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WATER FRAMEWORK DIRECTIVE (WFD) SCREENING ASSESSMENT FOR CENTRAL MENTAL HOSPITAL (PART 10) PROPOSED DEVELOPMENT AT DUNDRUM, DUBLIN 14.

Report Prepared For
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Appendix A Water Framework Directive Matrix

1.0 INTRODUCTION

AWN Consulting Limited (AWN) has prepared this Water Framework Directive (WFD) Screening for the proposed Central Mental Hospital (Part 10). The site is located to the north of Dundrum town centre, on lands at the Former Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14. The WFD screening assessment should be read in conjunction with the EIAR (Tom Philips Associates 2024). The objective of the assessment is to address the following:

- Does the development cause deterioration of a water body from its current status or potential for reaching Good status
- Does the development impact on any water dependent protected areas, priority species, habitats etc
- Does the development support the achievement of water body objectives and programme of measures

Refer to Figure 1.1 below for the location of the development.

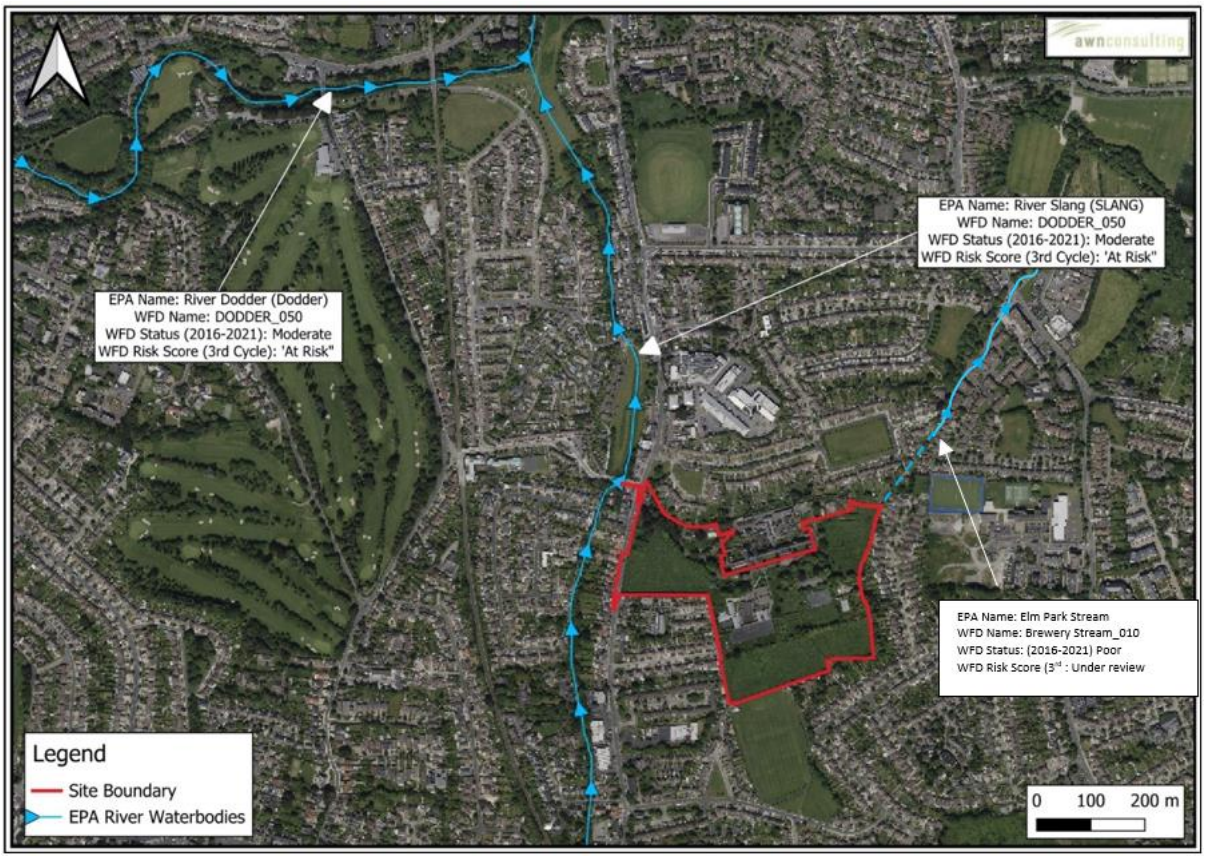


Figure 1.1 *Site Location Map with local hydrological environment*

The subject site is c9.6 ha with an additional 0.1 ha of works area on the Dundrum Road. It is currently occupied by the former Central Mental Hospital. There are other ancillary buildings on the site which are proposed to be demolished as part of the works, these include a swimming pool/sports hall, 2-storey red-brick building and temporary structures including portacabins.

This assessment has considered the proposed development within the context of compliance with the WFD Objectives. This is addressed under the following headings:

- Identification and screening of WFD Water bodies within the zone of influence of the project (section 3.1 and 3.2)
- Outline of proposed development including design and mitigation measures (construction and operation) in relation to potential impacts to the water environment (section 3.3 and 3.4)
- Collation of water body baseline data and water body status and assessment of possible impacts to surface water and groundwater (section 3.5)
- Assessment of scale of impacts on waterbody potential to result in a deterioration of WFD status (qualitative and quantitative) (section 4)
- Conclusions (section 5).

This assessment has been written and prepared by Luke Maguire Environmental Consultant and Geoscientist (BSc) at AWN Consulting and Teri Hayes (BSc MSc PGeol EurGeol) Senior Hydrogeologist and Director at AWN Consulting. Luke Maguire; is an Environmental Consultant at AWN with experience in Environmental Consulting and water resources. Luke holds a B.Sc. in Geoscience (Geology, Hydrology, Geochemistry, Geophysics, Climate and Environmental studies) from Trinity College University of Dublin. Luke has experience in Environmental Impact Assessment (EIAR), Hydrological Risk Assessment, contaminated land assessment, groundwater monitoring and WFD Assessment Reporting.. Teri is a hydrogeologist with over 25 years of experience in water resource management and impact assessment. She has a Masters in Hydrogeology and is a former President of the Irish Group of the Association of Hydrogeologists (IAH) and has provided advisory services on water related environmental and planning issues to both public and private sector bodies. She is qualified as a competent person as recognised by the EPA in relation to contaminated land assessment (IGI Register of competent persons www.igi.ie). Her specialist area of expertise is water resource management eco-hydrogeology, hydrological assessment and environmental impact assessment.

2.0 METHODOLOGY

2.1 DETERMINATION OF WATER BODY STATUS

2.1.1 WFD Risk Status

The WFD Risk score is the risk for each waterbody of failing to meet their WFD objectives by 2027. The risk of not meeting WFD objectives has been determined by assessment of monitoring data, data on the pressures and data on the measures that have been implemented. Waterbodies that are 'At Risk' are prioritised for implementation of measures. This assessment was completed in 2020 by the EPA Catchments Unit in conjunction with other public bodies and was primarily based on monitoring data up the end of 2018. The three risk categories are:

- Waterbodies that are 'At Risk' of not meeting their WFD objectives. For these waterbodies an evidence-based process was undertaken to identify the significant pressures; once a pressure is designated as 'significant', measures and accompanying resources are needed to mitigate the impact(s) from this pressure. These 'At Risk' waterbodies require not only implementation of the existing measures described in the various regulations, e.g. the Good

Agricultural Practices Regulations, but also in many instances more targeted supplementary measures.

- Waterbodies that are categorised as 'Review', either because additional information is needed to determine their status before resources and more targeted measures are initiated or the measures have been undertaken, e.g. a wastewater treatment plant upgrade, but the outcome hasn't yet been measured/monitored.
- Waterbodies that are 'Not at Risk' and therefore are meeting their Water Framework Directive objectives. These require maintenance of existing measures to protect the satisfactory status of the water bodies.

2.1.2 Background to Surface Water Body Status

Under the WFD, surface water body status is classified on the basis of chemical and ecological status or potential. Ecological status is assigned to surface water bodies that are natural and considered by the EPA not to have been significantly modified for anthropogenic purposes (i.e., culverting). Ecological potential is assigned to artificial and man-made water bodies (such as canals), or natural water bodies that have undergone significant modification. The term 'ecological potential' is used as it may be impossible to achieve good ecological status because of modification for a specific use, such as navigation or flood protection. The ecological potential represents the degree to which the quality of the water body approaches the maximum it could achieve. The worst-case classification is assigned as the overall surface water body status, in a 'one-out all-out' system (i.e., by taking the worst case of all the combined risk outcomes). This system is summarised below in Figure 2.1.

