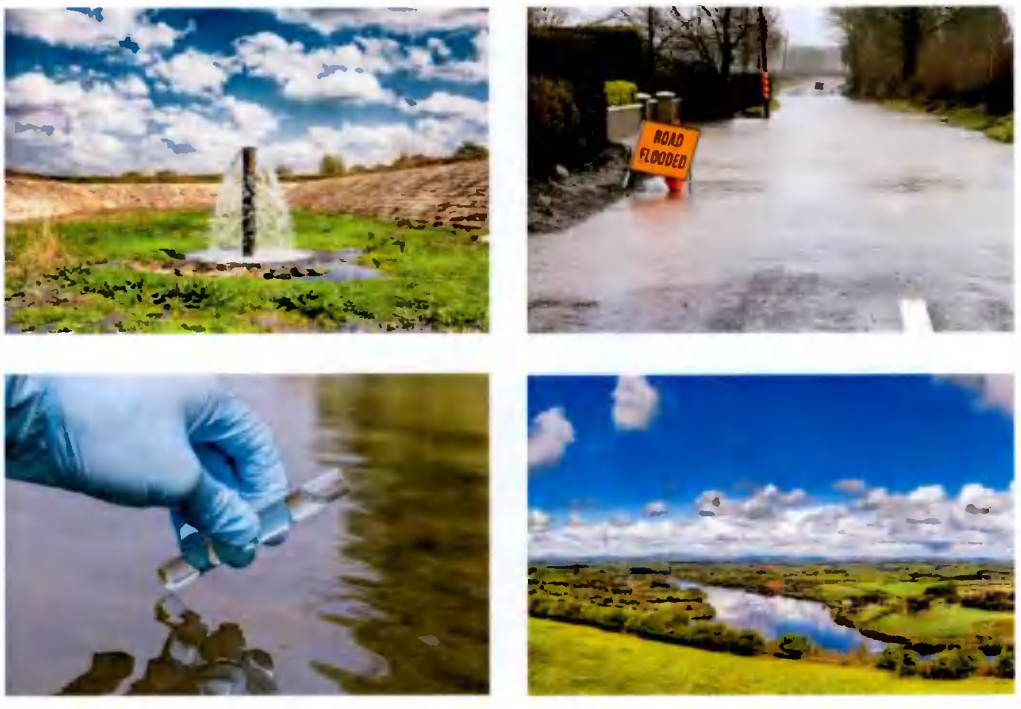
Site Specific Flood Risk Assessment

38, Whitehall Road, Dublin 12



August 2021

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Site Specific Flood Risk Assessment

Client: Jeff & Cathy Murphy

Location: 38, Whitehall Road, Dublin 12

Date: 30th August 2021

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1. Introduction

IE Consulting was requested by Nicholas Mernagh Architects, on behalf of Jeff & Cathy Murphy, to undertake a Site Specific Flood Risk Assessment (SSFRA) in support of a planning application for a proposed development at 38, Whitehall Road, Dublin 12. The development as proposed comprises the erection of alterations and extensions to an existing dwelling house consisting of a single storey extension to the rear and a two storey extension (over existing garage to side) together with associated and auxiliary accommodation and site works.

The proposed two storey extension over existing garage to side shall be constructed above an existing garage and shall not involve any increased or additional building footprint area at ground floor level, therefore there shall be no implications with this element of the proposal in terms of potential flood risk. This SSFRA shall therefore concentrate on the potential flood risk to and from the proposed rear extension as this shall involve an increase and additional building footprint area at ground floor level.

The purpose of this SSFRA is to assess the potential flood risk to the site of the proposed development and to assess the impact that the development as proposed may or may not have on the hydrological regime of the area.

This SSFRA has been prepared in response to Point 1 of a Request for Further Information issued by South Dublin County Council on the 18th May 2021 in relation to Planning Application Reference Number SD21B/0163.

A hydrological engineer from IE Consulting undertook a survey of the site area and surrounding catchment on 30th July 2021.

Quoted ground levels or estimated flood levels relate to Ordnance Datum (Malin) unless stated otherwise.

This flood risk assessment study has been undertaken in consideration of the following guidance document:-

'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' DOEHLG 2009.

2. Proposed Site Description

2.1. General

The site of the proposed development is located within the boundary of an existing residential property at 38, Whitehall Road, Dublin 12. The site is bounded to the west, south and east by existing residential properties and to the north by Whitehall Road.

The location of the proposed development site is illustrated on *Figure 1* below and shown on *Drawing Number IE2345-001-A* in *Appendix A*.

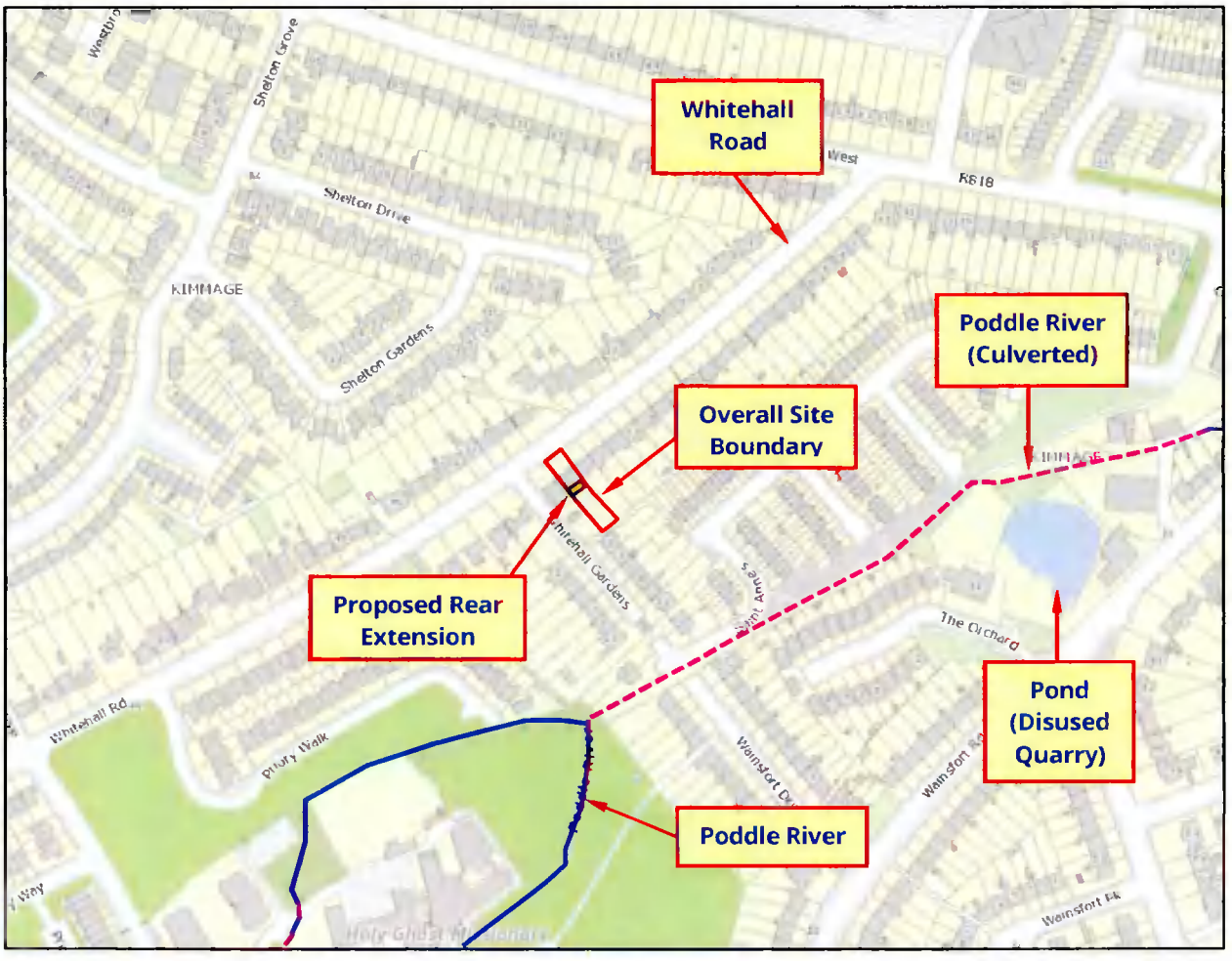


Figure 1 – Site Location

2.2. Existing Topography Levels at Site

The site of the proposed development is generally level with a slight slope from south to north of approximately 0.135% (1 in 741).

Existing ground elevations range from approximately 52.48m OD (TBM) within the southern area of the overall site to 52.42m OD (TBM) within the northern area of the overall site.

2.3. Local Hydrology, Landuse & Existing Drainage

On the day of the site survey the site of the proposed development appeared to be well drained and free from any standing water.

The most immediate and significant hydrological feature in the vicinity of the site of the proposed development is the Poddle River located approximately 91m beyond the southern boundary of the site as shown in *Figure 1* above.

Utilising the OPW Flood Studies Update (FSU) Portal software, the catchment area of the Poddle River was delineated and found to be approximately 6.521km^2 to a point downstream of the site boundary. An assessment of the catchment area indicates a predominantly urban catchment with urban development accounting for 78.26% of the upstream catchment area.

3. Initial Flood Risk Assessment

The flood risk assessment for the site of the proposed development site is undertaken in three principal stages, these being 'Step 1 – Screening', 'Step 2 – Scoping' and 'Step 3 – Assessing'.

3.1. Possible Flooding Mechanisms

Table 1 below summarises the possible flooding mechanisms in consideration of the site:

Source/Pathway	Significant?	Comment/Reason
Tidal/Coastal	No	The site is not located within a coastal or tidally influenced region.
Fluvial	Yes	The Poddle River is located approximately 91m beyond the southern boundary of the site
Pluvial (urban drainage)	No	There is no significant drainage or water supply infrastructure located at or in the immediate vicinity of the site.
Pluvial (overland flow)	No	The site is not surrounded by significantly elevated lands and does not provide an important surface water discharge point to adjacent lands.
Blockage	No	There are no significant or restrictive hydraulic structures located in the vicinity of the proposed development site.
Groundwater	No	There are no significant springs or groundwater discharges mapped or recorded in the immediate vicinity of the site.

Table 1: Flooding Mechanisms

The primary potential flood risk to the site of the proposed development can be attributed to an extreme fluvial flood event in the Poddle River located approximately 91m beyond the southern boundary of the site.

In accordance with 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities - DOEHLG 2009' the potential flood risk to the site of the proposed development is analysed in the subsequent 'Screening Assessment' and "Scoping Assessment" section of this study report.

4. Screening Assessment

The purpose of the screening assessment is to establish the level of flooding risk that may or may not exist for a particular site and to collate and assess existing current or historical information and data which may indicate the level or extent of any flood risk.

If there is a potential flood risk issue then the flood risk assessment procedure should move to 'Step 2 – Scoping Assessment' or if no potential flood risk is identified from the screening stage then the overall flood risk assessment can end at 'Step 1'.

The following information and data was collated as part of the flood risk screening assessment for the site of the proposed development.

4.1. OPW/EPA/Local Authority Hydrometric Data

Existing sources of OPW, EPA and local authority hydrometric data were investigated. As illustrated in *Figure 2* below, this assessment has determined that there are no hydrometric gauging stations located in the vicinity of the site of the proposed development.

