8 Hydrology

8.1 Introduction

No revisions were necessary to this EIAR chapter in responding to Dun Laoghaire - Rathdown County Council (DLR CC) decision to request Further Information dated 25th March 2026 in respect of LRD26A/0051/WEB.

This chapter of the EIAR was prepared to assess the potential significant effects of the Proposed Development on lands at'St. Teresa's', Temple Hill, Temple Road, Monkstown, Blackrock, Co. Dublin. It evaluates the likely significant effects, if any, which the Proposed Development will have on hydrology (surface water).

This chapter contains necessary information as defined in the Environmental Protection Agency (EPA) Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022). Reference is made to geology and hydrogeology, but these aspects are covered in more detail in Chapter 7 (Land, Soils, Geology, Hydrogeology and Utilities).

The chapter initially provides a description of the receiving environment of the site and the potential impacts of the development. When assessing the potential impacts, this assessment considers the significance of the environmental attributes, and the predicted scale, and duration of the likely effects. The chapter also outlines the proposed mitigation and monitoring measures that will reduce or eliminate the identified potential impacts of the Proposed Overall Development (the effect after the implementation of mitigation measures).

This chapter should be read in conjunction with Chapter 7 (Land, Soils, Geology, Hydrogeology and Utilities) and Chapter 6 (Biodiversity).

It also should be read in conjunction with Chapter 2 for the EIAR which goes into further detail with regards to the site description.

8.1.1 Quality Assurance and Competency of Experts

This chapter of the EIAR has been prepared by Liana Rocha and Marcelo Allende of AWN Consulting.

Liana Rocha (BEng MSc) is a Senior Environmental Consultant with AWN Consulting, currently working within the water department. Liana holds bachelor's degrees in Environmental and Civil Engineering, a Master's in Geotechnical Engineering, and is currently completing a PhD in Geotechnical Engineering. She has worked on a wide range of projects including environmental investigations, environmental impact assessment reports, contaminated land remediation, geotechnical assessments, Due Diligence reporting, baselines studies, and monitoring of soil, surface water and groundwater, as well field sampling programmes in Brazil. Liana is a member of the International Association of Hydrogeologists (Irish Group).

Marcelo Allende (BSc, BEng) is a Principal Environmental Consultant (Hydrologist) with AWN Consulting with over 20 years of experience in water resources technical studies, conceptual and numerical hydrological/hydrogeological modelling and environmental consultancy. Marcelo holds a degree in Water Resource Civil Engineering (BEng, Hons) from the University of Chile and a Bachelor of Science in Engineering (BSc, Hons). He has worked on a wide of range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, surface and groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments (Stage 1,2 and 3), Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (IAH, Irish Group) and a member of Engineers Ireland (MIEI).

8.2 Study Methodology

8.2.1 Criteria for Rating of Effects

The section establishes the criteria, and guidance used to rate the significance of the potential impacts of the Proposed Development project on the hydrological aspects of the site and surrounding area.

The document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the Transport Infrastructure Ireland (TII, 2009, previously NRA) is referenced where the methodology for assessment of impact is appropriate.

Furthermore, in line with this TII Guidelines, an assessment of the attribute importance has been undertaken in order to provide a basis for the assessment of impact provided. The attribute importance considers the potential as well as the existing use of the surface water features as a water resource (i.e., water supply, fisheries and other uses) as well as ecological habitat requirements. The TII criteria for rating the hydrological related attributes are presented in Appendix 8.1 of this EIAR.

The quality, significance, and duration of the potential impacts, residual effects, and cumulative effects are described using standard EIA descriptive terminology set out in Chapter 1 of this EIAR.

The principal attributes (and effects) to be assessed include the following:

- Water Framework Directive (WFD) Status and potential for increased risk of deterioration of this status due to the activities of the site.
- River and aquifer water quality in the vicinity of the site (where available).
- Surface, transitional and coastal watercourses near the site and potential impact on surface water quality arising from Proposed Development related works including any discharge of surface water run-off.
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any).
- Surface water features within the area of the site.

8.2.2 Water Framework Directive (WFD) Status

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy; commonly known as the Water Framework Directive (WFD) establishes a framework for community action in the field of water policy.

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle river basin management plan namely, The Water Action Plan 2025 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024) is currently in place.

During the development of this Plan, a prioritisation exercise was undertaken by the local authorities, the EPA and other stakeholders to identify those water bodies that require immediate action within this plan cycle to 2021. During the catchment characterisation, the EPA identified those water bodies either 'At Risk' of not achieving their objectives or 'Under Review'. The outcome of this prioritisation process was the selection of 190 Areas for Action across the 5 Local Authority regions. Within these 190 areas, a total of 726 water bodies were selected for initial actions during this RBMP cycle. There are 832 water bodies identified as being 'At Risk' of not achieving their environmental objectives under this Plan that have not been included in the Areas for Action. For most of these water bodies, targeted actions will be undertaken in The Water Action Plan 2025. The Water Action Plan 2025 has been reviewed in the context of ensuring mitigation

measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the Proposed Development.

8.2.3 Relevant Legislation & Guidance

As outlined in Chapter 1 the information provided complies with all relevant EU and Irish legislation and includes consideration of the objectives as outlined in the Dún Laoghaire-Rathdown County Development Plan 2022-2028. Relevant legislation includes:

- EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022).
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (TII, 2009, previously NRA). The TII criteria for rating the hydrological related attributes are presented in Appendix 8.1 of this EIAR.
- Water Framework Directive 2000/60/EC.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW).

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation, regulations and guidelines. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003).
- European Communities (Drinking Water) Regulations 2023 (S.I. 99 of 2023).
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019).
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022.
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011).
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988.
- Local Government (Water Pollution) Acts 1977-2007.
- Water Services Guidelines for Planning Authorities Draft (Department of Housing, Planning and Local Government, 2018).
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board).
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers.
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors.
- CIRIA C648 Control of Water Pollution from Constructional Sites.
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA 2008).
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment.

8.2.4 Sources of Information

Desk-based hydrological information in the vicinity of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Latest EPA Envision water quality monitoring data for watercourses in the area.
- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1:100,000 mapping.
- River Basin Management Plan for Ireland 2022-2027 (Department of Housing, Planning and Local Government, 2018).
- Water Action Plan 2024 - A River Basin Management Plan for Ireland (Department of Housing Local Government & Heritage, Sept 2024).

- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW, 2009)).
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie).
- Relevant Eastern Catchment Flood Risk Assessment and Management (CFRAM) Flood Reports.
- National Parks and Wildlife Services (NPWS) – Protected Site Register.
- Dun Laoghaire Rathdown County Development Plan 2022-2028 – Strategic Flood Risk Assessment (SFRA, 2023-2029).

Site specific data was derived from the following sources:

- Site plans and drawings submitted with the planning application pack.
- Engineering Services Report (JJ Campbell & Associates, 2025).
- Construction & Environmental Management Plan (JJ Campbell & Associates, 2025).
- Ground Investigation Report (GII, 2019).
- Ground Investigation Report (GII, 2020).
- Flood Risk Assessment (JBA Consulting, 2025).
- Kilcullen GWB: Summary of Initial Characteristics (2004).

8.3 The Existing Receiving Environment (Baseline)

8.3.1 Site Description

The Proposed Development site is located at Temple Hill, Temple Road, Monkstown, Blackrock, Co. Dublin and covers an area of approximately 4.56 hectares. The Proposed Development is bounded to the north by the N31 national road, while to the west and southeast the site is bounded by existing residential properties. The Rockfield Park playing pitches are located to the south of the Proposed Development. The site is currently a partially vegetated greenfield, with a convent building occupying a portion of the site, as shown in Figure 8.1.

The site topography ranges from 21 mOD along the southern boundary to 12.24 mOD at the intersection of St. Louise's Park and Temple Road. The site slopes generally in a southwest to northeast direction.

The Proposed Development will consist of revisions to development previously permitted under SHD ABP-303804-19 (291 no. units permitted) to provide for a new residential scheme of 414 no. residential units in total (an uplift of 123no. units overall). The figures below present the proposed site location and site layout.

Figure 8.1 - Site Location Map

Figure 8.2 – Site Layout (Source: O'Mahone Pike)

8.3.2 Hydrological Environment

The Proposed Development site lies within the Liffey and Dublin Bay (Catchment 9), and the Dodder_SC_010 (WFD Sub-catchment 09-16). According to the most recent EPA online mapping, the nearest surface water body is the Carysfort-Maretimo Stream (European Code: IE_EA_09B130400, also known as Brewery Stream), which flows along the northwestern boundary

of the Proposed Development towards the Dublin Bay Coastal Water Body (European Code: IE_EA_090_0000), located c. 300m north of the Proposed Development, which hosts SAC, SPA and NHA habitats.

