8 WATER

8.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides a description of the hydrology and hydrogeology (water) environment within and immediately surrounding the site of the Proposed Development and an assessment of the potential impacts of the Proposed Development on hydrology and hydrogeology and sets out any required mitigation measures where appropriate.

The principal objectives of this chapter are to identify:

- Hydrological and hydrogeological characteristics of the receiving environment at the Site of the Proposed Development.
- Potential impacts that the Proposed Development may have on the receiving water environment.
- Potential constraints that the environmental attributes may place on the Proposed Development.
- Required mitigation measures which may be necessary to minimise any adverse impacts related to the Proposed Development.
- Evaluate the significance of any residual impacts.

This chapter of the EIAR should be read in conjunction with Chapter 5 Population and Human Health, Chapter 6 Biodiversity, Chapter 7 Land, Soils and Geology and Chapter 15 Material Assets: Waste and Utilities of the EIAR and other information provided by the Applicant pertaining to the design proposals for the Proposed Development.

8.1.1 Quality Assurance and Competency of Experts

The chapter was prepared by Nuria Manzanas a Principal Consultant of Enviroguide Consulting with 11 years' experience in contaminated land and hydrogeological assessments. This chapter of the EIAR has been reviewed by Gareth Carroll BA, BEng, MIEnvSc, CEnv a Principal Consultant of Enviroguide Consulting. Gareth is a Chartered Environmentalist with over 12 years' experience in preparing environmental assessments for a range of project types and geological and hydrogeological site settings.

8.2 Assessment Methodology

8.2.1 Relevant Legislation & Guidance

The methodology adopted for the assessment has regard to the relevant guidelines and legislation including:

- Council Directive 2006/118/EEC, 2006. On the protection of groundwater against pollution and deterioration. European Parliament and the Council of European Communities.
- 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 with amendments 2455/2001/EC, 2008/32/EC and 2008/105/EC (Water Framework Directive (WFD)).
- European Commission, 2022. WFD Reporting Guidance 2022. Final Draft V4.
- Local Government, October 2021. No. 1.1977. Local Government (Water Pollution (Amendment) Act.
- Local Government, October 2007. No. 30.2007. Water Services Act 2007.
- Local Government, July 1990. No. 21.1990. Local Government (Water Pollution) (Amendment) Act, 1990.
- Local Government, March 1977. No. 01/1977. Local Government (Water Pollution) Act, 1977 with amendments.

- S.I. No. 722/2003 – European Communities (Water Policy) with amendment S.I. No. 413/2005.
- S.I. No. 489/2011 – European communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011.
- S.I. No. 122/2010 – European Communities (Assessment and Management of flood Risks) Regulations 2010 including amendment S.I. No. 495/2015.
- S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009 including amendments S.I. No. 327/2012, S.I. No. 386/2015 and S.I. No. 77/2019.
- S.I. No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010 including amendments S.I. No. 149 of 2012 and S.I. No. 366 of 201.
- WFD Working Group, 2005. Guidance on the Assessment of the Effect of Groundwater Abstractions (WFD, 2005).
- Fingal County Council (FCC, 2023). Fingal County Development Plan 2023-2029.

The construction works will be managed in accordance with all statutory obligations and regulations and with standard international best practice. Other guidance used in the assessment of potential impacts on the receiving water environment include:

- Construction Industry Research and Information Association, 2001. Control of Water Pollution from Construction Sites (CIRIA – C532).
- Construction Industry Research and Information Association, 2015. Environmental Good Practice on Site Guide (CIRIA – C741).
- Construction Industry Research and Information Association, 2016. Groundwater Control: Design and Practice (CIRIA – C750).
- Department of the Environment, Heritage and Local Government, Environmental Protection Agency and Geological Survey of Ireland, 1999. Groundwater Protection Schemes (DEHLG/EPA/GSI, 1999).
- Department of the Environment, Heritage and Local Government, 2009. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, 2009).
- Department of Housing, Planning and Local Government, August 2018. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Effect Assessment (DHPLG, 2018).
- Environmental Protection Agency, 2014. Guidance on the Authorisation of Direct Discharges to Groundwater.
- Environmental Protection Agency, 2013. Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites.
- Environmental Protection Agency, 2013. Storage and Transfer of Materials for Scheduled Activities.
- Environmental Protection Agency, May 2022. Guidelines on the information to be contained in Environmental Effect Assessment Reports (EPA, 2022).

8.2.2 Phased Approach

A phased approach was adopted for this EIAR in accordance with Environmental Protection Agency (EPA) and Institute of Geologists of Ireland (IGI) guidelines as set out above and is described in the following sections.

Element 1: An initial assessment and effect determination stage was carried out by Enviroguide Consulting to establish the project location, type and scale of the Proposed Development, the baseline conditions, and the type of hydrological and hydrogeological environment, to establish the activities associated with the Proposed Development and to undertake an initial assessment and effect determination. This element of the assessment also included developing the Conceptual Site Model (CSM) for the Site and receiving environment.

This stage of the assessment included a desktop study that comprised a review of published environmental information for the Site. The study area, for the purposes of assessing the baseline conditions for this chapter of the EIAR, extends beyond the site boundaries and includes a 2.0km radius of the site and Proposed Development and potential receptors outside of this radius that are potentially hydraulically connected with the Site were also considered. The extent of the wider study area was based on the Institute of Geologists of Ireland (IGI) Guidelines (IGI, 2013) that recommends a minimum distance of 2.0km radius from the Site. This broader area is necessary to identify and evaluate all potential receptors that could be affected by the Proposed Development, either directly or indirectly. The distinction between the application site and the study area is crucial. The site of the Proposed Development is the focal point of the Proposed Development, while the study area includes any potential hydrogeological / hydrological connections to sensitive receptors including habitats that might experience secondary effects.

The desk study involved collecting all the relevant data for the Proposed Development site and surrounding area including published information and details pertaining to the Proposed Development provided by the applicant and design team.

A site walkover survey to establish the environmental site setting and baseline conditions at the site of the Proposed Development relevant to the hydrological and hydrogeological environment was undertaken by Enviroguide Consulting on the 27th of March 2025.

The Element 1 stage of the assessment was completed by Enviroguide and included the review of the following sources of information:

- Environmental Protection Agency (EPA) webmapping (EPA, 2025).
- Geological Survey Ireland (GSI) Datasets Public Viewer and Groundwater webmapping (GSI, 2025).
- National Parks and Wildlife Services (NPWS) webmapping (NPWS, 2025).
- Ordnance Survey Ireland (OSI) webmapping (OSI, 2025).
- Water Framework Directive Ireland (WFD) webmapping (WFD, 2025).
- Teagasc webmapping (Teagasc, 2025).
- Office of Public Works (OPW) database on historic flooding and the Catchment Flood Risk Assessment and Management (CFRAM) maps (OPW, 2025).
- Information provided by the Applicant pertaining to the design proposals for the Proposed Development including:
    - Waterman Moylan Consulting Engineers Limited, 2025. Engineering Assessment Report – Proposed New Molloy Lands Residential Development, Kellystown LAP, Clonsilla, Dublin 15 (WM, 2025a).
    - Waterman Moylan Consulting Engineers Limited, 2025. Flood Risk Assessment Report – Proposed New Molloy Lands Residential Development, Kellystown LAP, Clonsilla, Dublin 15 (WM, 2025b).
    - Waterman Moylan Consulting Engineers Limited, 2025. Engineering Assessment Report – Proposed New St. Mochta's LRD, Kellystown LAP, Clonsilla, Dublin 15 (WM, 2025c).
    - Waterman Moylan Consulting Engineers Limited, 2025. Flood Risk Assessment Report – Proposed New St. Mochta's LRD, Kellystown LAP, Clonsilla, Dublin 15 (WM, 2025d).

Element 2: Involves direct and indirect site investigation and studies stage where necessary to refine the CSM developed as part of Element 1 and evaluate the potential impacts associated with the Proposed Development. Site investigation (including trial pitting and infiltration tests) was undertaken at the Plot 1 (Luttrellstown Gate Phase 2) site by Site Investigations Ltd. (SIL) in February 2025 (SIL, 2025. Molloy's Field, Luttrellstown, Dublin 15 Site Investigation). Site investigations (including borehole drilling, trial pitting and infiltration tests) were also completed by SIL between November 2019 and December 2019 (SIL, 2019. Kellystown, Porterstown, Dublin 15 Site Investigation Report) on lands adjoining the southern eastern boundaries of the Plot 2 (LRD Scheme) site at the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, as amended by LRD0034/S3). The results of the site investigations were used to identify and assess the hydrogeological subsurface features at the site of the Proposed Development. The site investigation reports (SIL, 2025 and SIL, 2019) are included in Appendix 7.1 and Appendix 7.2 of this EIAR.

Element 3: Evaluation of Mitigation Measures, Residual Impacts and Final Impact Assessment were based on the outcome of the information gathered in Element 1 and Element 2 of the assessment. Mitigation measures to address all identified adverse impacts that were identified in Element 1 and Element 2 of the assessment were considered in relation to the Construction stage and Operational stage of the Proposed Development. These mitigation measures were then considered in the impact assessment to identify any residual impacts.

Element 4: Completion of Chapter 8 Hydrology and Hydrogeology of the EIAR which includes all the associated figures and documents.

8.2.3 Description and Assessment of Potential Impacts

The Transport Infrastructure Ireland (TII) (formerly National Roads Authority (NRA)) criteria for rating of the importance of hydrogeological features at the site as documented in the NRA Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA, 2009), are summarised in are summarised in

Table 8.1.

Table 8.1. Criteria for Rating Site Importance of Hydrogeological Features

Importance	Criteria	Typical Example
Extremely High	Attribute has a high quality or value on an international scale.	Groundwater supports river, wetland or surface water body ecosystem protected by European Union (EU) legislation e.g., SAC or SPA status.
Very High	Attribute has a high quality or value on a regional or national scale.	Regionally Important Aquifer with multiple wellfields. Groundwater supports river, wetland, or surface water body. ecosystem protected by national legislation – e.g., NHA status. Regionally important potable water source supplying >2500 homes Inner source protection area for regionally important water source. Quality Class A (Biotic Index Q4, Q5). Flood plain protecting more than 50 residential or commercial properties from flooding.
High	Attribute has a high quality or value on a local scale.	Regionally Important Aquifer. Groundwater provides large proportion of baseflow to local rivers.

Importance	Criteria	Typical Example
		Locally important potable water source supplying >1000 homes. Outer source protection area for regionally important water source. Inner source protection area for locally important water source. Quality Class B (Biotic Index Q3-4). Flood plain protecting between 5 and 50 residential or commercial properties from flooding. Locally important amenity site for wide range of leisure activities.
Medium	Attribute has a medium quality or value on a local scale.	Locally Important Aquifer Potable water source supplying >50 homes. Outer source protection area for locally important water source. Quality Class C (Biotic Index Q3, Q2- 3). Flood plain protecting between 1 and 5 residential or commercial properties from flooding.
Low	Attribute has a low quality or value on a local scale.	Poor Bedrock Aquifer. Potable water source supplying <50 homes. Locally important amenity site for small range of leisure activities. Local potable water source supplying <50 homes. Quality Class D (Biotic Index Q2, Q1). Flood plain protecting 1 residential or commercial property from flooding.

8.2.4 Description and Assessment of Potential Impacts

Impacts will vary in quality from negative, to neutral or positive. The effects of impacts will vary in significance on the receiving environment. Effects will also vary in duration. The terminology and methodology used for assessing the 'impact' significance and the corresponding 'effect' throughout this chapter is described in Table 8.2 in accordance with EPA, 2022 guidelines on the information to be contained in EIARs.

Table 8.2. Criteria for Assessment of Potential Impacts Terminology and Methodology

Quality of Effects/Impacts	Definition
Negative	A change which reduces the quality of the environment
Neutral	No effects or effects that are imperceptible, within the normal bounds of variation or within the margin of forecasting error.
Positive	A change that improves the quality of the environment
Significance of Effects / Impacts	**Definition**
Imperceptible	An effect capable of measurement but without significant consequences.

Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration, or intensity significantly alters a sensitive aspect of the environment.
Profound Effects	An effect which obliterates sensitive characteristics.
Extend and Context of Effects	**Definition**
Extend	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
Context	Describe weather the extent, duration or frequency will conform or contrast with established (baseline) conditions
Probability of Effects	**Definition**
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration of Effects / Impacts	**Definition**
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting one year or less
Short-term	Effects lasting one to seven years
Medium-term	Effects lasting seven to fifteen years
Long-term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration
Types of Effects	**Definition**
Indirect Effects	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
Cumulative Effects	he addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
“Do-nothing” Effects	The environment as it would be in the future should the subject project not be carried out
“Worst-case” Effects	he effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.

Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.

Figure 8.1 identifies how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

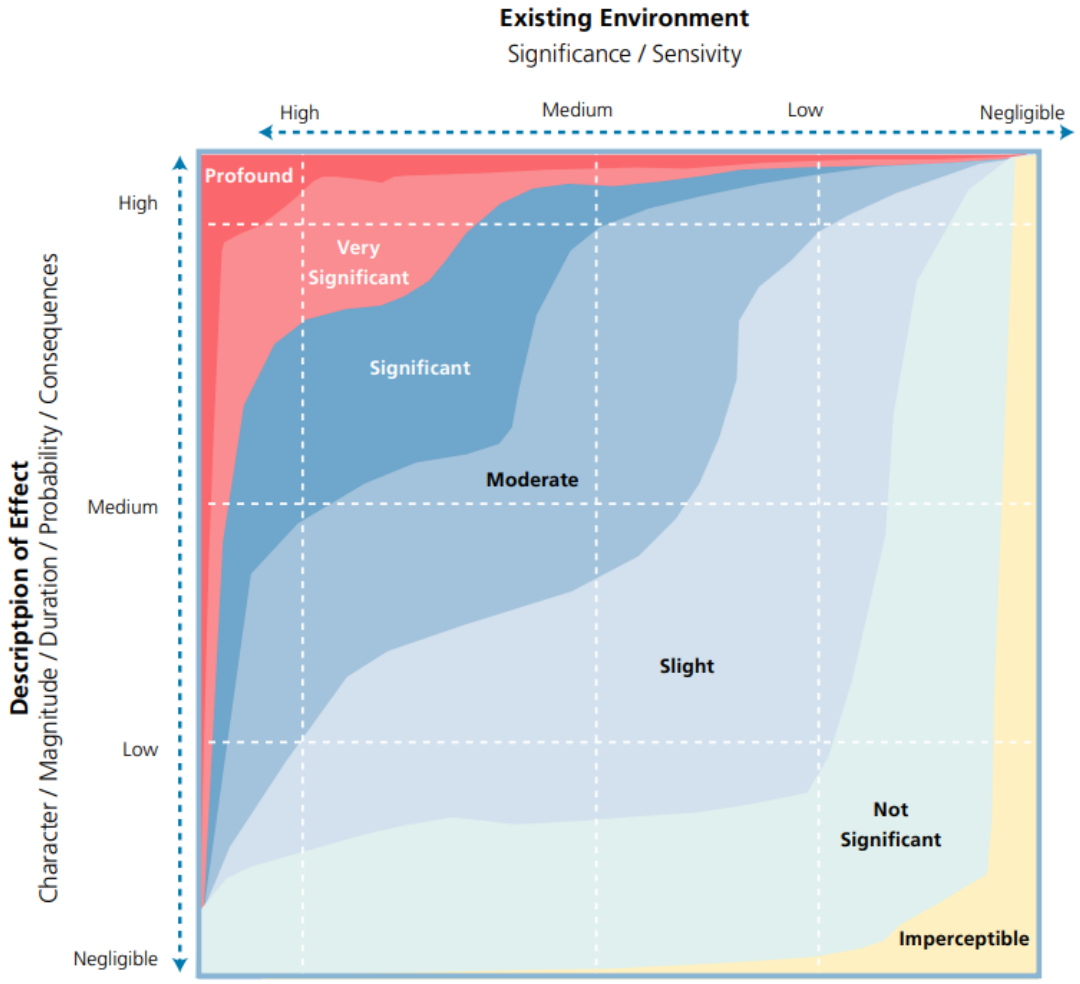

Figure 8.1: Determining Significance

8.3 Receiving Environment

8.3.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

8.3.1.1 Site Location and Description

The site of the Proposed Development is located to the south of Clonsilla Town, adjacent to the west of Carpenterstown and to the southwest of Blanchardstown. It is accessible through the R121 (regional road).

The site of the Proposed Development comprises a field of undeveloped grasslands with no evidence of previous structures or development.

The site is bounded to the north by Midland Great Western Maynooth Rail line, to the south and east by the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, , as amended by LRD0034/S3) and to the west by agricultural lands.

The site location is presented in Figure 8.2 and the current layout of the site is presented in Figure 8.3.

A full description of the site location and surrounding land use is presented in Chapter 2 of this EIAR.