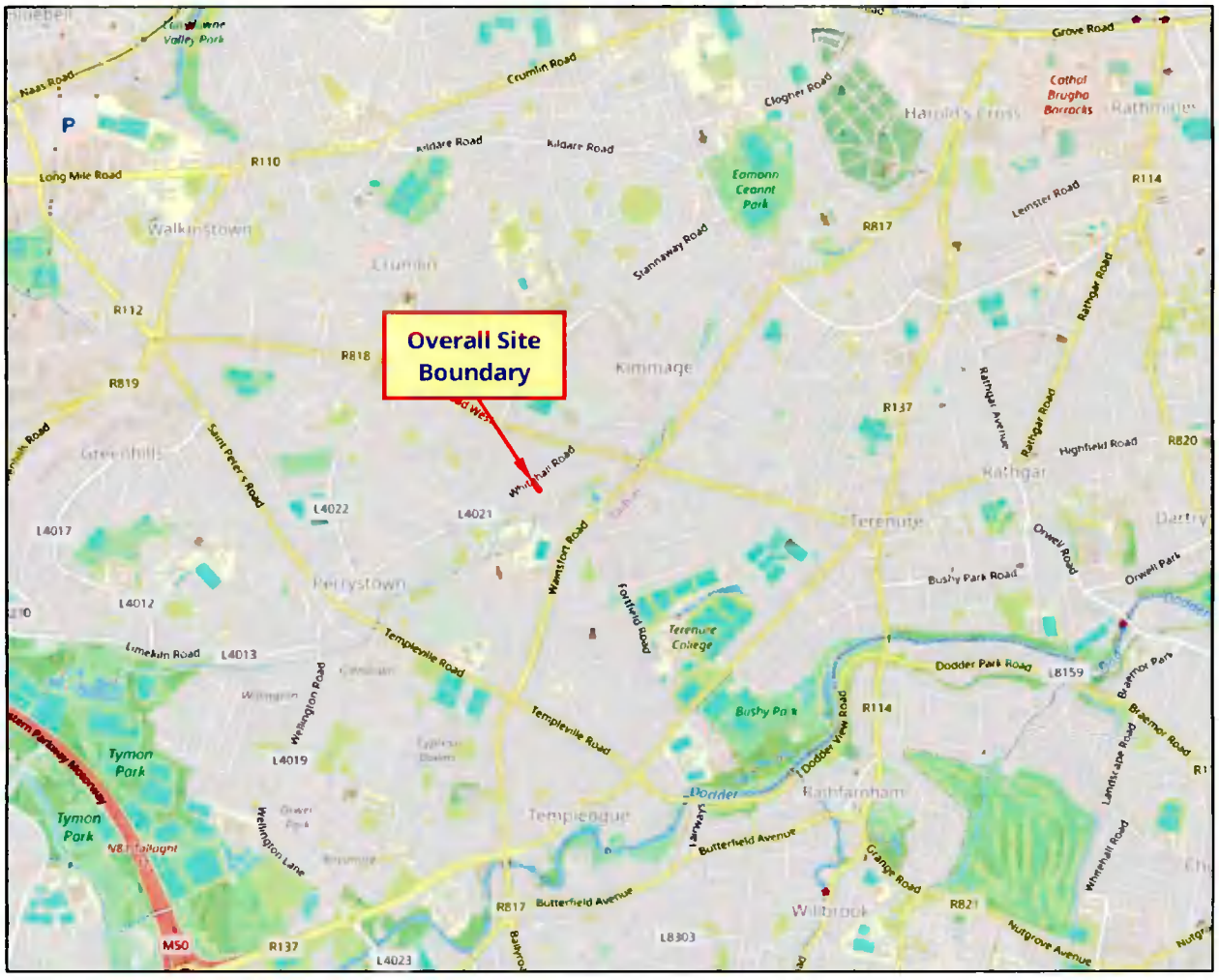


Figure 2 - Hydrometric Gauging Stations

4.2. OPW PFRA Indicative Flood Mapping

Preliminary Flood Risk Assessment (PFRA) Mapping for Ireland was produced by the OPW in 2011. OPW PFRA flood map number 2019/MAP/238/A illustrates indicative flood zones within this area of County Dublin.

Figure 3 below illustrates an extract from the above indicative flood map in the vicinity of the site of the proposed development.

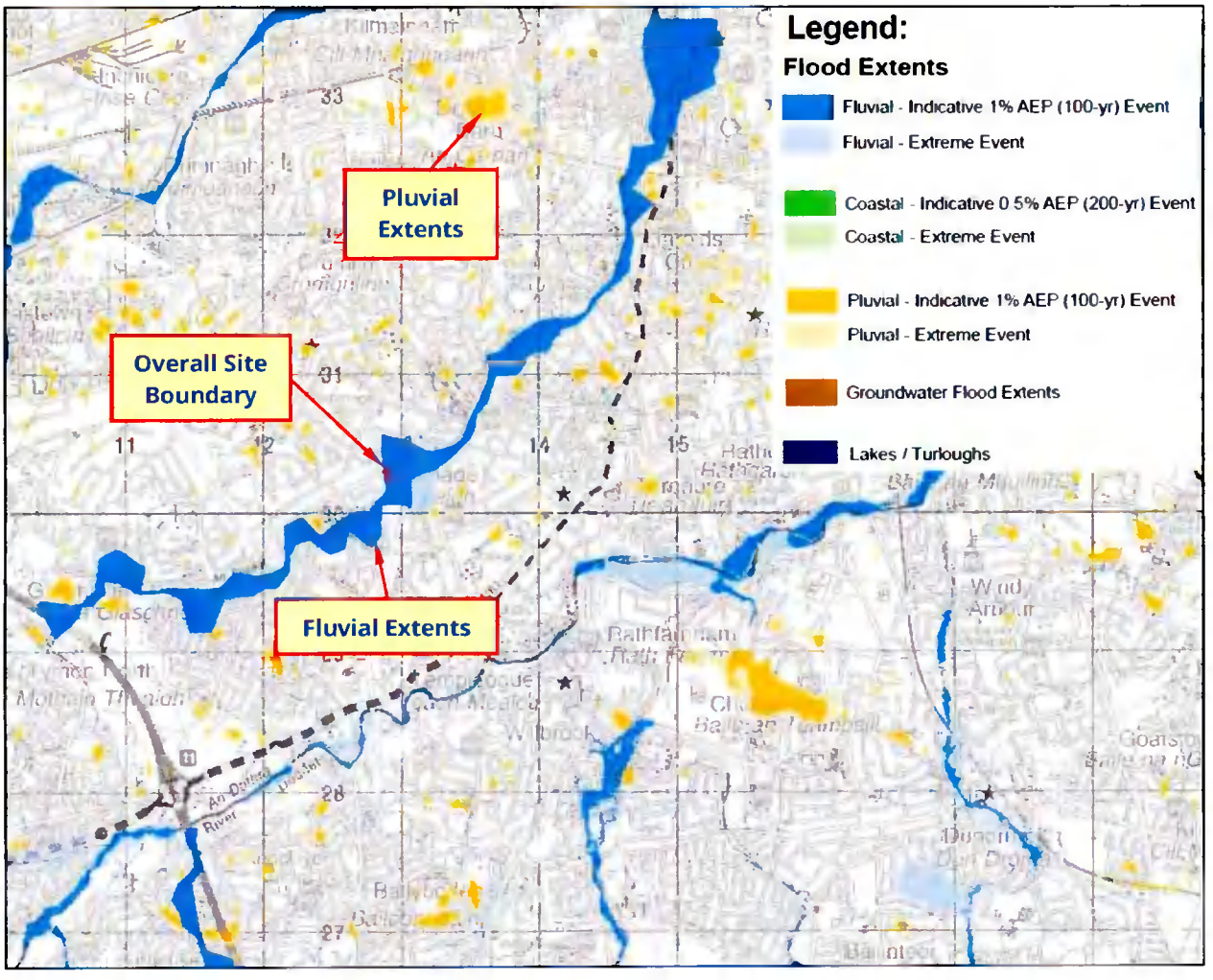


Figure 3 - OPW PFRA Mapping

The PFRA flood mapping indicates that the site of the proposed development site falls within an indicative fluvial flood zone. No areas of indicative pluvial or groundwater flooding are mapped within or adjacent to the site of the proposed development.

It should also be noted that the indicated extent of flooding illustrated on these maps was developed using a low resolution digital terrain model (DTM) and illustrated flood extents are intended to be indicative only. The flood extents mapped on the PFRA maps are not intended to be used on a site specific basis.

4.3. OPW Flood Maps Website

The OPW Flood Maps Website (www.floods.ie) was consulted in relation to available historical or anecdotal information on any flooding incidences or occurrences in the vicinity of the site of the proposed development. *Figure 4* below illustrates mapping from the Flood Maps website in the vicinity of the site.

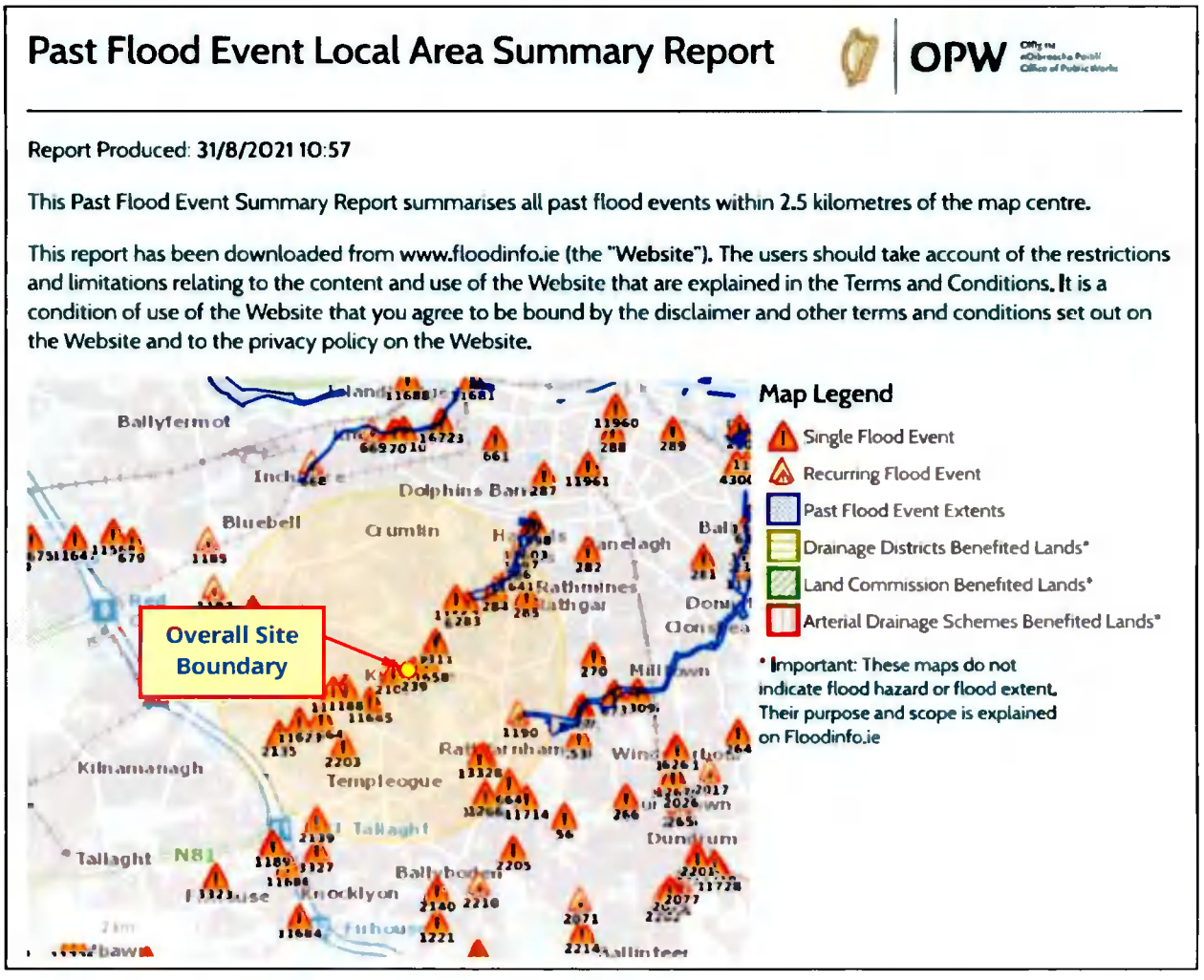


Figure 4 - OPW Flood Maps

Figure 4 above reports a flooding event that occurred in the general vicinity of the site of the proposed development on the 10th to 12th June 1993 that resulted in the flooding of House Nos. 3,6,8 and 9 Whitehall Gardens and House Nos. 33, 39 and 43 Whitehall Road.

There is no recorded or anecdotal information or data available to indicate that the above fluvial flood events impacted the site of the proposed development.

4.4. Ordnance Survey Historic Mapping

Available historic mapping for the area was consulted, as this can provide evidence of historical flooding incidences or occurrences. The maps that were consulted were the historical 6-inch maps (pre-1900), and the historic 25-inch map series. *Figure 5* and *Figure 6* below show the historic mapping for the area of the site of the proposed development.