The Carysfort Maretimo Stream rises to the southwest of Sandyford Village. It flows in a north easterly direction through the Sandyford Business District and Stillorgan before discharging into Dublin Bay at
Blackrock.

The nearest Natura 2000 Sites is the South Dublin Bay and River Tolka Estuary SAC (NPWS code Site Code 004024) which is located c. 300m to the north of the Proposed Development within the Dublin Bay Coastal Water Body.

Dublin Bay hosts a number of bathing areas protected by the bathing water directive 2006/7. The nearest swimming location is Seapoint, located c. 700m east in the Dublin Bay Coastal Water Body. A review of the EPA bathing status data for the last four years, shows that current EPA (2025) Bathing Water Quality report has classified nearby Seapoint as 'Excellent' for the last four years 2021-2024.

Figure 8.3 presents the surface water environment in the vicinity of the Proposed Development.

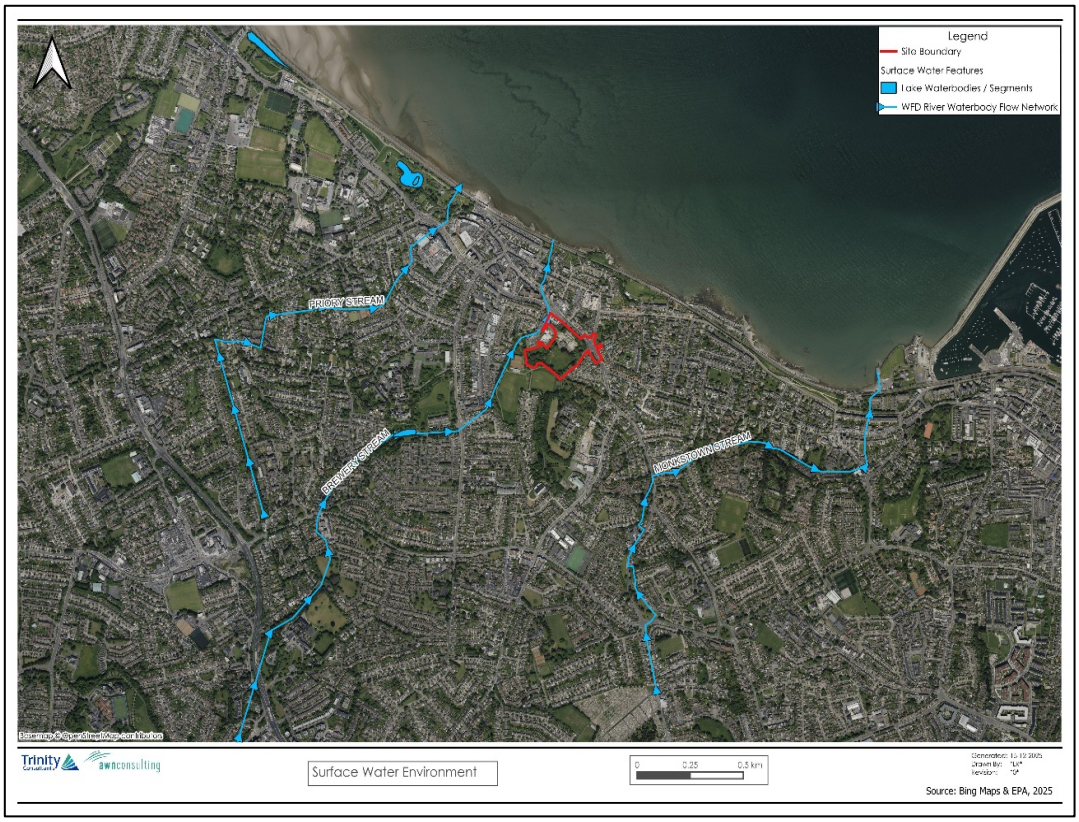

Figure 8.3 - Surface Water Environment

8.3.3 Surface Water Quality

The Proposed Development is located within the Irish River Basin District, as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD).

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle river basin management

plan (2022-2027) i.e. Water Action Plan 2024 – A River Basin Management Plan for Ireland (Dept. of Housing Local Government & Heritage, Sept 2024) has since been published.

During the development of this plan, a prioritisation exercise was undertaken by the local authorities, the EPA and other stakeholders to identify those water bodies that require immediate action within this plan cycle to 2027. During the catchment characterisation, the EPA has carried out an analysis of the likely water quality outcomes that may be achieved as a result of the measures outlined in the third-cycle River Basin Management Plan. The analysis forecasts the number of water bodies that are likely to achieve their 2027 status objectives, and those that are likely to show improvements, so that an assessment can be made of the gap to achieving Water Framework Directive (WFD) environmental objectives. The forecast analysis is a snapshot in time based on the best available information on the measures being implemented as of September 2023. It depends on assumptions being made about how the measures in the plan will be implemented, for example, where measures are voluntary. Improved information on the measures being implemented will allow the forecasts to be further refined over time. The 2021 characterisation assessment identified there were 2,610 water bodies, out of a total of 4,842 water bodies (54%), which had met their objectives. These water bodies require ongoing basic measures to protect water quality. Of the remainder, 1,649 (34% of the total) were categorised as being 'At Risk' of not achieving their objectives and had evidence available to determine the water quality issue(s) and the pressure(s) that needs to be addressed. These water bodies are prioritised in the Plan for measures to restore water quality. The other 583 water bodies are in 'Review', which means additional evidence is required to confirm the nature of any water quality issues and the impacts from any relevant pressures.

The third cycle river basin management plan (2022-2027) i.e. "Water Action Plan 2024 – A River Basin Management Plan for Ireland" has been reviewed in the context of ensuring mitigation measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the Proposed Development.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003);
- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014);
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019);
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010 S.I. No. 366 of 2016);
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010);
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011);
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988;
- Local Government (Water Pollution) Acts 1977-1990;
- SI No. 258 of 1988 Water Quality Standards for Phosphorus Regulations 1998;
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board);
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers;
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors;
- CIRIA C648 Control of Water Pollution from Constructional Sites;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA 2008); and
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment.

The Carysfort-Maretimo Stream is part of the Brewery Stream_010 WFD River Waterbody. According to EPA (2025), this waterbody has a WFD status (2019-2024) of 'Poor' and a WFD risk

score at 'Review'. This 'Poor' status assigned to the Carysfort-Maretimo Stream is due to its poor ecological status or potential and moderate phosphorous conditions. However, it should be noted that this status was estimated using modelling techniques (i.e., without water quality data, as there are no EPA water quality stations on this waterbody) and therefore, its confidence is 'medium' according to the EPA.

The Dublin Bay Coastal Water Body has a WFD status (2019-2024) of 'Good' and a WFD risk score of 'Not at risk' of not achieving good status, which means there have been no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present.

The WFD status of the surface waterbodies in the vicinity of the Proposed Development are shown in Figure 8.4 below.

Figure 8.4 – Surface Water Quality Status

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 - Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality. In relation to the Proposed Development site, there are no surface waterbody EPA monitoring stations within the Carysfort-Maretimo Stream.

8.3.4 Bathing Waters and Recreational Waterbodies

The local environment also includes areas of natural resources that relate to populations and human health that may be impacted by the Proposed Development, this includes economic resources, recreational and bathing waters, and drinking water resources.

A review of Environmental Sensitivity Mapping online maps that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, within the Proposed Development or located near the Carysfort-Maretimo Stream.

The nearest Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA to the proposed development is Seapoint (Bathing Waters ID: IEEABWC090_0000_0100) located c. 700m east in the Dublin Bay Coastal Water Body.

Water quality data is collected for nearby Seapoint bathing area and is reported by the EPA on www.beaches.ie. The EPA bathing status is not based on single events, rather it is based on a review of data over 4 years (based on data collected during the bathing season only). Bathing classes are determined as Excellent (highest cleanest class), Good (Generally good water quality), Sufficient (The water quality meets the minimum standard) and Poor (The water quality has not met the minimum standard). A review of this data for the last four years, shows that despite these temporary overflows, the current EPA (2025) Bathing Water Quality report has classified nearby Seapoint as 'Excellent' for the last four years 2021-2024.