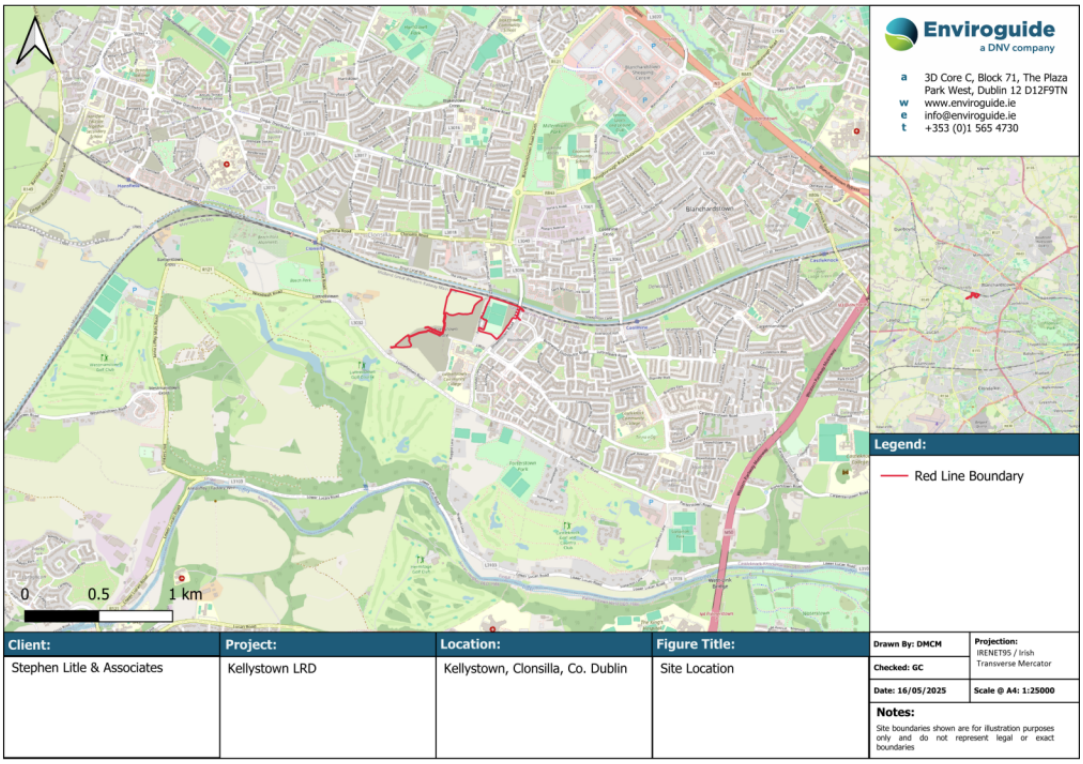

Figure 8.2: Site Locations (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

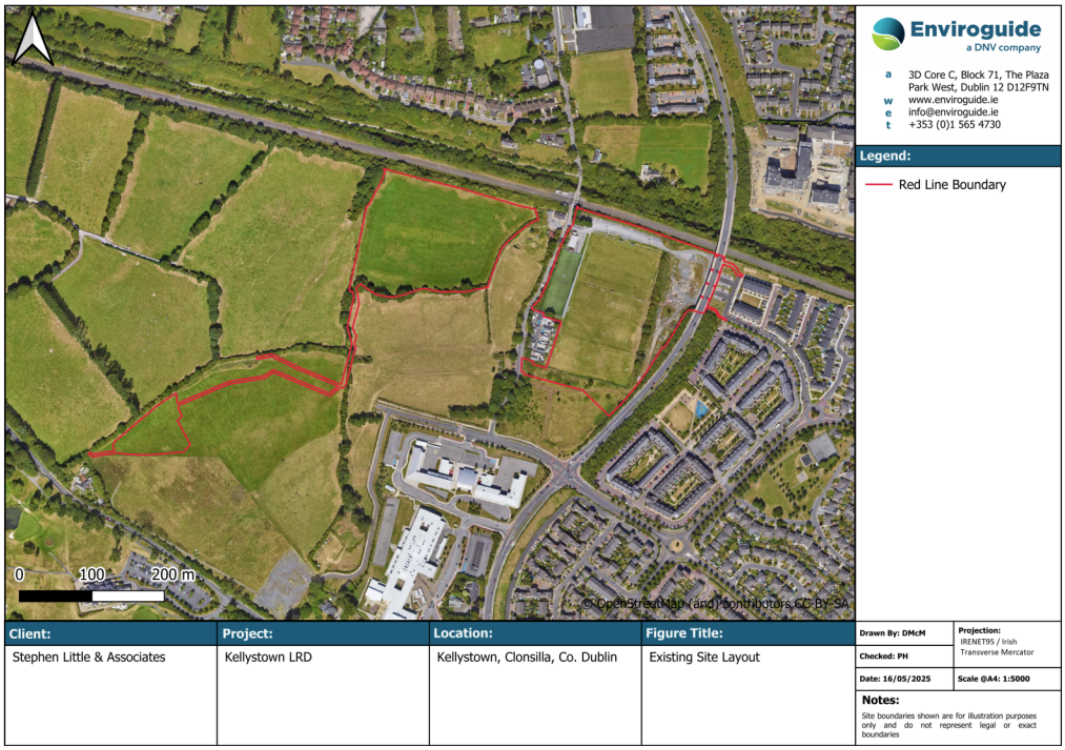

Figure 8.3: Current Site Layouts (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

8.3.1.2 Topography

As documented in the Engineering Assessment Report prepared by Waterman Moylan Consulting Engineers Limited (WM, 2025a; submitted with the planning application under separate cover), the topographical survey carried out indicates that the site generally falls from north to south, with a high point of approximately 63.41mOD (metres above ordnance datum) at the north of the site and a low point of approximately 60.66mOD at the south of the site.

8.3.1.3 Soil, Subsoil and Geology

The soils and geology at the subject site are described and assessed in detail in Chapter 7 (Land and Soil) of this EIAR and they are summarised as follows:

- The soils beneath the majority of the site are mapped by Teagasc (Teagasc, 2025) as mineral poorly drained (mainly basic), which are classified as Surface water Gleys, Ground water Gleys (IFS Soil Code: BminPD) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs). The most northern part of the site is mapped as shallow well drained mineral (mainly basic), which are classified as Renzinas and Lithosols (IFS Soil Code: BminSW) derived from mainly calcareous parent materials described as Bedrock at surface-Calcareous (RckCa).
- The subsoil or quaternary deposits beneath the site are mapped by the GSI (GSI, 2025) as till derived from limestones (TLs).
- The bedrock beneath the northern half of the site is mapped by the GSI (GSI, 2025) as the Lucan Formation (code: CDLUCN) described as dark limestone & shale (`calp). The bedrock beneath the southern half of the site is classified as the Tober Colleen Formation (code: CDTOBE) which is described as calcareous shale, limestone conglomerate. Bedrock was not encountered during the SIL site investigations (SIL, 2025) where trial pits extended to a maximum depth of 2.1 meters below ground level (mbGL).
- While there is no bedrock outcrops mapped within the site boundary, there are a number of bedrock outcrops mapped by the GSI (GSI, 2024) within a 2km radius of the site. The closest are located immediately north of the site along the railway tracks adjacent to the northern boundary of the site.

8.3.1.4 Rainfall

Monthly rainfall data available for 1km x 1km grids (for the period 1991 to 2020) was sourced from Met Éireann (Met Éireann, 2025) and is presented in Table 8.3.

Table 8.3: Long Term Mean Monthly Rainfall Data

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual
64.9	56.2	53.7	55.8	58.2	67.1	65.2	74.4	67.1	82	86.6	77.8	809
Note: 1km x 1km Irish Grid Coordinated selected for the Site =X (Easting): 306000, Y (Northing): 238000												

The closest the synoptic meteorological station to the site is at Casement Aerodrome which is located approximately km south-east of the site and Proposed Development. The average potential evapotranspiration (PE) from the Casement Aerodrome station for the period 2022 to 2024 (Met Éireann, 2025) is presented in Table 8.4.

Table 8.4: Average Potential Evapotranspiration

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual
15.5	21.6	39.0	56.1	83.2	92.5	88.3	83.3	46.8	31.9	16.3	13.8	588.3

8.3.1.5 Hydrogeology

Groundwater Body and Flow Regimes

The bedrock aquifer beneath the site is within the Dublin GWB (Groundwater Body) (EU Code: IE_EA_G_008).

The Dublin GWB Report (GSI, 2025) identifies two (2 No.) different recharge processes, one within Dublin City and the other one recharge in rural areas within this GWB. Recharge is prevented within Dublin City as it is essentially a cement cap on the limestone. The only open areas where recharge may occur are open grassed areas (i.e., parks, squares and gardens). In addition, some recharge occurs from leaking sewers, mains and storm drains. Elsewhere diffuse recharge will occur via rainfall percolating through the subsoil.

This GWB will discharge directly to the Irish Sea along the coast. Although, there will also be discharge to the overlying gravel aquifers in places and to the overlying rivers, if they are in hydraulic continuity with the aquifer.

Groundwater flow occurs along fractures, joints and major faults. The majority of groundwater flow will be a rapid flow within the upper weathered zone near the surface, although, flow in conduits is commonly recorded at depths of 30 metres below ground level (mbGL) to 50mbgl. Groundwater circulation from recharge to discharge points will more commonly take place over a distance of less than a 1km.

Locally, groundwater flow direction in the vicinity of the site is likely to be to the south / southeast towards the River Liffey and Liffey Estuary Upper, located south and southeast of the Site respectively, but may vary locally based on topography.

Aquifer Classification

The GSI provides a methodology for aquifer classification based on resource value (regionally important, locally important and poor) and vulnerability (extreme, high, moderate or low). Resource value refers to the scale and production potential of the aquifer whilst vulnerability refers to the ease with which groundwater may be contaminated by human activities (vulnerability classification primarily based on the permeability and thickness of subsoils).

The GSI (GSI, 2025) has classified the bedrock aquifers beneath the site as follows:

- The bedrock aquifer within the Lucan Formation (Code: CDLUCN) beneath the northern part of the site is classified by the GSI (GSI, 2025) as a Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones (LI).
- The bedrock aquifer within the southern portion of the site within the Tober Colleen Formation (Code: CDTOBE) is classified as a Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones (PI).

A geological structural fault that runs approximately through the most northeast portion of the site in a north to south direction. The closest bedrock outcropping along the northern boundary of the site (GSI, 2025).

It is noted that there are no gravel aquifers mapped by the GSI (GSI, 2025) at the site or within a 2km radius of the site (GSI, 2025).

The bedrock aquifer map is presented in Figure 8.4.

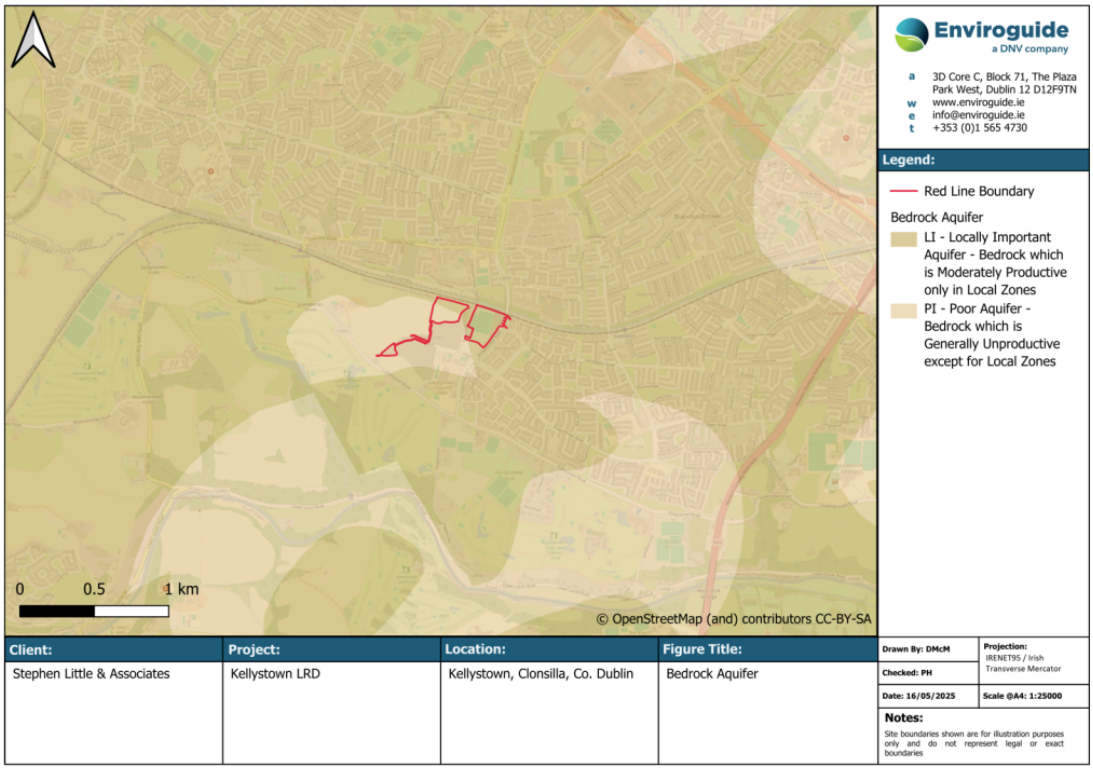

Figure 8.4: Aquifer Classification (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

Groundwater Vulnerability

The vulnerability categories, and methods for determination, are presented in the Groundwater Protection Schemes publication (DEHLG/EPA/GSI, 1999) and summarised in Table 8.5. The publications state that 'as all groundwater is hydrologically connected to the land surface, it is the effectiveness of this connection that determines the relative vulnerability to contamination. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly and in lower quantities. The travel time, attenuation capacity and quantity of contaminants are a function of the following natural geological and hydrogeological attributes of any area.

Table 8.5: Vulnerability Mapping Criteria (DEHLG/EPA/GSO, 1999)

Subsoil Thickness	Hydrogeological Requirements				
	Diffuse Recharge			Point Recharge	Unsaturated Zone
	Subsoil Permeability and Type			(Swallow Holes, Losing Streams)	(Sand and Gravel Aquifers Only)
	High Permeability (Sand and Gravel)	Moderate Permeability (Sandy Subsoil)	Low Permeability (Clayey Subsoil, Clay, Peat)		
0-3m	Extreme	Extreme	Extreme	Extreme (30m radius)	Extreme
3-5m	High	High	High	N/A	High
5-10m	High	High	Moderate	N/A	High

Subsoil Thickness	Hydrogeological Requirements				
	Diffuse Recharge			Point Recharge	Unsaturated Zone
	Subsoil Permeability and Type			(Swallow Holes, Losing Streams)	(Sand and Gravel Aquifers Only)
	High Permeability (Sand and Gravel)	Moderate Permeability (Sandy Subsoil)	Low Permeability (Clayey Subsoil, Clay, Peat)		
>10m	High	Moderate	Low	N/A	High
Notes: (i) N/A = not applicable (ii) Permeability classifications relate to the material characteristics as described by the subsoil description and classification method.					

The GSI has assigned a groundwater vulnerability rating of 'Extreme' (E) for the bedrock aquifer beneath the majority of the site (GSI, 2025). The bedrock aquifer beneath the northern boundary of the site is mapped as 'Rock at or near Surface or Karst' (X) vulnerability.

The groundwater vulnerability map is presented in Figure 8.5.

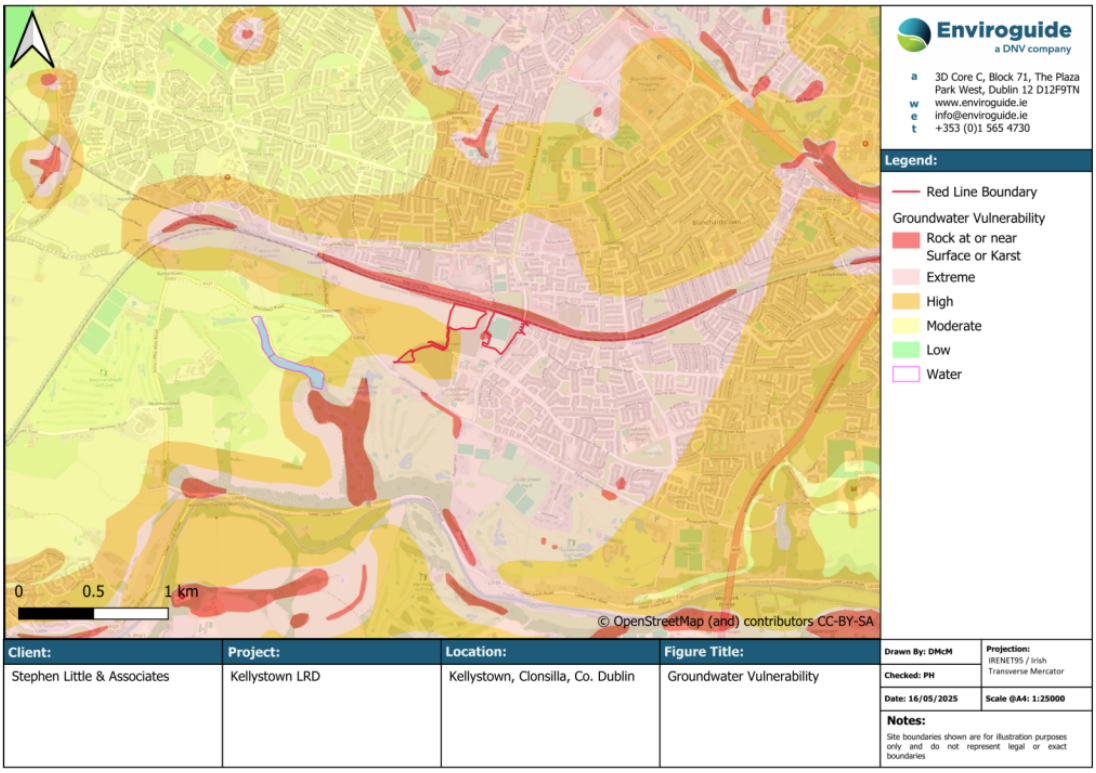

Figure 8.5: Groundwater Vulnerability (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

Site Hydrogeology

As documented in the site investigation report (SIL, 2025 included in Appendix 7.1), groundwater was not encountered during trial pit excavations which extended to a maximum depth of to 2.1 mbGL.

The soakaway tests failed the specification as the water level did not fall sufficiently enough to complete the test. The BRE Digest stipulates that the pit should half empty within 24hrs, and extrapolation indicates this condition would not be satisfied. The tests were terminated at the end of the first (of a possible three) fill/empty cycle since further testing would give even slower fall rates

due to increased soil saturation. The unsuitability of the soils for soakaways is further suggested by the soil descriptions of the materials in this area of the site where the soakaway was completed (i.e., well compacted clay soils) (SIL, 2025).

8.3.1.6 Hydrology

Catchment and Surface Water Features

The site of the Proposed Development lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Liffey sub-catchment (WFD name: Liffey_SC_100, ID: 09_15) (EPA, 2025). The site has been mapped by the EPA (EPA, 2025) to be within the Liffey_180 WFD River Sub Basin (IE_EA_09L012350).

There a no surface water features within the site. However, the closest surface water features within a 2km radius of the site are as follows:

- The Royal Canal Main Line (Liffey and Dublin Bay) (Canal Waterbody Code: IE_09_AWB_RCMLE) located adjacent to the northern boundary of the site, flows in an easterly direction before conveying to the Liffey Estuary Lower Transitional Waterbody (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0300) approximately 11.6km southeast of the site and ultimately discharges into Dublin Bay coastal waterbody (Coastal Waterbody Code: IE_EA_090_0000) approximately 17.9km southeast of the site.
- The River Liffey (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.16km south of the site at its closest point, flows in an easterly direction before conveying to the Liffey Estuary Upper (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0400) approximately 7.1km southeast of the site, then into the Liffey Estuary Lower (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0300) approximately 10.98km southeast of the site and finally discharging into the Dublin Bay (Coastal Waterbody Code: IE_EA_090_0000) approximately 17.93km southeast of the site.

