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41 Watermeadow Park, Old Bawn, Dublin 24

Site Specific Flood Risk Assessment

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Document Control

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1 Introduction

1.1 Background

Coughlan Consulting Engineering have been appointed by Mr. Graham McNevin of McNevin Design to provide Civil & Structural Engineering Services at 41 Watermeadow Park, Old Bawn, Dublin 24.

This report was prepared to accompany a planning application for the proposed development and deals specifically with the flood risk associated with this site. The assessment is carried out in full compliance with the requirements of "The Planning System & Flood Risk Management Guidelines" published by the Department of the Environment, Heritage and Local Government in November 2009.

1.2 Nature of the Proposed Development

The development will consist of the following:

(i) Two-storey, 4 bedroom detached dwelling with vehicular access and 2 off-street, parking spaces and all associated site works at side garden plot.

2 Relevant Guidance

2.1 The Planning System and Flood Risk Management Guidelines

In September 2008, "The Planning System and Flood Risk Management" Guidelines were published by the Department of the Environment, Heritage and Local Government in Draft Format. In November 2009, the adopted version of the document was published.

The Flood Risk Management Guidelines give guidance on flood risk and development. The guidelines recommend a precautionary approach when considering flood risk management in the planning system. The core principle of the guidelines is to adopt a flood risk sequential approach to managing flood risk and to avoid development in areas that are at risk. The sequential approach is based on the identification of flood zones for river and coastal flooding. The guidelines include definitions of Flood Zones A, B and C, as noted in Table 2-1 below. It should be noted that these do not take into account the presence of flood defences, as there remain risks of overtopping and breach of the defences.

Table 2-1: Flood Zone Designation

Flood Zone	Type of Flooding	Annual Exceedance Probability (AEP)
Flood Zone A	Coastal	Less than a 1:200 (0.5% AEP) year event
	Fluvial	Less than a 1:100 (1% AEP) year event
Flood Zone B	Coastal	Greater than a 1:200 (0.5% AEP) and less than a 1:1000 (0.1% AEP) year event
	Fluvial	Greater than a 1:100 (1% AEP) and less than a 1:1000 (0.1% AEP) year event
Flood Zone C	Coastal	Greater than a 1:1000 (0.1% AEP) year event
	Fluvial	Greater than a 1:1000 (0.1% AEP) year event

Once a flood zone has been identified, the guidelines set out the different types of development appropriate to each zone. Exceptions to the restriction of development due to potential flood risks are provided for through the use of the **Justification Test**, where the planning need and the sustainable management of flood risk to an acceptable level must be demonstrated. This recognises that there will be a need for future development in existing towns and urban centres that lie within flood risk zones, and that the avoidance of all future development in these areas would be unsustainable.

A three staged approach to undertaking an FRA is recommended:

Stage 1: Flood Risk Identification - Identification of any issues relating to the site that will require further investigation through a Flood Risk Assessment;

Stage 2: Initial Flood Risk Assessment - Involves establishment of the sources of flooding, the extent of the flood risk, potential impacts of the development and possible mitigation measures;

Stage 3: Detailed Flood Risk Assessment - Assess flood risk issues in sufficient detail to provide quantitative appraisal of potential flood risk of the development, impacts of the flooding elsewhere and the effectiveness of any proposed mitigation measures.

This report addresses the requirements for Stage 1.

3 Flood Risk Identification

3.1 Existing Hydrological Environment

The proposed site is located at 41 Water meadow Park and there are a limited number of hydrological features in the area. The only visible features are the Whitestown Stream, approximately 75m to the north of the site and the Lakes in Sean Walsh Park, approximately 750m to the north east , as shown in Figure 3-1.