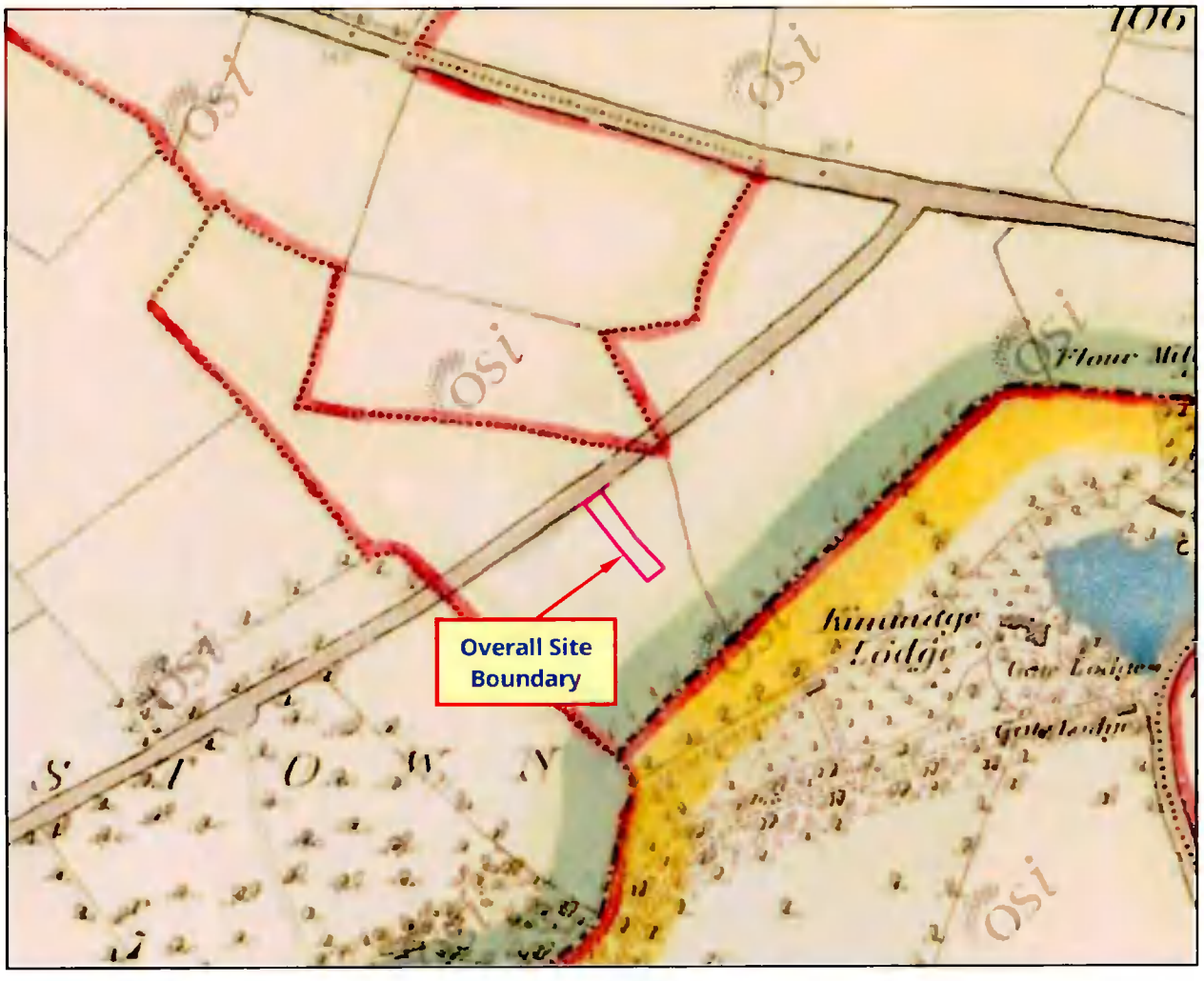


Figure 5 - Historic 6 Inch Mapping

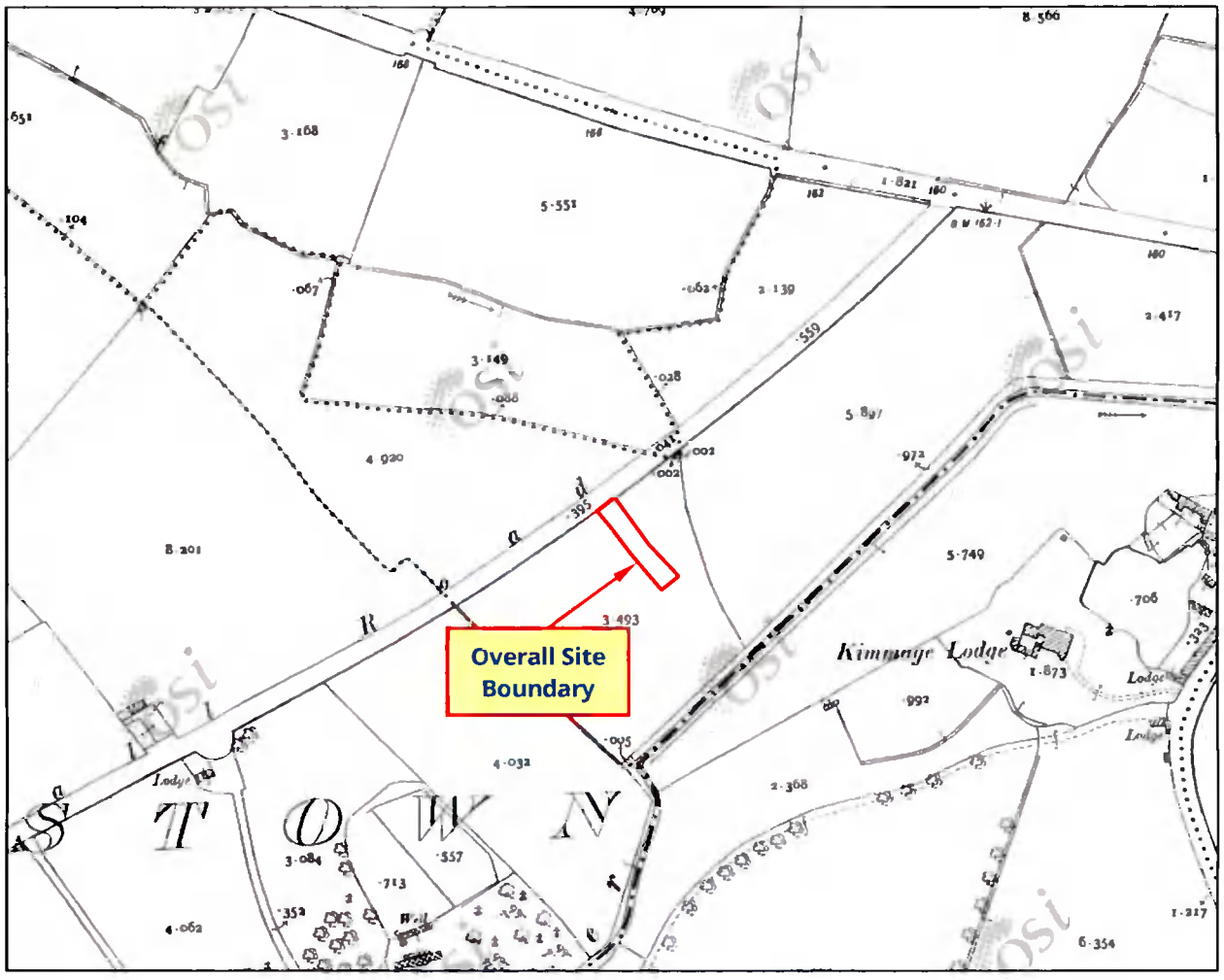


Figure 6 - Historic 25 Inch Mapping

The historic 6 inch and 25 inch mapping does not indicate any historical or anecdotal instances of flooding within or adjacent to the boundary of the site of the proposed development.

4.5. Geological Survey of Ireland Mapping

The alluvial deposit maps of the Geological Survey of Ireland (GSI) were consulted to assess the extent of any alluvial deposits in the vicinity of the site of the proposed development. Alluvial deposits can be an indicator of areas that have been subject to flooding in the recent geological past.

Figure 7 below illustrates the sub-soils mapping for the general area of the site.

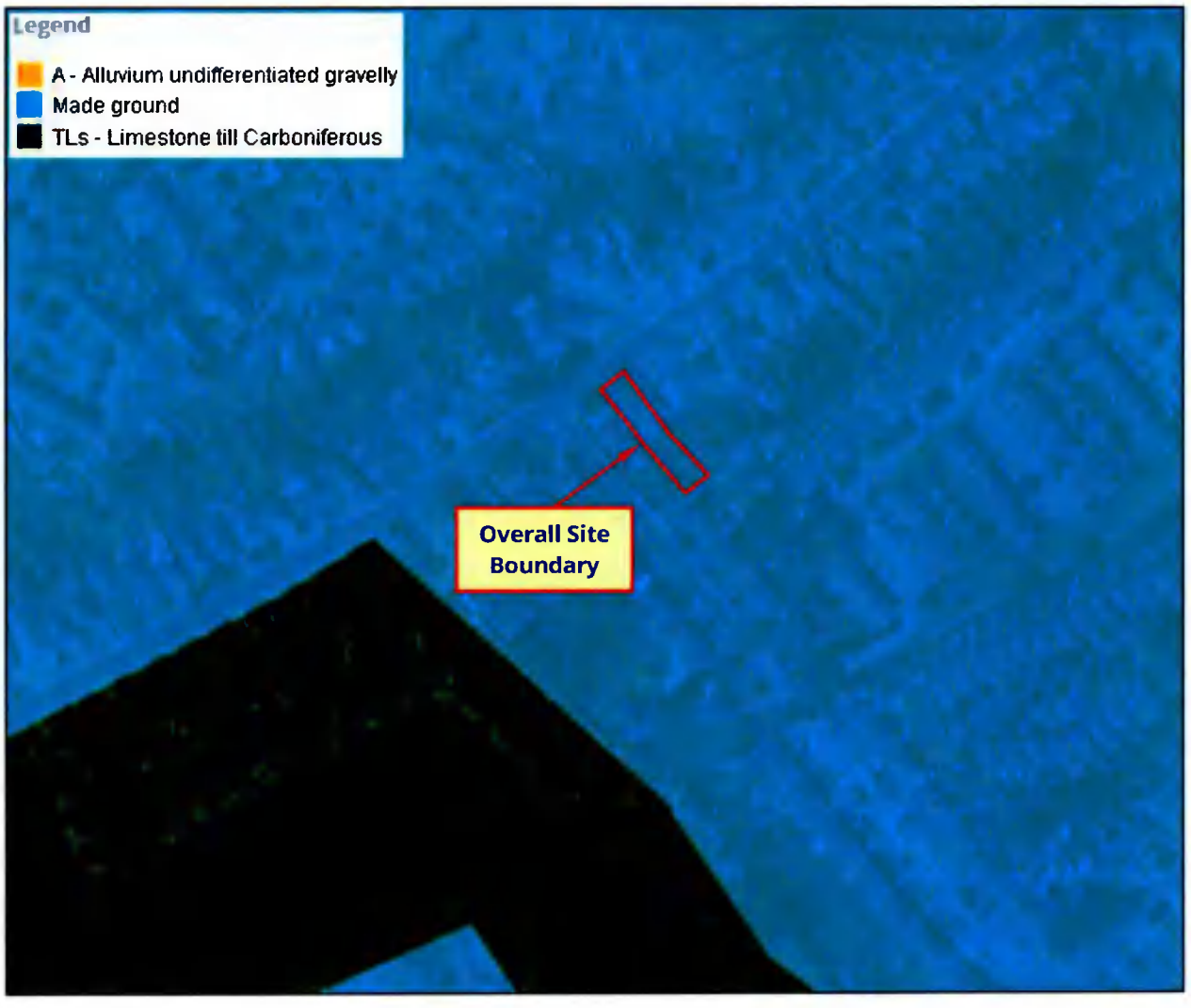


Figure 7 - GSI Subsoil Mapping

Figure 7 above indicates that the site of the proposed development is entirely underlain by Made Ground. There are no Alluvium deposits mapped within the vicinity of the site.

4.6. Geological Survey of Ireland Groundwater Flood Mapping

Historic and Predictive Groundwater Mapping for Ireland was prepared by the GSi Department of Communication, Climate Action and Environment in collaboration with Trinity College Dublin and the Institute of Technology Carlow.

Figure 8 below illustrates an extract from the above groundwater flood mapping in the vicinity of the site of the proposed development.