There are a number of tributaries discharging into the River Liffey within the 2km radius of the site as follows

- The Rusk Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 905m southwest of the site at its closest point, flows in southerly direction before conveying to the River Liffey approximately 1.25km southwest of the site.
- The Woodlands 09 ((WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350) a tributary of the Rusk Stream is located approximately 670m southwest of the site.
- The Hermitage 09 Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.59km southwest of the site at its closest point, flows in northerly direction before conveying to the River Liffey.
- The Annfield Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.2km south of the site at its closest point, flows in northerly direction before conveying to the River Liffey.
- The Astagob Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.7km southeast of the site at its closest point, flows in a southerly direction before conveying to the River Liffey approximately 2.1km southeast of the site.

The surface water features mapped by the EPA (EPA, 2025) within a 2km radius of the site are presented in Figure 8.6.

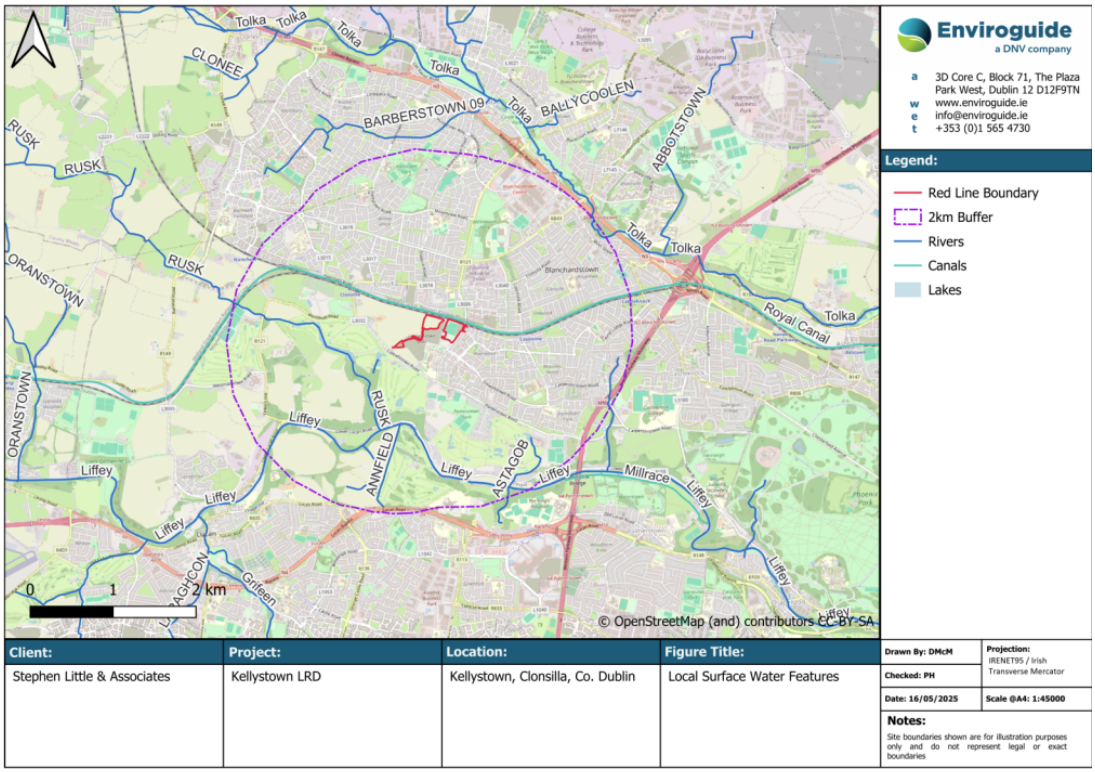

Figure 8.6: Surface Water Features within a 2km Radius of the Site (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

Existing Drainage Infrastructure

Existing Foul Water Network

As documented in the wastewater drainage records provided by Uisce Eireann (UE), there is no existing foul water network present at the site of the Proposed Development (i.e., the Plot 1 (Luttrellstown Gate Phase 2)) (refer to Figure 8.7).

Figure 8.7: Extract of Uisce Eireann's Wastewater Drainage Records (WM, 2025a) - Plot 1 (Luttrellstown Gate Phase 2)

Existing Surface Water Network

There is no existing surface water drainage network present at the site of the Proposed Development. During the site walkover undertaken by Enviroguide Consulting on the 27th of March 2025, the lands were observed to drain to the northwest to a low lying region of the site which contained a large area (c. 0.22 Acres) of ponded water. There was no identified hydraulic connection observed between the site and the Royal Canal Main Line (Liffey and Dublin Bay) adjoining the northern boundary of the site and also the Luttrelstown Golf Course located 0.48km to the southeast of the site.

8.3.1.7 Flood Risk

The site-specific flood risk assessment (SSFRA) prepared by Waterman Moylan Consulting Engineers Limited (WM, 2025b; submitted with the planning application under separate cover), evaluates the flood risks associated with the site and Proposed Development. The assessment follows the DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management and identifies potential flooding sources, including tidal, fluvial, pluvial, groundwater, and human/mechanical errors.

The report concludes that the site is in Flood Zone C, indicating a low probability of flooding from tidal and fluvial sources. However, it identifies moderate to high risks from pluvial and groundwater flooding due to the increased hard standing area from the Proposed Development. Mitigation measures such as adequate drainage design, SuDS devices, and setting finished floor levels above adjacent road levels are proposed to manage these risks. The residual risk of flooding from all sources is considered low after implementing these measures

8.3.1.8 Water Supply and Drinking Water Source Protection

The GSI groundwater wells and springs database (GSI, 2025) was conducted to identify registered wells and groundwater sources in the surrounding area. There are two (2 No.) groundwater sources recorded at the site or within a 2km radius of the site (refer to Figure 8.9 and Table 8.6

Table 8.6: Groundwater Wells Data

Well Use	Total Number of Wells	Yield (m3/d)
Agricultural and Domestic Use	1	163.6 (Good)
Unknown (St. Edmondsbury Spring)	1	Low Spring

The site is located within in an area serviced by mains water supply. As documented in the water supply records provided by Uisce Eireann (UE), there is an existing 101.6mm diameter watermain located in Porterstown Road which is located east of the site (i.e., the Plot 1 (Luttrellstown Gate Phase 2)), and a 200mm watermain in the Kellystown Link Road (refer to Figure 8.8). As part of the adjacent Kellystown Strategic Housing Development, under construction by the Applicant under ABP-312318-21, the 200mm watermain in Kellystown Link Road has been extended, with a spur left to serve the Proposed Development.

There are no Groundwater Source Protection Areas (SPAs) mapped by the GSI (GSI, 2025) within a 2km radius of the site. The closest Groundwater SPA is the Dunboyne GWS, which Inner Source Protection Area (SI) is located 6.31km northwest of the site as it closest point.

There are no surface water drinking water source sites under Article 7 of the Water Framework Directive (EPA, 2025) within 2km of the site. The closest surface water drinking source is the River Liffey (WFD Name: Liffey_150) located approximately 5.33km southwest of the site (EPA, 2025). However, the groundwater body beneath the site (Dublin GWB - IE_EA_G_008) is classified as a drinking water source under Article 7 of the Water Framework Directive (EPA, 2025).

There are no karst features mapped by the GSI (GSI, 2025) at the site or within a 2km radius of the site. The closest karst feature is a spring (St. Columbs Well – ID: 2923SWK003) located approximately 4.7km southwest of the site at its closest point.

Figure 8.8: Extract of Uisce Éireann's Water Supply Service Records (WM, 2025a) - Plot 1 (Luttrellstown Gate Phase 2)

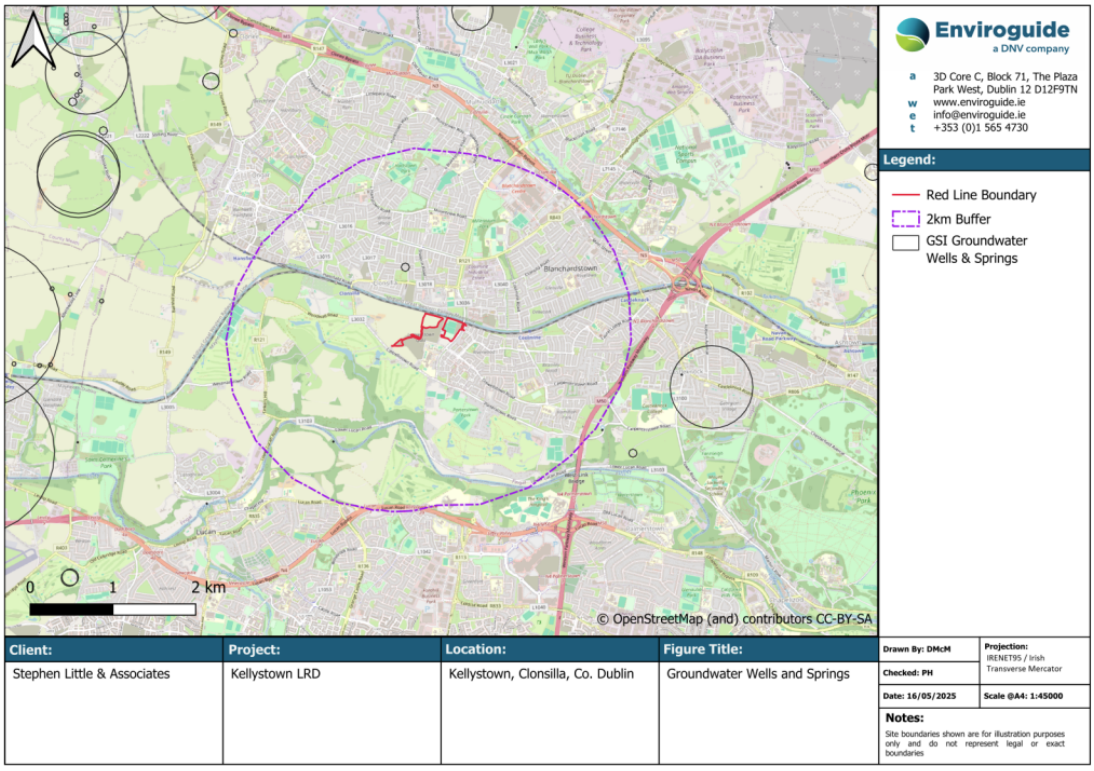

Figure 8.9: Groundwater Wells and Springs (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

8.3.1.9 Water Quality Data

EPA Water Quality - Q Values

The EPA Q-Value assessment is a system of water quality rating based on the biological quality of the water body and abundance for specific invertebrate species. A summary of the Q values for the operational and historical EPA monitoring locations along the Camac River (EPA, 2025) is presented in Table 8.7.

Table 8.7: Relevant EPA Monitoring Stations and Q-Values

River I.D. & Locations	Sample Locations	Monitoring Station	Q-Value & Year
River Liffey (3.1 km upstream from closest point to site)	Lucan Br	RS09L012100	3-4 ,2022
River Liffey (5.8km downstream from closest point to site)	LIFFEY - Mill Lane Studio	RS09L012327	3, 2002
River Liffey (6.4km downstream from closest point to site)	LIFFEY – 1km u/s Chapelizod Br (Glenaulin Park)	RS09L012330	3, 2005

Published Regional Surface Water Quality

The EPA surface water quality monitoring database (EPA, 2025) was consulted. A summary of the most recent published EPA water quality monitoring data (EPA, 2025) for waterbodies which have a potential hydraulic connection to the site is presented in Table 8.8.

Table 8.8: Surface Water Quality

Waterbody I.D. (Location)	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2020) (mg/l)**
Surface Water Body					
Liffey_180 (IE_EA_09L012350)	Ammonia-Total (as N)	Annual	Good	Upwards	0.042
	Total Oxidised Nitrogen (as N)	Annual	Moderate	Upwards	2.418
	ortho-Phosphate (as P) - unspecified	Annual	Good	Downwards	0.026
Liffey_190 (IE_EA_09L012360)	No data available				
Transitional Water Body					
Liffey Estuary Upper (IE_EA_090_0400)	Chlorophyll	Summer	High	Downwards	1.2
		Winter	High	Downwards	1
	Dissolved Inorganic Nitrogen (as N)	Summer	Good	Upwards	1.414
		Winter	Good	Upwards	1.932
	Ortho-Phosphate (as P) - unspecified	Summer	Good	Downwards	38
		Winter	High	Downwards	27
Liffey Estuary Lower (IE_EA_090_0300)	Chlorophyll	Winter	High	Upwards	0.5
		Summer	High	Downwards	1.5
		Winter	Moderate	Upwards	0.881

Waterbody I.D. (Location)	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2020) (mg/l)**
	Dissolved Inorganic Nitrogen (as N)	Summer	Good	Upwards	0.275
	Ortho-Phosphate (as P) - unspecified	Winter	Good	Downwards	36
		Summer	Good	Downwards	32
Coastal Water Body					
Dublin Bay (IE_EA_090_0000)	Chlorophyll	Summer	High	Downwards	1.5
		Winter	High	Downwards	0.5
	Dissolved Inorganic Nitrogen (as N)	Summer	High	Downwards	0.035
		Winter	High	Downwards	0.144
	ortho-Phosphate (as P) - unspecified	Summer	High	Downwards	2.5
		Winter	High	Upwards	24.5
Canal Water Body (Artificial Water Body)					
Royal Canal Main Line (Liffey and Dublin Bay) (IE_09_AWB_RCMLE)	No data available				

Published Regional Groundwater Quality

The EPA groundwater monitoring data (EPA, 2025) was reviewed and there are no groundwater quality monitoring stations within a 2km radius of the site or that are hydraulically connected to the site. However, there are recorded groundwater quality data for the groundwater body beneath the site (refer to Table 8.9 for the published groundwater quality data).

Table 8.9: Published Groundwater Quality Data

Groundwater Body	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2018) (mg/l)**
Dublin GWB (IE_EA_G_008)	Ammonia-Total (as N) - Ryewater RW2-Deep	Annual	Good	Downwards	0.025
	Ammonia-Total (as N) - Ryewater RW3-Deep	Annual	Failing to achieve good status	Downwards	0.156
	Ammonia-Total (as N) - Ryewater RW1-Transition	Annual	Failing to achieve good status	Downwards	0.096
	Ammonia-Total (as N) - Ryewater RW3-Shallow	Annual	Failing to achieve	Upwards	0.112

Groundwater Body	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2018) (mg/l)**
			good status		
	Ammonia-Total (as N) - Ryewater RW3-Subsoil	Annual	Good	Downwards	0.022
	Ammonia-Total (as N) - Ryewater RW2-Shallow	Annual	Good	Downwards	0.023
	Ammonia-Total (as N) - Ryewater RW1-Deep	Annual	Failing to achieve good status	Upwards	0.333
	Ammonia-Total (as N) - Ryewater RW1-Shallow	Annual	Good	Downwards	0.051
	Ammonia-Total (as N) - Ryewater SW1	Annual	Failing to achieve good status	Upwards	0.090
	Ammonia-Total (as N) - Ryewater RW2-Transition	Annual	Failing to achieve good status	Upwards	0.079
	Ammonia-Total (as N) - Ryewater RW3-Transition	Annual	Failing to achieve good status	Downwards	0.253
	Chloride - Ryewater RW2-Deep	Annual	Good	Downwards	22.344
	Chloride - Ryewater RW3-Deep	Annual	Failing to achieve good status	Downwards	26.411
	Chloride - Ryewater RW1-Transition	Annual	Failing to achieve good status	Upwards	79.378
	Chloride - Ryewater RW3-Shallow	Annual	Good	Upwards	21.378
	Chloride - Ryewater RW3-Subsoil	Annual	Failing to achieve good status	Upwards	38.275
	Chloride - Ryewater RW2-Shallow	Annual	Failing to achieve good status	Upwards	38.011
	Chloride - Ryewater RW1-Deep	Annual	Good	Upwards	17.900
	Chloride - Ryewater RW1-Shallow	Annual	Failing to achieve	Upwards	50.508

Groundwater Body	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2018) (mg/l)**
			good status		
	Chloride - Ryewater SW1	Annual	Failing to achieve good status	Downwards	26.594
	Chloride - Ryewater RW2-Transition	Annual	Failing to achieve good status	Downwards	108.086
	Chloride - Ryewater RW3-Transition	Annual	Good	Downwards	18.594
	Conductivity @25°C - Ryewater RW2-Deep	Annual	Good	Upwards	564.139
	Conductivity @25°C - Ryewater RW3-Deep	Annual	Good	Downwards	592.444
	Conductivity @25°C - Ryewater RW1-Transition	Annual	Failing to achieve good status	Upwards	1015.597
	Conductivity @25°C - Ryewater RW3-Shallow	Annual	Good	Downwards	734.250
	Conductivity @25°C - Ryewater RW3-Subsoil	Annual	Good	Upwards	730.861
	Conductivity @25°C - Ryewater RW2-Shallow	Annual	Good	Upwards	690.611
	Conductivity @25°C - Ryewater RW1-Deep	Annual	Good	Downwards	607.750
	Conductivity @25°C - Ryewater RW1-Shallow	Annual	Good	Downwards	727.750
	Conductivity @25°C - Ryewater SW1	Annual	Good	Upwards	676.556
	Conductivity @25°C - Ryewater RW2-Transition	Annual	Failing to achieve good status	Upwards	999.194
	Conductivity @25°C - Ryewater RW3-Transition	Annual	Good	Upwards	650.250
	Nitrate (as NO3) - Ryewater RW2-Deep	Annual	Good	Upwards	1.057
	Nitrate (as NO3) - Ryewater RW3-Deep	Annual	Good	Upwards	1.452
	Nitrate (as NO3) - Ryewater RW1-Transition	Annual	Good	Downwards	10.351
	Nitrate (as NO3) - Ryewater RW3-Shallow	Annual	Good	Downwards	0.861

Groundwater Body	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2018) (mg/l)**
	Nitrate (as NO3) - Ryewater RW3-Subsoil	Annual	Good	None	1.043
	Nitrate (as NO3) - Ryewater RW2-Shallow	Annual	Good	Downwards	0.861
	Nitrate (as NO3) - Ryewater RW1-Deep	Annual	Good	Downwards	0.861
	Nitrate (as NO3) - Ryewater RW1-Shallow	Annual	Good	Upwards	1.760
	Nitrate (as NO3) - Ryewater SW1	Annual	Good	Upwards	7.690
	Nitrate (as NO3) - Ryewater RW2-Transition	Annual	Good	Upwards	1.070
	Nitrate (as NO3) - Ryewater RW3-Transition	Annual	Good	Upwards	0.979
	ortho-Phosphate (as P) – unspecified - Ryewater RW2-Deep	Annual	Good	None	0.010
	ortho-Phosphate (as P) – unspecified - Ryewater RW3-Deep	Annual	Good	Downwards	0.010
	ortho-Phosphate (as P) – unspecified - Ryewater RW1-Transition	Annual	Good	Downwards	0.019
	ortho-Phosphate (as P) – unspecified – Ryewater RW3-Shallow	Annual	Good	Downwards	0.013
	ortho-Phosphate (as P) – unspecified - Ryewater RW3-Subsoil	Annual	Good	None	0.010
	ortho-Phosphate (as P) – unspecified - Ryewater RW2-Shallow	Annual	Good	None	0.010
	ortho-Phosphate (as P) – unspecified - Ryewater RW1-Deep	Annual	Good	Upwards	0.031
	ortho-Phosphate (as P) – unspecified - Ryewater RW1-Shallow	Annual	Good	None	0.010
	ortho-Phosphate (as P) – unspecified - Ryewater SW1	Annual	Failing to achieve good status	Upwards	0.096
	ortho-Phosphate (as P) – unspecified - Ryewater RW2-Transition	Annual	Good	Upwards	0.010

Groundwater Body	EPA WFD Parameter Quality & Trend Analysis				
	Parameter	**Period**	**Indicative Quality**	**Trend**	**Baseline Conc. (2018) (mg/l)**
	ortho-Phosphate (as P) – unspecified - Ryewater RW3-Transition	Annual	Good	Downwards	0.021

Receiving Water Quality – Ringsend Wastewater Treatment Plant (WWTP)

Foul water from the Proposed Development will discharge via the Ringsend WWTP to the Liffey Estuary Lower transitional waterbody. The WWTP is operated under relevant statuary approvals. The most recent available Annual Environmental Report (AER) for the Ringsend WWTP is 2023 (UE, 2023). The AER identified that the final effluent was non-compliant with the Emission Limit Values (ELV) specified in the discharge license (D0034-01). The parameters falling to meet there ELV's included biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), total phosphorus (as P), total nitrogen and E. coli. It was reported that the non-compliances for all parameters were as a result of overloading with the exception of total phosphorus which was due to no phosphorus removal treatment onsite.