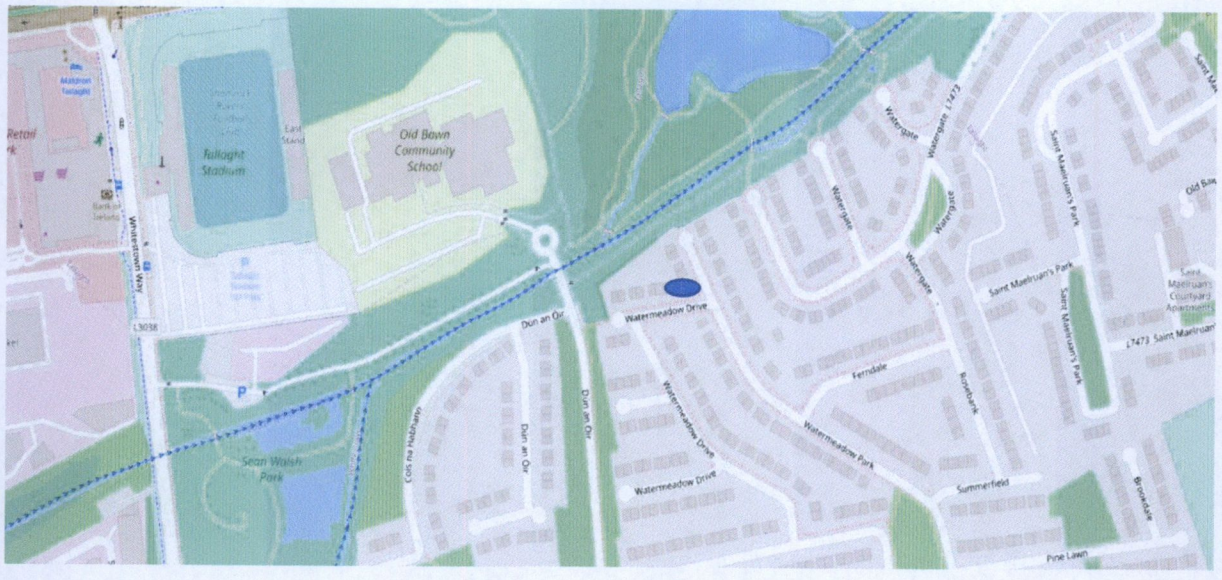

Figure 3-1: Hydrological environment around the site (epa.ie). Site denoted in Blue

3.2 Groundwater Flooding

From a review of data from the Geological Survey of Ireland, it appears that the site is not at risk for groundwater flooding.

3.3 Review of Existing Surface Water Infrastructure

The existing surface water infrastructure in the vicinity of the site is shown in Figure 3-2, below. As can be seen, the sewerage system is predominantly separate foul and surface water.

