Appendix 11-2: Water Framework Directive

REPORT



Water Framework Directive (WFD) Assessment

Project Ref: Proposed Order for Future Operations at Dublin Airport

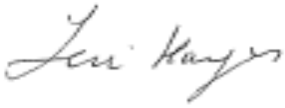
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1. INTRODUCTION

1.1 Background

AWN Consulting (AWN) has been commissioned by Nicholas O'Dwyer Ltd (NOD) and Dublin Airport Authority (daa) to carry out a Water Framework Directive Assessment for a Proposed Order in relation to future operations at Dublin Airport. The Proposed Order will consist of the amendment of condition no. 3 of ABP Ref. No. PL06F.220670 (F06A/1248) and condition no. 2 under ABP Ref No. PL06F.223469 (F06A/1843); collectively referred to as "the 32mppa Conditions").

- Condition no. 3 of ABP Ref. No. PL06F.220670 (F06A/1248) states: "3. The combined capacity of Terminal 2 as permitted together with Terminal 1 shall not exceed 32 million passengers per annum unless otherwise authorised by further grant of planning permission. Reason: Having regard to the policies and objectives of the Dublin Airport Local Area Plan and capacity constraints (transportation) at the eastern campus."
- Condition no. 2 of ABP Ref. No. PL06F.223469 (F06A/1843) states: "2. The combined capacity of Terminal 1 (including the extension authorised by this grant of permission) and Terminal 2 granted permission under planning register reference number F06A/1248 (An Bord Pleanála appeal reference number PL 06F.220670) shall not exceed 32 million passengers per annum unless otherwise authorised by further grant of planning permission. Reason: Having regard to the policies and objectives of the Dublin Airport Local Area Plan and capacity constraints (transportation) at the eastern campus."

The Proposed Order relates to the whole of Dublin Airport and includes all airside and landside infrastructure used for processing passengers. The main consequences of the Proposed Order are as follows:

- The amendment of the 32mppa Conditions will involve a change in the operational conditions of the Airport to be in a position to process more passengers.
- No physical works are either included as part of the Proposed Order, or are required in order to facilitate the Proposed Order.
- In this context, and taking into account available stands, gates, baggage handling and surface accessibility, the Airport Capacity Report (2026) demonstrates that the estimated capacity of the existing facilities, infrastructure, operational processes and current demand profile of Dublin Airport is 40.5mppa.

Therefore, what is being assessed in this report is:

- The growth in passenger numbers to 40mmpa by 2029 (2029 Proposed Operation);
- From the bases of (i) 2025 Permitted Operation [32mppa]; and (ii) 2025 Current Operation [36mppa].

The 40mppa assessment scenario assumes that the embedded operational measures described in the Drainage Report are in place. These measures are being implemented independently of this application as part of ongoing airport operational improvements and are referenced solely to inform the assessment. No consent is being sought for these measures under the Proposed Order.

AWN completed a WFD Assessment which has been prepared in response to the requirements of the Water Framework Directive. The objective of this assessment is to determine whether the Proposed Order has the potential to cause a deterioration of a water body from its current status or potential, and/or prevent future attainment of good status or potential where not already achieved.

This WFD Assessment has been prepared in response to the requirements of the Water Framework Directive 2000/60/EC and is provided to support the Appropriate Assessment Screening Report (AA) and

should, therefore, be read together with this report; and to support the application for the Proposed Order pursuant to the Dublin Airport (Passenger Capacity) Act 2026.

1.2 Experience of Authors

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

1.3 Source of Information

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

- Geological Survey of Ireland- online mapping (GSI, 2025).
- GSI - Geological Heritage Sites & Sites of Special Scientific Interest.
- Ordnance Survey of Ireland (OSI).
- Teagasc subsoil database.
- National Parks and Wildlife services (NPWS, 2025).
- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area.
- WFD Cycle 2 – Liffey and Dublin Bay Catchment – Sub-Catchment: Mayne_SC_010 (EPA, 2022).
- WFD Cycle 3 HA 09 Liffey and Dublin Bay Catchment Report (EPA, 2024).
- Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024).
- Fingal Development Plan 2023-2029.
- 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)

Site specific data was derived from the following sources:

- Dublin Airport. Proposed Order on Passenger Cap. Assessment of de-icer Pollution Impacts from Airport Passenger Growth (Gresham Smith, 2026).
- Dublin Airport. Surface water quality monitoring.

Relevant legislation and guidance are 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.
- 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 application of 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).
- UKTAG (2012) Groundwater Quantitative Classification for the Water Framework Directive. Paper 11b(ii), UK Technical Advisory Group on the Water Framework Directive.
- Inland Fisheries Ireland (IFI) – A Guideline on Planning for Watercourses in the Urban Environment.

This WFD assessment was based on desktop review of the Environmental Protection agency (EPA) and Local Authority Waters Programme water quality records which were obtained from the portal www.catchments.ie (accessed in June 2026). From the aforementioned source of information, the WFD Status classification and Risk score were obtained for the identified water bodies.

1.4 Water Framework Directive Legislation and Guidance

The Water Framework Directive (WFD) 2000/60/EC aims to protect and enhance the quality of the water environment (both surface water and groundwater) across all European Union member states.