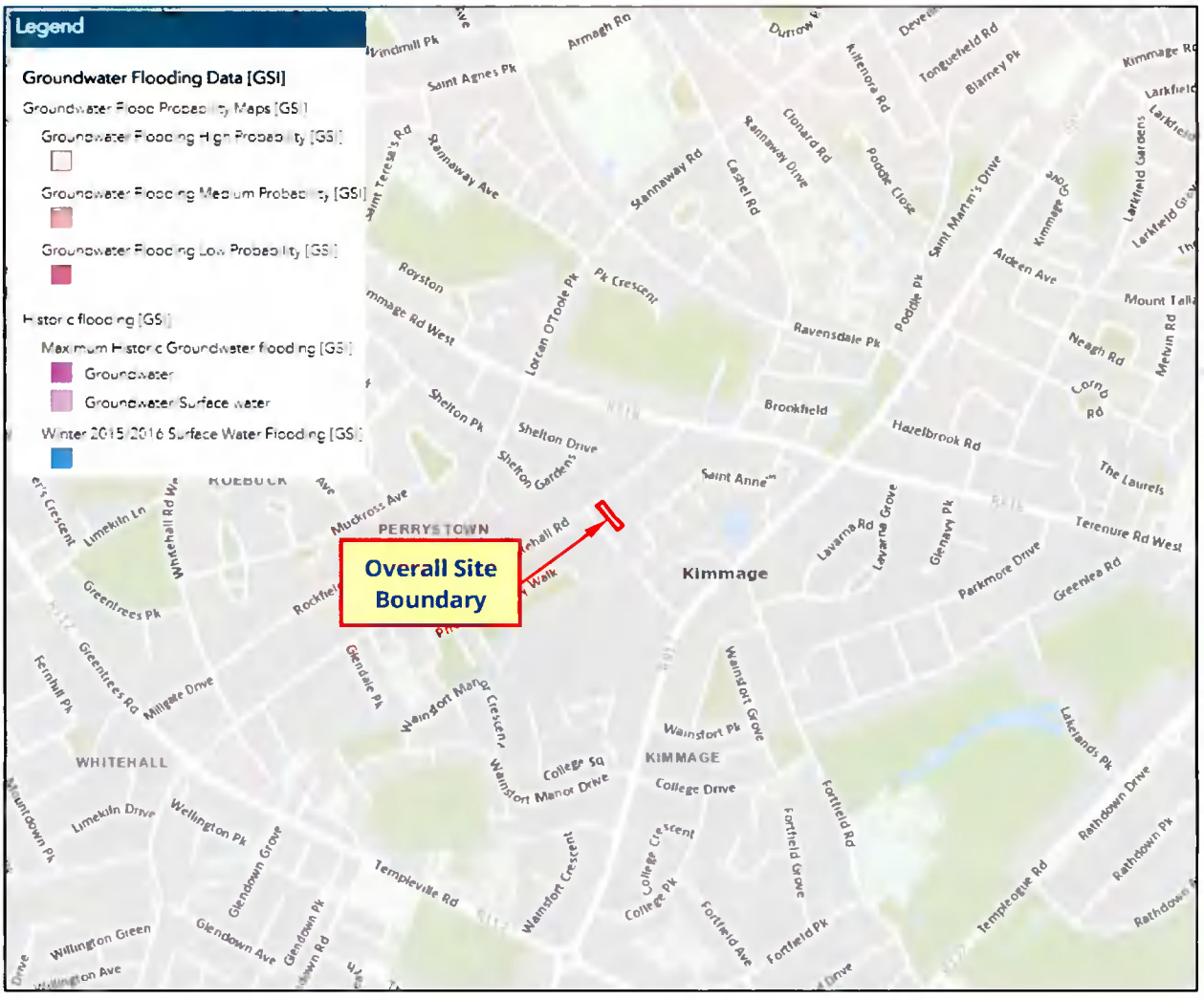


Figure 8 - GSI Groundwater Flood Mapping

The above GSi Groundwater Mapping indicates no areas of predictive or historical groundwater or surface water flooding located in the vicinity of the site of the proposed development.

4.7. Eastern CFRAM Study

The Eastern Catchment Flood Risk & Management Study (CFRAMS) has been undertaken by the OPW and the final version of the flood maps were issued in August 2016. Flood risk extent and depth maps for further assessment areas within County Dublin have also been produced. OPW CFRAMS flood map number *E09POD_EXFCD_F0_03* illustrates predictive extreme fluvial flood extent zones associated with the Poddle River in the vicinity of the site of the proposed development.

Figure 9 below (extracted from CFRAMS flood map *E09POD_EXFCD_F0_03*) illustrates the predictive extreme 10% AEP (1 in 10 year), 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood extents at and in the vicinity of the site of the proposed development.

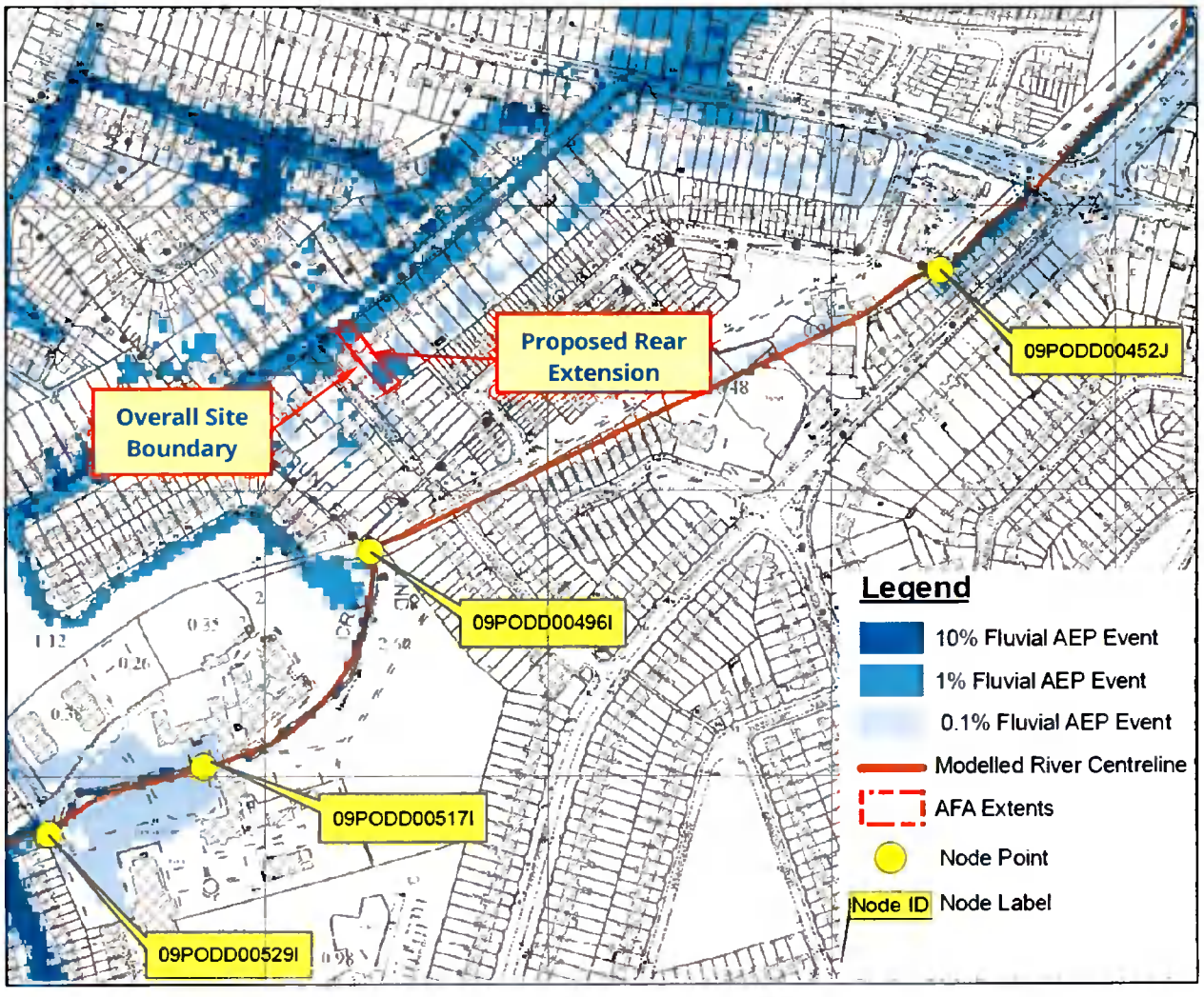


Figure 9 – CFRAMS Flood Extent Mapping

Figure 9 above indicates that part of the overall site boundary falls within a predictive current scenario 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood zone.

The area of the site where the rear extension is proposed does not fall within a predictive current scenario 1% AEP (1 in 100 year) fluvial flood zone but does partially fall within a predictive current scenario 0.1% AEP (1 in 1000 year) flood zone.

The Eastern CFRAMS flood map also provides information on predicted water levels and flows for the for 10% AEP (1 in 10 year), 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood events at various node points along the Poddle River. The node points closest to the site of the

proposed development site are referenced as node points *09PODD00496I* and *09POD00452J*, as illustrated in *Figure 9* above.

Details of the predicted fluvial flood levels and flows for the Eastern CFRAMS node points in the general vicinity of the proposed development site are listed in *Table 2* below, which has been extracted from the Eastern CFRAMS flood map references *E09POD_EXFCD_F0_03*.

Node Label	Water Level (mOD) 10% AEP	Flow (m^3/s) 10% AEP	Water Level (mOD) 1% AEP	Flow (m^3/s) 1% AEP	Water Level (mOD) 0.1% AEP	Flow (m^3/s) 0.1% AEP
09PODD00496I	47.00	0.76	47.02	0.98	47.32	2.84
09PODD00452J	44.44	2.43	44.88	4.59	45.26	7.25

Table 2 –CFRAMS Fluvial Map - Predicted Flood Levels

The CFRAM flood maps are predictive flood maps, in that they provide predicted flood levels and extents for a 'design' flood event that has an estimated probability of occurrence (e.g., the 1% AEP event), rather than information for floods that have occurred in the past.

The Eastern CFRAMS also provides information and data on predicted flood depths in the general area of the site of the proposed development in consideration of extreme 10% AEP (1 in 10 year), 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood events.

Figure 10 and *Figure 11* below (extracted from the Eastern CFRAMS flood maps *E09POD_DPFCD010_F0_03* and *E09POD_DPFCD001_F0_03*respectively) illustrate the predicted 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood depths in the general vicinity of the site of the proposed development.

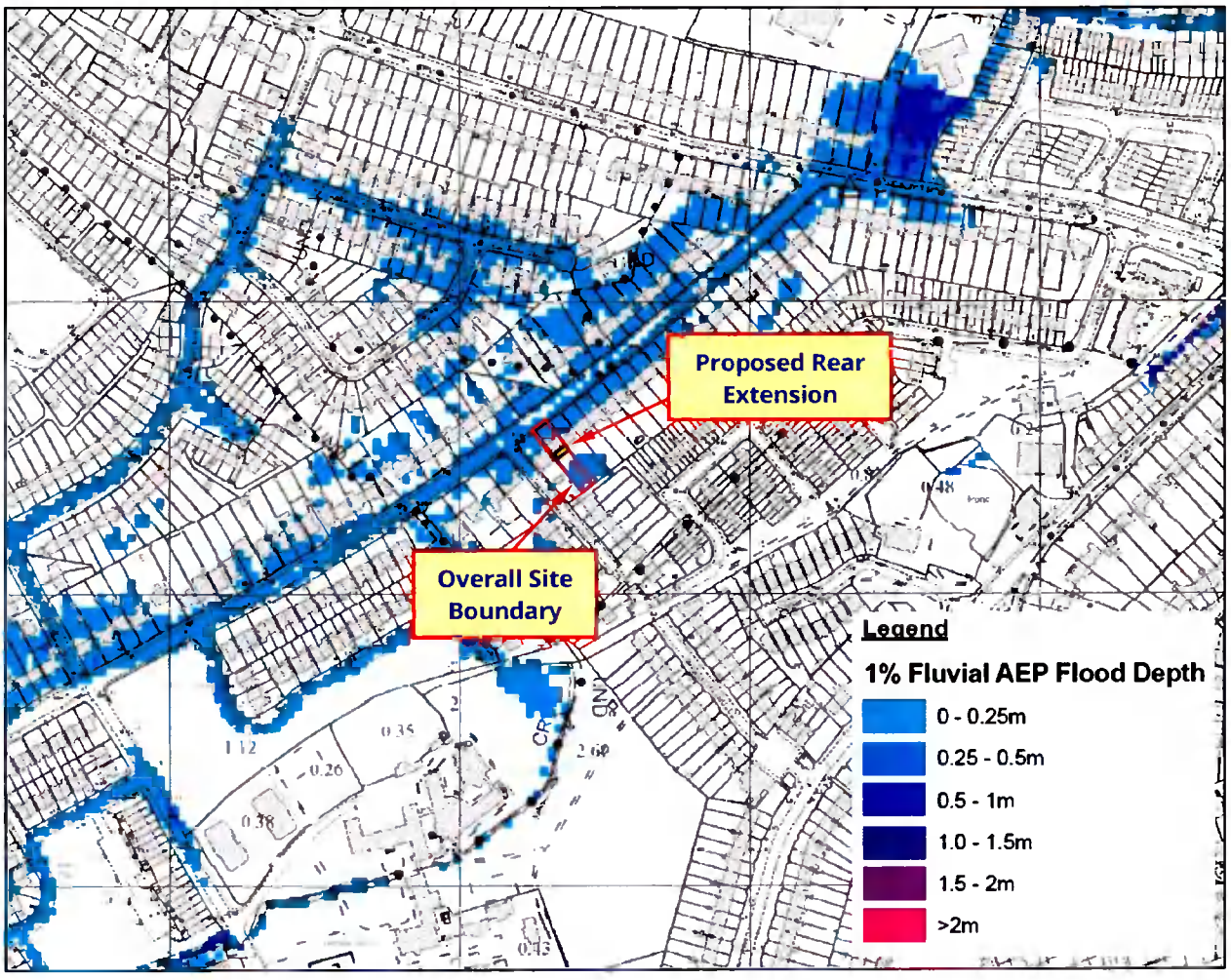


Figure 10 – CFRAMS 1% AEP Flood Depth Map

As illustrated in *Figure 10* above, the area of the site where the rear extension is proposed does not fall within a predictive current scenario 1% AEP (1 in 100 year) fluvial flood zone.