Based on the EPA, Seapoint is classified as achieving Excellent Water Quality in 2024 based on the assessment of bacteriological results for the period 2021 to 2024. Seapoint has achieved an Excellent Water Quality rating for the four consecutive years 2021 to 2024. Annual water quality ratings are generally calculated using monitoring results over a four-year period and are assessed against stringent bacterial limits to protect bather health.

8.3.5 Water Supplies

A review of the Environmental Protection Agency (EPA) online mapping, which includes the Register of Protected Areas (RPA) established under the Water Framework Directive (WFD), indicates that there are no Nutrient Sensitive Area within the proposed development. The nearest Nutrient Sensitive Area is the Liffey Estuary (EPA Code: IE_EA_090_0300), as an Urban Waste Water Treatment Directive Sensitive Area located 5 km north. These areas are designated in accordance with the Urban Wastewater Treatment (UWWT) Directive (91/271/EEC) and relevant national legislation, including S.I. 254/2001, S.I. 440/2004, and S.I. 48/2010. In this context, the identified waterbody is used to define the extent of the nutrient-sensitive designation.

8.3.6 Existing Water and Wastewater Utilities

There are no existing water or wastewater utilities located within the boundary of the Proposed Development site or in its immediate surrounding area. The nearest wastewater utility to the Proposed Development is Ringsend Uisce Éireann (Registration Code: D0034) located c. 4.9km north of the Proposed Site.

8.3.7 Flood Risk

A Flood Risk Assessment was undertaken by JBA Consulting for the Proposed Development to assess the potential flood risk associated with the Carysfort-Maretimo Stream. The study is an amendment to the permitted SHD ABP-303804-19. No revisions to Blocks A, B1-B4, St. Teresa's House are proposed or any amendments to the previous development within Flood Zone A & B.

A review of historical flood information confirmed that a flood event occurred on 24 October 2011 along Temple Road, adjacent to the site's north-eastern boundary, as shown in Figure 8.5. Based on the site's proximity to this flood location, minor inundation of the site was possible, although this would have been limited to the northern boundary. Based on the site topography, it is unlikely that the areas designated for proposed residential use were impacted.

Review of the CFRAM and DLR SFRA mapping indicates that the northern boundary of the site lies within Flood Zone A (defended)/B. However, the Proposed Development is not considered to be at significant flood risk. Existing flood defences along the Carysfort-Maretimo Stream provide protection up to the 1% AEP event, with the 0.1% AEP event limited to inundation of the access road only, without floodwater entering the site. In addition, the review of Eastern CFRAM confirms that all the proposed modifications are located in Flood Zone C and therefore are at a low risk of inundation.

Residential units are located above predicted flood levels with adequate freeboard, and the basement and car park entrance are positioned within Flood Zone C with appropriate design

levels. Flood risk mitigation measures, including raised car park access levels and protected basement openings, have been incorporated.

Surface water management has been designed to accommodate a 100-year rainfall event plus climate change allowance through on-site attenuation, restricted discharge, green and blue roofs, and permeable paving.

Residual risks have been identified as (i) potential increases in stream flow and flood frequency associated with climate change, and (ii) failure of the Carysfort–Maretimo flood defences. Review of the CFRAM flood mapping indicates that the proposed modifications would not be affected under either of these residual risk scenarios, including the climate change assessment.

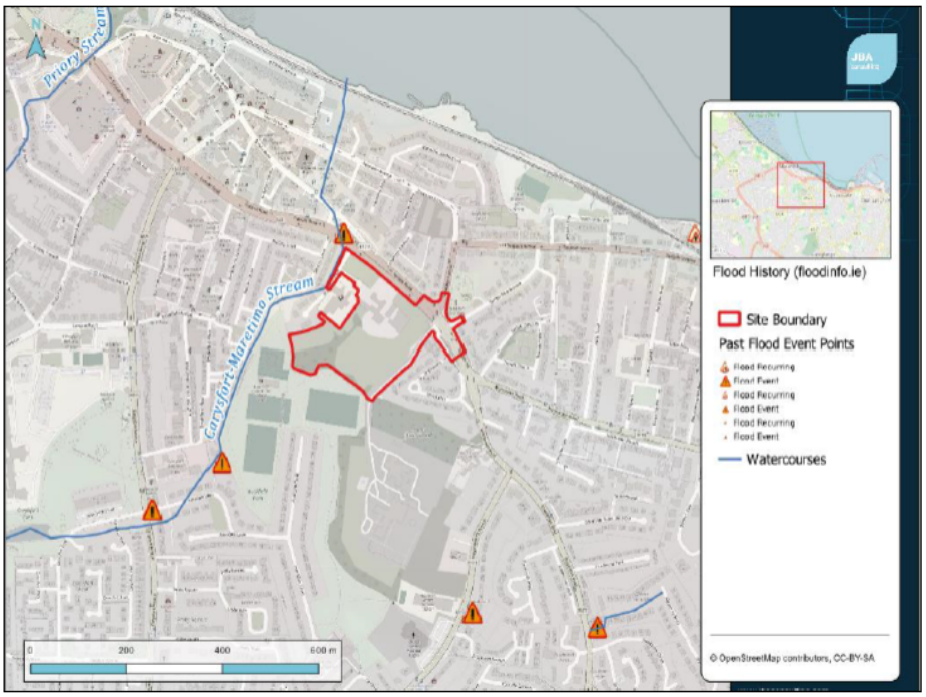

Figure 8.5 – Historical Flooding Events (Source: JBA Consulting)

The proposals comprise amendments to the permitted SHD (ABP-303804-19), all of which are located within Flood Zone C. The proposed alterations do not extend into Flood Zone A/B, do not alter the mapped Flood Zone A/B extents, and are not predicted to be impacted by extreme flood events.

Based on the assessment, design approach, and proposed mitigation measures, the development is considered consistent with the core principles of the Planning Guidelines and the relevant objectives of the DLR Development Plan 2022–2028.

Refer to the Flood Risk Assessment, prepared by JBA Consulting submitted separately as part of the planning application for further information.

8.3.8 Areas of Conservation

The NPWS (2025) on-line database have been reviewed to determine the location of areas of conservation within the Proposed Development site, and there are no Special Protected Areas (SPA) established under the EU Birds Directive (79/409/EEC), or Special Areas of Conservation (SAC) established under the Habitats Directive within the boundary of the Proposed Development site. Furthermore, there are no Natural Heritage Areas (NHA), or proposed Natural Heritage Areas (pNHA) established under the Wildlife Acts, 1976 and 2000 (as amended) within the boundary of the Proposed Development site. The European sites and pNHA in closest proximity to the Proposed Development are as follows:

- South Dublin Bay and River Tolka Estuary SAC (Site Code 004024) c. 300m north.
- South Dublin Bay pNHA (Site Code 000210) c. 300m north.

According to NPWS (2025), the nearest Natura 2000 Site is South Dublin Bay and River Tolka Estuary SAC located c. 300m north of the proposed development as shown in Figure 8-6 below. The development site has an 'indirect' hydrological connection with this SAC, as the public stormwater sewer discharges into the Carysfort-Maretimo Stream that flows along the northwestern boundary of the Proposed Development.

Figure 8.6 –Areas of Conservation and Hydrological Environment

8.3.9 Rating of Site Importance of Hydrological Attributes

Based on the TII methodology (2009) (See Appendix 8.1) the importance of the hydrological features at this site is rated as 'Very High' importance based on the existence of a floodplain adjacent to the site to the northwest. However, it should be noted that the site is defended from the 1% AEP flood event, and is located in Flood Zone B along the north western section of the site so there will be no loss of floodplain as part of the project. The site is indirectly connected to the South Dublin Bay and River Tolka Estuary SAC European Site.

8.4 Characteristics of the Proposed Development

The purpose of this section is to provide an overview of the key relevant details of the demolition, construction and operational phases of the Proposed Development. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Development. Therefore, it should be read in conjunction with the full development package. For a more comprehensive understanding of the Proposed Development, please refer to Chapter 2 'Description of the Proposed Development' of the EIA Report. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant document in order to define the Proposed Development. The proposed site layout is also detailed in Appendix 1-1.

8.4.1 Demolition Stage

The site contained existing buildings to be demolished, the majority of which works are completed. The likelihood of significant effects on the hydrology during the demolition phase was

minimal due to the demolition works of the permitted development being limited to surface-level activities and do not involve any excavation works. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. As a result, the impact on the land and soils is minimal and no significant effects on the land's composition, stability, or fertility are anticipated.

Refer to Chapter 15– Waste Management of this EIAR for further information on predicted on and off-site reuse, recycle and disposal rates for demolition waste.

