods with prolonged rainfall, the groundwater can rise towards ground level.

6.2 Pathway

Rising groundwater levels could result in groundwater seeping into the ground surface.

6.3 Receptor

The receptors would be the low-lying grounds area and below-ground infrastructure. Where the proposed units are located above the overland flow path of the surrounding roads, there is no pathway to the proposed residential units.

6.4 Likelihood

There is no recorded or known groundwater flooding on the current brownfield site, nor is there a record of groundwater flooding in the surrounding area.

The implementation of below-ground infrastructure will need to be designed in detail in line with the findings of the ground investigation, which will determine the potential location of a groundwater table.

The likelihood of groundwater impacting the proposed development is **low**.

6.5 Consequence

The consequence of groundwater flooding would be some minor temporary seepage of groundwater through the ground around the housing units and landscaped areas. Underground services may also be inundated by high water tables. Therefore, the consequence of groundwater flooding occurring at the proposed development is considered **low**.

6.6 Risk

Referencing Table 2: 3x3 Risk Matrix, with a low likelihood and a moderate consequence, the risk is considered to be **extremely low**.

6.7 Flood Risk Management

Due to the low risk of groundwater flooding, no flood risk management is required for the site. During detailed design, the design engineer will need to review any potential findings related to groundwater in the ground investigation report.

6.8 Residual Risk

There is an **extremely low** residual risk of flooding from groundwater.

7. Human / Mechanical Errors

7.1 Source

The subject lands will be drained by a new proposed stormwater drainage system that discharges into existing stormwater drainage networks. This proposed surface water network is the source of possible flooding from the system if it were to become blocked.

7.2 Pathway

If the proposed drainage system is blocked, this could lead to possible flooding within the pipe network. Should the network flood, the overland flow path will adequately convey flood water safety away from any critical infrastructure, including the proposed and existing residential units.

7.3 Receptor

The receptors are low-lying roads and landscape areas.

7.4 Likelihood

There is a **low** likelihood of flooding on the subject site if the surface water network were to become blocked as there is a suitable overland flow path.

7.5 Consequence

The surface water network would surcharge and overflow through gullies and manhole lids. It is, therefore, considered that the consequences of such flooding are **low**.

7.6 Risk

Referencing Table 2: 3x3 Risk Matrix, with a low likelihood and moderate consequence, there is an **extremely low risk** of surface water overflowing onto the surrounding road network, should the surface water network become blocked.

7.7 Flood Risk Management

The risk of flooding from human/mechanical errors is considered low and thus does not require any further mitigation measures, however, the below is noted:

The levels on-site have been designed such that in the event of the surface water system surcharging, surface water can still escape from the site by overland flood routing without damaging properties. The surface water network would need to be unblocked and maintained should a blockage occur.

7.8 Residual Risk

The residual risk of overland flooding from human/mechanical error is considered to be **extremely low**.

8. Conclusions and Recommendations

The subject lands have been analysed for risks of flooding from coastal flooding, fluvial flooding, pluvial flooding, groundwater and failures of mechanical systems. Through careful design and appropriate mitigation measures, the risks and consequences of flooding have been appropriately mitigated across the development.

The subject site is located with Flood Zone C. The proposed drainage network will reduce the current runoff form the existing brownfield development. Surface water runoff from the site is limited to the subject site's greenfield runoff rate and does not impact developments upstream or downstream of the subject site.

Table 6: Summary of the Flood Risks from the Various Components

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Coastal	None	Proposed Development	Low	Low	Extremely Low	N/A	**Ext. Low**
Fluvial	None	Proposed Development	Low	Low	Extremely Low	N/A	**Ext. Low**
Pluvial	Private and Public Drainage Network	Proposed Development	Low	Low	Extremely Low	N/A	**Ext. Low**
Ground Water	Ground	Proposed Development	Low	Low	Extremely Low	N/A	**Ext. Low**
Human / Mechanical Error	Drainage network	Proposed Development	Low	Low	Extremely Low	N/A	**Ext. Low**