While exceedances in the ELV's is noted, the following is also noted under the significance of results section of the AER:

- *'The primary discharge from the wastewater treatment plant does have an observable negative impact on the water quality in the near field of the discharge and in the Liffey and Tolka Estuaries.*
- *The primary discharge from the WWTP does not have an observable negative impact on the Water Framework Directive status in the Liffey Estuary.*
- *Other potential causes of deterioration in water quality relevant to this area are upstream riverine pollutants, combined sewer overflows, exfiltration from sewers and misconnections to surface water sewers in the large urban agglomeration'.*

8.3.1.10 Water Framework Directive

The WFD status for river, lake, groundwater, transitional and/or coastal water bodies that have a potential hydraulic connection to the subject site as recorded by the EPA (EPA, 2025) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Table 8.10 and Figure 8.10.

Table 8.10: Water Framework Directive Status

Waterbody Name	Waterbody EU Code	Location from Site	Distance from Site (km)	WFD Status (2016-2021)	WFD Risk	Hydraulic Connection to the Site
Surface Water Bodies						
Liffey_180	IE_EA_09L012350	South	1.03	Poor	At Risk	Yes, hydraulically connected to the site.
Liffey_190	IE_EA_09L012360	South	5.3	Poor	At Risk	Yes, hydraulically connected to the site via the Liffey_180 River.
Transitional Water Bodies						
Liffey Estuary Upper	IE_EA_090_0400	Southeast	6.8	Good	Under Review	Yes, hydraulically connected to the site via the Liffey_180 and Liffey_190 Rivers.
Liffey Estuary Lower	IE_EA_090_0300	Southeast	10.77	Moderate	At Risk	Yes, hydraulically connected to the site via the Liffey_180 and Liffey_190 Rivers and the Liffey Estuary Lower.
Tolka Estuary	IE_EA_090_0200	East	10.4	Poor	At Risk	Weak potential hydraulic connection via the Liffey Estuary Lower.
Coastal Water Bodies						
Dublin Bay	IE_EA_090_0000	Southeast	17.77	Good	Not at risk	Weak potential hydraulic connection via Liffey Estuary Upper and Liffey Estuary Lower.
Canal Water Bodies						
Royal Canal Main Line (Liffey and Dublin Bay)	IE_09_AWB_RCMLE	North	Adjacent to the northern boundary	Good	Review	Not hydraulically connected to site.
Groundwater Bodies						
Dublin	IE_EA_G_008	Underlying	0.0	Good	Review	Yes, underlying the site.

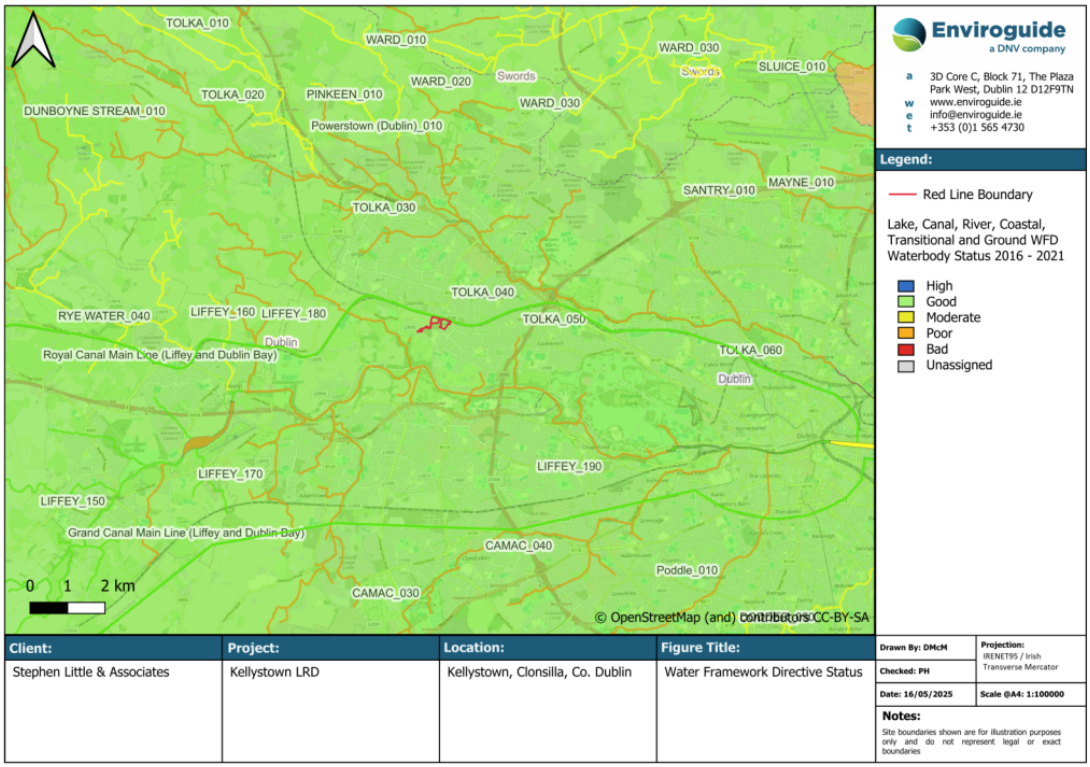

Figure 8.10: Water Framework Directive Status (2016-2021) (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

Nature Conservation

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). SACs and SPAs are collectively known as Natura 2000 or European sites (referred to hereafter as Natura 2000 site).

National Heritage Areas (NHAs) are designations under the Wildlife Acts to protect habitats, species, or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with SAC and/or SPA Sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning policy which normally requires that planning authorities give recognition to their ecological value.

There are eight (8 No.) Natura 2000 sites that are identified with a potential hydraulic connection to the site and Proposed Development. There are five (5 No.) pNHAs identified with a potential hydraulic connection to the site and Proposed Development. The Natura 2000 sites and other protected and designated sites or areas with a potential hydraulic connection to the site are summarised in Table 8.11 and Figure 8.11.

Table 8.11: Designated and Protected Sites

Site Code	Site Name	Distance and Direction from the Site (Km)	Potential for Hydraulic Connection
Special Areas of Conservation (SACs)			
000206	North Dublin Bay SAC	15 - East	Yes, potential connection via the Liffey Upper Estuary transitional waterbody and Dublin Bay coastal waterbody.
000210	South Dublin Bay SAC	13.7 - Southeast	
003000	Rockabill to Dalkey Island SAC	21 - East	
Special Protection Areas (SPAs)			
004024	South Dublin Bay and River Tolka Estuary SPA	11.9 - Southeast	Yes, potential connection via the Liffey Upper Estuary transitional waterbody and Dublin Bay coastal waterbody.
004006	North Bull Island SPA	14.9 - East	
004236	North-West Irish Sea SPA	17.3 - Southeast	
Proposed Natural Heritage Areas (pNHAs)			
002103	Royal Canal	Adjacent to the northern boundary	No identified hydraulic connection.
000128	Liffey Valley	0.79 - Southwest	Yes, potential hydrological connection via the Liffey River.
000206	North Dublin Bay	11.6 - East	Yes, potential hydrological connection via the Liffey Lower Estuary and Tolka Estuary.
000210	South Dublin Bay	13.6 - Southeast	Yes, potential hydrological connection via Dublin Bay.

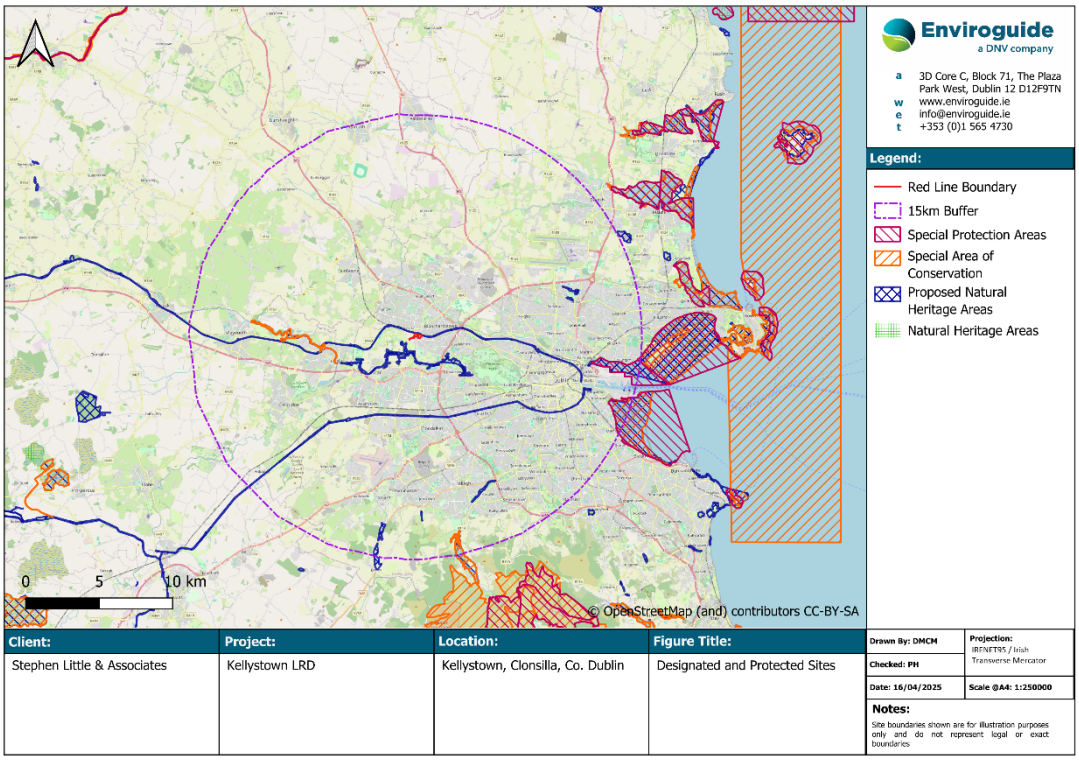

Figure 8.11: Designated and Protected Nature Conservation Sites (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

Drinking Water

The river drinking water protected areas (DWPA) are represented by the full extent of the Water Framework Directive (WFD) river waterbodies from which there is a known qualifying abstraction of water for human consumption as defined under Article 7 of the WFD.

As stated in Section 8.3.1.8, there are no surface water drinking water sources, under Article 7 of the Water Framework Directive, identified by the EPA (EPA, 2025) within a 2km radius or hydraulically downstream of the site. However, the groundwater bodies beneath the site the Dublin GWB (IE_EA_G_008) is classified under Article 7 Abstraction for Drinking Water.

Shellfish Areas

Although the Shellfish Waters Directive (SWD) has been repealed, areas used for the production of shellfish that were designated under the SWD, are protected under the WFD as 'areas designated for the protection of economically significant aquatic species'.

The requirement from a WFD perspective is to ensure that water quality does not impact on the quality of shellfish produced for human consumption. In Ireland, 64 areas have been designated as shellfish waters (S.I. No. 268 of 2006, S.I. No. 55 of 2009, S.I. 464 of 2009).

The closest designated Shellfish Area location is Malahide (IE_EA_020_0000) located approximately 20.4km 20.55km northeast of the site.

Nutrient Sensitive Areas

EU member states are required under the Urban Wastewater Treatment Directive (91/271/EEC) to identify nutrient-sensitive areas. These have been defined as "natural freshwater lakes, other

freshwater bodies, estuaries and coastal waters which are found to be eutrophic or which in the near future may become eutrophic if protective action is not taken".

The closest designated nutrient-sensitive area (rivers) is the Liffey River (IERI_EA_2010_0007 - Urban Waste Water Treatment Directive Sensitive Area) located approximately 1.2km south of the site at its closest point. In addition, the closest nutrient-sensitive area (estuaries) is the Liffey Estuary (IE_EA_090_0300 - Urban Waste Water Treatment Directive Sensitive Area) located approximately 7.0km southeast of the site at its closest point.

Bathing Waters

Bathing waters are designated under Regulation 5 of Directive 2006/7/EC. Designated Bathing Waters exist under S.I. No. 79/2008 and S.I. No. 351/2011 Bathing Water Quality (Amendment) Regulations 2011. EC Bathing Water Profiles - Best Practice and Guidance 2009.

The closest designated Bathing Water location is the Sandymount Strand (IEEABWC090_0000_0300) located approximately 13.8km southeast of the site.

8.3.1.11 Importance of Receiving Environment

The receiving water bodies have been assigned a WFD Status of 'good' for the groundwater body beneath the site (Dublin GWB), a 'good' status for the Royal Canal Main Line (Liffey and Dublin Bay) adjacent to the northern boundary of the site and a 'poor' for the surface water body also potentially hydraulically connected (Liffey_180) to the site of the Proposed Development (EPA, 2025). The bedrock aquifer beneath the majority of the site is classified as Locally Important Aquifer (Ll) while the bedrock aquifer beneath a small portion of the southwestern area of the site is classified as a Poor Aquifer (Pl). In addition, the site is not mapped within a source protection area or in the vicinity of a water supply source.

Overall, taking account of the receiving hydrological environment, in accordance with the criteria set out in

Table 8.1, the site is considered to be of 'low' importance.

8.3.2 Proposed Development – Plot 2 (LRD Scheme)

8.3.2.1 Site Location and Description

The site of the Proposed Development is located to the south of Clonsilla Town, adjacent to the west of Carpenterstown and to the southwest of Blanchardstown. It is accessible through the R121 (regional road).

The majority of the site of the Proposed Development comprises a football pitch (St. Mochtas FC) and associated infrastructure including two (2No.) astroturf pitches, hardstanding area for parking and a small clubhouse and shed. While the southern portion of the site comprises undeveloped grasslands.

The site is bounded to the north by the Midland Great Western Main Line, to the east by Diswelstown Road, to the south by the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21) and to the west by a laneway and the St. Brigid's Lawns Halting Site.

The site location and current layout of the site is presented in Figure 8.2 and Figure 8.3 in Section 8.3.1.1.

A full description of the site location and surrounding land use is presented in Chapter 2 of this EIAR.

8.3.2.2 Topography

As documented in the Engineering Assessment Report (WM, 2025c; submitted with the planning application under separate cover), the topographic survey data indicates that the site generally falls from north to south, with a high point of approximately 63.02m OD Malin at the northwest corner of the site and a low point of approximately 60.84m OD Malin at the southwest of the site.

8.3.2.3 Soil, Subsoil and Geology

The soils and geology at the subject site are described and assessed in detail in Chapter 7 (Land and Soil) of this EIAR and they are summarised as follows:

- The soils beneath the majority of the site are mapped by Teagasc (Teagasc, 2025) as mineral poorly drained (mainly basic), which are classified as Surface water Gleys, Ground water Gleys (IFS Soil Code: BminPD) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs). The soils beneath a small area in the northern and southern portions of the site are mapped as deep well drained mineral (mainly basic), which are classified as Grey Brown Podzolics, Brown Earths (medium-high base status) (IFS Soil Code: BminDW) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs). The most northern portion of the site and a small area to the west of the site are mapped as shallow well drained mineral (mainly basic), which are classified as Renzinas and Lithosols (IFS Soil Code: BminSW) derived from mainly calcareous parent materials described as Bedrock at surface-Calcareous (RckCa).
- The subsoil or quaternary deposits beneath the site are mapped by the GSI (GSI, 2025) as till derived from limestones (TLs).
- The bedrock beneath the majority of the site is mapped by the GSI (GSI, 2025) as the Lucan Formation (code: CDLUCN) described as dark limestone & shale (`calp). The bedrock beneath the most southwestern corner of the site is classified as the Tober Colleen Formation (code: CDTOBE) which is described as calcareous shale, limestone conglomerate. Bedrock was not encountered during the SIL site investigations (SIL, 2025) where boreholes extended to a maximum depth of 7.0mbGL.
- While there is no bedrock outcrops mapped within the site boundary, there are a number of bedrock outcrops mapped by the GSI (GSI, 2024) within a 2km radius of the site. The closest are located immediately north of the site along the railway tracks adjacent to the northern boundary of the site.

8.3.2.4 Rainfall

Monthly rainfall data available for 1km x 1km grids (for the period 1991 to 2020) sourced from Met Éireann (Met Éireann, 2025) and is presented in Table 8.3 in section 8.3.1.4.

The average potential evapotranspiration (PE) from the Casement Aerodrome station for the period 2022 to 2024 (Met Éireann, 2025) is presented in Table 8.4 in Section 8.3.1.4.