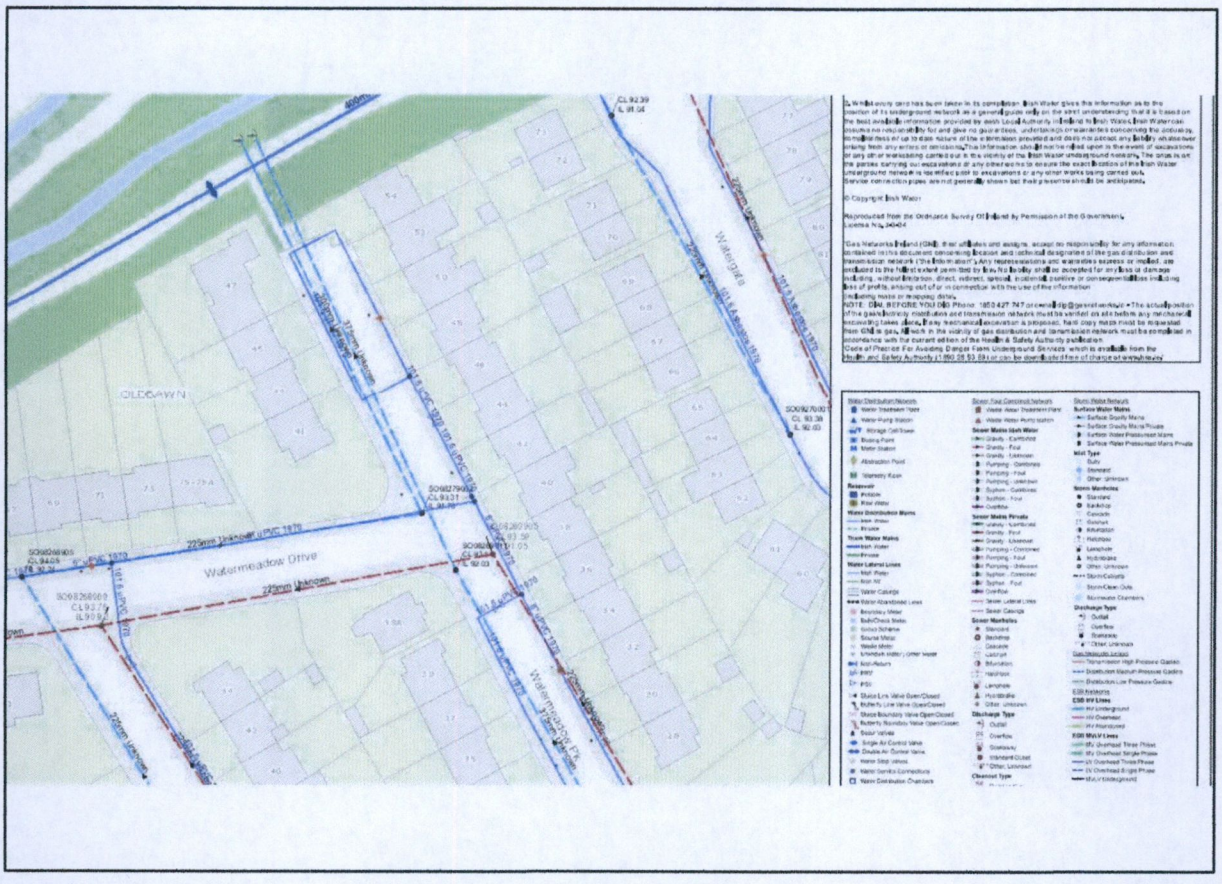

Figure 3-2: Existing Surface Water Infrastructure (© SDCC)

3.4 History Of Flooding

The OPW Flood Hazard Mapping Website is a record of historic flood events. This database does not identify any historic flooding at the site, as shown in 3-4. The nearest recorded historic flood event occurred in 2011 on Whitestown Way, approximately 1200m to the south east of the site. This flood event source was unknown.

Please note that this is not a guaranteed record of all flood events.