Overall, no mitigation measures are required during the remaining demolition phase in relation to hydrology due to the surface level nature of the works. The surface-level demolition works will have a negligible impact on hydrology, preserving their integrity and minimizing any potential environmental consequences.

8.4.2 Construction Stage

The activities required for the construction phase of the Proposed Development represent the greatest risks of potential impact on the hydrological environment. These activities primarily pertain to the site preparation, excavation and infilling activities required to facilitate construction of the Proposed Development.

Site Levelling and Excavations

The Proposed Development requires soil to be excavated to facilitate construction of foundations, basements, installation of underground services and for levelling of the site. Rock excavation is not anticipated, based on the fact that the site investigations indicate that the underlying rock is below formation level for the proposed basements and buildings.

The project engineers J.J. Campell and Associates have estimated that c. 12,000 m3 of material will need to be excavated to do so. It is currently envisaged that approximately 10,800 m3 of the excavated material will be reused onsite, with the remaining material removed from the site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

As outlined above, it is estimated that approximately 1,200m³ of material will be excavated and subsequently removed and transported off-site. This activity may temporarily increase the vulnerability of the underlying 'Poor Aquifer'.

During the excavations for foundations, no significant dewatering is expected given the low permeability overburden underlying the site. Bedrock would not be affected by excavations work given the expected depths of bedrock, based on the fact that the site investigations indicate that the underlying rock is below formation level for the proposed basements and buildings. However, if pumping of standing or pooled surface water becomes necessary during and after heavy rainfall events, it will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site). Dewatering is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site.

Storage of soils/aggregates

The employment of good construction management practices and full adherence to a Construction Environmental Management Plan (CEMP) will minimise the risk of pollution of soil, storm water run-off, and groundwater. Such practices include the proper storage of spoil / loose materials on site, such as excavated materials to be used for landscaping purposes. Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on site.

Temporary storage of spoil will be managed to prevent accidental release of dust emissions and uncontrolled surface water run-off which may contain sediment and solid matter. Any excavated material temporarily stockpiled onsite for re-use during reinstatement will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

Storage of Hazardous Materials

Temporary storage of fuel will be required on site for construction traffic. Liquid materials i.e., fuel storage will be located within the site compound in temporary designated bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage.

Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

Import/Export of Materials

There will be a requirement for deliveries and refuelling of imported engineering fill (sands and gravels), and other construction materials include steel structure, concrete, cladding, ducting and piping. Construction materials will be brought to site by road. Refuelling will be completed in accordance with the best standard practice refuelling procedure. To support the construction of proposed roads, car parks, and buildings, additional fill material may need to be imported.

A 'Just in Time' delivery system will operate to minimise storage of materials. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway. Where possible it is proposed to source general construction materials from the local area to minimise transportation distances.

Soil requiring removal offsite will be removed from site regularly to ensure there is minimal need for stockpiling. The majority of the soil removed will be re-used on site for backfill. Any surplus soil material will be transported off site and disposed of at a fully authorised soil recovery site or licenced landfill based on the waste soil classification.

Collection and disposal of collected water (rainfall run off and perched groundwater)

The development site will be excavated to facilitate site levelling, construction of new foundations and installations of site services. No significant dewatering is expected given the low permeability overburden underlying the site. Bedrock would not be affected by excavations work given the expected depths of bedrock, based on the fact that the site investigations indicate that the underlying rock is below formation level for the proposed basements and buildings.

However, if pumping of standing or pooled surface water becomes necessary during and after heavy rainfall events, it will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site). Dewatering is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site.

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the Proposed Site is complete. A temporary drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff by the site during construction. Where required, a wastewater discharge licence will be applied for to manage surface water on site during the construction phase. This shall permit the discharge of trade effluent arising from groundwater/surface water ingress on the construction site. In case of any exceedances of discharge permit conditions, water will be disposed of to a licenced facility.

It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.

8.4.3 Operational Stage

The Proposed Development characteristics which relate to the hydrological environment during operation are summarised below.

Surface Water Infrastructure

To ensure appropriate water quality treatment, a range of Sustainable Drainage System (SuDS) measures will be implemented across the site. These will include attenuation tanks, intensive and extensive green roofs, permeable paving, dry swales/infiltration trench, and detention basins to limit the outflow from the site to green field runoff rates.

It is proposed to separate the storm runoff from the existing and proposed buildings and to use SuDS techniques to control stormwater discharge from the site. A storm water carrier pipe will be provided around the site to intercept runoff.

Due to the sloping topography of the site, it is proposed to make two surface water connections serving two zones each comprising approximately 50% of the site area (i) Surface Water Connection No 1 is for Zone 1 and connects to the existing public on the North East side of the site and (ii) Surface Water Connection No 2 is for Zone 2 and connects to the existing public sewer manhole on the North corner of the site (refer to Figure 8.7 below).

An attenuation system has been designed in order to discharge a greenfield run-off rate (i.e., the same level as under pre-development conditions) into the public sewer. An attenuation volume of 1,810m3 is provided for the whole site. This storage is divided between a "stormtech" below-ground attenuation structure, situated in the centre of the site, to the north of Block D, providing 905m3 of storage and a reinforced concrete tank beside B2 under the road, also providing 905m3 of storage. As these storage systems are connected independently to the local authority collection system, each connection is provided with a flow limiting device (Hydro-brake or similar) in order to discharge a greenfield run-off rate. The attenuation volume to be retained on site is to provide for a 1–in–100 year extreme storm event, increased by 20% for the predicated effects of climate change.

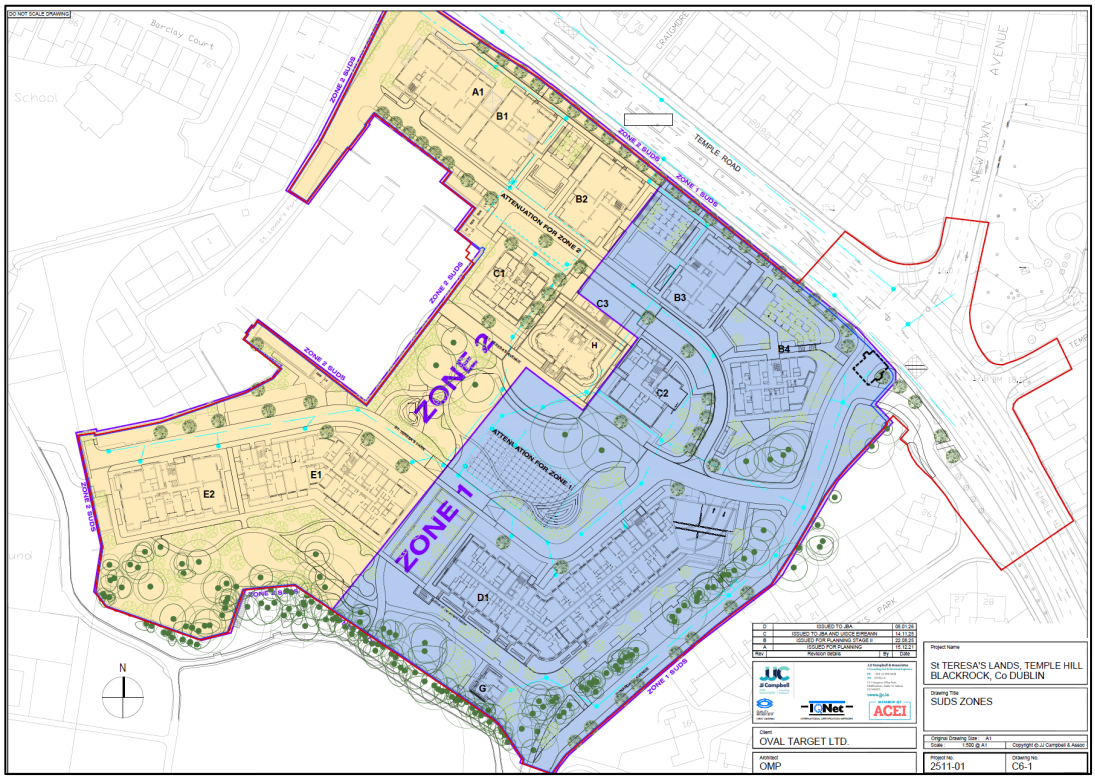

Figure 8.7 – Surface water drainage zones (Source: JJ Campbell & Associates)

For further technical details regarding the design, specification, and operation of the SuDS measures, reference should be made to the Engineering Services Report prepared by JJ Campbell & Associates.