8.3.2.5 Hydrogeology

Groundwater Body and Flow Regimes

The bedrock aquifer beneath the site is within the Dublin GWB (Groundwater Body) (EU Code: IE_EA_G_008).

The Dublin GWB Report (GSI, 2025) identifies two (2 No.) different recharge processes, one within Dublin City and the other one recharge in rural areas within this GWB. Recharge is prevented within Dublin City as it is essentially a cement cap on the limestone. The only open areas where recharge may occur are open grassed areas (i.e., parks, squares and gardens). In addition, some recharge occurs

from leaking sewers, mains and storm drains. Elsewhere diffuse recharge will occur via rainfall percolating through the subsoil.

This GWB will discharge directly to the Irish Sea along the coast. Although, there will also be discharge to the overlying gravel aquifers in places and to the overlying rivers, if they are in hydraulic continuity with the aquifer.

Groundwater flow occurs along fractures, joints and major faults. The majority of groundwater flow will be a rapid flow within the upper weathered zone near the surface, although, flow in conduits is commonly recorded at depths of 30 metres below ground level (mbGL) to 50mbgl. Groundwater circulation from recharge to discharge points will more commonly take place over a distance of less than a 1km.

Locally, groundwater flow direction in the vicinity of the site is likely to be to the south / southeast towards the River Liffey and Liffey Estuary Upper, located south and southeast of the Site respectively, but may vary locally based on topography.

Aquifer Classification

The GSI (GSI, 2025) has classified the bedrock aquifers beneath the site as follows:

- The bedrock aquifer within the Lucan Formation (Code: CDLUCN) beneath the majority of the site is classified by the GSI (GSI, 2025) as a Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones (LI).
- The bedrock aquifer within a small portion of the southwestern area of the site within the Tober Colleen Formation (Code: CDTOBE) is classified as a Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones (PI).

Both bedrock formations and equally, the groundwater aquifer beneath the site are divided by a geological structural fault that runs approximately in a north to south direction. The closest bedrock outcropping along the northern boundary of the site (GSI, 2015).

It is noted that there are no gravel aquifers mapped by the GSI (GSI, 2025 at the site or within a 2km radius of the site (GSI, 2025).

The bedrock aquifer map is presented in Figure 8.4 in Section 8.3.1.5.

Groundwater Vulnerability

The GSI has assigned a groundwater vulnerability rating of 'Extreme' (E) for the bedrock aquifer beneath the majority of the site (GSI, 2025). The bedrock aquifer beneath the most northern part of the site and a small area to the west of the site is mapped as 'Rock at or near Surface or Karst' (X) vulnerability.

The groundwater vulnerability map is presented in Figure 8.5 in Section 8.3.1.5.

Site Hydrogeology

As documented in the site investigation report for lands adjoining the southern eastern boundaries of the site at the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, , as amended by LRD0034/S3) (SIL, 2019 included in Appendix 7.2), groundwater ingresses were recorded in two of the boreholes, BH01 and BH02, at 1.80mbgl and 1.40mbGL respectively. Both holes recorded that the ingresses were sealed off by the casings at 1.90mbGL and 1.60mbGL and suggests that these are small granular lenses with groundwater in the voids. Groundwater was also recorded in eleven of the thirty-nine trial pits during the fieldworks period and ranged in depth from 1.30mbGL to 2.40mbGL, with ingress rates of seepages to rapid ingresses recorded (SIL, 2019).

The soakaway tests failed the specification as the water level did not fall sufficiently enough to complete the test. The BRE Digest stipulates that the pit should half empty within 24hrs, and extrapolation indicates this condition would not be satisfied. The tests were terminated at the end of the first (of a possible three) fill/empty cycle since further testing would give even slower fall rates due to increased soil saturation. The unsuitability of the soils for soakaways is further suggested by the soil descriptions of the materials in this area of the site where the soakaway was completed (i.e., well compacted clay soils) (SIL, 2019).

8.3.2.6 Hydrology

Catchment and Surface Water Features

The Proposed Development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Liffey sub-catchment (WFD name: Liffey_SC_100, ID: 09_15) (EPA, 2025). The site has been mapped by the EPA (EPA, 2025) to be within the Liffey_180 WFD River Sub Basin (IE_EA_09L012350).
There a no surface water features within the site. However, the closest surface water features within the 2km radius of the site are as follows:

- The Royal Canal Main Line (Liffey and Dublin Bay) (Canal Waterbody Code: IE_09_AWB_RCMLE) located adjacent to the northern boundary of the site, flows in an easterly direction before conveying to the Liffey Estuary Lower Transitional Waterbody (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0300) approximately 11.3km southeast of the site and ultimately discharges into Dublin Bay coastal waterbody (Coastal Waterbody Code: IE_EA_090_0000) approximately 17.7km southeast of the site.
- The River Liffey (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.03km south of the site at its closest point, flows in an easterly direction before conveying to the Liffey Estuary Upper (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0400) approximately 6.8km southeast of the site, then into the Liffey Estuary Lower (WFD Name: Liffey; Transitional Waterbody Code: IE_EA_090_0300) approximately 10.77km southeast of the site and finally discharging into the Dublin Bay (Coastal Waterbody Code: IE_EA_090_0000) approximately 17.77km southeast of the site.

There are a number of tributaries discharging into the River Liffey within the 2km radius of the site as follows:

  - The Rusk Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 924m southwest of the site at its closest point, flows in southerly direction before conveying to the River Liffey approximately 1.3km southwest of the site.
  - The Woodlands 09 ((WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350) a tributary of the Rusk Stream is located approximately 770m southwest of the site.
  - The Hermitage 09 Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.52km southwest of the site at its closest point, flows in northerly direction before conveying to the River Liffey.
  - The Annfield Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.08km south of the site at its closest point, flows in northerly direction before conveying to the River Liffey.
  - The Astagob Stream (WFD Name: Liffey_180; River Waterbody Code: IE_EA_09L012350), located approximately 1.5km southeast of the site at its closest

point, flows in a southerly direction before conveying to the River Liffey approximately 1.8km southeast of the site.

The surface water features mapped by the EPA (EPA, 2025) within a 2km radius of the site are presented in Figure 8.6 in Section8.3.1.6.

Existing Drainage Infrastructure

Existing Foul Water Network

As documented in the wastewater drainage records provided by Uisce Eireann (UE), there is no existing foul water network present at the site of the Proposed Development (i.e., the Plot 2 (LRD Scheme)) (refer to Figure 8.12).

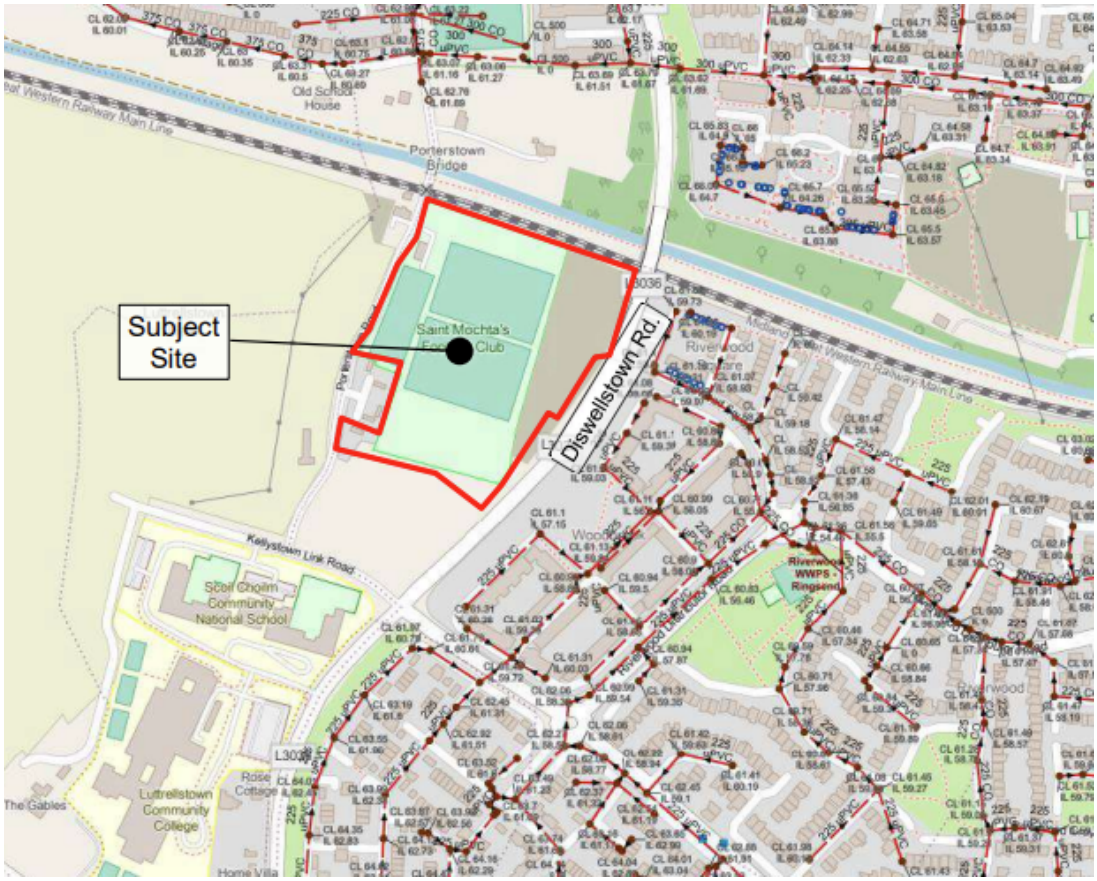

Figure 8.12: Extract of Uisce Eireann's Wastewater Drainage Records (WM, 2025c) - Plot 2 (LRD Scheme)

Existing Surface Water Network

There is no existing surface water drainage network present at the site of the Proposed Development.

8.3.2.7 Flood Risk

The site-specific flood risk assessment (SSFRA) prepared by Waterman Moylan Consulting Engineers Limited (WM, 2025d; submitted with the planning application under separate cover), evaluates the flood risks associated with the site and Proposed Development. The assessment follows the DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management, identifying potential flood sources such as coastal, fluvial, pluvial, groundwater, and human/mechanical errors.

The report concludes that the site is in Flood Zone C, indicating a low probability of flooding from tidal and fluvial sources. The risk of tidal flooding is extremely low due to the site's elevation and distance

from the coast. Similarly, the risk of fluvial flooding from the River Liffey is also extremely low. However, the report identifies moderate risks from pluvial flooding due to increased surface water runoff from the development and high risks from groundwater flooding due to the site's extreme groundwater vulnerability. Mitigation measures, such as adequate drainage design, SuDS devices, and setting finished floor levels above adjacent road levels, are proposed to manage these risks. Overall, the assessment finds that with the implementation of the proposed mitigation measures, the residual risk of flooding from any source is low.

8.3.2.8 Water Supply and Drinking Water Source Protection

The GSI groundwater wells and springs database (GSI, 2025) was conducted to identify registered wells and groundwater sources in the surrounding area. There are two (2 No.) groundwater sources recorded at the site or within a 2km radius of the site.

The site of the Proposed Development is located within an area serviced by mains water supply. As documented in the water supply records provided by Uisce Eireann (UE), there is an existing 101.6mm diameter watermain located in Porterstown Road which is located adjacent the western boundary of the site, and a 200mm watermain in the Kellystown Link Road located south of the site (i.e., the Plot 2 (LRD Scheme)) (refer to Figure 8.8). As part of the adjacent Kellystown Strategic Housing Development, under construction by the Applicant under ABP-312318-21, the 200mm watermain in Kellystown Link Road has been extended, with a spur left to serve the Proposed Development via a series of 150mm diameter watermains. Additionally, a 150mm watermain spur has been provided as part of the adjacent Block A (Reg. Ref. LRD0034/S3) development to the south to serve the Proposed Development.

There are no Groundwater Source Protection Areas (SPAs) mapped by the GSI (GSI, 2025) within a 2km radius of the site. The closest Groundwater SPA is the Dunboyne GWS, which Inner Source Protection Area (SI) is located 6.52km northwest of the site as its closest point.

There are no surface water drinking water source sites under Article 7 of the Water Framework Directive (EPA, 2025) within 2km of the site. The closest surface water drinking source is the River Liffey (WFD Name: Liffey_150) located approximately 5.4km southwest of the site (EPA, 2025). However, the groundwater body beneath the site (Dublin GWB - IE_EA_G_008) is classified as a drinking water source under Article 7 of the Water Framework Directive (EPA, 2025).

There are no karst features mapped by the GSI (GSI, 2025) at the site or within a 2km radius of the site. The closest karst feature is a spring (St. Columbs Well – ID: 2923SWK003) located approximately 4.9km southwest of the site at its closest point (refer to Figure 8.9 in Section 8.3.1.8).

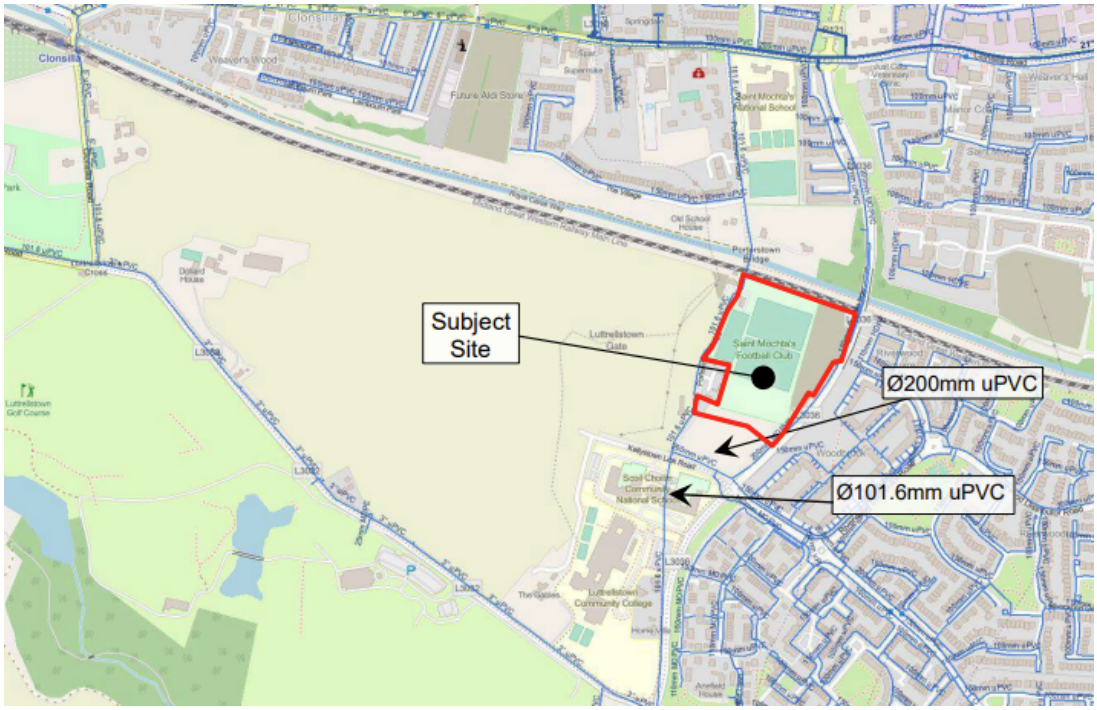

Figure 8.13: Extract of Uisce Éireann's Water Supply Service Records (WM, 2025c) - Plot 2 (LRD Scheme)

8.3.2.9 Water Quality Data

EPA Water Quality - Q Values

The EPA Q-Value assessment is a system of water quality rating based on the biological quality of the water body and abundance for specific invertebrate species. A summary of the Q values for the operational and historical EPA monitoring locations along the Camac River (EPA, 2025) is presented in Table 8.7 in Section 8.3.2.9.

Published Regional Surface Water Quality

The EPA surface water quality monitoring database (EPA, 2025) was consulted and summary of the most recent published EPA water quality monitoring data (EPA, 2025) for waterbodies which have a potential hydraulic connection to the site is presented in Table 8.8 in Section 8.3.2.9.

Published Regional Groundwater Quality

The EPA groundwater monitoring data (EPA, 2025) was reviewed and there are no groundwater quality monitoring stations within a 2km radius of the site or that are hydraulically connected to the site. However, there are recorded groundwater quality data for the groundwater body beneath the site. Refer to Table 8.9 in Section 8.3.2.9 for the published groundwater quality data.

Receiving Water Quality – Ringsend Wastewater Treatment Plant (WWTP)

Foul water from the Proposed Development will discharge via the Ringsend WWTP to the Liffey Estuary Lower transitional waterbody. The WWTP is operated under relevant statuary approvals. The most recent available Annual Environmental Report (AER) for the Ringsend WWTP is 2023 (UE, 2023). The AER identified that the final effluent was non-compliant with the Emission Limit Values (ELV) specified in the discharge license (D0034-01). The parameters falling to meet there ELV's included biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS),

total phosphorus (as P), total nitrogen and E. coli. It was reported that the non-compliances for all parameters were as a result of overloading with the exception of total phosphorus which was due to no phosphorus removal treatment onsite.

While exceedances in the ELV's is noted, the following is also noted under the significance of results section of the AER:

- *'The primary discharge from the wastewater treatment plant does have an observable negative impact on the water quality in the near field of the discharge and in the Liffey and Tolka Estuaries.*
- *The primary discharge from the WWTP does not have an observable negative impact on the Water Framework Directive status in the Liffey Estuary.*
- *Other potential causes of deterioration in water quality relevant to this area are upstream riverine pollutants, combined sewer overflows, exfiltration from sewers and misconnections to surface water sewers in the large urban agglomeration'.*

8.3.2.10 Water Framework Directive

The WFD status for river, lake, groundwater, transitional and/or coastal water bodies that have a potential hydraulic connection to the subject site as recorded by the EPA (EPA, 2025) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Figure 8.10 and Table 8.10 in Section 8.3.1.10.

Nature Conservation

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). SACs and SPAs are collectively known as Natura 2000 or European sites (referred to hereafter as Natura 2000 site).

National Heritage Areas (NHAs) are designations under the Wildlife Acts to protect habitats, species, or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with SAC and/or SPA Sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning policy which normally requires that planning authorities give recognition to their ecological value.

There are eight (8 No.) Natura 2000 sites that are identified with a potential hydraulic connection to the site and Proposed Development. There are five (5 No.) pNHAs identified with a potential hydraulic connection to the site and Proposed Development. The Natura 2000 sites and other protected and designated sites or areas with a potential hydraulic connection to the site are summarised in Table 8.11 and Figure 8.11 in Section 8.3.1.10.