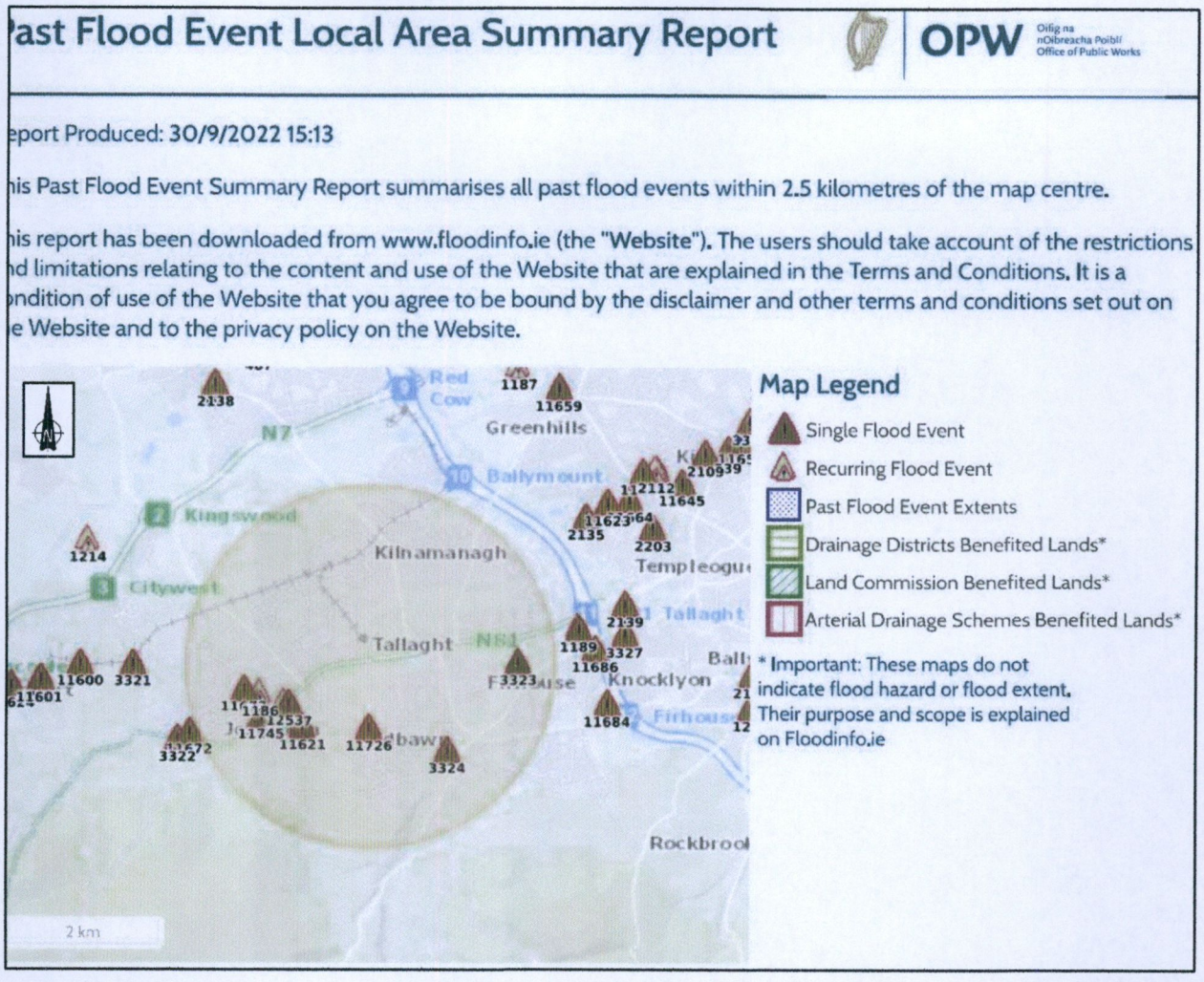

Figure 3-4: OPW Past Flood Event Report (Ref: OPW Flood Maps)

3.5 Catchment Flood Risk Assessment and Management Study (CFRAMS) Mapping

The CFRAMS is an OPW led national programme which seeks to identify and map potential existing and future flood hazard in areas at significant risk from flooding. It also aims to identify flood relief measures and prepare Flood Risk Management Plans for these areas.

The site of the proposed development is located in an area which has been assessed as part of the Eastern CFRAM Study (UoM 09). The OPW has published detailed flood hazard mapping for this area which is available online for public viewing. This includes flood extent and flood depth mapping for a number of return periods for fluvial and coastal flood events.

As shown in Figure 3.5 below, there is no risk associated with fluvial or coastal flooding for this site for the 1:100 year event. The 1:1000 year event shows possible flooding at the site entrance but main site remains above predicted 1:1000 flood levels.