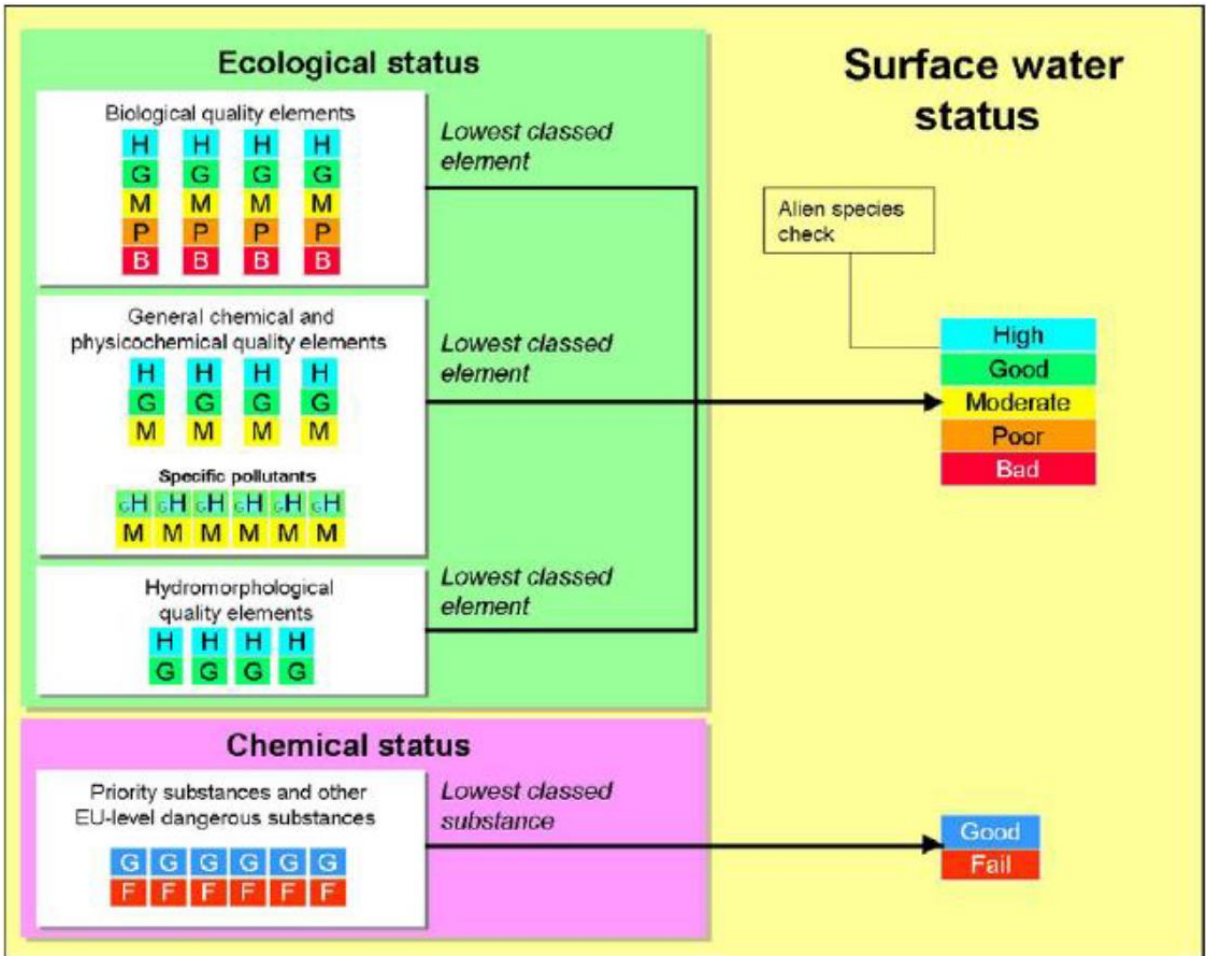


Figure 2.1 *WFD classification elements for surface water body status (Environmental Agency, 2015)*

Chemical Status

Chemical status is defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with the Environmental Quality Standards Directive (2008/105/EC). This is assigned on a scale of good or fail. Surface water bodies are only monitored for priority substances where there are known discharges of these pollutants; otherwise, surface water bodies are reported as being at good chemical status.

Ecological Status

Ecological status or potential is defined by the overall health or condition of the watercourse. This is assigned on a scale of High, Good, Moderate, Poor or Bad, and on the basis of four classification elements or 'tests', as follows:

- **Biological:** This test is designed to assess the status indicated by a biological quality element such as the abundance of fish, invertebrates or algae and by the presence of invasive species. The biological quality elements can influence an overall water body status from Bad through to High.
- **Physico-chemical:** This test is designed to assess compliance with environmental standards for supporting physicochemical conditions, such as dissolved oxygen, phosphorus and ammonia. The physicochemical elements can only influence an overall water body status from Moderate through to High.

- **Specific pollutants:** This test is designed to assess compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic. As with the physico-chemical test, the specific pollutant assessment can only influence an overall water body status from Moderate through to High.
- **Hydromorphology:** For natural waterbodies, this test is undertaken when the biological and physicochemical tests indicate that a water body may be of High status. It specifically assesses elements such as water flow, sediment composition and movement, continuity, and structure of the habitat against reference or 'largely undisturbed' conditions. If the hydromorphological elements do not support High status, then the status of the water body is limited to Good overall status. For artificial or highly modified waterbodies, hydromorphological elements are assessed initially to determine which of the biological and physico-chemical elements should be used in the classification of ecological potential. In all cases, assessment of baseline hydromorphological conditions are an important factor in determining possible reasons for classifying biological and physicochemical elements of a water body as less than Good, and hence in determining what mitigation measures may be required to address these failing water bodies.

2.1.3 Background to Groundwater Body Status

Under the WFD, groundwater body status is classified on the basis of quantitative and chemical status. Status is assessed primarily using data collected from the EPA monitoring network; therefore, the scale of assessment means that groundwater status is mainly influenced by larger scale effects such as significant abstraction or widespread/ diffuse pollution. The worst-case classification is assigned as the overall groundwater body status, in a 'one-out all-out' system. This system is summarised in Figure 2.2 below.

Quantitative Status

Quantitative status is defined by the quantity of groundwater available as baseflow to watercourses and water-dependent ecosystems, and as 'resource' available for use as drinking water and other consumptive purposes. This is assigned on a scale of Good or Poor, and on the basis of four classification elements or 'tests' as follows:

- **Saline or other intrusions:** This test is designed to identify groundwater bodies where the intrusion of poor quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.
- **Surface water:** This test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the ecological status of associated surface water bodies.
- **Groundwater Dependent Terrestrial Ecosystems (GWDTEs):** This test is designed to identify groundwater bodies where groundwater abstraction is leading to "significant damage" to associated GWDTEs (with respect to water quantity).
- **Water balance:** This test is designed to identify groundwater bodies where groundwater abstraction exceeds the "available groundwater resource", defined as the rate of overall recharge to the groundwater body itself, as well as the rate of flow required to meet the ecological needs of associated surface water bodies and GWDTEs.

Chemical Status

Chemical status is defined by the concentrations of a range of key pollutants, by the quality of groundwater feeding into watercourses and water-dependent ecosystems and by the quality of groundwater available for drinking water purposes. This is assigned on a scale of Good or Poor, and on the basis of five classification elements or 'tests' as follows:

- **Saline or other intrusions:** This test is designed to identify groundwater bodies where the intrusion of poor-quality water, such as saline water or water of different chemical composition, as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.
- **Surface water:** This test is designed to identify groundwater bodies where groundwater abstraction is leading to a significant diminution of the chemical status of associated surface water bodies.
- **GWDTEs:** This test is designed to identify groundwater bodies where groundwater abstraction is leading to "significant damage" to associated GWDTE's (with respect to water quality).
- **Drinking Water Protected Areas (DrWPAs):** This test is designed to identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WFD or at risk of failing in the future.
- **General quality assessment:** This test is designed to identify groundwater bodies where widespread deterioration in quality has or will compromise the strategic use of groundwater.

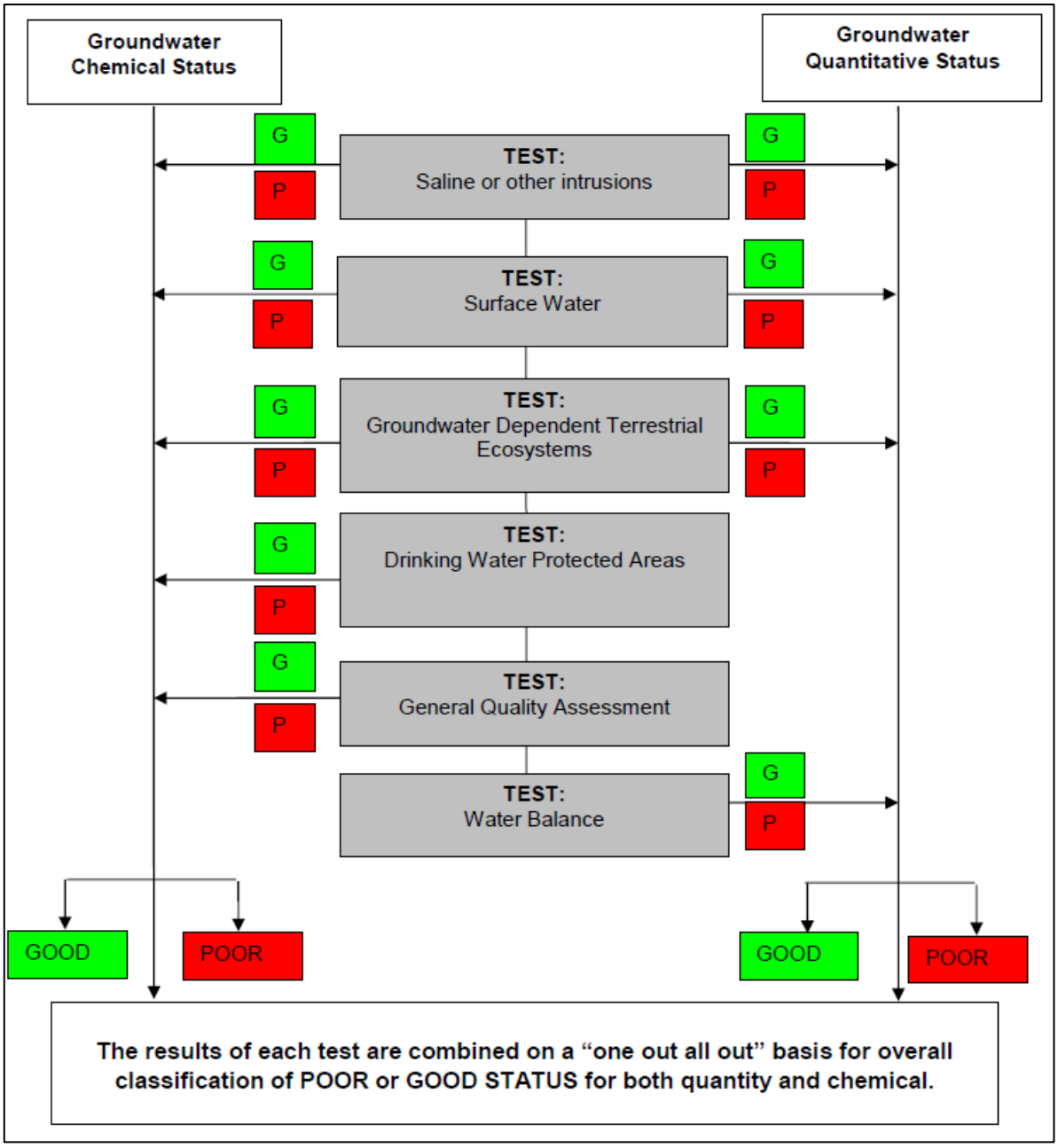


Figure 2.2 *WFD classification elements for groundwater body status (Environmental Agency, 2015)*

2.2 DETERMINATION OF NO DETERIORATION ASSESSMENT

Proposed developments that have the potential to impact on current or predicted WFD status are required to assess their compliance against the objectives defined for potentially affected water bodies.