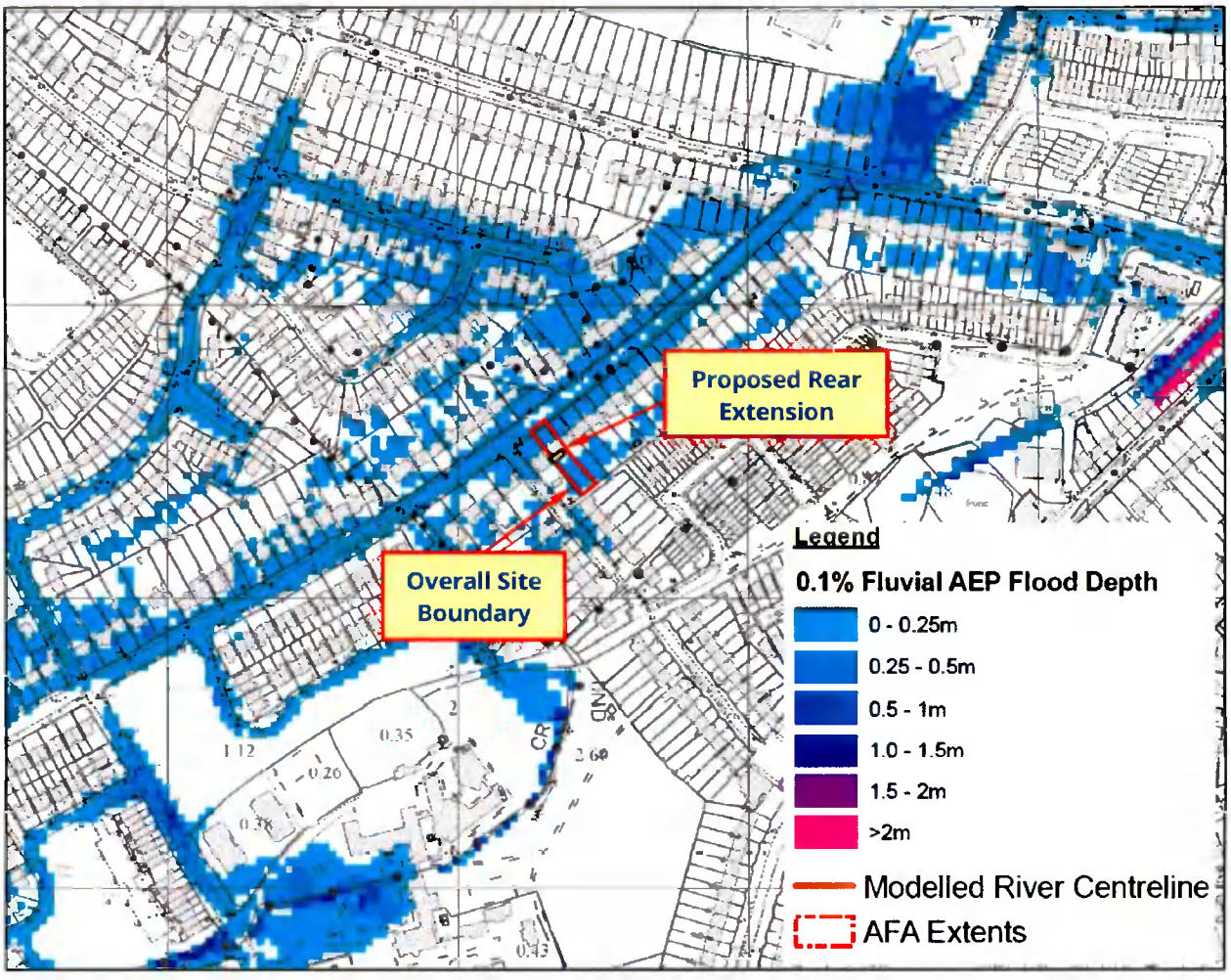


Figure 11 – CFRAMS 0.1% AEP Flood Depth Map

As illustrated in *Figure 11* above, the area of the site where the rear extension is proposed does not partially falls within a predictive current scenario 0.1% AEP (1 in 1000 year) flood zone, with predictive 0.1% AEP flood depths in the range of 0 to 0.25m.

4.8. Climate Change

The OPW Floodinfo.ie resource was utilised to assess the potential 1% AEP (1 in 100 year) mid-range and high-end future climate change scenario fluvial flood extents at the location of the site of the proposed development.

Figures 10A and 10B below illustrate the predictive mid-range and high end future climate change 1 in 100 year (1% AEP) fluvial flood extents respectively at the location of the site of the proposed development as acquired from the OPW Floodinfo.ie resource.

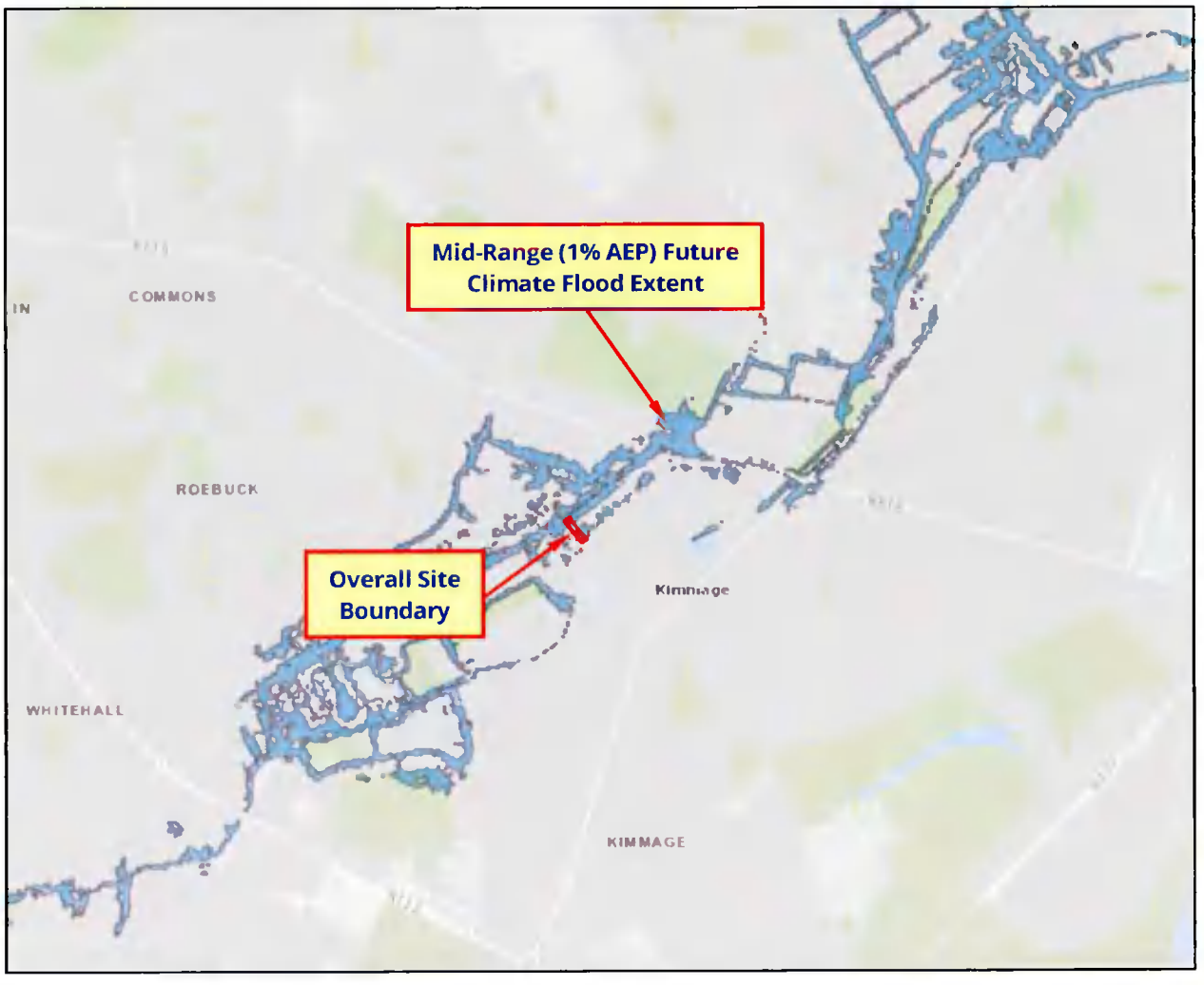


Figure 10A – Mid-Range (1% AEP) Future Climate Change Scenario Flood Mapping

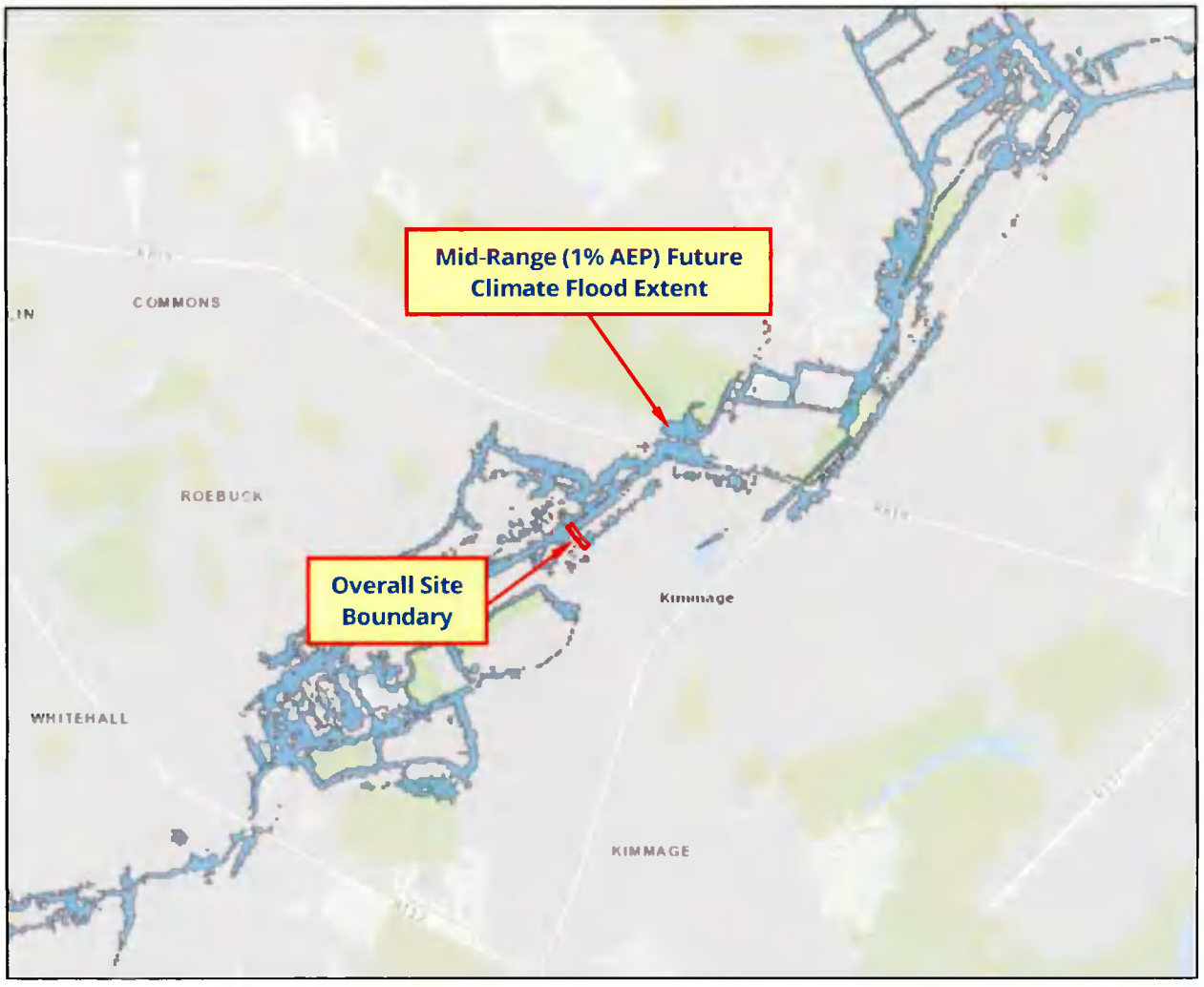


Figure 10B – High End (1% AEP) Future Climate Change Scenario Flood Mapping

Figures 10A and 10B above indicate that the mid-range and high end future climate change scenario 1% AEP fluvial flood zones encroach within the overall site boundary, however these potential flood extents do not appear to be more significant than the 0.1% AEP (1 in 1000 year) current scenario predictive flood extent as illustrated in *Figure 11* above.