Wastewater Infrastructure

Foul water from St Teresa's is currently conveyed through the combined sewer network within the site boundary. Temple Hill Road is served by a 1200mm diameter combined sewer. The combined sewers within St Teresa's Lands discharges to the 1200mm diameter combined sewer in Temple Hill Road. This trunk main is routed to the Dún Laoghaire West Pier pumping station where it is pumped to Ringsend Waste Water Treatment Works.

It is proposed that to drain foul water separately by gravity. The foul drain will connect to the existing 300mm diameter combined sewer located within the site boundary on Temple Road, it then discharges to an existing manhole on the public 1200mm diameter public combined public sewer.

The public foul water sewer eventually discharges to the West Pier pumping station (located c. 1.5 Km to the east of the site) which transfers wastewater to Ringsend Waste Water Treatment Plant (WWTP) (D0034-02) for full treatment. According to Uisce Eireann's 2023 Annual Environmental Report (AER), Ringsend WWTP currently has adequate operational capacity to accommodate the additional flows generated by the proposed development. Following treatment, the final effluent from Ringsend WWTP is discharged into the South Dublin Bay coastal waterbody.

Water Supply

It is understood that the water supply to the proposed development will be provided via 2 existing infrastructure 100Ømm main spur wich are connected to an existing 400Ø watermain in the path that runs along Temple Road. It is proposed a new 200Ømm diameter watermain traveling in loop within the site to serve each unit.

8.5 Potential Impact of the Proposed Development

An analysis of the potential impacts of the Proposed Development on the hydrological environment during the construction and operation is outlined below. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water (hydrology) the following impacts discussed will be considered applicable to both Chapter 7 and 8 of the EIA Report. Mitigation measures included in the design of this project to address these potential impacts are presented in Section 8.8 of this EIA.

There is no likely potential impact on any protected habitat based on the design criteria and distance of any hydrological pathways.

8.5.1 Demolition Stage

The site contained existing buildings for demolition. The likelihood of significant effects on the hydrology during the demolition phase was minimal due to the demolition works of the permitted development being limited to surface-level activities and do not involve any excavation works. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Overall, the surface-level of remaining demolition works will have a negligible impact on the hydrological environment, preserving their integrity and minimizing any potential environmental consequences. In the absence of mitigation, the effect on hydrology is likely to be **neutral**, **imperceptible** and **short-term**.

Refer to Chapter 15– Waste Management of this EIAR for further information on predicted on and off-site reuse, recycle and disposal rates for demolition waste.

8.5.2 Construction Stage

Potential Impacts on Surface Water Quality

There is potential for run-off water to become contaminated with pollutants released during construction activity. If not mitigated, contaminated water can pose a temporary risk to the Carysfort-Maretimo Stream, which discharges to the Dublin Bay Coastal Water Body and the underlying 'Poor Aquifer' i.e. Kilcullen groundwater body (GWB). During construction of the development, the potential of contamination is associated with the following sources:

- Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates)) – arising from excavation and ground disturbance;
- Excavations/ top and sub soil stripping- Increase sediment run off (erosion during rainfall periods), Pollutant mobilisation (heavy metal runoff), Loss of vegetation;
- Cement/concrete (increase turbidity and pH) – arising from construction materials;
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or onsite storage;
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms. Construction phase sewerage may initially need to be contained in a tank and taken off site by tanker for disposal at a licensed waste management facility, before connection to the sewer line can be made.

In the absence of mitigation, rainfall run-off during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may in turn impact on local infiltration capacity, downstream infrastructure or watercourses. Concreting operations pose a potential risk of discharging concrete materials into exposed surfaces and percolate to the underlying groundwater. Concrete, especially the cement component, has a high alkalinity level. There is also the potential risk of unintentional discharge of stored materials like fuels, oils, and paints, which could have negative impacts on surface water bodies on-site and downstream, and the underlying groundwater.

There are no potential impacts from wastewater on the hydrological environment as this will be discharged of appropriately.

In the absence of mitigation measures, the potential impacts during the construction phase on surface water quality are **negative**, **slight** and **short term**.

Potential Impacts on Surface Water Flow and Quality

Surface water runoff during the construction phase may contain increased silt levels or become polluted from construction activities. Runoff containing large amounts of silt can cause damage to surface water systems and receiving watercourses. Silt water can arise from dewatering excavations, exposed ground, stockpiles and access roads.

The gradual introduction of impermeable surfaces and the compaction of soils across the construction site as a result of the land clearing and earthworks will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible increase in surface water run-off along with sediment loading, which could potentially impact local drainage if not adequately mitigated. This increase in the rate and volume of direct surface run-off can result in increased sediment loading, scouring impacts on local drainage and watercourses, and downstream impacts.

There are no surface water abstractions proposed, therefore no potential impacts on the existing surface water regime.

There are no proposed permanent diversions of any waterbodies as part of the Proposed Development.

In the absence of mitigation measures the potential impacts during the construction phase on surface water quantity and flow are **negative**, **slight** and **short term**.

Potential Impacts on Water Framework Directive Status

There is a potential of accidental discharges during the construction phase (as set out in Section 8.4.2). However, these are temporary short-lived events that will not impact on the status of the Carysfort-Maretimo Stream, Dublin Bay Coastal Water Body and the Kilcullen groundwater body (GWB) in the long term. As such the Proposed Development will not cause any significant deterioration or change in water quality status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the third cycle river basin

management plan (2022-2027) i.e. Water Action Plan 2025 - A River Basin Management Plan for Ireland.

In the absence of mitigation measures the potential impacts during the construction phase on the Water Framework Directive (WFD) status due to changes to the hydrological environment are **negative**, **slight** and **short term**.

8.5.3 Operational Stage

Potential Impacts on Surface Water Quality

As stated in Section 6.7.1.1 above, there is an indirect hydrological connection, to the Carysfort-Maretimo Stream and Dublin Bay Coastal Water Body during the construction and operational phase. Surface water runoff from roads, car parking, and hardstanding areas, can potentially contain minor levels of contaminants such as hydrocarbons from trafficked areas.

The surface water runoff during the operational phase will more likely impact stormwater drainage, rather than directly impact the water bodies i.e. Carysfort-Maretimo Stream, Dublin Bay Coastal Water Body and the Kilcullen groundwater body (GWB) underlying the site, due to the hardstand and drainage infrastructure proposed.

The surface water drainage strategy includes the Proposed Development to be served by a SuDS that is to be integrated with the developments landscaping features and is typically to comprise a combination of multiple measures. Any surface water flows from the Proposed Development will be directed to underground attenuation system of the Proposed Development which discharge to the to the existing public sewer.

The foul water drainage strategy for the proposed development includes the development of a gravity flow system connecting into the existing foul pipes in Temple Road, it then discharges to an existing manhole on the public 1200mm diameter public combined public sewer. This trunk main is routed to the Dún Laoghaire West Pier pumping station where it is pumped to Ringsend Waste Water Treatment Works (D0034-02), where it will undergo full treatment before being discharged into South Dublin Bay coastal waterbody. According to its 2023 Annual Environmental Report (AER), WWTP currently has adequate operational capacity to accommodate the additional flows generated by the proposed development.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water and groundwater quality are **negative**, **significant** and **short term**.

Potential Impacts on Surface Water Flow and Quality

The proposed incorporation of hardstand area and the use of SuDS design measures will have a minor effect on local recharge to ground and has the potential to result in increased run-off from the site if not adequately mitigated.

However, the impact on the overall groundwater regime will be insignificant considering the site area is underlying by a "Poor' Aquifer (Pl), which is relatively unproductive and will have no significant impact groundwater levels.

An increase in surface water runoff can have an adverse effect on the hydrological regime of downstream environments via flooding and inundation to downstream properties.

As described in Section 8.3.7 above, there is 1 no. recorded past flood events along Temple Road, adjacent to the site's north-eastern boundary. Based on the site's proximity to this flood location, minor inundation of the site was possible, although this would have been limited to the northern boundary. Based on the site topography, it is unlikely that the areas designated for proposed residential use were impacted.

The design of the Proposed Development and drainage infrastructure proposed will ensure that the run-off rate is restricted to greenfield run-off. The development includes the implementation of SuDS and an underground attenuation system. The design includes for a 100-year plus climate change allowance and discharge surface water to the downstream network at an appropriately

determined rate. There are no surface water or groundwater abstractions proposed, therefore no potential impacts on the quantity of surface water or groundwater.

The proposed measures ensures that the Proposed Development will not be impacted by predicted flood events.