2.3.1 Surface Water No Deterioration Assessment

Table 2.1 below presents the matrix developed by AWN and used to assess the effect of the proposed development on surface water status or potential class. It ranges from a major beneficial effect (i.e. a positive change in overall WFD status) through no effect

to deterioration in overall status class. The colour coding used in Table 2.1 is applied to the spreadsheet assessment in Appendix A of this report.

Table 2.1 *Surface Water Assessment Matrix*

Effect	Description/ Criteria	Outcome
Major Beneficial	Impacts that taken on their own or in combination with others have the potential to lead to the improvement in the ecological status or potential of a WFD quality element for the entire waterbody	Increase in status of one or more WFD element giving rise to a predicted rise in status class for that waterbody.
Minor/ localised beneficial	Impacts when taken on their own or in combination with others have the potential to lead to a minor localised or temporary improvement that does not affect the overall WFD status of the waterbody or any quality elements	Localised improvement, no change in status of WFD element
No Impact	No measurable change to any quality elements.	No change
Localised / temporary adverse effect	Impacts when taken on their own or in combination with others have the potential to lead to a minor localised or temporary deterioration that does not affect the overall WFD status of the waterbody or any quality elements. Consideration will be given to habitat creation measures.	Localised deterioration, no change in status of WFD element when balanced against mitigation measures embedded in the project.
Adverse effect on class of WFD element	Impacts when taken on their own or in combination with others have the potential to lead to the deterioration in the WFD status class of one or more biological quality elements, but not in the overall status of the waterbody. Consideration will be given to habitat creation measures.	Decrease in status of WFD element when balanced against positive measures embedded in the project.
Adverse effect on overall WFD class of waterbody	Impacts when taken on their own or in combination with others have the potential to lead to the deterioration in the ecological status or potential of a WFD quality element, which then lead to a deterioration of status/potential of waterbody.	Decrease in status of overall WFD waterbody status when balanced against positive measures embedded in the project.

2.2.2 Groundwater No Deterioration Assessment

Table 2.2 below presents the matrix used to assess the effect of the proposed development on groundwater status class. It ranges from a beneficial effect but no change in status to deterioration in overall status class. The colour coding used in Table 2.2 is applied to the final 'No Deterioration Assessment' spreadsheet in Appendix A of this report.

Table 2.2 *Groundwater Assessment Matrix*

Magnitude of Impact of the proposed development on WFD Element	**Effect on WFD Element within the assessment boundary**	**Effect on Status of WFD element at the Groundwater Body Scale**
Impacts lead to beneficial effect	Combined impacts have the potential to have a beneficial effect on the WFD element.	Improvement but no change to status of WFD element
No measurable change to groundwater levels or quality.	No measurable change to WFD elements.	No change and no deterioration in status of WFD element
Impacts when taken on their own have the potential to lead to a minor localised or temporary effect	Combined impacts have the potential to lead to a minor localised or temporary adverse effect on the WFD element.	Combined impacts have the potential to lead to a minor localised or temporary effect on the WFD element. No change to status of WFD element and no significant deterioration at groundwater body scale.
Impacts when taken on their own have the potential to lead to a widespread or prolonged effect.	Combined impacts have the potential to have an adverse effect on the WFD element.	Combined impacts have the potential to have an adverse effect on the WFD element, resulting in significant deterioration but no change in status class at groundwater body scale.
Impacts when taken on their own have the potential to lead to a significant effect.	Combined impacts in combination with others have the potential to have a significant adverse effect on the WFD element.	Combined impacts in combination with others have the potential to have an adverse effect on the WFD element AND change its status at the groundwater body scale

2.2.2 Assessment against Future Status Objectives

River Basin Management Plans are used to outline water body pressures and the actions that are required to address them. The future status objective assessment considers the ecological potential of a surface water body and the mitigation measures that defined the ecological potential. Assessments are based on the project (including mitigation measures) risks (construction and operation) with regard to the objectives for achieving good status as set out in the 2nd Cycle RBMP 2018-2021 and *draft* 3rd Cycle RBMP 2022-2027. The assessment considers whether the proposed development has the potential to prevent the implementation or impact the effectiveness of the defined measures in these plans.

2.3 SOURCES OF INFORMATION

The following sources of information were used in the preparation of this report:

- Geological Survey of Ireland- online mapping (GSI, 2024).
- GSI - Geological Heritage Sites & Sites of Special Scientific Interest.
- Ordnance Survey of Ireland (OSI).
- Teagasc subsoil database.
- National Parks and Wildlife services- Website mapping and database information on Designated Areas including; Special Protection Areas (SPA), Special Area of Conservation (SAC), and Proposed Natural Heritage Areas (pNHA), (NPWS, 2024).
- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area
- 3rd Cycle: HA 09 Draft Liffey and Dublin Bay Catchment Report (EPA, May 2024).
- National Parks and Wildlife Services (NPWS) – Protected Site Register; e.g. North-West Irish Sea SPA, South / North Dublin Bay SPA/SAC/pNHA
- River Basin Management Plan for Ireland 2018-2021.
- Draft River Basin Management Plan for Ireland 2022-2027.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW)).
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)

Relevant Guidance is as follows:

- EPA (2010) Methodology for Establishing Groundwater Threshold Values, the Assessment of Chemical and Quantitative Status for Groundwater and Groundwater Trends;
- Common Implementation Strategy (CIS) (2017) Guidance Document No. 36 'Exemptions to the environmental objectives according to Article 4(7) provides comprehensive guidance on the applicationof Article 4(7);
- Joint Assistance to Support Projects in European Regions (JASPERS) (2018) Water Framework Directive Project assessment checklist tool;
- UKTAG (2012) Groundwater Chemical Classification for the Water Framework Directive. Paper 11b(i), UK Technical Advisory Group on the Water Framework Directive; and
- UKTAG (2012) Groundwater Quantitative Classification for the Water Framework Directive. Paper 11b(ii), UK Technical Advisory Group on the Water Framework Directive
- 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001).

This WFD assessment was based on desktop review of the EPA and Local Authority Waters Programme water quality records, which were obtained from the portal www.catchments.ie (accessed in July 2024). From the aforementioned source of information, the WFD Status classification and Risk score were obtained for the identified water bodies.

Relevant Legislation is as follows:

European Communities 920030, Common Implementation Strategy for the Water Framework Directives (2000/60/EC) Guidance Document No.2

EPA (May 2015), An approach to characterisation as part of the Water Framework Directive V2 revised.

3.0 DESCRIPTION OF EXISTING HYDROLOGICAL AND HYDROGEOLOGICAL ENVIRONMENT

3.1 HYDROLOGY

The proposed development site is located within the former Eastern River Basin District (RBD) (now the Irish RBD), as defined under the WFD.

According to the EPA maps, the proposed development site as defined by the EPA nomenclature (EPA, 2024) is situated in Hydrometric Area No. 09 of the Irish River Network, and lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09), and the Dodder River sub-catchment (WFD name: Dodder_SC_01, Id 09_16).

The Slang River Waterbody (DODDER_050, IE_EA_09D010900) runs from south of Dundrum Village northwards down to the River Dodder and passes c. 70 m west of the western site boundary on the Dundrum Road. The Slang River joins / merges with the River Dodder c. 850 m north of the development site. From here the River Dodder flows for approx. 2.0km before its outfall into the Liffey Estuary lower transitional waterbody which in turn ultimately discharges into Dublin Bay coastal waterbody which includes and is hydrologically connected / linked to multiple Special Protection Areas (SPA), Special Areas of Conservation (SAC), and proposed Natural Heritage Areas (pNHA). There is a hydrological connection between the drainage ditches on site to the downgradient Elm Park Stream. An existing storm sewer connects site drainage to the Slang River (ref Figure 3.).

According to the NPWS (2024) on-line database there are no special protected area on or in the vicinity of the subject site.

Figure 3.1 Aerial view of the site with water drainage indicated (Source: BMCE, 2024)

The existing foul drainage from the existing buildings on site drains to a combined drainage system on site which discharges to the 300mm diameter combined sewer on the Dundrum Road. The combined sewer drains in a northerly direction towards the Dodder River and eventually discharges into Ringsend WWTP.

Figure 3.2 below presents the EPA surface water quality monitoring points in the context of the site and other regional drainage settings.