4.9. Dublin City Development Plan 2016-2022 – Strategic Flood Risk Assessment

Dublin City Council prepared a Strategic Flood Risk Assessment (SFRA) to inform the development plan in respect of flood risk and flood management in consideration of existing and proposed development.

Flood extents for this area of Dublin City were predicted utilising the various dataset records which recorded either historical or predictive flood extents.

Figure 11 below illustrates the SFRA delineated Flood Zone A and Flood Zone B mapping in the vicinity of the site of the proposed development.

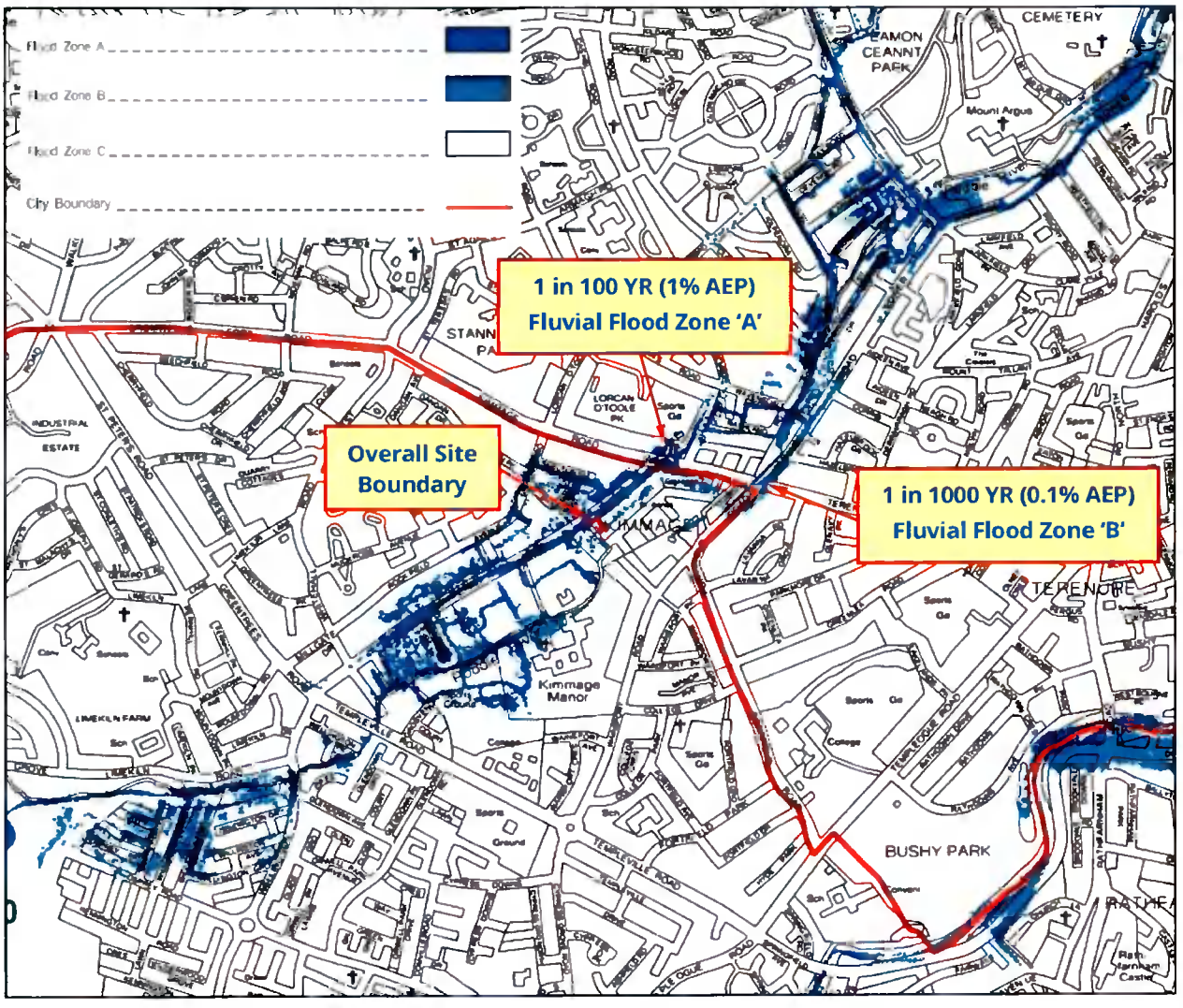


Figure 11 – Dublin City Development Plan 2016-2022 -SFRA Mapping

Figure 11 above indicates that the site of the proposed development partially falls within a strategic Flood Zone A and Flood Zone B.

4.10. Dublin Pluvial Study

The Dublin Pluvial Study has been undertaken by the OPW and current scenario pluvial flood maps were issued in August 2016. Pluvial flood risk extent and depth maps for the Dublin environs have been produced. Pluvial Study flood map number *E09DCC_EXPCD_F0_03* illustrates indicative pluvial flood extents in the vicinity of the site of the proposed development.

As illustrated in *Figure 12* below (extracted from Pluvial Study flood map *E09DCC_EXPCD_F0_03*) the site of the proposed development does not fall within an indicative pluvial flood zone.

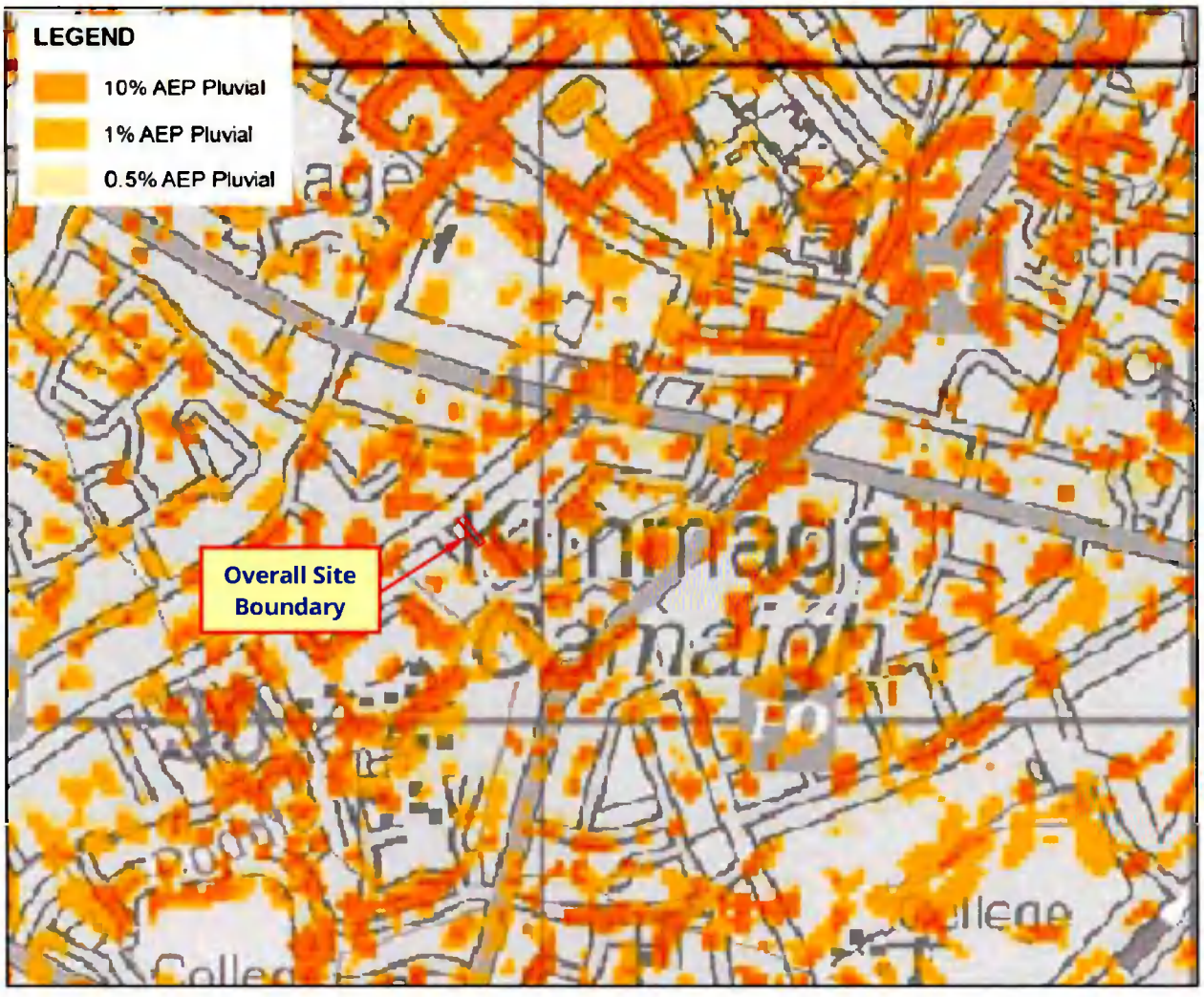


Figure 12 – Dublin Pluvial Study Final Pluvial Flood Map

As illustrated in *Figure 12* above the proposed development site would not be impacted by an extreme pluvial flood event.

5. Scoping Assessment

The purpose of the scoping stage is to identify possible flood risks and to implement the necessary level of detail and assessment to assess these possible risks, and to ensure these can be adequately addressed in the flood risk assessment. The scoping exercise should also identify that sufficient quantitative information is already available to complete a flood risk assessment appropriate to the scale and nature of the development proposed.

The above screening assessment indicates that the primary potential flood risk to the site of the proposed development can be attributed to an extreme fluvial flood event in the Poddle River located approximately 91m beyond the southern boundary of the site. The site is not a risk of pluvial or groundwater flooding.

In consideration of the information collated as part of the screening exercise, and the availability of other information and data specific to the proposed development site, it is considered that sufficient quantitative information to complete an appropriate flood risk assessment can be derived from the information collated as part of the screening exercise alone. In particular, the flood extent and depth maps produced as part of the Eastern Catchment Flood Risk Assessment and Management Study are based on the results of detailed hydraulic modelling undertaken along the reach of the Poddle River in the general vicinity of the site and therefore provide a reasonably accurate delineation of flood zones and prediction of flood depth at and in the general vicinity of the site of the proposed development.

The specific flood risks to and from the development as proposed are assessed in the subsequent 'Assessing Flood Risk' stage of this study report.

6. Assessing Flood Risk

The following sections present an analysis of the fluvial flood risk to the proposed development site.

Flood risk from a particular watercourse is normally assessed for a 1 in 100 year (1% AEP) and 1 in 1000 year (0.1% AEP) flood event, in accordance with most county development plans and in accordance with the DOEHLG guidelines *'The Planning System and Flood Risk Management Guidelines'*.

The following sections present an analysis and assessment of the estimated 1% AEP and 0.1% AEP fluvial flood event in the Poddle River located 91m beyond the southern boundary of the proposed development site.

6.1. Flood Level Estimation

In consideration that the development as proposed site comprises a small extension to an existing single residential dwelling, the flood zone extent delineation and depth predictions acquired from the OPW CFRAMS flood maps for the area are considered to provide an adequate estimation of potential 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood extents and depth at and in the vicinity of the site of the proposed development.

A full copy of the relevant OPW CFRAMS flood extent and depth maps for the area are included in *Appendix A*.

With reference to the architects proposed site layout drawing, this indicates that the existing ground level within the front garden area of the existing property is 52.42m (TBM). With reference to Figure 11 above, the predictive maximum 0.1% AEP (1 in 1000 year) flood depth at the site of the proposed development is 0.25m, which equates to an approximate 0.1% AEP (1 in 1000 year) flood level of **52.67m (TBM)**.