It should be noted that these measures, along with SuDS and the projected attenuation system are part of the design of the development and are not part of the potential mitigation measures. The assessment concluded that the proposed landscaping and overall development does not increase flood risk to areas downstream. Overall, the proposed development complies with national planning guidelines and the objectives of the Dún Laoghaire–Rathdown Development Plan 2022–2028.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water flow and quantity are **negative**, **slight**, and **short-term**.

Wastewater Discharge

As stated in Section 8.4.3 above, all foul water generated on the Proposed Development will be directed to gravity flow systems into the existing public wastewater sewers. The wastewater would be conveyed to Ringsend Wastewater Treatment Plant (WWTP) (D0024) for full treatment. Following treatment, the final effluent will be discharged into South Dublin Bay coastal waterbody. According to its 2023 Annual Environmental Report (AER), Ringsend WWTP currently has adequate operational capacity to accommodate the additional flows generated by the proposed development.

Therefore, no potential impacts are anticipated on Carysfort-Maretimo Stream, Dublin Bay Coastal Water Body and the Kilcullen groundwater body (GWB) underlying the site. The potential impacts on Natura 2000 sites located downstream of the Proposed Development site are further explained in Chapter 6 (Biodiversity).

On the basis of the design and characteristics of the Proposed Development, in the absence of mitigation measures (or design measures) the potential impacts during the operational phase on the foul water network, Carysfort-Maretimo Stream, Dublin Bay Coastal Water Body and the Kilcullen groundwater body (GWB) from the proposed foul water drainage are **negative**, **significant** and **short-term**.

8.6 Potential Cumulative Impacts

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

This section has been prepared with reference to the list of the following relevant permitted developments in the vicinity:

Planning Ref.	Address	Development Proposal	Decision Date
ABP-321765-25 D24A/0484/WEB	Old Dun Leary Road, Cumberland Street, Longford Place and Dun Leary Hill, Dun Laoghaire, Co. Dublin, A96 N208	Construction of a five to eight storey development in 2 blocks and the change of use and refurbishment of existing three-storey 'Dun Leary House' (a protected structure) to provide for 88 residential units, a retail unit and all associated site works.	16/07/2025 Granted Permission
D25A/0073/WEB	Frascati Centre, Frascati Road,	Subdivision and associated part change of use of Anchor Retail Unit 1 (located over	21st March 2025

Planning Ref.	Address	Development Proposal	Decision Date
	Blackrock, Co. Dublin	ground and first floor levels) and back of house at second floor level to provide 2 no. units, comprising Unit D2 for Retail use at ground floor level with an overall GFA of 546 sq.m, and Unit D3 for Gym use at first and second floor level, with an overall GFA of 2,348 sq.m;	Granted Permission
ABP-318088-24 REF8923	Temple Road/Newtown Avenue to junction of Sandycove Avenue	Living Streets: Coastal Mobility Route (Blackrock to Sandycove).	19/11/2024 Is development and is exempted development
ABP-313509-24	Lands across Co. Dublin	BusConnects Belfield/Blackrock to City Centre Core Bus Corridor Scheme.	27/03/2024 Granted permission with conditions
ABP-318247-24 LRD22A/0930	Dalguise House, Monkstown Road, Monkstown, Co. Dublin, A94 D7D1	Large Scale Residential Development (LRD) - permission for 491 no. residential units, a childcare facility, restaurant/café and all associated site development works. Dalguise House is a protected structure - RPS no. 870. A Natura Impact and an EIAR accompanies application.	09/02/2024 Granted with Conditions
PL06D.308900 D19A/0908	Merrion Road/Rock Road (R118), Booterstown, Blackrock	1 no. vehicular access to Merrion Road/Rock Road to serve a new recreational and interpretive centre, open landscaped space, biodiversity proposals, associated site and infrastructural works	05/07/2023 Grant Permission
ABP-314429-23 D21A/0996	Frascati Centre, Frascati Road, Blackrock, Co. Dubin	A Phase 3 residential development of 98 no. apartments and all associated site works.	30/05/2023 Granted permission with revised conditions
ABP-311260-23 D20A/0567	13-15, Rock Hill, Blackrock, Co. Dublin, A94V2NO	Demolition of the existing two-storey building and the construction of a 3-7 storey mixed use building (8 no. 2-bedroom apartments and 1 no. commercial unit)	18/05/2023 Grant Permission with revised conditions.
ABP-314653-22 D22A/0469	Blackrock House (a protected structure RPS No. 234), 28 Newtown Avenue, Blackrock, Co. Dublin (and also Maretimo Gardens East)	The modification, refurbishment and reconfiguration of Blackrock House to provide for a total of 21 no. apartments within Blackrock House, the construction of 2 no. new residential blocks on site to provide for a total of 42 no. units in the overall subject site, landscaped open space, widened footpath on Maretimo Gardens East and all associated services.	24/08/2022 Granted permission & refused permission
ABP-313569-22 D21A/0958	c.0.49 ha site on the former Europa Garage Site, Newtown Avenue,	The development will consist of the construction of a residential development providing 91 residential units (GFA c.10,829 sq.m including basement) of 1-4 storeys together with residential	20/04/2022 Granted Permission

Planning Ref.	Address	Development Proposal	Decision Date
	Blackrock, Co. Dublin	accommodation in attic floor over (2 units) in two Pavilion style buildings. The apartment units will consist of 49 no. 1-bed units (c.49-61 sq.m), 38 no. 2-bed units (c.66-94 sq.m) and 4 no. 3-bed units (c.96-108 sq.m) all with associated private balconies/terraces to the north/south/east/west elevations.	
D21A/0413	Carraig Tennis Club, Rockfield Park, Blackrock, Co. Dublin	The installation of 4 no. new 10 metre steel columns and LED floodlights, the replacement of 2 no. existing 8 metre columns with existing floodlights and all associated site works and laying of column foundations and electrical cabling.	29/07/2021 Granted permission
ABP-308946-21	Newtownpark Avenue, Blackrock, Co. Dublin	Demolition of a single storey shed, construction of 140 no. apartments and all associated site works.	15/04/2021 Granted permission with conditions
D20A/0557	Site at Zurich House, Frascati Road, Blackrock, Co. Dublin	The development will consist of an increase in floor area of the existing office building by providing lateral (to the north-east and south-west) and vertical extensions comprising: the lateral extension (from lower ground floor to fourth floor level) by 1,765 sq m and the vertical extension (provison of a new set back, part fifth floor level) by 620 sq m; replacement of the north-east facade fronting George's Place and partial replacement of all other facades; and internal modifications and reconfigurations. The proposed development will result in an increase in office floor area from 3,790 sq m to 6,175 sq m. The development also includes: the reconfiguration and extension of the existing car park resulting in the provision of 27 No. car parking spaces.	24th February 2021 Granted Permission
ABP-308046-20	Frascati Shopping Centre, Frascati Road, Blackrock, Co. Dublin	The proposed development also includes the provision of 57 no. additional apartments, as an extension of the Phase 1 permission, located above the existing / permitted podium car park to the north west of the centre, as a Phase 2 residential development. The subject application therefore relates to a total of 102 no. residential units.	16/12/2020 Grant Permission Grant and Refuse Permission
D20A/0086	Brookfield Terrace, Carysfort Avenue, Blackrock, Co. Dublin	The demolition of the existing warehouse building, construction of a single storey pre delivery inspection workshop with associated wash bay for vehicles, the provision of 66 no. car parking storage spaces, upgrades to existing entrance, a	30/06/2020 Granted permission

Planning Ref.	Address	Development Proposal	Decision Date
		stormtech attenuation tank and all associated site works.	

Table 8.1. Planning applications granted within a 2 km radius of the Proposed Development over the last five years

Neither the development proposed, nor any other developments will give rise to any significant impacts on water receptors and there are no predicted cumulative impacts in relation to water receptors in terms of water quality and flow, as a result of the proposed development in combination with existing / proposed plans or projects.

In the absence of adherence to the CEMP and mitigation plan, the effect on the local and regional environment is likely to be **long-term**, **significant** and **negative**.

8.6.1 Demolition Phase

The potential residual effects on the hydrological environment surrounding the development are expected to be minimal due to the remaining demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will be minimal impact on the hydrological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Overall, the surface-level remaining demolition works will have a negligible impact on the hydrological environment, preserving their integrity and minimizing any potential environmental consequences.

The implementation of mitigation measures outlined in Section 8.8.1 will ensure the residual effect on the hydrological environment during the demolition phase is likely to be **short-term**, **imperceptible** and **neutral**.