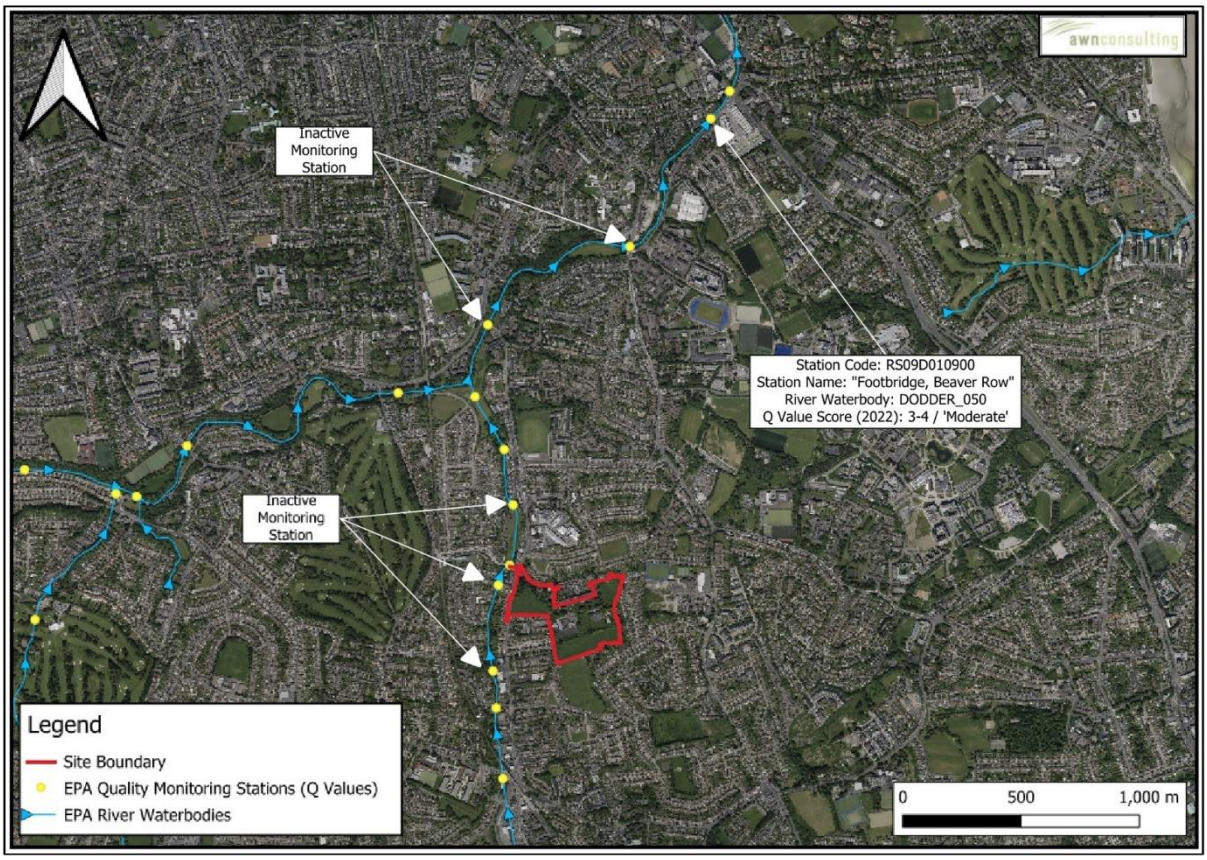


Figure 3.2 *Surface Water Quality Monitoring Point (EPA website accessed: 2024) (Site location indicated by redline boundary)*

Surface water quality is monitored periodically by the EPA at various regional locations along principal and other smaller watercourses. With reference to the site setting, the nearest active EPA surface waterbody monitoring station is situated along the Dodder River downstream to the proposed development ('Footbridge, Beaver Row'; EPA Code: RS09D010900), which is located in the DODDER_050 River Waterbody at the pedestrian foot-bridge over the Dodder River adjacent to and adjoining Beaver Row and Brookvale Road at Donnybrook, c. 3.4 km (hydrological distance) upstream (south) of the Dodder River discharge point to Liffey Estuary Lower.

The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 - Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

The most recent status recorded by the EPA in the water quality monitoring station located on the Mayne River mentioned above is classified as Q3-4 – '*Moderate*' Status (2022), indicating a *slightly polluted* waterbody.

In accordance with the WFD, each river catchment within the former RBD was assessed by the EPA and a water management plan detailing the programme of measures was put in place for each. The Slang River in this area is associated with the WFD surface waterbody Dodder_050. The most recent published status (www.epa.ie – River Waterbody WFD Status 2016-2021) of this waterbody is

'Moderate' and its environmental risk is qualified by the WFD as 'At Risk of not achieving good status'. This condition is attributed to a moderate biological and ecological status or potential (phytobenthos, invertebrate and fish status or potential). In addition, its chemical status failed to achieve good status due to a Benzo(a)pyrene failure.

The Elm Park Stream (WFD name: BREWERY STREAM_010, EU Code: IE_EA_09B130400) surface waterbody is currently classified by the EPA as having '*Poor*' WFD water quality status (2016-2021 period) and has a WFD risk score (3rd Cycle) of under '*Review*'. The main pressures identified on the Brewery Stream_010 are associated with the presently 'poor' ecological status or potential.

The Liffey Estuary Lower transitional waterbody (European Code: IE_EA_090_0300) is currently classified by the EPA as having 'Moderate' WFD water quality status (2016-2021 period) and is 'At risk' of not achieving good status (refer to Figure 6.2). This rating and the main pressures identified on the Liffey Estuary lower are attributed to and associated with the presently 'Moderate' ecological and biological status or potential in relation to phytoplankton and invertebrates (Catchments.ie, 2024).

Figure 3.3 below presents the river and transitional waterbody risk EPA map.

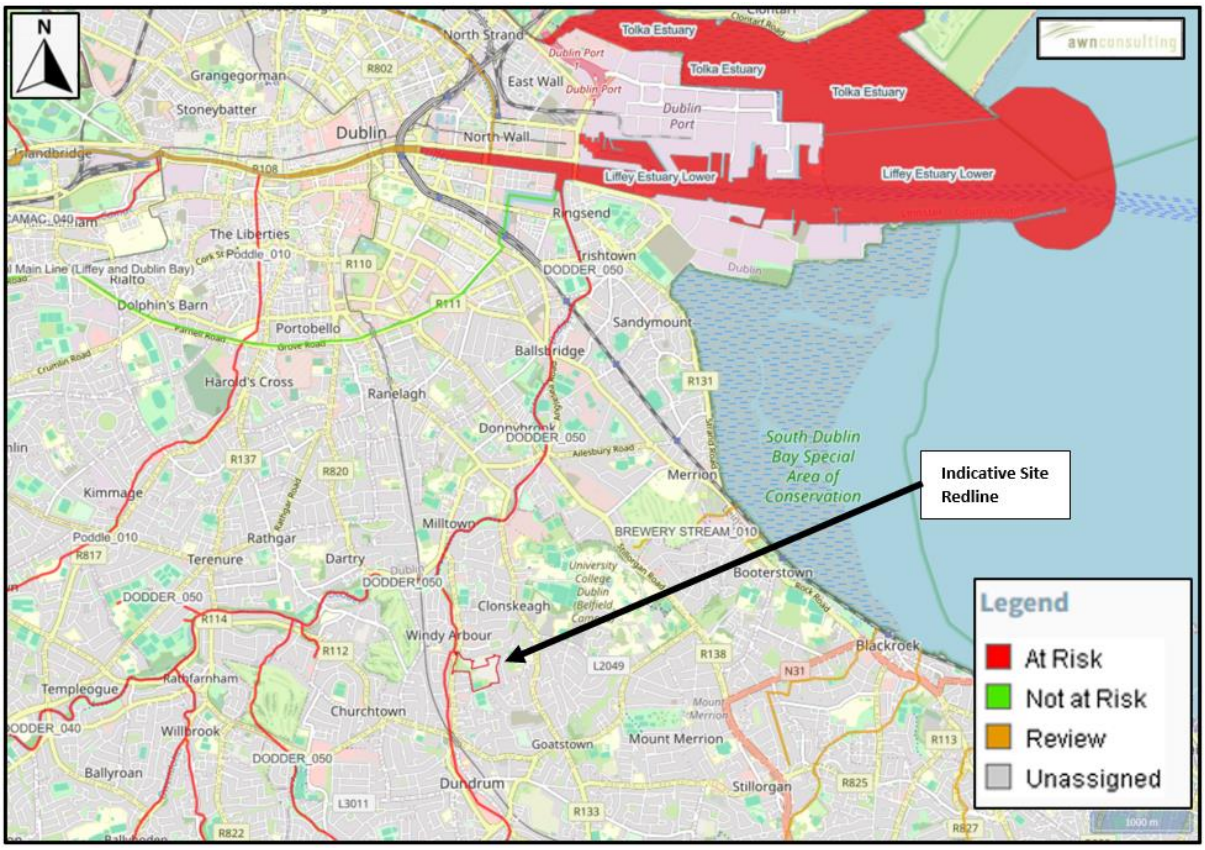


Figure 3.3 *River/Transitional Waterbody Score - 1a 'At risk of not achieving good status, WFD Ecological Status: Poor and under 'Review' (Site red boundary approximated, indicative only).*

As a whole, the Dodder_SC_010 Sub-catchment is considered to have an ecological status of 'Moderate' and a chemical surface water status of 'Pass'. This is based on current monitoring carried out at this catchment level.