Drinking Water

The river drinking water protected areas (DWPA) are represented by the full extent of the Water Framework Directive (WFD) river waterbodies from which there is a known qualifying abstraction of water for human consumption as defined under Article 7 of the WFD.

There are no surface water drinking water sources, under Article 7 of the Water Framework Directive, identified by the EPA (EPA, 2025) within a 2km radius or hydraulically downstream of the site. However, the groundwater bodies beneath the site the Dublin GWB (IE_EA_G_008) is classified under Article 7 Abstraction for Drinking Water.

Shellfish Areas

Although the Shellfish Waters Directive (SWD) has been repealed, areas used for the production of shellfish that were designated under the SWD, are protected under the WFD as 'areas designated for the protection of economically significant aquatic species'.

The requirement from a WFD perspective is to ensure that water quality does not impact on the quality of shellfish produced for human consumption. In Ireland, 64 areas have been designated as shellfish waters (S.I. No. 268 of 2006, S.I. No. 55 of 2009, S.I. 464 of 2009).

The closest designated Shellfish Area location is Malahide (IE_EA_020_0000) located approximately 20.4km northeast of the site.

Nutrient Sensitive Areas

EU member states are required under the Urban Wastewater Treatment Directive (91/271/EEC) to identify nutrient-sensitive areas. These have been defined as "natural freshwater lakes, other freshwater bodies, estuaries and coastal waters which are found to be eutrophic or which in the near future may become eutrophic if protective action is not taken".

The closest designated nutrient-sensitive area (rivers) is the Liffey River (IERI_EA_2010_0007 - Urban Waste Water Treatment Directive Sensitive Area) located approximately 1.0km south of the site at its closest point. In addition, the closest nutrient-sensitive area (estuaries) is the Liffey Estuary (IE_EA_090_0300 - Urban Waste Water Treatment Directive Sensitive Area) located approximately 6.8km southeast of the site at its closest point.

Bathing Waters

Bathing waters are designated under Regulation 5 of Directive 2006/7/EC. Designated Bathing Waters exist under S.I. No. 79/2008 and S.I. No. 351/2011 Bathing Water Quality (Amendment) Regulations 2011. EC Bathing Water Profiles - Best Practice and Guidance 2009.

The closest designated Bathing Water location is the Sandymount Strand (IEEABWC090_0000_0300) located approximately 13.5km southeast of the site.

8.3.2.11 Importance of Receiving Environment

The receiving water bodies have been assigned a WFD Status of 'good' for the groundwater body beneath the site (Dublin GWB), a 'good' status for the Royal Canal Main Line (Liffey and Dublin Bay) adjacent to the northern boundary of the site and a 'poor' for the surface water body also potentially hydraulically connected (Liffey_180) to the site of the Proposed Development (EPA, 2025). The bedrock aquifer beneath the majority of the site is classified as Locally Important Aquifer (LI) while the bedrock aquifer beneath a small portion of the southwestern area of the site is classified as a Poor Aquifer (PI). In addition, the site is not mapped within a source protection area or in the vicinity of a water supply source.

Overall, taking account of the receiving hydrological environment, in accordance with the criteria set out in

Table 8.1, the site is considered to be of 'low' importance.

8.4 Characteristics of the Proposed Development

8.4.1 Proposed Development– Plot 1 (Luttrellstown Gate Phase 2)

Castlethorn Developments Luttrellstown Limited intends to apply for permission for a development at a site (c. 3.72ha) at lands in the Townland of Kellystown.

The proposed development comprises 99no. residential units in a mix of houses and duplex units consisting of 71no. 2 storey houses (66no. 3-bedroom and 5no. 4-bedroom), 16no. 3 storey houses (16no. 4-bedroom), 4no. 1-bedroom duplex units and 8no. 2-bedroom duplex units and all associated

and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works, including public open space; public lighting; surface car parking spaces; bicycle parking spaces/stores for mid-terrace units; bin stores. The proposed development includes a minor amendment to development permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3, with minor adjustment proposed to the permitted surface water attenuation pond. Vehicular access to the proposed development is provided by the road network permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3

A full description of the Proposed Development is outlined in Chapter 2 of this EIAR.

The following components are of particular relevance with respect to water during the construction stage and operational stage of the Proposed Development.

8.4.1.1 Construction Stage

- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure.
- It is anticipated that there will be no requirement for the excavation of bedrock during the construction stage of the Proposed Development.
- Where possible, it is intended to reuse all suitable excavated topsoil and subsoil to achieve formation levels and for landscaping and engineering use. However, it is anticipated that up to 5000m^3 of surplus excavated soil and subsoil will require removal offsite in accordance with all statutory legislation.
- Temporary stockpiling of excavated material pending re-use onsite.
- The importation of aggregate fill materials for the construction of the Proposed Development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.).
- There may be a requirement for the management of surface water (rainwater) and shallow groundwater, where encountered during groundworks.
- Construction of new surface water drainage designed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Sustainable Drainage System (GDSDS) and the requirements of Fingal County Council (FCC).
- Construction of new foul and mains water connections in accordance with the UE Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03) and UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03).

8.4.1.2 Operational Stage

Proposed Foul Water Drainage

The total dry weather flow from the development has been calculated as 0.511l/s, with a peak flow of 3.066l/s.

As documented in the Engineering Assessment Report (WM, 2025a), the adjacent Kellystown Strategic Housing Development (SHD), currently under construction by the Applicant (ABP-312318-21), is providing a new foul drain sewer under the new Kellystown Link Road with a spur left to serve the Proposed Development. This foul sewer drains to a new pumping station, which is permitted under the adjacent SHD currently construction (ABP-312318-21), included under the UE Connection Agreement (Reference Number: CDS2100645401). This pumping station, which includes 24-hour storage, has been designed to cater to the entire Kellystown Local Area Plan (LAP) lands, including the Proposed Development, and is due to become operational in 2025.

It is proposed to drain the wastewater from the Proposed Development by gravity to the existing SHD spur located to the west of the site (i.e., the Porterstown Road sewer) which has been constructed to facilitate the Proposed Development. It will be drained through the adjacent Phase 1 lands of the

permitted SHD (ABP-312318-21) through a separate 300mm diameter pipe, which will consequently drain to the 450mm diameter pipe immediately north of the foul water pumping station (WM, 2025a - Drawing Reference: MOL-WMC-ZZ-DR-C-200).

A Pre-Connection Enquiry Form was submitted to UE (Reference Number: CDS24010476) to confirm that the connection to the public network can be accommodated. A Confirmation of Feasibility (CoF) from UE dated 20th March 2025 (UE, 2025a) confirmed that the wastewater connection was feasible without infrastructure upgrade by UE, subject to the following:

- *'Proposed connections are via adjacent development. All relevant wastewater infrastructure within the adjacent development (including Kellystown Pumping Station and 24 hour storage tank) must be completed, of adequate capacity and integrity, connected to the Uisce Éireann networks and in operation.*
- *The Development site is within 9C trunk sewer catchment area which has network capacity constraints. In order to accommodate the connection, it will be necessary to install telemetry to link Kellystown Pumping Station to a flow meter on the 9C sewer, so the flows can be stored at the pumping station for up to 24 hours, when the flow reaches a predetermined level.'*

The proposed foul drainage will be designed in accordance with the Technical Guidance Document – Part H of the Building Regulations and UE's Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03).

Foul water from the Proposed Development will be treated in the Ringsend Wastewater Treatment Plant (WWTP) (License Reg No: D0034-01) before ultimately discharging to the Liffey Estuary Lower transitional waterbody (EU Code: IE_EA_090_0300.

Proposed Surface Water Drainage

The Proposed Development is divided into four sub-catchments as summarised below:

- Catchment 1 includes Block H and houses in the north-eastern part of the site.
- Catchment 2 includes the houses in the south-eastern part of the site.
- Catchment 3 includes Block J and houses in the northern, north-western, western, south-western and southern part of the site.
- Catchment 4 includes the houses in the western and north-western part of the site.

As documented in the Engineering Assessment Report (WM, 2025a), surface water from impermeable surfaces in the Proposed Development (including roadways, roofs, and parking areas), will be managed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Strategic Drainage Study (GDSDS) to treat and attenuate surface water prior to discharging to the permitted network currently under construction for the adjacent SHD (ABP-312318-21).

The proposed surface water drainage network has been designed to accommodate runoff volumes up to the 1-in-100-year storm, accounting for a 20% increase due to climate change.

The following attenuation and SuDS measures will be incorporated into the Proposed Development:

- Green roofing: The proposed green roof, approximately 200.6m² (minimum 60% roof area), will absorb large amounts of rainwater and release it back into the atmosphere through transpiration and evaporation. This will reduce annual percentage runoff by between 40% and 80%, depending on factors such as substrate depth, roof angle, and vegetation.
- Permeable paving: Permeable paving will be introduced at all private driveways and parking courts throughout the development. Downpipes from the front of the houses and duplex-type units will drain to filter drains beneath the permeable paving, facilitating maximum infiltration of surface water from driveways and roof areas.

- Filter drains: Filter drains, consisting of perforated pipes surrounded by filter stone, will be installed around the perimeter of the buildings and beneath the permeable paving parking spaces. These drains will provide infiltration, optimize retention time, and improve the quality of stormwater runoff, particularly the first flush from hardstanding areas
- Tree pits and planting areas: Tree pits will be introduced through the car park, with surface water runoff from the roads draining into them. A high-level gully will allow excess water to discharge to the below-ground surface water network if the tree pits become inundated. This will provide infiltration, optimize retention time, and improve the quality of stormwater runoff, particularly the first flush from the roads
- Attenuation and flow control: The required attenuation storage for the 1-in-100-year storm will be provided by enlarging the detention basin constructed as part of the permitted SHD (ABP-312318-21). Flows will be controlled by a Hydrobrake or similar approved flow control device, limited to the greenfield equivalent runoff rate, with excess flows being attenuated in the dry detention basin before outfalling by gravity
- Petrol interceptor: A Class 1 Petrol interceptor will be installed before the surface water outfall to remove hydrocarbons from surface flows, protecting the natural watercourse. This interceptor will prevent hydrocarbons and other light pollutants from entering the receiving watercourse.

Treated and attenuated surface water from the detention basin constructed as part of the permitted SHD (ABP-312318-21), which will be enlarged to accommodate the Proposed Development, will discharge to the Rusk River and ultimately the River Liffey.

Proposed Water Supply

The average calculated water demand for the Proposed Development is 0.510l/s, with a peak demand of 3.190l/s.

As documented in the Engineering Assessment Report (WM, 2025a), it is proposed to provide a new 150mm diameter connection to the existing 150mm diameter water supply mains for the adjacent SHD (ABP-312318-21) located to the south and east of the site, where the spurs have been left for the Proposed Development.

A Pre-Connection Enquiry Form was submitted to UE (Reference Number: CDS24010476) to confirm that the water supply for the Proposed Development can be accommodated. A Confirmation of Feasibility (CoF) from UE dated 20th March 2025 (UE, 2025a) confirmed that the water connection was feasible without infrastructure upgrade by UE, subject to the following:

- *'Proposed connections are from the 150mm spine main that is under construction. The main must be completed, connected to the Uisce Éireann networks and in operation, prior the connections.'*

All watermains will be laid strictly in accordance with UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03). Furthermore, valves, hydrants, scour and sluice valves and bulk water meters will be provided in accordance with the requirements of UE.

8.4.2 Proposed Development - Plot 2 (LRD Scheme)

Castlethorn Developments Luttrellstown Limited intends to apply for Permission for a development at a site (c. 4.38ha) at lands in the Townland of Porterstown.

The proposed development comprises 302no. residential units in a mix of houses, duplex and apartment units consisting of 62no. 2 storey, 3-bedroom houses and 35no. 3 storey, 4-bedroom houses; 205no. Duplex / Apartment Units (98no. 1-bed, 88no. 2-bed and 19no. 3-bed) across 4no. blocks comprising: Block D ranging in height from 5-7 storeys accommodating 57no. apartment units; Block E ranging in height from 5-7 storeys accommodating 77no. apartment units; Block F ranging in height from 4-5 storeys accommodating 39no. apartment and duplex units; Duplex Blocks G1, G2, G3

& G4 3 storeys in height accommodating 32no. apartment units; and all associated and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works, including public open space; public lighting; surface car parking spaces; bicycle parking spaces/stores for mid-terrace units; bin stores. Vehicular access to the proposed development is provided by the road network permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3

A full description of the Proposed Development is outlined in Chapter 2 of this EIAR.

The following components are of particular relevance with respect to water during the construction stage and operational stage of the Proposed Development.

8.4.2.1 Construction Stage

- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure.
- It is anticipated that there will be no requirement for the excavation of bedrock during the construction stage of the Proposed Development.
- Where possible, it is intended to reuse all suitable excavated topsoil and subsoil to achieve formation levels and for landscaping and engineering use. However, it is anticipated that up to 5000m^3 of surplus excavated soil and subsoil will require removal offsite in accordance with all statutory legislation.
- Temporary stockpiling of excavated material pending re-use onsite.
- The importation of aggregate fill materials for the construction of the Proposed Development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.).
- There may be a requirement for the management of surface water (rainwater) and shallow groundwater, where encountered during groundworks.
- Construction of new surface water drainage designed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Sustainable Drainage System (GDSDS) and the requirements of Fingal County Council (FCC).
- Construction of new foul and mains water connections in accordance with the UE Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03) and UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03).

8.4.2.2 Operational Stage

Proposed Foul Water Drainage

The total dry weather flow from the development has been calculated as 1.557l/s, with a peak flow of 7.007l/s.

As documented in the Engineering Assessment Report (WM, 2025c), the adjacent Kellystown Strategic Housing Development (SHD), currently under construction by the Applicant (ABP-312318-21, as amended by LRD0034/S3), is providing a new foul drain sewer under the new Kellystown Link Road with a spur left to serve the Proposed Development. This foul sewer drains to a new pumping station, which is permitted under the adjacent SHD currently construction (ABP-312318-21), included under the UE Connection Agreement (Reference Number: CDS2100645401). This pumping station, which includes 24-hour storage, has been designed to cater to the entire Kellystown Local Area Plan (LAP) lands, including the Proposed Development, and is due to become operational in 2025.

It is proposed to drain the wastewater from the Proposed Development by gravity to the existing SHD spur located to the west of the site which has been constructed to facilitate the Proposed Development. It will be drained through the adjacent Phase 1 lands of the permitted SHD (ABP-312318-21) through a separate 300mm diameter pipe, which will consequently drain to the 450mm

diameter pipe immediately north of the foul water pumping station (WM, 2025c - Drawing Reference: MOL-WMC-ZZ-DR-C-200).

A Pre-Connection Enquiry Form was submitted to UE (Reference Number: CDS24010409) to confirm that the connection to the public network can be accommodated. A Confirmation of Feasibility (CoF) from UE dated 5th March 2025 (UE, 2025b) confirmed that the wastewater connection was feasible without infrastructure upgrade by UE, subject to the following:

- *'Proposed connections are via adjacent development. All relevant wastewater infrastructure within the adjacent development (including Kellystown Pumping Station with 24 hour storage tank) must be completed, of adequate capacity and integrity, connected to the Uisce Éireann networks and in operation.*
- *The Development site is within 9C trunk sewer catchment area which has network capacity constraints. In order to accommodate the connection, it will be necessary to install telemetry to link Kellystown Pumping Station to a flow meter on the 9C sewer, so the flows can be stored at the pumping station for up to 24 hours, when the flow reaches a predetermined level.'*

The proposed foul drainage will be designed in accordance with the Technical Guidance Document – Part H of the Building Regulations and UE's Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03).

Foul water from the Proposed Development will be treated in the Ringsend Wastewater Treatment Plant (WWTP) (License Reg No: D0034-01) before ultimately discharging to the Liffey Estuary Lower transitional waterbody (EU Code: IE_EA_090_0300).

Proposed Surface Water Drainage

The Proposed Development is divided into four sub-catchments as summarised below:

- Catchment 1 includes block D and houses/duplexes in the northern part of the site.
- Catchment 2 includes the blocks E, F G1, G2 and G3, and houses/duplexes in the southern part of the site.

As documented in the Engineering Assessment Report (WM, 2025c), surface water from impermeable surfaces in the Proposed Development (including roadways, roofs, and parking areas), will be managed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Strategic Drainage Study (GDSDS) to treat and attenuate surface water prior to discharging to the spur at the south-east corner of the subject development associated with the adjacent SHD under construction under ABP-312318-21. The surface water drains to Block A (Reg. Ref. LRD0034/S3) drainage (currently under construction) which in turn drains to Kellystown SHD Phase 1. The drainage through this adjacent space has been constructed by the Applicant under ABP-312318-21, with spurs left to serve the subject development

The proposed surface water drainage network has been designed to accommodate runoff volumes up to the 1-in-100-year storm, accounting for a 20% increase due to climate change.

The following attenuation and SuDS measures will be incorporated into the Proposed Development:

- Green roofing: The proposed green roof, approximately 1797m² (minimum 60% roof area), will absorb large amounts of rainwater and release it back into the atmosphere through transpiration and evaporation. This will reduce annual percentage runoff by between 40% and 80%, depending on factors such as substrate depth, roof angle, and vegetation.
- Permeable paving: Permeable paving will be introduced at all private driveways and parking courts throughout the development. Downpipes from the front of the houses and duplex-type units will drain to filter drains beneath the permeable paving, facilitating maximum infiltration of surface water from driveways and roof areas.

- Filter drains: Filter drains, consisting of perforated pipes surrounded by filter stone, will be installed around the perimeter of the buildings and beneath the permeable paving parking spaces. These drains will provide infiltration, optimize retention time, and improve the quality of stormwater runoff, particularly the first flush from hardstanding areas
- Tree pits and planting areas: Tree pits will be introduced through the car park, with surface water runoff from the roads draining into them. A high-level gully will allow excess water to discharge to the below-ground surface water network if the tree pits become inundated. This will provide infiltration, optimize retention time, and improve the quality of stormwater runoff, particularly the first flush from the roads
- Attenuation and flow control: The required attenuation storage for the 1-in-100-year storm will be provided in dry detention basins supplemented with small underground Stormtech tanks. The tanks will provide storage for up to 10year rainfall events, ensuring the open space remains dry virtually all year long and only fills with surface water for extreme rainfall events with more than the 1 in 10year event. Flows will be controlled by a Hydrobrake or similar approved flow control device, limited to the greenfield equivalent runoff rate, with excess flows being attenuated in the dry detention basin and underground tank before outfalling by gravity.
- Petrol interceptor: A Class 1 Petrol interceptor will be installed before the surface water outfall to remove hydrocarbons from surface flows, protecting the natural watercourse. This interceptor will prevent hydrocarbons and other light pollutants from entering the receiving watercourse.