6.2. Climate Change

'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' DOEHLG 2009 Technical Appendix A, Section 1.6 recommends that, where mathematical models are not available climate change flood extents can be assessed by using the current scenario 0.1% AEP (1 in 1000 year) Flood Zone B outline as a surrogate for the 1% AEP (1 in 100 year) Flood Zone A with allowance for the possible impacts of climate change. Therefore, the predictive 0.1% AEP (1 in 1000 year) flood extents illustrated in Drawing Number *E09POD_EXFCD_F0_03*, included in Appendix A are considered to be representative of the 1% AEP (1 in 100 year) Mid-Range Future Climate Change Scenario flood extents relative to the location of the site of the proposed development.

7. Flood Risk Management & Mitigation Measures

Section 6.1 above discusses the potential flood level and flood depth that may occur at the site of the proposed development in consideration of the occurrence of an extreme 0.1% AEP (1 in 1000 year) fluvial flood event.

In order to demonstrate compliance with *'The Planning System and Flood Risk Management Guidelines'* it is therefore recommended that the development as proposed development (i.e. rear extension to existing residential property) incorporates appropriate flood resistance and flood resilience measures.

Flood resistance measures are defined as *'the installation of resistance measures to prevent floodwater from reaching or entering a property'.*

Flood resilience measures are defined as *'the implementation of permanent methods or techniques that can be carried out at property level i.e. inside a property, to minimise damage caused by floodwaters that have entered a property'.*

It is recommended that the application incorporates appropriate flood resistance and flood resilient measures as outlined in the Dublin City Council 'Property Flood Protection Guide' and relevant CIRIA and DEFRA guidance documents in relation to flood mitigation and flood resilience measures.

7.1. Flood Resistance Measures

As a minimum, it is recommended that the following summary flood resistance measures be implemented for the application.

- *The finished ground floor level of the proposed rear extension should be constructed to a minimum level of 0.3m above the estimated 0.1% AEP fluvial flood level at this location – i.e. 52.67m (TBM) + 0.3m =* ***52.97m (TBM)****.*
- *Where it is not feasible from a planning or constructability perspective to construct the finished ground floor to the level listed above, slotted movable or demountable flood gates should be provided to all ground floor exterior doors. When not in use, flood gates should be stored in an easily accessible location. In lieu of flood gates, a readily available supply of sandbags should be retained at the site in an easily accessible location. Flood gates (or sandbags) should be constructible to a height of at least 0.55m above existing external ground levels – i.e. in excess of the maximum potential 0.1% AEP (1 in 1000 year) flood depth of 0.25m.*

- *Any proposed air bricks in external walls should be sealed using 'SMART' air bricks.*
- *Any pipes or cables that protrude through external walls at a level below 0.25m above existing ground level should be adequately sealed.*
- *Ground floor windows should be non-opening and should be specified to have adequate water exclusion characteristics and should be capable of withstanding potential impact from flood debris.*
- *External walls should be water resistant.*
- *Non return valves, or anti-flood valves, should be fitted to the drainage network connecting the property to the adjacent sewerage system.*

7.2. Flood Resilience Measures

It is recommended that the following flood resilience measures be incorporated for the application where relevant:-

- *Where possible, ground floor electrical appliances should be placed on shelves or plinths in order to raise the appliance above the ground floor level.*
- *Any proposed ground floor service meters (electric, gas, telecoms, etc.) should be enclosed in plastic housings and should be fitted to a minimum level of 0.35m above existing external ground levels.*
- *Ground floor fuses boxes, electrical sockets and wiring should be fitted to a minimum level of 0.35m above existing external ground levels.*
- *Any proposed ground flood boilers and water heaters should be wall fitted to a minimum level of 0.35m above existing external ground levels.*

8. Development in the Context of the Guidelines

In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009' three flood zones are designated in consideration of flood risk to a particular development site.

Flood Zone 'A' – where the probability of flooding from rivers and watercourses is the highest (greater than 1% or 1 in 100 year for river and watercourse flooding and 0.5% or 1 on 200 for coastal or tidal flooding).

Flood Zone 'B' – where the probability of flooding from rivers and watercourses is moderate (between 0.1% or 1 in 1000 year for river and watercourse flooding and 0.5% or 1 on 200 for coastal or tidal flooding).

Flood Zone 'C' – where the probability of flooding from rivers and watercourses is low or negligible (less than 0.1% of 1 in 1000 year for both river and watercourse and coastal flooding). Flood Zone 'C' covers all areas that are not in Zones 'A' or 'B'.

The 'Planning System and Flood Risk Management Guidelines' list the planning implications for each flood zone, as summarised below:-

Zone A – High Probability of Flooding. Most types of development would not be considered in this zone. Development in this zone should be only be considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the 'Planning System and Flood Risk Management Guidelines' justification test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space and outdoor sports and reaction would be considered appropriate in this zone.

Zone B – Moderate Probability of Flooding. Highly vulnerable development such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses, strategic transport and essential utilities infrastructure would generally be considered inappropriate in this zone, unless the requirements of the justification test can be met. Less vulnerable development such as retail, commercial and industrial uses and recreational facilities might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone 'C' and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to the development can be adequately managed and that development in this zone will not adversely affect adjacent lands and properties.

Zone C – Low to Negligible Probability of Flooding. Development in this zone is appropriate from a flood risk perspective. Developments in this zone are generally not considered at risk of fluvial flooding and would not adversely affect adjacent lands and properties from a flood risk perspective.

In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009' this Site Specific Flood Risk Assessment indicates that the development as proposed (rear extension to existing residential property) does not fall within a predictive fluvial Flood Zone 'A' but does partially fall within a predictive fluvial Flood Zone 'B'.

In accordance with the 'Planning System & Flood Risk Management Guidelines, DOEGLG, 2009' the development as proposed may be subject to the requirements of the Justification Test.

9. Justification Test for Development Management

In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009' and in consideration of the scenario that the development as proposed is undefended, this Site Specific Flood Risk Assessment indicates that the development as proposed (rear extension to existing residential property) does not fall within a predictive fluvial Flood Zone 'A' but does partially fall within a predictive fluvial Flood Zone 'B'.

Table 3.1 of the guidelines lists the vulnerability class of various types of development. The development as proposed is therefore classified as residential which is "Highly vulnerable development".

Table 3.2 of the guidelines (duplicated below) provides a matrix of different vulnerability classes of development in relation to Flood Zones A, B and C, and lists if development is appropriate in each Zone and where the Justification Test should be applied.

	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

With reference to the table above, the type and form of development proposed is 'Highly vulnerable development' (i.e. rear extension to existing residential property) and the development as proposed partially falls within a delineated fluvial Flood Zone 'B', therefore the development as proposed is subject to the requirements of the Justification Test.

However, the development as proposed consists of a small rear extension to an existing residential property, with an approximate footprint area of $45m^2$. The development as proposed is therefore considered to be a minor development in an area of potential flood risk. In this particular situation, and with reference to *Clause 5.28* of the *'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009'*, it is considered that the Justification Test does not apply to this particular development.

Clause 5.28 of the guidelines states the following:-

'.....Assessment of Minor Proposals in Areas of Flood Risk – applications for minor development, such as small extensions to houses, and most changes of use of existing buildings and or extensions and additional to existing commercial and industrial enterprises, are unlikely to raise significant flooding issues, unless they obstruct important flow paths, introduce a significant number of additional people into flood risk areas or entail the storage of hazardous substances. Since such applications concern existing buildings, the sequential approach cannot be used to locate them in lower-risk areas and the Justification Test will not apply. However, a commensurate assessment of the risks of flooding should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities.....'

The development as proposed will not obstruct important flow paths, it will not introduce a significant number of additional people to the area and it will not entail the storage of hazardous substances. This Flood Risk Assessment also indicates that the development as proposed will not impede access to a watercourse or floodplain. The development as proposed is therefore considered to be appropriate from a flood risk perspective.

10. Summary Conclusions and Recommendations

In consideration of the findings of this Site Specific Flood Risk Assessment (SSFRA) and analysis the following conclusions and recommendations are made in respect of the development as proposed:-

- *A Site Specific Flood Risk (SSFRA) assessment, appropriate to the type and scale of development proposed, and in accordance with 'The Planning System and Flood Risk Management Guidelines – DoEHLG-2009' has been undertaken.*
- *The site of the proposed development has been screened, scoped and assessed for flood risk in accordance with the above guidelines.*
- *The primary flood risk to the site of the proposed development can be attributed to a fluvial flood event in the Poddle River located approximately 91m beyond the southern boundary of the site. The site is not at risk of pluvial or groundwater flooding.*
- *The OPW CFRAM flood maps for the general area indicate that the development as proposed (rear extension to existing residential property) does not fall within a predictive 1% AEP (1 in 100 year) fluvial Flood Zone 'A' but does partially fall within a predictive 0.1% AEP (1 in 1000 year) fluvial Flood Zone 'B'.*
- *The development as proposed consists of an approximate 45m^2 small extension to an existing residential property. In this particular situation, and with reference to Clause 5.28 of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, 2009', it is considered that the proposed extension is a minor development in an area of potential flood risk and the Justification Test does not apply in this instance.*
- *The development as proposed will not obstruct important flow paths, it will not introduce a significant number of additional people to the area and it will not entail the storage of hazardous substances.*
- *It is recommended that the development as proposed incorporates appropriate flood resistance and flood resilience measures as summarised in* ***Section 7*** *above.*
- *In consideration of the findings of this Site Specific Flood Risk Assessment and the incorporation of the recommended flood mitigation, resistance and resilient measures, it is considered that the development as proposed is appropriate from a flood risk perspective.*

Appendices

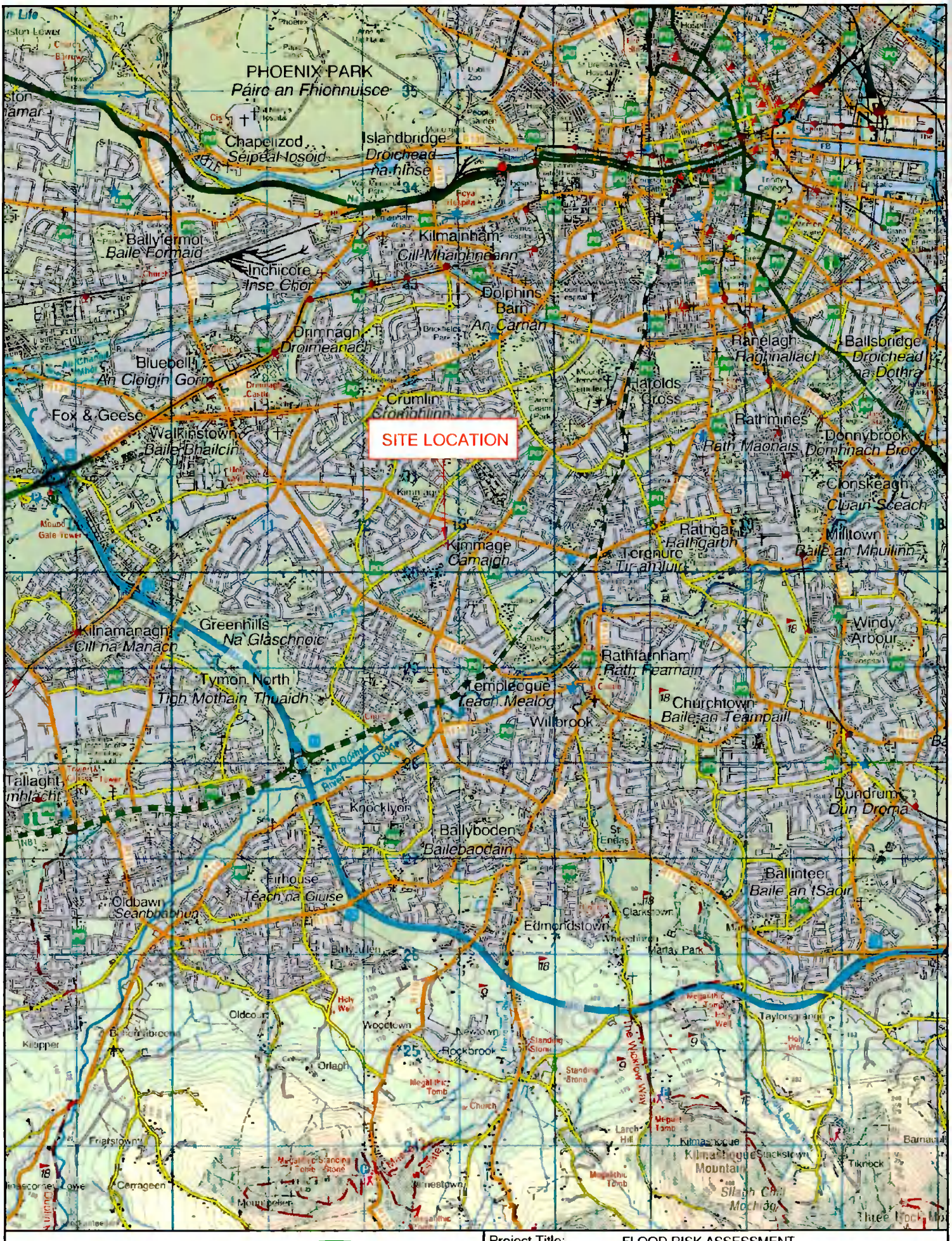
Appendix A. Drawings

IE2345-001-A Site Location Map

OPW CFRAM Map Number E09POD_EXFCD_F0_03

OPW CFRAM Map Number E09POD_DPFCD010_F0_03

OPW CFRAM Map Number E09POD_DPFCD001_F0_03



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Drg. Title:	SITE LOCATION MAP