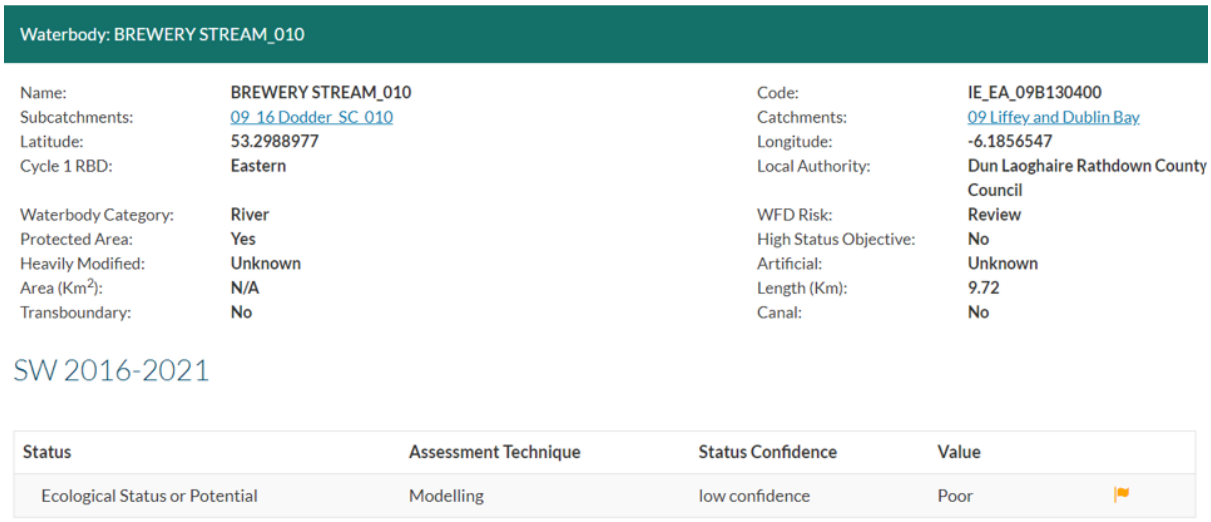
Waterbody: DODDER_050

Name:	DODDER_050	Code:	IE_EA_09D010900
Subcatchments:	09_16 Dodder_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	53.291667	Longitude:	-6.271414
Cycle 1 RBD:	Eastern	Local Authority:	Dublin City Council
Waterbody Category:	River	WFD Risk:	At risk
Protected Area:	No	High Status Objective:	No
Heavily Modified:	Unknown	Artificial:	Unknown
Area (Km^2):	N/A	Length (Km):	29.62
Transboundary:	No	Canal:	No

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Moderate
▾ Biological Status or Potential			Moderate
▾ Other Aquatic Flora Status or Potential			Moderate
Macrophyte Status or Potential			High
Phytobenthos Status or Potential			Moderate
Invertebrate Status or Potential			Moderate
Fish Status or Potential			Moderate
▾ Supporting Chemistry Conditions			Pass
▾ General Conditions			Pass
▾ Oxygenation Conditions			Pass
Dissolved Oxygen (% Sat)			Pass
Other determinand for oxygenation conditions			High
▾ Acidification Conditions			Pass
pH			Pass
▾ Nutrient Conditions			Pass
▾ Nitrogen Conditions			Good
Nitrate			Good
Ammonium			High
▾ Phosphorous Conditions			High
Orthophosphate			High
Specific Pollutant Conditions			Pass
Chemical Surface Water Status			Pass

Figure 3.4 *Surface Water Quality for the Dodder_050 waterbody, (EPA, website reviewed: Catchments.ie 2024).*



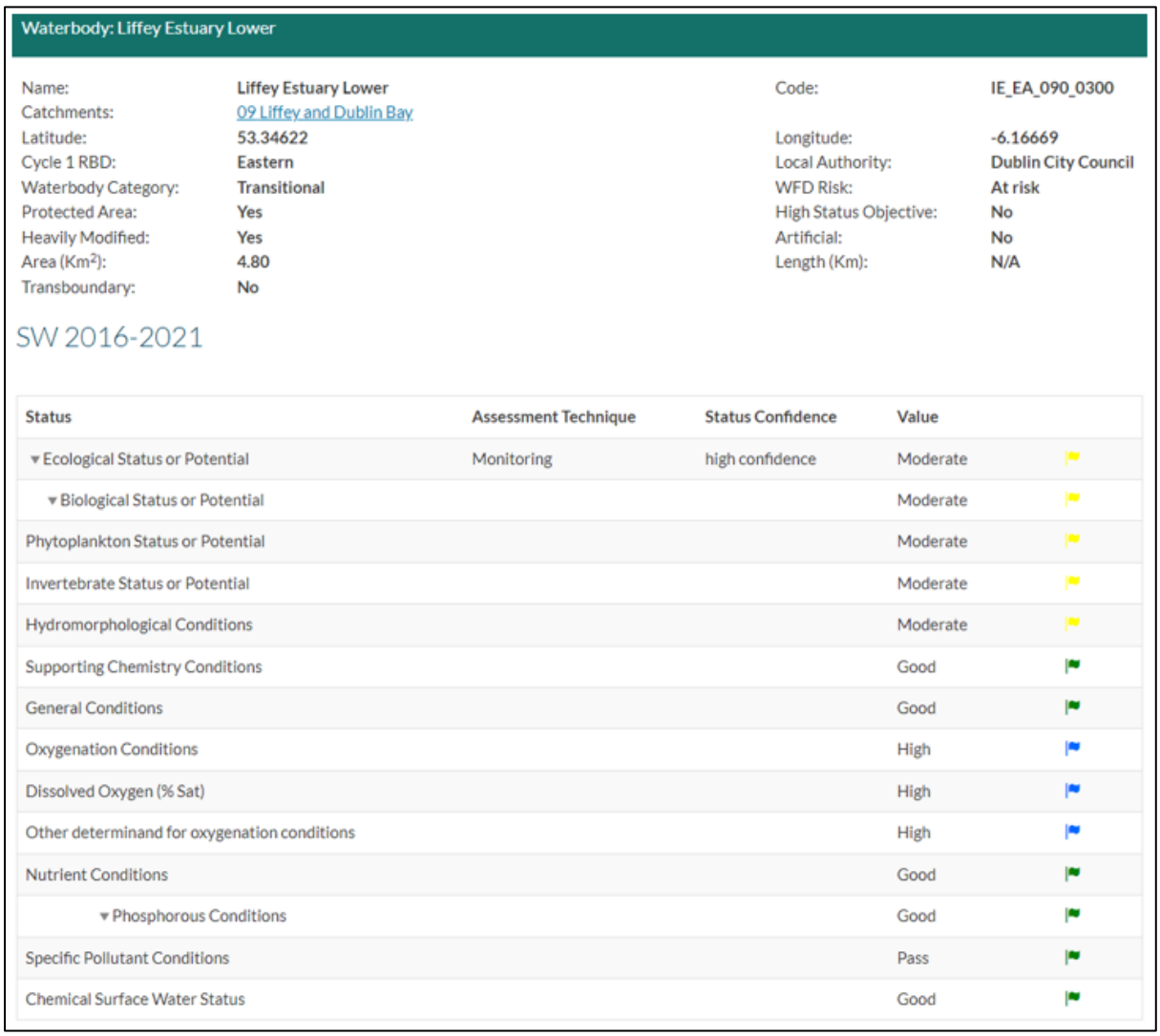
Waterbody: BREWERY STREAM_010

Name:	BREWERY STREAM_010	Code:	IE_EA_09B130400
Subcatchments:	09_16 Dodder_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	53.2988977	Longitude:	-6.1856547
Cycle 1 RBD:	Eastern	Local Authority:	Dun Laoghaire Rathdown County Council
Waterbody Category:	River	WFD Risk:	Review
Protected Area:	Yes	High Status Objective:	No
Heavily Modified:	Unknown	Artificial:	Unknown
Area (Km^2):	N/A	Length (Km):	9.72
Transboundary:	No	Canal:	No

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
Ecological Status or Potential	Modelling	low confidence	Poor

Figure 3.5 *Surface Water Quality for the BREWERY STREAM_010 waterbody (EPA name: Elm Park Stream), (EPA website review: Catchments.ie 2024).*



Waterbody: Liffey Estuary Lower

Name:	Liffey Estuary Lower	Code:	IE_EA_090_0300
Catchments:	09 Liffey and Dublin Bay		
Latitude:	53.34622	Longitude:	-6.16669
Cycle 1 RBD:	Eastern	Local Authority:	Dublin City Council
Waterbody Category:	Transitional	WFD Risk:	At risk
Protected Area:	Yes	High Status Objective:	No
Heavily Modified:	Yes	Artificial:	No
Area (Km^2):	4.80	Length (Km):	N/A
Transboundary:	No		

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Moderate
▾ Biological Status or Potential			Moderate
Phytoplankton Status or Potential			Moderate
Invertebrate Status or Potential			Moderate
Hydromorphological Conditions			Moderate
Supporting Chemistry Conditions			Good
General Conditions			Good
Oxygenation Conditions			High
Dissolved Oxygen (% Sat)			High
Other determinand for oxygenation conditions			High
Nutrient Conditions			Good
▾ Phosphorous Conditions			Good
Specific Pollutant Conditions			Pass
Chemical Surface Water Status			Good

Figure 3.6 *Surface Water Quality for the Liffey Estuary Lower Transitional Waterbody (EPA website review: Catchments.ie 2024).*

According to the sub-catchment assessment of the Dodder_SC_010 subcatchment (Code 09_16) carried out by the EPA in November 2018, there are a number of pressures within this sub-catchment that impact on the hydrological environment (refer to www.catchments.ie).

Ten out of thirteen river water bodies within this subcatchment are 'at risk'. Dodder_050 is At Risk due to a combination of urban run-off, urban wastewater and anthropogenic pressures.

The Brewery Stream_010 WFD risk score / status is presently under 'review'. Anthropogenic Pressures are providing the majority of the problems associated with this river waterbody.

The Liffey Estuary Lower waterbody is 'At Risk' due to diffuse urban wastewater, agglomeration PE>10,000 (due to Ringsend Wastewater Treatment Plant [WwTP] operations) and combined sewer overflows. There are a lot of residential, industrial and commercial pressures throughout the sub-catchment, but urban wastewater, run-off and combined sewer overflows are providing the majority of the problems.

The below list is a list of all significant pressures identified in the sub-catchment (Figure 3.7).