Treated and attenuated surface water from the Proposed Development will discharge to the Rusk River and ultimately the River Liffey.

Proposed Water Supply

The average calculated water demand for the Proposed Development is 1.557l/s, with a peak demand of 9.730l/s.

As documented in the Engineering Assessment Report (WM, 2025c), it is proposed to provide a new 150mm diameter connection to the existing 150mm diameter water supply mains for the adjacent SHD (ABP-312318-21) and Block A (Reg. Ref. LRD0034/S3) located to the southwest of the site, where the spurs have been left for the Proposed Development.

A Pre-Connection Enquiry Form was submitted to UE (Reference Number: CDS24010409) to confirm that the water supply for the Proposed Development can be accommodated. A Confirmation of Feasibility (CoF) from UE dated 5th March 2025 (UE, 2025b) confirmed that the water connection was feasible without infrastructure upgrade by Uisce Éireann, subject to the following:

- *'Proposed connections are from the 150mm spine main that is under construction. The main must be completed, connected to the Uisce Éireann networks and in operation, prior the connections.'*

All watermains will be laid strictly in accordance with UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03). Furthermore, valves, hydrants, scour and sluice valves and bulk water meters will be provided in accordance with the requirements of UE.

8.5 Potential Impact of the Proposed Development

The potential impacts associated with the construction stage and operational stage of the Proposed Development are summarised below.

8.5.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

8.5.1.1 Construction Stage

Hydrogeological Flow Regime

There will be no direct discharge to groundwater or surface water during the construction stage of the Proposed Development.

Temporary diversions of water courses are not required for the construction stage. However, there may be a requirement for management of surface water (rainwater) and shallow groundwater, where encountered during groundworks. This will be within localised areas of the site to achieve the required formation levels for the site including building foundations, surface water and foul water drainage, roads and all other associated infrastructure. Nonetheless, there will be no overall impact on the groundwater flow regime within the aquifer beneath the site.

There will be no impact on the hydrology or surface water flow regime within receiving surface water bodies during the construction stage of the Proposed Development.

There will be no abstraction of water for use during construction works (i.e., dust suppression, welfare facilities). Water supply will be from mains supply in accordance with a connection agreement from UE and therefore there will be no impact on water resources.

Overall, it is considered that any impact on the hydrogeological regime of the underlying poor important aquifer is unavoidable however will be 'negative', 'imperceptible' and 'temporary' within a very localised zone of the aquifer only and there will be no impact on the flow regime of receiving water bodies.

Water Quality

Construction stage activities at the Proposed Development site that could potentially impact on water quality include:

- Groundworks including bulk excavation of soil and subsoil will be required for subsurface infrastructure including drainage. The handling, stockpiling, reprofiling and removal offsite of soils and subsoils could result in generation of excessive suspended solids in surface water runoff.
- Discharge of water that may potentially be contaminated from works areas to groundwater.
- There is no identified direct pathway to surface water drainage associated with the site for the construction stage of the Proposed Development, however runoff could potentially enter onto roadways and indirectly to other offsite receiving waterbodies (i.e., the Rusk Stream and River Liffey).
- Storage and use of fuels, oils and chemicals used during construction which in the event of an accidental release could infiltrate to the underlying groundwater or migrate offsite.
- Imported materials including fill materials that are not of the appropriate quality could result in leaching or runoff of contaminants to the water environment.
- Export of waste materials from the site to unauthorised facilities could result in an impact on water quality at the receiving / destination site.
- Discharges or leaks from temporary welfare facilities could introduce contaminants to the water environment. Release of foul water during connection to live sewers. Due to the temporary and phased nature of the Construction stage, the potential impact from an accidental spillage is limited.
- Release of wash water from the wheel-wash could result in localised introduction of contaminants including hydrocarbons, brake dust, metals, road salt, cleaning agents and other traffic residue to the receiving water environment.

The potential risk to the receiving water is considered in the absence of standard and appropriate construction management and mitigation measures.

During excavation, there is a risk to the underlying bedrock aquifer due to any accidental release of deleterious materials (e.g., fuels, cementitious material or other hazardous materials), through the failure of secondary containment or a materials handling accident at the site, to exposed subsoils or bedrock creating a direct pathway to the underlying gravel and bedrock aquifers. The groundwater vulnerability will be temporarily increased during the construction stage. In a worst-case scenario, and in the absence of mitigation, it is considered that this could result in a 'negative', 'moderate to significant' and 'long-term' impact on the receiving groundwater and downgradient receiving surface water receptors (i.e., the Rusk Stream and River Liffey) depending on the nature of the incident. Taking account of the distance downstream and the dilution which will occur, it is considered that there is a negligible risk to the Liffey Estuary Lower, the Tolka Estuary and Dublin Bay.

There is a potential risk associated with the cementitious materials used during the construction of deeper infrastructure where groundwater may be encountered that could result in a 'negative', 'significant' and 'medium-term' impact on the groundwater quality beneath the site.

Surface runoff entrained with sediment is unlikely to result in an impact on receiving water courses as there is no direct connection for the construction stage based on the existing site condition. The release of suspended solids entrained in surface runoff indirectly tracked on vehicles to haul routes to / from the site within a short distance of the site could enter the receiving public sewers potentially resulting in a 'negative', 'slight to moderate' 'short-term' impact on receiving water quality.

Where dewatering of excavations is required or where water must be pumped from the excavations, water will be discharged by the contractor, following appropriate treatment (e.g., settlement or hydrocarbon interceptor), to sewer, watercourses or groundwater in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from Fingal County Council under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water / groundwater. There will be no unauthorised discharge of water (groundwater / surface water runoff) to sewer, watercourses or groundwater during the Construction stage of the Proposed Development. Therefore, the potential impacts will have been adequately assessed and mitigated as part of the statutory consent and there will be 'neutral', 'imperceptible' and 'temporary' impact on the receiving water environment.

The release of foul water during connection to the live sewers could result in a release of contaminants to ground or as overland runoff. Due to the temporary and phased nature of the Construction stage of the Proposed Development, in the absence of mitigation the potential impact from an accidental spillage is considered to be 'negative', 'moderate' and 'short-term.

All surplus materials and waste that will require removal offsite will be removed in accordance with the requirements and recommendations outlined in the Resource and Waste Management Plan (RWMP) (Enviroguide, 2025 submitted with the planning application) and managed in accordance with all statutory obligations including where appropriate re-use as by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended (referred to hereafter as Article 27). In the unlikely event that surplus soil or other waste materials are directed to an unauthorised location there is potential to impact on the receiving hydrogeology at that location. In the event of such a scenario it is considered that this could result in a 'negative', 'slight to moderate' and 'medium-term' impact on the hydrogeology at any receiving unauthorised locations. Appropriate controls will be in place to prevent this unlikely scenario.

8.5.1.2 Operational Stage

During the operational stage of the Proposed Development, there is limited to no potential for any adverse impact on the receiving water (hydrological and hydrogeological) environment at the site taking account of the design for the Proposed Development.

Hydrogeological Flow Regime

There will be no groundwater or surface water abstractions during the Operational stage. The only discharge to ground will be infiltrating rainfall on areas outside the surface water drainage catchments. All surface water runoff will indirectly discharge to the receiving surface watercourses (i.e., the Rusk River and ultimately the River Liffey) following onsite treatment and attenuation within the onsite surface water drainage network designed in accordance with the principles and objectives of SuDS and the GDSDS (WM, 2025a and WM, 2025c).

The permeability and potential for infiltration to ground at the site will be modified with the change in cover from greenfield (i.e., undeveloped grasslands and amenity/community cover as a football pitches) to paved areas within the Proposed Development. The existing capacity for infiltration and recharge within the Dublin GWB is limited due to the cement cap present on the limestone in the built-up areas and only diffuse recharge will percolate through the limited subsoil present. Therefore, any change in the recharge potential within the site taking account of the nature of the aquifer including recharge potential and limited discharge contributions to the overlying rivers will only impact a very localised area of the aquifer within the vicinity of the site. Overall, it is considered that there will be a 'negative', 'imperceptible', 'long-term' impact on the Dublin GWB and associated surface water courses.

Flooding

As documented in the SSFRA (WM, 2025b and WM, 2025d) the site of the Proposed Development (i.e., Plot 1 and also Plot 2) is located within Flood Zone C where the probability of flooding is low (i.e., less than 0.1%AEP or 1 in 1000). Therefore, the potential flooding impacts associated with the Proposed Development are 'neutral', 'imperceptible' and 'long-term'.

Water Quality

There will be no significant sources of contamination at the site during the operational stage of the Proposed Development taking account of the following embedded design considerations:

- There will be no bulk storage of petroleum hydrocarbon-based fuels used during the operational stage, thereby removing any potential contaminant sources associated with fuels.
- There will be no discharges to ground from drainage and only rainfall on public open spaces and landscape areas will infiltrate to ground.
- All surface water runoff including from trafficked areas (road and carparks) will be collected and managed within the surface water drainage incorporating SuDS measures as outlined in the Engineering Assessment Report (WM, 2025a for Plot 1 and WM, 2025c for Plot 2).
- Foul sewers will be constructed in accordance with current UE requirements and Building Regulations. Therefore, any potential contaminant sources associated with foul water drainage connections will be eliminated.

In the unmitigated worst-case source scenario, the discharge of surface water from the different catchments of the Proposed Development (i.e., Catchments 1 through 4 of Plot 1 and Catchments 1 and 2 of Plot 2) could result in a potential 'negative', 'significant' and short term' impact on the receiving water quality of the receiving Rusk Stream and the River Liffey. It is considered that there would be no impact to water quality further downstream taking account of the nature of the incident and the potential for assimilation within the receiving water bodies.

Surface water from the Proposed Development will be attenuated within the site before discharging into the Rusk Stream and therefore, there will be no impact on the receiving water environment. The surface water management strategy includes a number of measures that will capture any potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments) in surface water runoff from roads and impermeable areas that could potentially otherwise discharge to groundwater or the receiving watercourses. In the unmitigated worst-case source scenario, the

discharge of surface water from the Proposed Development would be diluted, treated and attenuated within the surface water drainage network prior to discharge to receiving waters and there would be no impact on the receiving water quality.

The measures incorporated in the SuDS design include filter drains, permeable paving, tree pits, green roofing, attenuation storage and class1 petrol interceptors within the drainage and SuDS system. These measurements will be effective in the treatment and removal of any contaminants (metals, polycyclic aromatic hydrocarbons (PAHs) and suspended solids) entrained in surface water runoff. The effectiveness of these SuDS measures is documented in TII guidance (TII,2014) and the SuDS Manual (C753). The Proposed Development also includes class 1 petrol interceptors prior to discharge from the site that will be effective in removal of hydrocarbons that may enter the drainage system in particular in the event of worst-case scenario spill incident (e.g. collision on the roadway resulting in the loss of fuel from a vehicle).

Accordingly, any potential impact on receiving surface water and groundwater beneath the site of the Proposed Development will be avoided taking account of the design proposals. Therefore, it is considered that the water quality protection criteria and objectives of the GDSDS and Water Framework Directive will be achieved.

Foul water from the Proposed Development will be treated in the Ringsend WWTP before ultimately discharging to the Liffey Estuary Lower transitional waterbody. The increase discharge to the Ringsend WWTP as a result of the Proposed Development will reduce the overall available capacity of the facility. The CoF from UE for Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme) (Reference Number: CDS24010476 and CDS24010409 respectively) confirmed that the wastewater connections were feasible without infrastructure upgrades. Furthermore, foul water from the Proposed Development (i.e., Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme)) will only be discharged to the UE foul sewer under agreement from UE and other applicable statutory consents verifying capacity at the Ringsend WWTP for the Proposed Development. Therefore, it is considered that the likely impact on the water quality from wastewater generated on site runoff will be 'negative', 'imperceptible' and 'permanent'.

8.5.1.3 Do-Nothing Impact

The procedure for determination of potential impacts on the receiving hydrology and hydrogeology is to identify potential receptors within the site boundary and surrounding environment and use the information gathered during the desk study and site walkover to assess the degree to which these receptors will be impacted upon in the absence of mitigation.

If the Proposed Development did not proceed the site would remain as undeveloped grasslands. There would be no change to the drainage at the site or to the hydrological and hydrogeological regime at the site.

8.5.2 Proposed Development - Plot 2 (LRD Scheme)

8.5.2.1 Construction Stage

Potential impacts during the construction stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the potential impacts stated above in Section 8.5.1.1 for the construction stage of the Plot 1 (Luttrellstown Gate Phase 2).

8.5.2.2 Operational Stage

Potential impacts during the operational stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the potential impacts stated above in Section 8.5.1.2 for the operational stage of the Plot 1 (Luttrellstown Gate Phase 2).

8.5.2.3 Do-Nothing Impact

If the Proposed Development did not proceed the site would remain as amenity/community use lands. There would be no change to the drainage at the site or to the hydrological and hydrogeological regime at the site as it currently is.

8.5.3 Cumulative

Cumulative Impacts can be defined as "impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project". Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor. Such effects are not caused or controlled by the project developer.

As part of this assessment, other offsite developments and proposed offsite developments as detailed in Chapter 2 of this EIAR and summarised below were reviewed and considered for possible cumulative effects with the Proposed Development.

- The Kellystown area has been subject to several recent planning permissions, which collectively contribute to significant cumulative development impacts. The consented Kellystown SHD scheme (ABP-312318-21) was granted on the 2nd of March 2023 and includes 346 dwellings, a childcare facility, and a retail unit, along with associated site works and a public park. Amendments to this scheme were approved on the 21st of August 2024, increasing the number of dwellings and reconfiguring internal floor plans and amenities. Additionally, a live planning application (FW25A/0033E) seeks to relocate St. Mochta's Football Club grounds to new lands within the Kellystown area.
- In the wider surrounding area, other significant developments include the construction of 170 residential units, a café, and a childcare facility (ABP Reg. Ref. 320886-24) granted on the 21st of January 2025, and a mixed-use retail and residential development (ABP Reg. Ref. 315707-23) granted on the 19th of December 2023.

8.5.3.1 Proposed Development– Plot 1 (Luttrellstown Gate Phase 2)

Water Resources

As outlined in the Engineering Assessment Report (WM, 2025a and WM, 2025c), water supply to the Proposed Development will be provided via a new 150mm diameter connection to the existing 150mm diameter water supply mains for the adjacent SHD (ABP-312318-21) and Block A (Reg. Ref. LRD0034/S3). The CoF from UE for Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme) (Reference Number: CDS24010476 and CDS24010409 respectively) stated that the connections are feasible without infrastructure upgrade by UE. Therefore, there will be no cumulative impacts associated with the Proposed Development on the supply network and water resources.

Water Quality

Surface water from the Proposed Development, which will be managed in accordance with the principles and objectives of SuDS and the GDSDS, will be treated and attenuated through petrol interceptors and detention ponds before discharging offsite at greenfield runoff rates (WM, 2025a and WM, 2025c). Therefore, there will be no cumulative impacts on the receiving surface water environment in terms of water quality and flood risk associated with the discharge of surface water runoff from the Proposed Development and considered offsite developments.

Foul water from the Proposed Development will be treated at the Ringsend WWTP (EPA Licence No. D0034-01) before ultimately discharging to the Liffey Estuary Lower transitional waterbody under agreement from UE and other applicable statutory consents verifying capacity at the Ringsend WWTP for the Proposed Development. The Ringsend WWTP is operated under existing statutory consents.

Therefore, the discharge of treated effluent from the Proposed Development will have no cumulative impacts individually or in-combination on the Ringsend WWTP or on the receiving water quality and WFD status.

There are no other potential cumulative impacts associated with the Proposed Development.

8.5.3.2 Proposed Development– Plot 2 (LRD Scheme)

Water Resources

Potential cumulative impacts on water resources during the construction stage and operational stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the potential impacts stated above in Section 8.5.3.1 for Plot 1 (Luttrellstown Gate Phase 2) development.

Water Quality

Potential cumulative impacts on receiving waterbodies associated with surface water runoff and discharge of foul water during the operational stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the potential impacts stated above in Section 8.5.3.1 for the operational stage of the Plot 1 (Luttrellstown Gate Phase 2) development.

There are no other potential cumulative impacts associated with the Proposed Development.

8.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

The measures outlined in this section of the report will ensure that there will be no significant impact on the receiving groundwater and surface water environment and associated receptors (e.g., Natura 2000 sites). Therefore, the Proposed Development will not have any impact on compliance with the EU Water Framework Directive, European Communities (Environmental Objectives) Surface Water Regulations (S.I. 272 of 2009 and as amended) and the European Communities Environmental Objectives (Groundwater) Regulations (S.I. No. 9 of 2010 and as amended) individually or in combination.

8.6.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

8.6.1.1 Construction Stage

During the construction stage, all works will be undertaken in accordance with the Construction Environmental Management Plan (CEMP) (Enviroguide Consulting, 2025). Following appointment, the contractor will be required to further develop the CEMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001). The CEMP will be implemented for the duration of the construction stage, covering construction and waste management activities that will take place during the construction stage of the Proposed Development. Mitigation works will be adopted as part of the construction works for the Proposed Development. These measures will address the main activities of potential impact which include:

- Control and Management of surface water runoff.
- Control and management of shallow groundwater during excavation and dewatering (if required).
- Management and control of soil and materials.
- Appropriate fuel and chemical handling, transport and storage.
- Management of accidental release of contaminants at the site

The construction works will be managed in accordance with all statutory obligations and regulations and with standard international best practice. Good construction management practices will minimise the risk of pollution from construction activities at the site including but not limited to:

- Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- CIRIA, 2015. Environmental Good Practice on Site (C741).
- Enterprise Ireland Oil Storage Guidelines (BPGCS005).
- Environmental Protection Agency (EPA), 2013. IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities.
- CIRIA, 2007. The SuDS Manual (C697).
- UK Environment Agency, 2004. UK Pollution Prevention Guidelines (PPG).
- CIRIA, 2006. Control of Water Pollution from Linear Construction Projects: Technical Guidance (C648).

Control and Management of Water and Surface Water Runoff

There will be no direct discharge to groundwater or surface water during the construction stage of the Proposed Development.