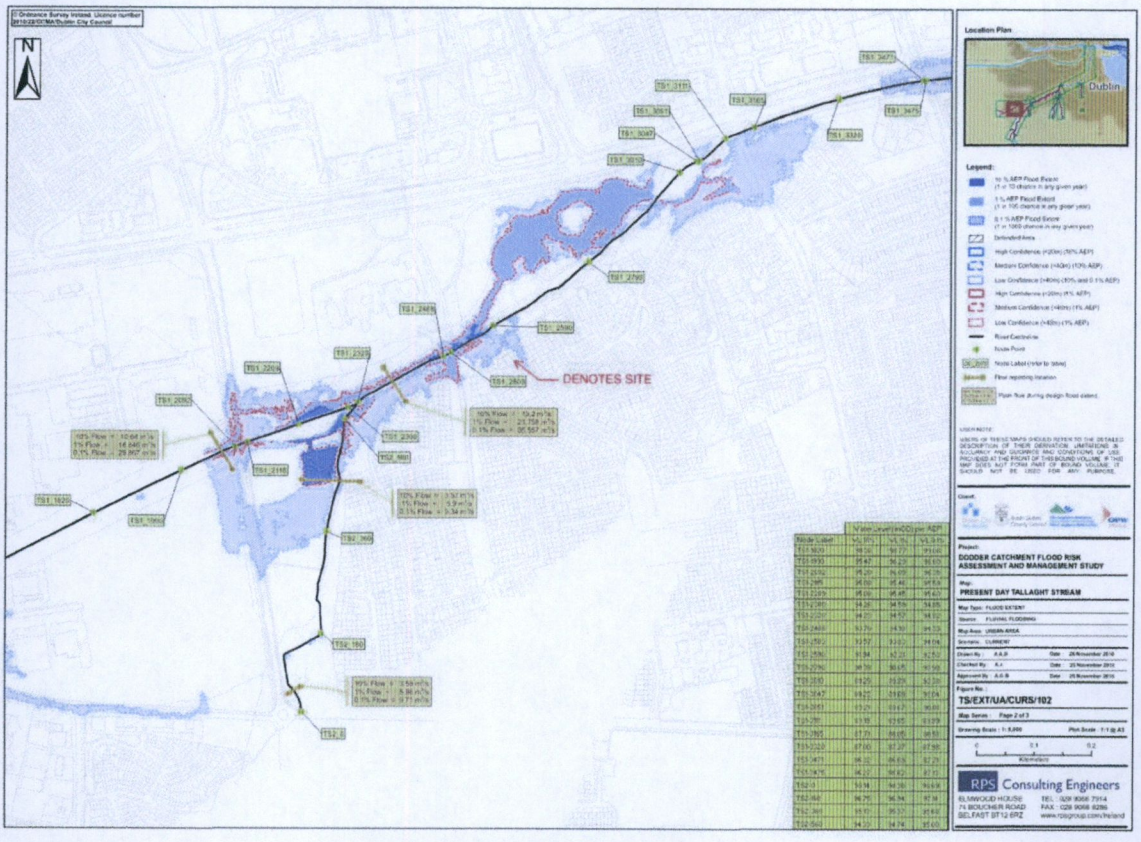

Figure 3-5: CFRAMS Flood Extent Mapping

3.6 Pluvial Flood Risk

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter any watercourse or sewer. It is usually associated with high intensity rainfall. The proposed storm network (as part of this development) has been designed to ensure there is no flood risk to the development from extreme precipitation events. The redevelopment of the site does not adversely affect flooding levels or extents in the area.

3.7 Estimate of Flood Zone

Coughlan Consulting Engineers have reviewed the available information as outlined in the above sections. We have concluded that the site is located in Flood Zone C and is therefore at low risk of flooding.

4 Flood Risk Assessment Conclusions

Coughlan Consulting Engineering were appointed by McNevin Design to carry out a Site-Specific Flood Risk Assessment for the proposed redevelopment of 41 Watermeadow Park, Old Bawn, Dublin 24.

The site has been assessed in accordance with the "The Planning System and Flood Risk Management" Guidelines and South Dublin Council's Development Plan 2016-2022.

As part of the sequential test, the OPW flood hazard maps have been consulted, as have the Catchment Flood Risk Assessment Maps produced by the OPW.

CFRAMS Flood Extent Maps were consulted to establish the Flood Zone. It was determined that the proposed development site is currently located in Flood Zone C for fluvial and coastal flooding. The proposed development is therefore considered to be at a low risk of flooding and is deemed appropriate for the site.

The proposed Finished Floor Level for the ground floor of the dwelling will be 150mm above external ground level.