Code	Name	WFD Risk	Pressure Category	Pressure Sub Category
IE_EA_090_0300	Liffey Estuary Lower	At risk	Urban Waste Water	Agglomeration PE > 10,000
IE_EA_090_0300	Liffey Estuary Lower	At risk	Urban Waste Water	Combined Sewer Overflows
IE_EA_090_0400	Liffey Estuary Upper	At risk	Urban Waste Water	Combined Sewer Overflows
IE_EA_09D010620	DODDER_040	At risk	Urban Run-off	Diffuse Sources Run-Off
IE_EA_09D010900	DODDER_050	At risk	Urban Waste Water	Combined Sewer Overflows
IE_EA_09D010900	DODDER_050	At risk	Anthropogenic Pressures	Unknown
IE_EA_09D010900	DODDER_050	At risk	Urban Run-off	Diffuse Sources Run-Off
IE_EA_09O011700	OWENADOHER_010	At risk	Hydromorphology	Embankments
IE_EA_09P030800	Poddle_010	At risk	Urban Run-off	Diffuse Sources Run-Off
IE_EA_G_091	Industrial Facility (P0019-02)	At risk	Industry	IPC
IE_EA_09B130400	BREWERY STREAM_010	Review	Anthropogenic Pressures	Unknown
IE_EA_09D010300	DODDER_030	Review	Historically Polluted Sites	Contaminated land
IE_EA_G_076	Wicklow	Review	Anthropogenic Pressures	Unknown

Figure 3.7 *List of main pressures for all waterbodies within the Dodder_SC_010 Subcatchment (EPA website reviewed: Catchments.ie 2024)*

3.2 HYDROGEOLOGY

3.2.1 Aquifer Classification

The GSI has devised a system for classifying the bedrock aquifers in Ireland. The aquifer classification for bedrock depends on a number of parameters including, the

area extent of the aquifer (km^2), well yield (m^3/d), specific capacity ($m^3/d/m$) and groundwater throughput (mm^3/d). There are three main classifications: regionally important, locally important and poor aquifers. Where an aquifer has been classified as regionally important, it is further subdivided according to the main groundwater flow regime within it. This sub-division includes regionally important fissured aquifers (Rf) and regionally important karstified aquifers (Rk). Locally important aquifers are sub-divided into those that are generally moderately productive (Lm) and those that are generally moderately productive only in local zones (Ll). Similarly, poor aquifers are classed as either generally unproductive except for local zones (Pl) or generally unproductive (Pu).

The bedrock aquifer underlying the site according to the GSI (www.gsi.ie/mapping) National Draft Bedrock Aquifer Map is classified as a (*Ll*) *Locally Important Aquifer – Moderately Productive only in Local Zones*. The site is not underlain by any gravel aquifers.

According to the GSI mapping database (2024), above bedrock, the ground / subsoil within the site principally comprises Tills derived chiefly from Limestone (TLs).

Aquifer vulnerability is a term used to represent the natural ground, intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures/ fractures, the main feature that protects groundwater from contamination, and therefore the most important feature in the protection of groundwater, is the subsoil (which can consist solely of/ or of mixtures of peat, sand, gravel, glacial till, clays or silts).

The GSI currently denotes a ‘Low’ (L) vulnerability classification underlaying the entire proposed development site indicating 10m+ overburden of low permeability soils. This is marginally inconsistent with the intrusive investigation data and information obtained from the site investigations carried out in the vicinity of the site by Site Investigations Ltd in November 2021, where bedrock was encountered slightly shallower i.e 8.5m below ground level.

Refer to Figure 3.8 below.

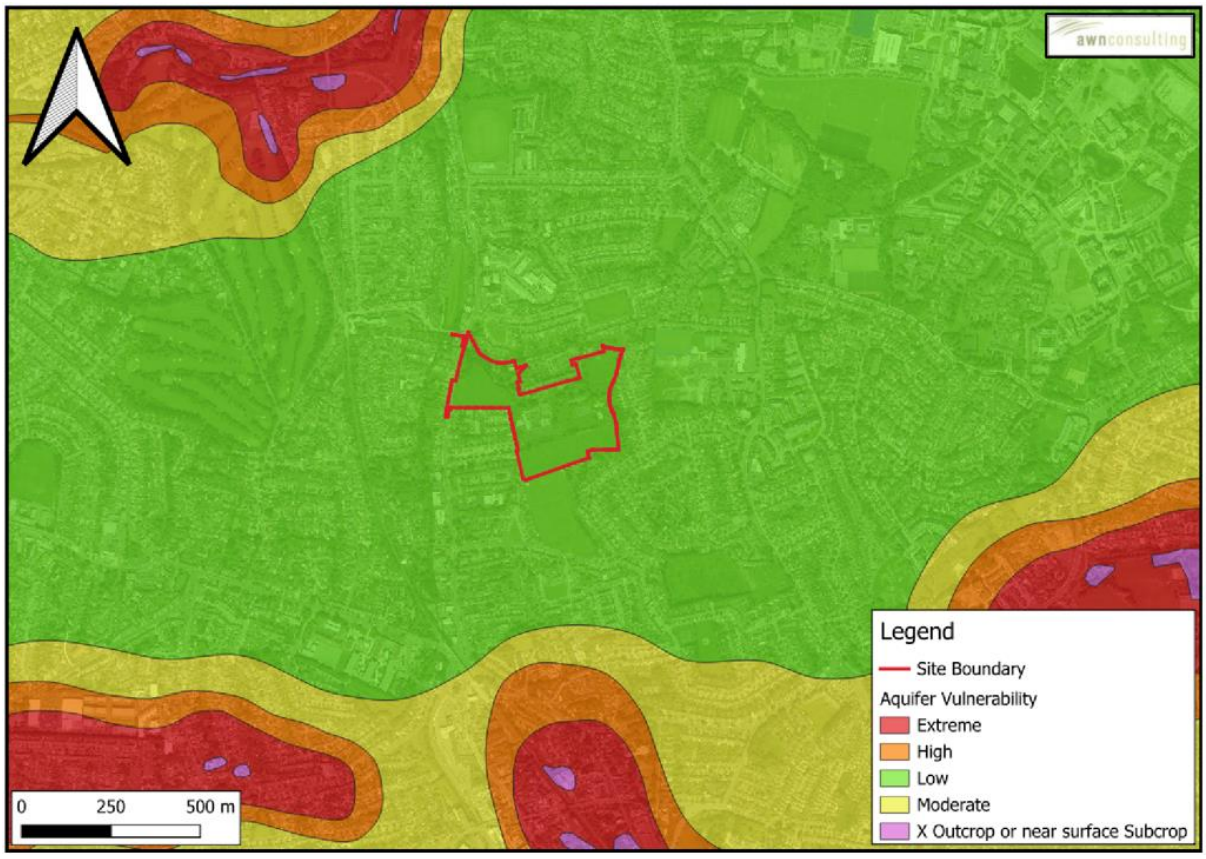


Figure 3.8 *Aquifer Vulnerability Map (Source: GSI, 2024)*

3.2.2 Groundwater Quality

The WFD was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater, transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'Good Status' was to be achieved in all waters by 2027, as well as maintaining 'high status' where the status already exists. The EPA co-ordinates the activities of the River Basin Districts, local authorities and state agencies in implementing the directive, and operates a groundwater quality monitoring programme undertaking surveys and studies across the Republic of Ireland.

The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Currently, Presently, the groundwater body in the region of the site (Dublin GWB - IE_EA_G_008) is classified under the WFD Risk Score system (EPA, 2024) as under *"Review"* meaning the GWB is being reviewed to determine whether or not the GWB has achieved its objectives and has either no significant trends or improving trends. The Dublin GWB was given a classification of *"Good" status* for the last WFD cycle (2016-2021). The Dublin GWB has a Good Status for chemical and quantitative categories. Therefore, the overall status is considered Good.

3.3 PROPOSED DEVELOPMENT

The following outlines the aspects of the proposed development (construction and operation) which could have an impact on the receiving water environment. Section 3.4 summaries the mitigation measures which are also considered in the WFD assessment

3.3.1 Construction Phase

The key activities for the WFD assessment are as follows:

- **Ground Works**: It is known that ground works will comprise excavation and levelling for foundations, basement and the installation of underground services for the projected buildings and movement of soil for landscaping purposes. No significant excavation of bedrock / rock breaking is anticipated as excavations are anticipated to be down to a maximum depth of c. 4.5 m below surrounding ground level (the maximum excavation depth for lift pits in basements is anticipated to extend to a depth of 4.5m below ground level. The impacts on the underlying bedrock geology arising from the construction phase will be minimal, with maximum excavation depths terminating c.4.0m above encountered bedrock levels)
- **Surface Water Run-off**: There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Stormwater shall be treated prior to discharge to the existing surface sewer network. Any run-off will be intercepted on site, where the ground falls towards adjoining properties or public roads/footpaths. This will be achieved with open drains or French drains and collected for treatment based on the conditions of a DLRCC and/or Irish Water licence, prior to pumping to the surface sewer network. Should any discharge of construction water be required during the construction phase, discharge will be to foul sewer. Pre-treatment and silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, 20 m buffer zone between machinery and watercourses/ stormwater sewer/ drainage ditch, refuelling of machinery off site) and hydrocarbon interceptors.

The potential effects identified are as a result of:

- Permanent land take (increased hardstanding area) during the operational phase.
- Suspended solids (muddy water with increased turbidity – arising from excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from construction materials;
- Hydrocarbons (ecotoxic) – accidental spillages from construction plant or onsite storage;
- Wastewater (nutrient and microbial rich) – arising from poor on-site toilets and washrooms.
- change in local vulnerability and soil condition due to cut and fill.; Excavation of c. 56,677 m^3 of top soil, subsoils and stones will be required for new foundations, basement, underground services and for levelling of the site. Local removal and reinstatement (including infilling) of the ‘protective’ topsoil and subsoil cover across the development area at the site will not change the overall vulnerability category for the site which is already “Moderate” to ‘Low’. Capping of areas of the site by hardstand/ building following construction and installation

of drainage will minimise the potential for vertical migration to the aquifer beneath the site.
- Below ground working could causing mobilisation of contaminants during the construction and operational phases.

3.3.2 Operational Phase

There is no ongoing abstraction of groundwater proposed. There is no bulk chemical or fuels or other chemicals required during operation. As such, the only potential for a leak or spill of petroleum hydrocarbons is from single vehicles. It is noted that during the operational phase any accidental discharge will more likely impact stormwater drainage rather than underlying soils due to the hardstand and drainage infrastructure proposed and any releases to drainage will be mitigated through petrol / hydrocarbon interceptors.

The proposed incorporation of hardstand area and the use of sustainable drainage systems (SuDS) design measures will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant considering the proportion of the site area in relation to the total aquifer area. It is noted that a significant proportion of the site is unpaved, and recharge will be reduced. SuDS measures have been incorporated in the design to facilitate recharge to ground.