Following the TII criteria for rating the magnitude and significance of impacts on the hydrological related attributes, the magnitude of impact is considered **negligible**.

8.6.2 Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap during the construction phase.

In relation to the potential cumulative impact on the water environment during the construction phases, the construction works which would have potential cumulative impacts are as follows:

- Sediment compaction may result in increased run-off from the construction site if not adequately mitigated,
- Contamination of receiving waters (surface water drainage) from accidental spillage and leakage from oil storage on site, construction traffic, alkaline runoff from cementing work is possible unless project-specific measures are put in place for each development and complied with.

Contractors for the proposed development will be contractually required to operate in compliance with a Construction Environmental Management Plan (CEMP). The works contractors for other planned or permitted developments will be obliged to ensure that similar measures are in place to protect soil and water quality in compliance with the European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

The implementation of mitigation and monitoring measures detailed here as well as the compliance of the above permitted and planned developments with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the water environment during the construction phase of the Proposed Development. The cumulative impact of the Proposed Development in combination with other planned or permitted developments on

the hydrological environment can therefore be considered to be **neutral, imperceptible** and **short-term**.

Following the TII criteria for rating the magnitude and significance of impacts on the hydrological related attributes, the magnitude of impact is considered **negligible**.

8.6.3 Operational Phase

In relation to the potential cumulative impact on the water environment during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate. Each permitted development is required by the Local Authority to incorporate SuDs measures including providing suitable attenuation on-site and ensure that there is no increase in off-site flooding as a result of the development;
- Each development will require approval from Uisce Éireann (UÉ) confirming available capacity in the water and wastewater infrastructure. The surface water and foul drainage infrastructure for the Proposed Development and other developments are required to be designed to accommodate the proposed development and a confirmation of feasibility received.

During operation, all developments are required to manage surface water discharges in accordance with legislative requirements including the European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019). As such, there will be no significant cumulative impact to water quality.

The implementation of design and mitigation measures detailed in Section 8.8.3 as well as the compliance of the proposed development and permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in the water regime during the operational phase of the Proposed Development. The residual cumulative impact of the Proposed Development in combination with other planned or permitted developments can therefore be considered to be **neutral**, **imperceptible** and **long-term**.

Following the TII criteria for rating the magnitude and significance of impacts on the hydrological related attributes, the magnitude of impact is considered **negligible**.

8.7 Do Nothing Scenario

If the proposed development was not to go ahead (i.e. in a Do-Nothing scenario) the baseline environment in terms of hydrology would remain unchanged as there would be no excavations or construction. Therefore, in a "Do Nothing" scenario, there would be a neutral effect on the hydrologycal environment at the site. The likelihood in a temporary and short-term basis is the existing natural state of the area would persist, without any alterations or disturbances caused by the development.

However, there are a number of existing permitted developments in the vicinity of the Proposed Development.

It is likely that in the absence of the Proposed Development, that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal.

8.8 Mitigation Measures

8.8.1 Demolition Stage

The site contains existing buildings to be demolished with the majority of these works completed. The likelihood of significant effects on the hydrology during the demolition phase is minimal due to the demolition works of the permitted development being limited to surface-level activities and

do not involve any excavation works. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. As a result, the impact on the land and soils is minimal and no significant effects on the land's composition, stability, or fertility are anticipated.

Refer to Chapter 15– Waste Management of this EIAR for further information on predicted on and off-site reuse, recycle and disposal rates for demolition waste.

Overall, no mitigation measures are required during the remaining demolition phase in relation to hydrology due to the surface level nature of the works. The surface-level demolition works will have a negligible impact on hydrology, preserving their integrity and minimizing any potential environmental consequences.

8.8.2 Construction Stage

Construction & Environmental Management Plan

The CEMP outlines and explains the construction techniques and methodologies which will be implemented during construction of the Proposed Development.

Construction works and the proposed mitigation measures are informed by best practice guidance on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741);
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005).
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board);
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers;
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors;
- CIRIA C648 Control of Water Pollution from Constructional Sites;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA 2008); and
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The CEMP will be implemented and adhered to by the construction contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the site will be trained in the implementation of the procedures. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

Suspended Solids

As there is potential for run-off to indirectly discharge to a watercourse (Carysfort-Maretimo Stream and Dublin Bay Coastal Water Body), in order to manage the potential impact associated

with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the excavation site which limits the potential for any offsite impacts.
- Silt reduction measures on site will include a combination of silt traps and hydrobrakes measures.
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

Cement/Concrete Works

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil and aquifer.

Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. Relevant personnel working on the site will be suitably trained in the implementation of the procedures.

Hydrocarbons and Other Construction Chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water (and groundwater) systems:

- Designation of bunded refuelling areas on the site;
- Provision of spill kit facilities across the site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and relevant operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a

volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

In addition to the measures above, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated bunded refuelling areas, which will be away from surface water gulleys or drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the site will be suitably trained in the implementation of the procedures.

Wastewater Management

Foul wastewater arising from the site will be managed and controlled for the duration of the construction works.

Foul water from the offices and welfare facilities on the site will discharge into the existing foul sewer on site, however, it may initially need be collected by a licensed waste sewerage contractor before connection to the sewer line can be made.

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the site will be suitably trained in the implementation of the procedures.

Surface Water and Ground Flow and Quality

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the surface water drainage system of the Proposed Development is complete.

The construction contractor will be required to manage suspended solids during the construction phase and will be permitted to discharge treated construction water to the established stormwater network.

The construction activities will require surface water management to prevent pollution and degradation of habitats from a chemical spill or run off containing excessive suspended solids that complies with guidelines and best practices such as "Control of Water Pollution from Construction Sites and Guidance for Consultants and Contractors" (CIRIA 532, 2001).

8.8.3 Operational Stage

Surface Water and Quality

The design has taken account of the potential impacts of the development on surface water quality; measures have been incorporated in the design to mitigate these potential impacts.

The proposed surface water management design establishes a indirect hydrological connection to the Carysfort-Maretimo Stream, located near the site, during the operational phase.

To mitigate potential contamination from surface water runoff, which may originate from roads and hardstanding areas, a sustainable drainage system (SuDS) will be implemented. This system is designed to minimize the risk of contaminants, such as hydrocarbons, entering the stormwater drainage network and subsequently impacting surface water bodies like the Carysfort-Maretimo Stream which discharges to the Dublin Bay Coastal Water Body, as well as the Kilcullen groundwater body GWB underlying the site.

The surface water drainage strategy integrates various measures, including attenuation tanks, intensive and extensive green roofs, permeable paving and dry swales/infiltration trench. These features will effectively manage surface water flows, directing them to attenuation tanks to maximize their storage potential. Flow control devices will be installed at the outlet pipes of each attenuation storage tanks to ensure that surface water runoff is stored efficiently before entering the receiving environment.

Refer to the Engineering Services Report, prepared by JJ Campbell & Associates submitted separately as part of the planning application for further information on the proposed storm water management and design.

Surface Water Flow and Quality

The proposed incorporation of hardstand areas and SuDS design measures may slightly reduce local groundwater recharge and increase runoff if not properly managed, potentially causing flooding and affecting downstream environments. However, the overall impact on the groundwater regime is expected to be insignificant due to the site's small area relative to the total aquifer, and construction will avoid areas with localized flooding to mitigate flood risks.

To mitigate these risks, the design of the development and its drainage infrastructure will ensure that runoff rates are restricted to those of greenfield conditions. The development will incorporate SuDS and an underground attenuation system, with a design that up to and including the 100-year plus climate change allowance and discharge surface water to the downstream network at an appropriately determined rate.

Furthermore, there are no proposed surface water, eliminating potential impacts on the quantity of surface water resources.

8.9 Residual Impacts

8.9.1 Demolition Stage

As stated in Section 8.5.1, the potential impacts on the hydrological environment surrounding the development are expected to be minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will be minimal impact on the hydrological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Overall, the surface-level demolition works will have a negligible impact on the hydrological environment, preserving their integrity and minimizing any potential environmental consequences.

The implementation of mitigation measures outlined in Section 8.8.1 will ensure the residual effect on the hydrological environment during the demolition phase is likely to be **neutral**, **imperceptible** and **short-term**.

Following the TII criteria for rating the magnitude and significance of impacts on the hydrological related attributes, the magnitude of impact is considered **negligible**.

8.9.2 Construction Stage

Surface Water Quality

The implementation of the mitigation measures detailed in Section 8.8.1, will ensure that the potential impacts on surface water quality during the construction phase are adequately mitigated. There will be no change to overall flow and quality within the hydrological regime as a result of construction.