Dwg.Scale:	Date:	Dwg.No:	Job No:	Revision:	Dwg.By:
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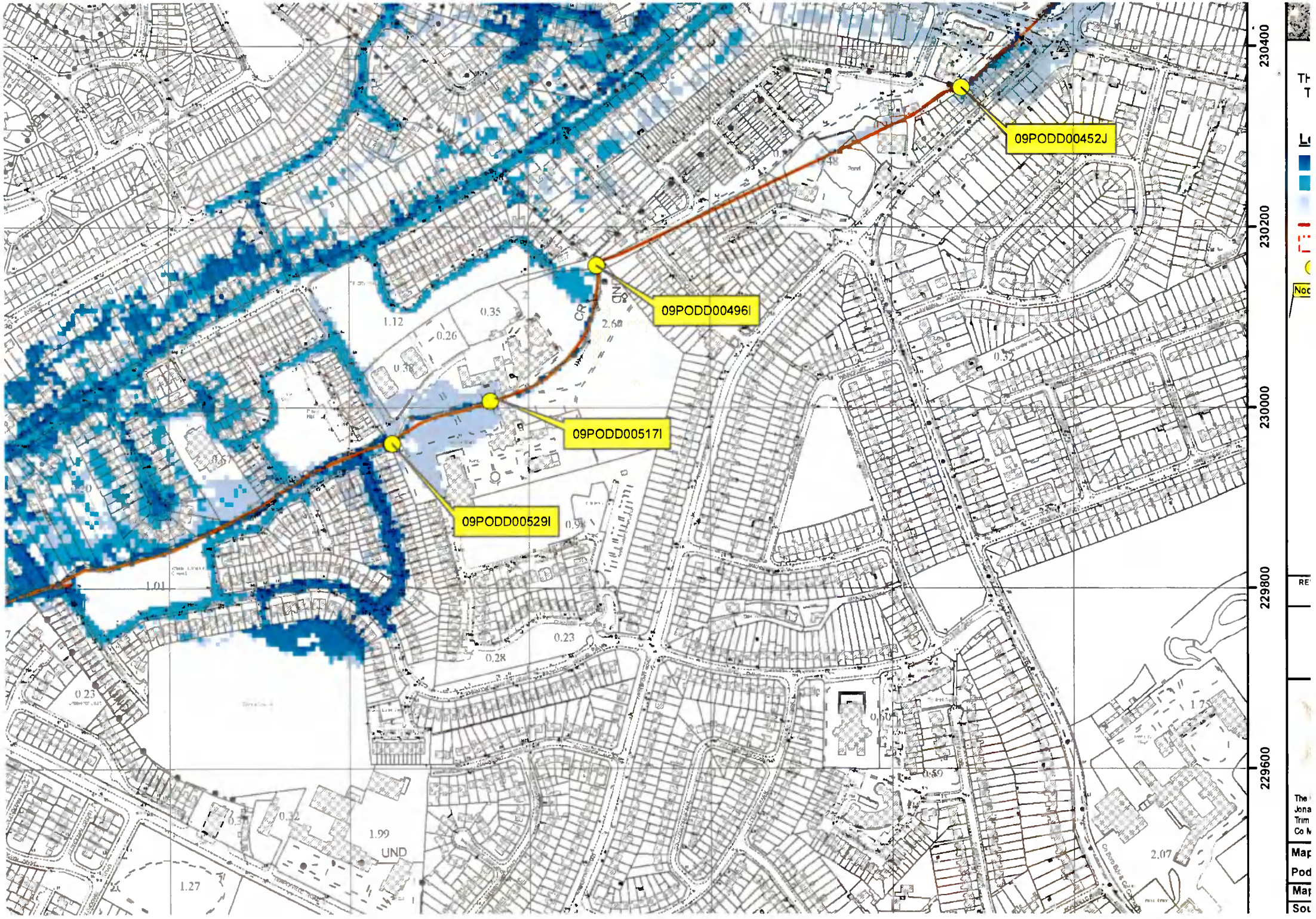
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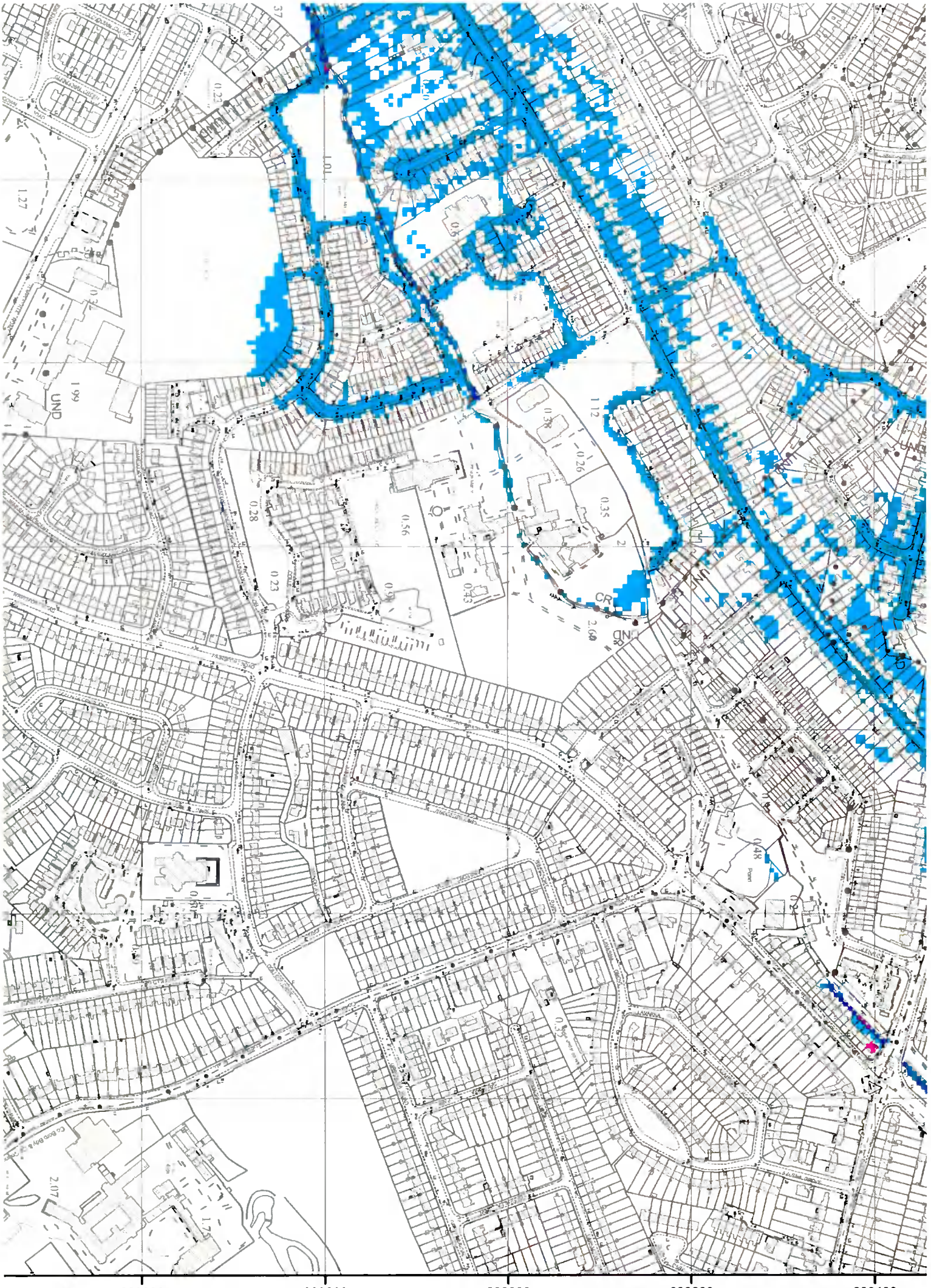
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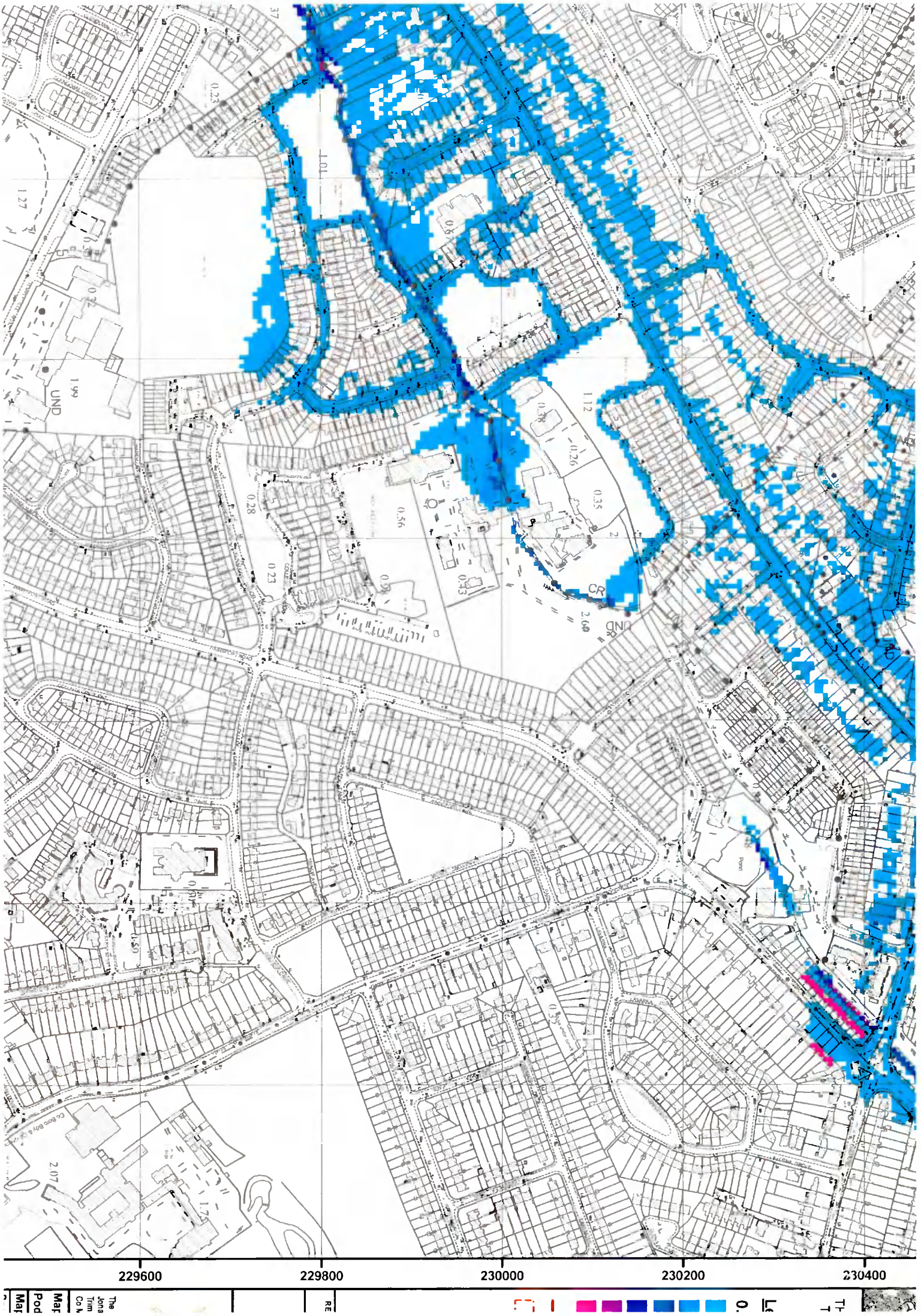
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