All run-off from the site or any areas of exposed soil will be managed as required with temporary pumping and following appropriate treatment as required. Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to onsite settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge at a controlled rate. It is noted that, where required, surface water runoff will be prevented from entering open excavations with sandbags or other approved methods proposed by the Contractor.

Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750), the CEMP (Enviroguide Consulting, 2025) and regulatory consents to minimise the potential impact on the local groundwater flow regime of the underlying aquifer.

All water leaving the site during the construction stage will be desilted in onsite settlement ponds including geotextile liners and riprapped inlets and outlets to prevent scour and erosion. The location of the settlement ponds will be reviewed and moved regularly as required. Additional measures will be implemented as required to capture and treat sediment laden surface water runoff (e.g., sediment retention ponds / tanks, surface water inlet protection, fencing and signage around specific exclusion zones and earth bunding adjacent to open drainage ditches). Where required, the water will also be directed through a hydrocarbon interceptor prior to discharge from the site.

Unauthorised discharge of water (groundwater / surface water runoff) to ground, drains or watercourses will not be permitted. The appointed Contractor will ensure that the discharge of water to ground, drains or watercourses will be in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from Fingal County Council under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water.

Where required, stockpiles of loose materials pending re-use onsite will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains. To help shed rainwater and prevent ponding and infiltration, the sides and top of the stockpiles will be regraded to form a smooth gradient with compacted sides reducing infiltration and silt runoff. Where required, silt fences will be erected at the toe of stockpiles to prevent run-off. The silt fences will be monitored daily by the appointed contractor and silt will be removed as required.

A regular review of weather forecast will take place, insofar as possible, ground excavation works will be scheduled during period of dry weather to minimise potential for silt laden runoff.

Importation of Materials

Contract and procurement procedures will ensure that all imported aggregates, soil and other construction materials required for the Proposed Development will be sourced from reputable

suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. The importation of aggregates will be subject to management and control procedures to ensure the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. Therefore, any unsuitable material will be identified prior to unloading / placement onsite.

Concrete Works

Pre-cast concrete will be used where technically feasible to meet the design requirements for the Proposed Development. Where cast-in-place concrete is required, all work will be carried out to avoid any contamination of the receiving geological environment through the use of appropriate design and methods implemented by the appointed Contractor and in accordance with the CEMP (Enviroguide, 2025) and relevant industry standards.

All ready-mixed concrete will be delivered to the site by truck. The following measures will be implemented where poured concrete is being used on site:

- The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on site.
- Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed.
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening.
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete.
- Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a skip for appropriate compliant removal offsite.
- Surplus concrete will be returned to batch plant after completion of a pour.

Handling of Fuels and hazardous Materials

Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the CEMP (Enviroguide, 2025), in a designated area of the site away from any watercourses and drains (where not possible to carry out such activities onsite.

Any diesel, fuel or hydraulic oils stored on-site will be sealed, secured and stored in a dedicated internally bunded chemical storage cabinet unit or inside concrete bunded areas to prevent any seepage to ground. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

- Bunds will have regard to Environmental Protection Agency (EPA) guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013) and Enterprise Ireland's Best Practice Guide (BPGCS005 Oil Storage Guidelines). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
    - 110% of the capacity of the largest tank or drum within the bunded area; or
    - 25% of the total volume of substance that could be stored within the bunded area.
- Vehicle or equipment maintenance work will take place in a designated impermeable area within the site.
- Portable generators or similar fuel containing equipment will also be placed on suitable drip trays or bunds.

Refuelling of plant and vehicles during the construction stage will only be permitted at designated refuelling station locations onsite and will be from a road tanker brought to site as required. Each station will be fully contained and equipped for spill response and a specially trained and dedicated

Environmental and Emergency Spill Response team will be appointed by the Contractor before the commencement of works onsite.

A procedure will be drawn up by the contractor which will be adhered to during refuelling of onsite vehicles. This will include the following:

- Fuel will be delivered to plant onsite by dedicated tanker.
- All deliveries to onsite vehicles will be supervised and records will be kept of delivery dates and volumes.
- The driver will be issued with, and will carry at all times, absorbent sheets and granules to collect any spillages that may accidentally occur.
- Where the nozzle of a fuel pump cannot be placed into the tank of a machine then a funnel will be used.
- All re-fuelling will take place in a designated impermeable area. In addition, oil absorbent materials will be kept onsite in close proximity to the re-fuelling area.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available on-site including in vehicles operating on-site. Construction staff will be familiar with emergency procedures in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements.

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development site.
- Emergency response procedures will be put in place, in the unlikely event of spillages of fuels or lubricants.
- Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained.
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development site and compliantly disposed offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and standards.
- All construction works staff will be familiar with emergency procedures in the event of accidental fuel spillages.
- All construction works staff onsite will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving hydrological and hydrogeological environment associated with the construction stage of the Proposed Development.

Welfare Facilities

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the Construction stage of the Proposed Development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered offsite to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by tankering of waste offsite by an appropriately authorised contractor.

Any connection to the public foul drainage network during the Construction stage of the Proposed Development will be undertaken in accordance with the necessary temporary discharge licences issued by UE.

8.6.1.2 Operational Stage

There will be no risk to water quality including groundwater and surface water associated with the operational stage of the Proposed Development. It is considered that the design of the Proposed Development is in line with the objectives of the Water Framework Directive (2000/60/EC), as amended (WFD) to prevent or limit any potential impact on water quality.

There will be no petroleum hydrocarbon-based fuels used during the operational stage and the main operating system for heating will be air source heat pumps, thereby removing any potential contaminant sources associated with fuels.

There will be no direct discharges to ground from drainage and only rainfall in public open spaces will infiltrate to ground. There will also be some limited infiltration to ground via SuDS solutions.

All drainage from paved areas along roads and impermeable roads will be collected and managed within the surface water drainage and SuDS solutions as outlined in the Engineering Assessment Report (WM, 2025a and WM, 2025c).

The surface water management strategy includes a number of measures that will capture any potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments) in surface water runoff from the higher risk areas including roads and the impermeable areas that could potentially otherwise discharge to groundwater or receiving water courses in the vicinity the site. The measures incorporated in the SuDS design include filter drains, permeable paving, tree pits, green roofing, attenuation storage and class1 petrol interceptor within the drainage and SuDS system. These drainage design measures will be effective in the treatment and removal of any contaminants (metals, polycyclic aromatic hydrocarbons (PAHs) and suspended solids) entrained in surface water runoff. The effectiveness of these SuDS measures is documented in TII guidance (TII, 2014). Furthermore, prior to discharging from the site will pass through a class 1 petrol interceptor that will be effective in removal of hydrocarbons that may enter the drainage system in particular in the event of worst-case scenario spill incident (e.g., collision on the roadway resulting in the loss of fuel form a vehicle).

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be incorporated into the overall management strategy for the Proposed Development. This will ensure that there are no impacts on water quality and quantity (flow regime) during the Operational stage of the Proposed Development.

Accordingly, any potential impact on receiving surface water and groundwater beneath the Proposed Development site will be avoided taking account of the design proposals. Therefore, it is considered that the water quality protection criteria and objectives of the GDSDS and Water Framework Directive will be achieved.

There is no other requirement for mitigation measures for the Operational stage of the Proposed Development.

8.6.2 Proposed Development- Plot 2 (LRD Scheme)

8.6.2.1 Construction Stage

Mitigation measures during the construction stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the mitigation measures stated above in Section 8.6.1.1 for the construction stage of Plot 1 (Luttrellstown Gate Phase 2).

8.6.2.2 Operational Stage

Mitigation measures during the Operational stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme) are the same as the mitigation measures stated above Section 8.6.1.2 for the operational stage of Plot 1 (Luttrellstown Gate Phase 2).

8.7 Water Framework Directive

The finds of this assessment identified that in the absence of any mitigation and avoidance measures there could be a potential impact on the water quality within receiving water bodies associated with the Proposed Development (i.e., Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme)), specifically within a local zone of the Dublin GWB and locally within the Liffey_180 and the Liffey_190. There is no identified potential impact to the Liffey Estuary Upper, the Liffey Estuary Lower, the Tolka Estuary and Dublin Bay attributed to the separation distances and anticipated assimilation capacity of the receiving water bodies taking account of the existing baseline conditions and WFD Status.

The mitigation measures as outline above, including the implementation of the CEMP (Enviroguide Consulting, 2025) during the construction stage and the incorporation of SUDS in accordance with the GDSDS in the design of the operational stage of the Proposed Development, will prevent any impact on the receiving groundwater and surface water environment. Hence, the Proposed development will not have any impact on compliance with the EU Water Framework Directive, European Communities (Environmental Objectives) Surface Water Regulations, 2009 (SI 272 of 2009, as amended 2012 (SI No 327 of 2012), and the European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010), as amended 2012 (SI 149 of 2012) and 2016 (S.I. No. 366 of 2016).

The Proposed Development will not cause a deterioration in the status of waterbodies hydraulically connected with the Proposed Development, taking account of design avoidance and mitigation measures that will be implemented. The proposed development will not jeopardise the attainment of 'good' surface water status, 'good' ecological potential and 'good' surface water chemical status.

There will be no impact to the existing WFD status of water bodies associated with the Proposed Development including the Liffey_180, the Liffey_190, the Liffey Estuary Upper, the Liffey Estuary Lower, the Tolka Estuary, Dublin Bay and the Dublin GWB as a result of the Proposed Development taking account of embedded design avoidance and mitigation measures.

8.8 Residual Impact of the Proposed Development

8.8.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

Residual impacts are defined as 'effects that are predicted to remain after all assessments and mitigation measures'. They are the remaining 'environmental costs' of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts.

The predicted impacts of the construction stage and operational stage of the Proposed Development are described in Table 8.12 and

Table 8.13 in terms of quality, significance, extent, likelihood, and duration. The relevant mitigation measures are detailed, and the residual impacts are determined which take account of the avoidance, remedial and mitigation measures.

There are no significant residual impacts on hydrology and hydrogeology anticipated regarding this Proposed Development.

There will be no impact to the existing WFD Status of water bodies associated with the Proposed Development including the Liffey_180, the Liffey_190, the Liffey Estuary Upper, the Liffey Estuary Lower, the Tolka Estuary, Dublin Bay and the Dublin GWB as a result of the Proposed Development taking account of design avoidance and mitigation measures where required.

Table 8.12: Summary of Residual Impact During the Construction Stage of the Proposed Development

Construction Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
Groundworks and Management of Water	Hydrogeological Regime	Localised temporary impacts within the site only on the hydrogeological regime.	Negative	Imperceptible	Temporary	Direct	None Required.	Imperceptible
Use of Cementitious Materials	Water Quality	Potential release of cementitious material during the construction of foundations, pavements, and other structures.	Negative	Significant	Medium Term	Direct	The design will incorporate the use of pre-cast concrete structures where appropriate. The Contractor will carry out works in accordance with industry standards.	Imperceptible
Surface Runoff Containing Contaminants or Suspended Solids	Surface Water	Potential for contaminants entrained in surface runoff to enter the receiving drainage channels on lands adjoining the Proposed Development Site.	Negative	Slight to Moderate	Short term	Direct / Indirect	Site works will be managed to prevent runoff migrating offsite. Wheel wash facilities will be used to prevent tracking of debris to haul routes that may runoff to water courses.	Imperceptible
Accidental Release of Deleterious Materials Including Fuel and Other Materials Being Used Onsite	Groundwater / Surface Water	Potential to impact on a localised zone of the aquifer. It is deemed unlikely to impact on receiving surface water bodies.	Negative	Moderate Significant	Long Term	Direct	Refuelling of plant during the Construction stage will only be carried in a designated impermeable area onsite equipped with spillage kits. Any other diesel, fuel or hydraulic oils stored onsite or within fuel containing equipment will be stored in bunded storage tanks / drip trays.	Imperceptible
Construction of Foul Drainage and Connection to Live Sewers	Groundwater	The release of foul water during connection to the live sewers could result in a	Negative	Moderate	Short Term	Direct	Foul water drainage infrastructure will be designed and constructed in accordance with current guidelines. Procedures will be in	Imperceptible

Construction Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
		release of contaminants to ground or as overland runoff.					place for the connection to prevent any accidental release during works.	
Earthworks – Removal of Surplus Material and Waste	Water Quality	Potential for impact on water environment at destination site/facility.	Negative	Slight to Moderate	Medium-Term	Indirect	All surplus material and waste material will be removed offsite in accordance with detailed procedures in strict accordance with all waste management legislation and the procedures outlined in the CEMP/RWMP.	Imperceptible
Construction Activities	Water Quality / WFD Status	Potential for impact on Dublin GWB within a localised zone in the event of a worst-case scenario occurring.	Negative	Significant	Medium Term	Direct / Worst Case	Appropriate mitigation measures to prevent the worst-case scenario occurring will be implemented by the Contractor.	Imperceptible

Table 8.13: Summary of Residual Impact during the Operational Stage of the Proposed Development

Operational Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
Modification of the Surface Cover	Hydrogeological Regime	Potential for localised variations in recharge potential within the Dublin GWB, therefore, a localised impact only may occur.	Negative	Imperceptible	Long Term	Direct	None Required.	Imperceptible
Surface Water Drainage / Proposed Development	Flood Risk	The Site-Specific FRA identified that there is no risk of flood associated with the Proposed Development.	Neutral	Imperceptible	Long Term	Direct	None Required. Ongoing maintenance of the SUDS and drainage network will be undertaken.	Imperceptible

Operational Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
Surface Drainage	Water Quality	Potential for impact on the receiving water quality associated with the discharge of surface water runoff from the Proposed Development.	Negative	Significant	Short Term	Direct (also Cumulative)	The surface water management strategy includes a number of measures that will capture any potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments) in surface water runoff from the Proposed Development. Ongoing maintenance of the SUDS and drainage network will be undertaken.	Imperceptible
Surface Drainage	Water Quality	The discharge of surface water from the Proposed Development to the mains drainage network for the GDRS will not result in any impact on the receiving water quality.	Neutral	Imperceptible	Long Term	Direct (also Cumulative)	None Required.	Neutral
Foul Drainage	Water Quality	The discharge of foul water from the Proposed Development to the mains foul network under the appropriate consent from UE will not result in any impact on the receiving water quality.	Neutral	Imperceptible	Long Term	Direct (also Cumulative)	None Required.	Neutral
Surface Drainage / Foul Drainage	WFD Status	In the absence of design and mitigation measures there could be a potential impact,	Negative	Significant	Short Term	Direct	The surface water management strategy includes a number of measures that will	Imperceptible

Operational Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
		on the receiving water quality and potentially WFD Status of the associated downstream waterbodies.					capture any potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments) in surface water runoff from the Proposed Development. Ongoing maintenance of the SUDS and drainage network will be undertaken.	

8.8.2 Proposed Development- Plot 2 (LRD Scheme)

Residual Impacts during the construction stage and operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the residual impacts stated above in Table 8.12 and Table 8.13

8.8.3 Cumulative

The Proposed Development will connect to the existing water supply mains, with the connection proceeding only under agreement with UE and in compliance with statutory consents, ensuring no cumulative impacts on the water supply network.

Surface water will be treated and managed through SuDS and GDSDS principles, ensuring no cumulative impacts on water quality and flood risk.

Foul water will be treated at the Ringsend WWTP and discharged under statutory consents, ensuring no cumulative impacts on the Ringsend WWTP or the receiving water quality

Therefore, there will be no cumulative residual impact during the construction stage and operational stage of the Proposed Development (i.e., both Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme)).

8.9 Monitoring

8.9.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

8.9.1.1 Construction Stage

During the construction stage of the Proposed Development the following monitoring measures will be considered:

- Inspections will be undertaken during excavations and other groundworks to ensure that measures that are protective of water quality outlined in this EIAR, and the CEMP (Enviroguide Consulting, 2025) are fully implemented and effective.
- The main contractor (once appointed) will provide and implement a monitoring schedule for dust, noise and vibration monitoring throughout the construction stage of the Proposed Development. The frequency of monitoring and the monitoring parameters (e.g., dust, noise limits) will be in line with best practice and guidance and will be agreed with Fingal County Council prior to commencement of the works.
- Discharges to surface water / foul sewers will be monitored where required in accordance with statutory consents (i.e., discharge licence).
- Routine monitoring and inspections during refuelling, concrete works to ensure no impacts and compliance with avoidance, remedial and mitigation measures.

8.9.1.2 Operational Stage

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be undertaken throughout the lifetime of the operational stage of the Proposed Development.

8.9.2 Proposed Development - Plot 2 (LRD Scheme)

8.9.2.1 Construction Stage

The monitoring measures proposed during the construction stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the ones stared in Section 8.9.1.1 for Plot 1 (Luttrellstown Gate Phase 2).

8.9.2.2 Operational Stage

The monitoring measures proposed during the operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the ones stared in Section 8.9.1.2 for Plot 1 (Luttrellstown Gate Phase 2).

8.10 Interactions

8.10.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

Population and Human Health

An assessment of the potential impacts of the proposed development on human health is included in Chapter 5 of this EIAR.

No public health issues associated with the water (hydrology and hydrogeology) conditions at the subject site have been identified for the construction phase or operational phase of the proposed development.

Appropriate industry standard and health and safety legislative requirements will be implemented during the construction phase that will be protective of site workers

Biodiversity

An assessment of the potential impacts of the proposed development on the biodiversity of the subject site, with emphasis on habitats, flora and fauna which may be impacted as is included in Chapter 6 of this EIAR such as potential pollution of waterbodies impacting on flora and fauna in the absence of mitigation measures.

Chapter 6 of this EIAR addresses impacts of the proposed development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these impacts.

Land, Soils and Geology

An assessment of the potential impact of the proposed development on the existing land, soils and geological environment during the construction phase and operational of the proposed development is set out in Chapter 7. In the absence of avoidance and mitigation measures, there is a potential for sediments from excavated soils entering the drainage network and tracking downstream during the construction phase.

Material Assets: Waste and Utilities

An assessment of the potential impact of the proposed development on the material assets including built services and infrastructure has been set out in Chapter 15 of this EIAR.

During the construction phase of the proposed development discharges of water to the public foul sewer will be in accordance with the necessary discharge licence issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations.

During the operation phase of the proposed development, any discharges to the public foul sewer and water supply to the proposed development will be under consent from UE.

8.10.2 Proposed Development - Plot 2 (LRD Scheme)

The interactions during the construction stage and operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as those described above in 8.10.1.

8.11 Difficulties Encountered

No difficulties were encountered in the preparation of this chapter of the EIAR.