APPENDICES

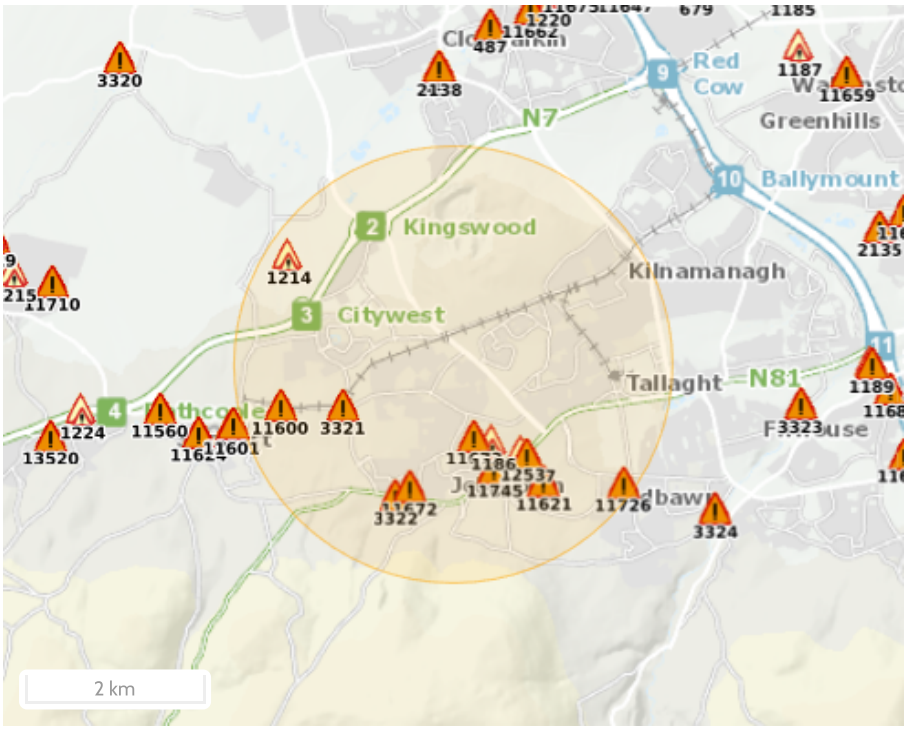
A. PAST FLOOD EVENTS

Past Flood Event Local Area Summary Report

OPW Oifig na nOibreacha Poiblí Office of Public Works

Report Produced: **26/11/2023 16:38**

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



Map Legend

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

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

13 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Jobstown N81 Nov 2000 (ID-3322) **Additional Information:** Reports (1) Press Archive (2)	05/11/2000	Approximate Point
2.	Flooding at Whitestown Way, Tallaght, Dublin 24 on 24th Oct 2011 (ID-11726) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point
3.	Flooding at Blessington Road, Tallaght, Dublin 24 on 1st May 2012 (ID-11745) **Additional Information:** Reports (1) Press Archive (0)	05/01/2012	Exact Point
4.	Fortunestown Lane Nov 2000 (ID-3321) **Additional Information:** Reports (1) Press Archive (0)	06/11/2000	Approximate Point
5.	Flooding at Tallaght on 01/05/2012 (ID-12852) **Additional Information:** Reports (0) Press Archive (0)	01/05/2012	Approximate Point
6.	Killinarden Stream Jobstown recurring (ID-1186) **Additional Information:** Reports (2) Press Archive (1)	n/a	Approximate Point

	Name (Flood_ID)	Start Date	Event Location
7.	 Baldonnell Barneys Lane Recurring (ID-1214) **Additional Information:** Reports (2) Press Archive (0)	n/a	Approximate Point
8.	 Killinarden Stream N81 Jobstown Recurring (ID-1253) **Additional Information:** Reports (1) Press Archive (1)	n/a	Approximate Point
9.	 Flooding at Fortunestown Lane, Citywest, Co. Dublin on 24th Oct 2011 (ID-11600) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Approximate Point
10.	 Flooding at Knockmore, Tallaght, Co. Dublin on 24th Oct 2011 (ID-11621) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Approximate Point
11.	 Flooding at Tallaght Pass, N81, Dublin 24 on 24th Oct 2011 (ID-11657) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point
12.	 Flooding at Belfry Drive/De Selby Park, Dublin 24on 24th Oct 2011 (ID-11672) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point
13.	 Flooding at Bawnlea Crescent and Avenue, Tallaght, Co. Dublin on 24th Oct 2011 (ID-11673) **Additional Information:** Reports (1) Press Archive (0)	23/10/2011	Exact Point

UK and Ireland Office Locations