The residual effect on surface water quality during the construction phase is considered to be **neutral**, **imperceptible** and **short-term**.

Surface Water Flow and Quantity

The implementation of the mitigation measures detailed in Section 8.8.1, will ensure that the potential impacts on surface water flow and quantity during the construction phase are adequately mitigated. There will be no change to overall flow and quality within the hydrological regime as a result of construction.

The residual effect on surface water flow and quantity during the construction phase is considered to be **neutral**, **imperceptible** and **short-term**.

8.9.3 Operational Stage

Surface Water and Quality

The implementation of the mitigation measures detailed in Section 8.8.2, will ensure that the potential impacts on surface water quality once the Proposed Development is constructed and operational are adequately mitigated.

The residual effect on surface water quality during the operational phase is considered to be **neutral**, **imperceptible** and **short-term**.

Surface Water Flow and Quantity

The implementation of the mitigation measures detailed in Section 8.8.2, will ensure that the potential impacts on surface water flow and quantity once the Proposed Development is constructed and operational are adequately mitigated.

The residual effect on surface water flow and quantity during the operational phase is considered to be **neutral**, **imperceptible** and **short-term**.

8.10 Monitoring

8.10.1 Demolition Stage

The demolition works of the permitted development are limited to surface-level activities and do not involve any excavation works. The absence of excavation works means that there is no potential for increasing the groundwater vulnerability to contamination in case of accidental spills or discharges.

In addition, all waste materials will be dealt with in accordance with regional and national legislation, time and resources will be dedicated to ensuring efficient waste management practices and waste arisings will be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. Hence, eliminating the risk of contaminated runoff to surface or groundwater.

8.10.2 Construction Stage

During construction phase the following monitoring measures will be considered. Monitoring will be undertaken in accordance with planning conditions and undertaken by the contractor in compliance with the project CEMP.

Contractors will carry out regular inspections to confirm compliance with the CEMP. Daily inspections by contractors will address potential environmental impacts including dust, litter, waste management and general housekeeping.

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items.

Regular inspection of surface water run-off and sediments controls (e.g., silt traps). Inspection and maintenance of the silt control measures during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire.

8.10.3 Operational Stage

No future surface water monitoring is proposed for the Proposed Development due to the low hazard potential at the site.

Hydrocarbon interceptors will be maintained and cleaned out in accordance with the manufacturer's instructions.

Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to surface water.

8.11 Reinstatement

During the construction phase, reinstatement works will focus on restoring the hydrological integrity of the site following completion of the main works. Temporary drainage channels, sediment control measures, and construction compounds will be removed once they are no longer required, and natural flow paths will be reinstated to their original or final design condition. Where ground disturbance has occurred, reinstatement will include the regrading of surfaces, replacement of topsoil, and re-establishment of permeable areas to promote infiltration and reduce surface runoff. All water management infrastructure will be completed and commissioned in accordance with design specifications. These activities will ensure that surface water and groundwater pathways are properly restored and that no residual impacts occur on local hydrology or water quality. All reinstatement works will be carried out in accordance with the Construction Environmental Management Plan (CEMP) and supervised by the site environmental manager to ensure compliance with best environmental practices.

During the operational phase, reinstated and constructed water management features will be maintained to ensure their continued functionality and hydrological balance. Routine inspections of SuDS, attenuation basins, and interceptors will be undertaken to prevent sediment accumulation, clogging, or deterioration that could reduce infiltration or alter flow conditions. Vegetated drainage components will be maintained to preserve filtration capacity and erosion control. Any damage or degradation observed will be repaired promptly to maintain system performance. These measures will safeguard the long-term protection of surface water and groundwater quality, while ensuring that the reinstated hydrological regime remains stable throughout the operational life of the development.

8.12 Interactions

This section discusses interactions between this chapter and other specialist environmental topics considered in this EIAR.

8.12.1 Land, Soils and Hydrogeology

Demolition Stage

The likelihood of significant effects on land, soils and hydrogeology at the proposed development during the demolition phase is minimal due to the remaining demolition works being limited to surface-level activities and do not involve any excavation works.

As a result, no significant effects on the land's composition, stability, or fertility are anticipated. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. The interaction is considered to be **neutral**, **imperceptible** and **short-term**.

Construction Stage

The construction phase of the proposed development has the potential to result in increased sediment runoff which has the potential to interact on grounwater water quality. The proposed construction phase mitigation outlined in Section 8.8.2, means that the proposed development will not result in significant negative impact on groundwater water quality in the local area.

Taking into account the design and mitigation measures set out in Chapter 8 (Hydrology) & Chapter 7 (Land, Soils, Geology and Hydrogeology) of this EIA Report, means that the proposed development will not result in significant negative impact on the Land, Soils, Geology and Hydrogeology in the local area. The interaction is considered to be **neutral**, **imperceptible** and **short-term**.

Operational Stage

Taking into account the design and mitigation measures set out in Chapter 8 (Hydrology) & Chapter 7 (Land, Soils, Geology and Hydrogeology) of this EIA Report. There are no potentially significant interactions identified between Land, Soils and, Hydrogeology and Hydrology during the operational phase.

The operational phase of the Proposed Development has the potential to interact negatively on groundwater and surface water quality via the proposed surface water network. The proposed operation phase mitigation outlined in Section 7.8.2 - Chapter 7 – Land, Soils, Geology and Hydrogeology of the EIAR, means that the proposed development will not result in significant negative impact on surface water quality in the local area. The interaction is considered to be neutral, Imperceptible, and short term.

8.12.2 Biodiversity

Demolition Stage

The demolition works of the Proposed Development are limited to surface-level activities on predominately existing buildings and infrastructure and do not involve any excavation works. As a result, the impact on biodiversity is minimal.

Overall, the surface-level demolition works will benefit the local biodiversity, preserving their integrity and minimizing any potential environmental consequences. The interaction is considered to be **neutral**, **imperceptible** and **short-term**.

Construction Stage

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the Proposed Development will ensure that dust generation is minimised.

Taking into consideration the discharge of surface and foul water to the combined sewer network and the mitigation measures outlined in Section 8.8 the impact on biodiversity should be minimal.

Taking into account the design and mitigation measures set out in (Hydrology) and (Biodiversity) of this EIA Report, the interaction between Hydrology and Biodiversity is considered to be **neutral**, **imperceptible**, and **short term**.

Operational Stage

The Proposed Development design includes hardstand cover across the site and the proposed surface water drainage system for this development has been designed as a sustainable urban drainage system (SuDS). It is proposed to use a sustainable urban drainage system (SuDS) approach to stormwater management throughout the site where possible. The overall strategy aims to provide an effective system to mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequency, reducing pollutant

concentrations in stormwater. The design of the attenuation storage system has been carried out for the 1 in 100-year event with a 20% allowance for climate change.

There is no discharge to ground proposed as part of the surface water drainage strategy. Surface water will be divided into two zones and discharged to 2 locations within the existing stormwater network, one on the northeast side and another via a manhole at the northern corner of the site. Foul water will be discharged to the existing foul sewer system which is connected to the Ringsend WWTP.

Taking into account the design and mitigation measures set out in Section 8.8 of this EIA Report, the interaction between Hydrology and Biodiversity during the operational phase is considered to be **neutral**, **imperceptible**, and **long term.**

8.12.3 Waste

Demolition & Construction Stage

During the construction phase, excavated soil (c. 12,000 m3) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is currently envisaged that 10,800 m3 of excavated soil will be reused on-site.

The material that will be taken off-site will be sent for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 15 (Waste Management), Chapter 8 (Hydrology) and the requirements of the RWMP (Appendix 15.1), will ensure the effect is **neutral**, **imperceptible** and **long-term**.

Operational Stage

There are no potentially significant interactions identified between Waste and Hydrology during the operational phase.

8.12.4 Air Quality & Climate

Demolition & Construction Phases

Remaining demolition phase activities such as demolition of existing infrastructure, excavations and stockpiling of materials etc. have the potential for interactions between air quality and hydrology in the form of dust emissions that may deposit in surface waters.

Mitigation measures implemented during the demolition phase will ensure that the deposition of dust is minimised. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and hydrology. The interaction is considered to be **neutral**, **imperceptible**, and **short term**.

There are no interactions identified hydrology and climate during the demolition and construction phases.

Operational Phase

There are no potentially significant interactions identified between hydrology and air quality and climate during the operational phase.

8.13 Difficulties Encountered

There were no difficulties encountered in the preparation of this EIAR chapter.

8.14 References

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