The proposed development will provide a significant improvement to the local drainage catchment as it is proposed to provide full attenuation in compliance with the requirements of the Greater Dublin Strategic Drainage Study. A number of design measures will be put in place to minimise the likelihood of any spills entering the water environment to include the design of the car park with hydrocarbon interceptors. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

It is proposed to ultimately discharge surface water from the proposed development, post attenuation and outflow restrictions into the existing local drainage.

With regard to the wastewater discharge, the process discharge flow from the completed development will be discharged to the public sewer at the rate agreed with Uisce Éireann. The foul system will connect to the Irish Water network at the existing 300mm combined sewer in the Dundrum Road surface. The combined sewer drains in a northerly direction towards the Dodder River and eventually discharges into Ringsend WWTP (licenced facility) for treatment prior to subsequent discharge to Dublin Bay.

3.4 MITIGATION AND DESIGN MEASURES

The design has taken account of the potential impacts of the proposed development on the hydrological environment local to the area where construction is taking place. The only potential for impact during construction is accidental releases and there is limited potential for any contaminant release during operation.

3.4.1 Construction Phase

As there is potential for run-off to directly and indirectly discharge to Brewery Stream_010, Dodder_050 and recharge to Dublin GWB underlying the site and in order to manage the potential impact associated with sediment and sediment runoff

the following mitigation measures will be implemented during the construction phase. The following mitigation measures will be implemented during the construction phase.

Best practice will be always implemented in relation to all construction activities to avoid any accidental pollution events occurring to the wet ditches in the area or polluting the ground water table.

This will include the following actions:

- SuDS will be constructed in line with manufacturer's guidelines / best practice methods.
- Detention basins have been designed as off-line basins to cater for the 1in 100-year storm events. The design of the detention basin is in accordance with CIRIA SuDS Manual C753 2015.
- During construction, any surfaces which are intended to enable infiltration must be protected from compaction. This includes protecting from heavy traffic or storage materials.
- Excavated soils where required, will be stored a minimum of 20m from any ditch/drainage network or other water body.
- Excavation and stockpiling works will be curtailed during sustained wet weather periods.
- Water contaminated with silt will not be allowed to enter a watercourse or drain as it can cause pollution. All parts of the drainage system will be protected from construction runoff to prevent silt clogging the system and causing pollution downstream. Measures to prevent this include soil stabilisation, early construction of sediment management basins, channelling run-off away from watercourses using bunds/slit trenches and surface water drains and erosion prevention measures.
- Following construction, subsoil that has been compacted during construction should be broken up prior to the re-application of topsoil to reinstate the natural infiltration performance of the ground.
- Areas of SuDS that have been compacted will be refurbished.
- Pipe systems and orifices will be checked for blockages or partial blockages.
- Silt deposited during construction will be removed.
- Soils will be stabilised and protected from erosion whilst planting becomes established.
- Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas with the provision of a storage/retention capacity of 110% of tank storage. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential pollutants being discharged from the site.
- Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996-2011.

During earthworks Management of Surface Water Flow Paths

As outlined by the Outline Construction & Environmental Management Plan prepared by BMCE (2024) the works will be carried out and working methods adopted to ensure that construction activities do not adversely affect surface water and ground water quality. In particular, the potential impacts of any outflows from the site on any streams which flow from area. The most damaging being concrete leachate, oils and chemicals and suspended solids.

The following best practice measures will be adopted:

- Use of bunds, silt fences and silt bags to contain surface water run-off from the site.
- No refuelling or maintenance of vehicles and equipment shall be carried out within 20 meters of any ditch/ drainage network or other water body.
- Discharge to public sewers – after prior agreement with the local authority.
- The existing storm water drainage system will be retained where possible during construction, with modifications as necessary to prevent ingress of debris.
- Control of spoil and other materials to prevent spillage.
- Oils/Fuels/Hazardous Wastes will be stored in bunded areas or in bunded containers
- with the provision of a storage/retention capacity of 110% of tank storage.
- Washout from concrete trucks will be contained to designated impermeable areas or
- prohibited on site.
- All drainage arrangements will be determined in consultation with the Local Authority
- Surface water as arising during excavation works will be discharged to the surface water
- system.
- Sediment control will be implemented where surface water is contaminated with silt.

3.4.2 Operational Phase

The proposed development stormwater drainage network design includes SuDS and attenuation to greenfield run-of rate.

The SuDs measures:

- Treat runoff and remove pollutants to improve quality.
- Restrict outflow and to control quantity.
- Increase amenity value.

There will be no direct runoff to the surface water network without attenuation and treatment.

The layout of the proposed surface water drainage network is shown on BMCE Drawing Set included with the planning Application. It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

3.5 ASSESSMENT OF SOURCE PATHWAY LINKAGES

This section presents the information related to the current waterbody status identified in the development area.

The proposed development site lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Dodder_SC_010 WFD Sub-Catchment.

The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008).

This WFD Screening has identified two (2) no. WFD surface water bodies and one (1) no. WFD groundwater bodies of relevance due to the close proximity and connection of these waterbodies during the construction and operation of the proposed development. There is no source pathway linkage to any groundwater dependent terrestrial ecosystems (GWDTEs) within the source

The water bodies are listed in Table 3.1

Table 3.1 *WFD water bodies located within the study area*

Type	WFD Classification	WFD Status (2016-2021)	WFD Risk	Waterbody Name / ID	Location
Surface Water	River	Moderate	*At Risk*	Dodder_050 (River Slang) (IE_EA_09D010900)	Located 70 m to the west of the proposed development site.
	River	Poor	*Under Review*	Brewery Stream_010 (Elm Park Stream) (IE_EA_09B130400)	There is a hydrological connection between the drainage ditches on site to the Elm Park Stream.
Groundwater	Groundwater	Good	*Under Review*	Dublin Groundwater Body (GWB) (IE_EA_G_008)	Groundwater body immediately underlying the proposed development site.

During the construction phase, given the nature of the proposed construction works there will be an indirect connection to the Liffey Estuary Lower Transitional Waterbody and Dublin Bay through discharge to sewer and local surface water network (following settlement and treatment where required). No dewatering is required therefore no potential for a quantitative impact. During operational phase, there is also an indirect connection to the Liffey Estuary Lower and Dublin Bay through the projected stormwater drainage. No dewatering is required therefore no potential for a quantitative impact.

Given the distance to the Dodder and Liffey Estuary lower there is likely no measurable exceedance of groundwater thresholds (ref Legis)

There will also be indirect hydrological connection to Liffey Lower Estuary transitional waterbody through the foul water discharge which will be treated off site at the EPA licenced facility, Ringsend WwTP. The facility will be required to operate in accordance with its licence requirements. It should be noted that the average effluent discharge, calculated for the proposed development as 5.085 l/s would equate to 0.04% of the licensed discharge at Ringsend WwTP [peak hydraulic capacity]. This flow would not have a measurable impact on the overall water quality within Liffey River Estuary Lower and Dublin Bay and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).

The table below (Table 3.2) describes the S-P-R model for the site and includes the robust mitigation and design measures which will be incorporated into the proposed development throughout the construction and operational phases.

Table 3.2 *Pollutant Linkage Assessment (with mitigation)*

Source	Pathways	Receptors considered	Risk of Impact	Mitigation Measures
Construction Impacts (Summary)				
Discharge to ground of runoff. Unmitigated leak from an oil tank to ground/ unmitigated leak from construction vehicle (1,000 litres worst case scenario). Discharge to ground of runoff water with High pH from cement process/ hydrocarbons from construction vehicles/run-off containing a high concentration of suspended solids	Bedrock protected by remaining 10m+ low permeability overburden thickness according to GSI Database and site investigation carried out in the vicinity of the site by Site Investigations Ltd in 2021. Low fracture connectivity within the limestone will limit any potential for offsite migration. Direct/Indirect pathway to hydrological environment via potential direct discharge to the river (out of an abundance of caution scenario) or stormwater drainage	Limestone bedrock aquifer (Locally Important Aquifer) Hydrological environment (Liffey Estuary Lower & Dublin Bay)	Low risk of vertical migration due to overburden thickness and low migration through poorly connected fracturing within the limestone rock mass. No likely impact on the status of the aquifer/off site migration due to mitigation measures (i.e., CEMP), low potential loading, natural attenuation within overburden and discrete nature of fracturing reducing off site migration. No perceptible risk due to the implementation of the mitigation measures	Only potential for temporary impacts due to accidental releases. Mitigation measures outlined in a CEMP which will be a live document. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIA Report and any subsequent conditions relevant to the proposed development. These include management of soils, re-fuelling of machinery and chemical handling, control of water during the construction phase and treatment of discharge water where required.
Operational Impacts (Summary)				
Discharge of untreated water off-site Discharge of foul water to the Ringsend WwTP	Indirect pathway to hydrological environment via surface water drainage system Indirect pathway to Liffey Estuary Lower and Dublin Bay through public foul sewer post treatment at the Ringsend WwTP.	Hydrological environment (Liffey Estuary Lower and Dublin Bay) Hydrological environment (Liffey Estuary Lower and Dublin Bay)	No perceptible risk due to the implementation of the mitigation and design measures which includes SuDS techniques and the use of interceptors along the drainage system. No perceptible risk to the hydrological environment and the WWTP Even without treatment at licenced facility, Ringsend WwTP, the average effluent discharge (5.085 l/s which would equate to 0.04% of the licensed discharge at Ringsend WwTP); would not impact on the overall water quality within Liffey	The proposed development is designed to ensure the protection of the hydrological environment such as delivery and distribution and use of hydrocarbon interceptors on the stormwater system and the use of SuDS techniques. In order to limit the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge the principles of SuDS are to be implemented. Wastewater discharge to be agreed with Uisce Eireann (formerly IW) in a Wastewater Connection Application.

			Estuary Lower and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).	

4.0 NO DETERIORATION ASSESSMENT

Appendix A provides the identified impacts to the WFD quantitative and qualitative elements for :

4.1 HYDROLOGICAL ENVIRONMENT

The proposed development has an hydrological connection to the Liffey Estuary Lower (WFD Transitional Waterbodies) and Dublin Bay. The proposed stormwater drainage discharges (i) into the River Slang via an existing surface water sewer, which joins / outfalls to the River Dodder and ultimately discharges to the Liffey Estuary Lower and subsequently Dublin Bay and (ii) to the open drainage ditch on site which connects to the Elm Park Stream which ultimately discharges to South Dublin Bay.

There are mitigation and design measures which will be implemented during the construction phase to protect the hydrological and hydrogeological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

The project-specific CEMP which the works Contractor will be obliged to comply with will implement strict mitigation measures to ensure the protection of the hydrological (and hydrogeological) environment during construction which will ensure that there will be no negative impact on the quantitative or qualitative or morphology of the nearby watercourses.

There are limited indirect discharges of water during the operational phase to open waterbody/ watercourse and no groundwater dewatering for the proposed development. The discharges will be adequately treated via SuDS measures, hydrobrake (or equivalent) and oil/water interceptor to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term/ on-going integrity of same.

There are no changes to the overall hydrological and hydrogeological regime as a result of the proposed development. There are no proposed diversions of any drainage ditches or waterbodies as part of the proposed development.

Overall, the potential effects on the current status of the waterbodies are considered *no impact i.e. no change to the WFD status or elements in terms of the hydrological environment*.

4.2 HYDROGEOLOGICAL ENVIRONMENT

As mentioned above, the proposed development will not involve dewatering of the subsoils and not with the Dublin Groundwater Body which is confined within bedrock. As such the proposed development will not have an impact on the quantitative aspects in consideration of water body status such as baseflow for the hydrological waterbodies. During operation there is no current proposal for dewatering.

For the construction phase, there are mitigation and design measures which will be implemented during this phase to protect the hydrogeological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of the underlying bedrock aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

The project-specific CEMP which the works Contractor will develop will implement strict mitigation measures to ensure the protection of the hydrogeological environment during construction which will ensure that there will be no negative impact on the quantitative or qualitative of the underlying bedrock limestone aquifer (Dublin GWB).

In terms of the operational phase, the risk to the aquifer is considered to be low due to the use of oil / hydrocarbon / petrol interceptors (or equivalent) on the stormwater drainage system prior to discharge from the site.

Overall, the potential effects on the WFD status to the waterbodies are considered no impact i.e., no change to the current status or elements in terms of the underlying hydrogeological environment.

4.3 ASSESSMENT IN TERMS OF FUTURE GOOD STATUS

The Dodder_050, Brewery Stream_010 (River Waterbodies) and Dublin GWB are examined in terms of water quality as these sections of waterbodies are indirectly connected to the proposed development site during the operational phase. Currently, the EPA classifies the WFD Ecological Status (2016-2021) for the Dodder_050 river waterbody as having 'Moderate' Status, the Brewery Stream_010 as 'Poor' based on current monitoring with a current WFD Waterbody risk score of '*At risk of not achieving good status*' and '*Under review*', respectively. Therefore, the objective is currently not being achieved for the subject River and Transitional waterbodies.

The EPA classifies the WFD Ecological Status for the Dublin groundwater body as having '*Good Status'* (2016-2021) and its WFD Waterbody risk score is '*under review*' (refer to www.catchments.ie).

As mentioned above, the main pressure for obtaining good status is anthropogenic pressures, urban wastewater and urban run-off. The discharges associated with the proposed development will be treated and attenuated prior to discharge off-site. Foul water will be discharged and treated by the Ringsend WwTP which is licensed by the EPA. Therefore, the proposed development will not have any discharges which will hinder catchment improvement measures.

The *draft* 3rd cycle of the RBMP 2022-2027 contains the key objective for the Liffey Estuary waterbody is to maintain a *Good* status by 2027.

The objective of the Dublin GWB is Good for 2021. Therefore, the objective is currently being met.

At present there are no local targeted measures within the catchments to maintain or achieve improvements to the status of the water bodies. However, the following are some pressures associated with waterbody catchments:

- Physical Modifications.
- Management of pollution from agricultural activities.
- Management of pollution from sewage and waste water.

- Management of pollution from urban environments.
- Changes to natural flow and levels of water.
- Managing invasive non-native species.

Based on the above information it is not considered that any of the aspects of the proposed development will prevent the WFD objectives from being achieved or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

5.0 CONCLUSIONS

Appendix A contains the surface water and groundwater assessments where the above potential effects are considered. The colour coded system referred to in Table 2-1 and Table 2-2 above is used to give a visual impression of the assessment.

The WFD assessment indicates that, based on the current understanding of the proposed development, there is no potential for adverse or minor temporary/ long-term or localised effects on the River Slang (Dodder_050), Elm Park Stream (Brewery Stream_010), or Liffey Estuary Lower transitional waterbody. Therefore, it has been assessed that the proposed development will not cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve, future good status or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Dublin groundwater body. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change on its water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during construction and operation.

6.0 STUDY LIMITATIONS

The conclusions and recommendations listed above are based on our current understanding of the site. This has been formed from review of historical maps, review of current and previous environmental and engineering reports for the proposed development site. This information is taken as being accurate and true.

Public databases held by the EPA, GSI, OPW, NPWS and OSI have been consulted and the most recent available data has been referenced.

No subsurface or destructive testing was carried out as part of this assessment.

7.0 REFERENCES

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APPENDIX A
WATER FRAMEWORK DIRECTIVE ASSESSMENT MATRIX

Risk screening of potential to cause deterioration of current WFD status										
	Surface Water	Scheme Elements	**Proposed Development**						Mitigation Measures	Overall Impact with mitgation measures
	Dodder_050 (IE_EA_09D010900) & Brewery Stream_010 (IE_EA_09B130400) **Liffey Estuary Lower (IE_EA_090_0300)**	Phase (Construction/ Operation)	Construction	Construction	Construction	Construction	Operation	Operation		
		Identified Quantitative Impacts	Increased run-off and sediment loading	Temporary land-take during the construction phase	Pollution due to accidential discharges or spillages during the construction phase	Scour during the construction phase	Increase in Hardstanding	Storage of Fuel		
Biological Status	Macrophytes and phytobenthos - combined	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	**Construction:** There will be no direct runoff to the surface water network without attenuation and treatment. The project-specific CEMP will include robust mitigation measures to protect the underlying hydrogeological environment. The CEMP will be a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIA Report and any subsequent conditions relevant to the proposed development. **Operation:** The proposed development is designed to ensure the protection of the hydrological environment such as delivery and distribution and use of hydrocarbon interceptors on the stormwater system and the use of SuDS techniques. In order to limit the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge the principles of Sustainable Drainage Systems, (SuDS) are to be implemented. The proposed foul drainage system will eventually discharges into the licenced facility at Ringsend WWTP.	No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Macroinvertebrates		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Fish		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
Physio-Chemical Status	Total Ammonia	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Total Nitrogen		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Ortho-Phosphate		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
Hydromorphological Elements	Quantity and dynamics of river flow	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Connection to Groundwater		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	River continuity		Not Applicable.	Not Applicable.	Not Applicable.	Not Applicable.	Not Applicable.	Not Applicable.		Not Applicable.
	River depth and width variation bed		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Structure and substrate of river bed		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Structure of riparian zone		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status

Risk screening of potential to cause deterioration of current WFD status

	Groundwater	Scheme Elements	**Proposed Development**				Mitigation Measures	Overall Impact
	IE_EA_G_008	Phase (Construction/ Operation)	Construction	Construction	Operation	Operation		
	Dublin GWB	Identified Quantitative Impacts	Increased run-off and sediment loading	Pollution due to accidential discharges or spillages during the construction phase	Increase in Hardstanding	Storage of Fuel		
Quantitative Elements	**Saline or other intrusions.** To identify groundwater bodies where the intrusion of poor quality water as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	**Construction:** The project-specific CEMP will include robust mitigation measures to protect the underlying hydrogeological environment. The CEMP will be a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIA Report and any subsequent conditions relevant to the proposed development. These include management of soils, re-fuelling machinery and chemical handling and control of water during the construction phase. No signficant dewatering is required which could impact on quantitaive status. **Operation:** The proposed development is designed to ensure the protection of the underlying hydrogeological environment such as use of oil interceptors on the stormwater system and prior to discharge from the site and the use of SuDS techniques. In order to limit the surface water discharge from the site to pre-development, greenfield rates, and to ensure improvement in the overall surface water quality before ultimate discharge the principles of Sustainable Drainage Systems, (SuDS) are to be implemented. No signficant abstraction is required which could impact on quantitaive status.	No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Surface water. To assess the impact of groundwater abstractions on the ecological status of surface water bodies.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Groundwater Dependent Terrestrial Ecosystems (GWDTE's) To assess the impact of groundwater abstractions on the condition of GWDTE'S.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Water balance To identify groundwater bodies where abstractions exceed the available resource.		Not Applicable (no dewatering anticipated)	Not Applicable (no dewatering anticipated)	Not Applicable	Not Applicable (no water supply from borehole anticipated)		Not Applicable
Chemical Elements	**Saline or other intrusions.** To identify groundwater bodies where the intrusion of poor quality water as a result of groundwater abstraction is leading to sustained upward trends in pollutant concentrations or significant impact on one or more groundwater abstractions.	Predicted change to status elements (green = none, amber = possibly, red = likely)	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Surface water. To assess the impact of groundwater abstractions on the ecological status of surface water bodies.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Groundwater Dependent Terrestrial Ecosystems (GWDTE's) To assess the impact of nutrient concentrations in groundwater (primarily phosphates) on GWDTE's.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Drinking Water Protected Areas (DrWPAs) To identify groundwater bodies failing to meet the DrWPA objectives defined in Article 7 of the WFD or at risk of failing in the future.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	General quality assessment To identify groundwater bodies where widespread deterioration in quality has or will compromise the strategic use of groundwater.		No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.	No measurable change anticipated.		No anticipated impacts to the hydrological environment with no deterioration to the WFD Status