The concept of 'deterioration of the status' of a body of surface water in Article 4(1)(a)(i) of Directive 2000/60 must be interpreted as meaning that there is deterioration as soon as the status of at least one of the quality elements, within the meaning of Annex V to the directive, falls by one class, even if that fall does not result in a fall in classification of the body of the surface water as a whole. However, if the quality element concerned, within the meaning of that annex, is already in the lowest class, any deterioration of that element constitutes a 'deterioration of the status' of a body of surface water, within the meaning of Article 4(1)(a)(i).

As part of its role, competent authorities and other stakeholders must consider whether proposals (other than where exemptions apply Article 4.4 - 4.7 of the WFD) have the potential to:

- Cause a deterioration of a water body from its current status or potential; and/ or
- Prevent future attainment of good status or potential where not already achieved.

As a result, new developments/proposals/licence conditions that have the potential to impact on current or predicted WFD status are required to assess their compliance against the WFD objectives of the potentially affected water bodies.

The WFD is implemented through River Basin Management Plans (RBMPs) in six-year cycles. Ireland is currently in WFD third cycle 2022-2027 i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024).

The primary aim of the RBMP is that water bodies identified as being 'At Risk' of not achieving their environmental objectives need to have targeted measures implemented to achieve objectives under this Plan. The Water Action Plan 2024 has been reviewed in the context of ensuring mitigation measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the proposed Order.

1.5 Methodology

This WFD assessment is based on desktop review of the Environmental Protection Agency (EPA) dataset which was obtained from the portal www.catchments.ie (accessed in May 2026).

The water bodies identified for this assessment are related to the vicinity of the Dublin Airport site and its direct or indirect hydrological or hydrogeological connection. From the aforementioned source of information, the WFD Status classification, and Risk score were obtained for the identified water bodies and are presented in Section 3.

1.5.1 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 over the third cycle. Waterbodies that are At Risk are prioritised for implementation of measures. The most recent assessment was completed in 2021 by the EPA Catchments Unit in conjunction with other public bodies.

The three risk categories are:

- Waterbodies that are 'At Risk' of not meeting their Water Framework Directive 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 has not 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.

1.5.2 WFD Water Body Status

Surface water body status is classified by the EPA on the basis of chemical and ecological status or potential. This system is summarised in Appendix A Figure 1. Under the WFD, groundwater body status is classified on the basis of quantitative and chemical status. This system is summarised in Appendix A Figure 2.

1.5.3 Surface Water No Deterioration Assessment

Table 1-1 below presents the matrix used to assess the effect of the Proposed Order 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 1-1 is applied to the 'No Deterioration Assessment' spreadsheet provided in Appendix B of this report.

Table 1-1. Water Framework Directive 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.

Effect	Description/ Criteria	Outcome
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.

1.5.4 Groundwater No Deterioration Assessment

Table 1-2 below presents the matrix used to assess the effect of the Proposed Order 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 1-2 is applied to the final 'No Deterioration Assessment' spreadsheet in Appendix B of this report.

Table 1-2. Groundwater Assessment Matrix

Magnitude of Impact of the Proposed Order 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

Magnitude of Impact of the Proposed Order on WFD Element	Effect on WFD Element within the assessment boundary	Effect on Status of WFD element at the Groundwater Body Scale
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

1.5.5 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 and chemical potential of a surface water body and the mitigation measures stated in the River Basin Management plans that defined the ecological and chemical potential. Assessments are based on the Proposed Order with regard to the objectives for achieving good status as set out in the 3rd Cycle RBMP 2022-2027 i.e. Water Action Plan 2024. The assessment considers whether the Proposed Order has the potential to prevent the implementation or impact the effectiveness of the defined measures in these plans.

1.5.6 Water Action Plan 2024 Programme of Measures

The Water Action Plan (WAP) provides information on the status and planned actions for surface waterbodies in Ireland. These entries offer insights into the specific measures being considered or implemented to improve the ecological status of the surface waterbodies. The WAP identifies several key pressures impacting water quality in surface waterbodies across the country:

- Nutrient Pollution: Excessive levels of phosphorus and nitrogen from agricultural runoff are a significant concern. These nutrients can lead to eutrophication, which depletes oxygen in the water and harms aquatic life.
- Urban Pollution: Inadequately treated wastewater and stormwater runoff from urban areas contribute to the degradation of water quality. This includes pollutants such as heavy metals, oils, and other contaminants.
- Physical Modifications: Changes to the river's natural flow and structure, such as barriers and drainage works, disrupt the ecosystem and affect water quality; and

- Climate Change: Altered weather patterns and increased frequency of extreme weather events exacerbate existing pressures on water quality.

The WAP identifies several suggested actions to protect and restore water quality in surface waterbodies ensuring a sustainable and healthy aquatic environment. The actions include:

- Nutrient Management: Implementing stricter controls on agricultural practices to reduce nutrient runoff. This includes promoting the use of buffer strips, cover crops, and precision farming techniques.
- Improving Wastewater Treatment: Upgrading wastewater treatment facilities to ensure that effluents meet higher standards before being discharged into waterbodies.
- Restoring Natural Ecosystems: Removing or modifying barriers to restore natural river flow and habitat connectivity. This also involves re-naturalizing riverbanks and floodplains.
- Integrated Catchment Management: Developing and implementing catchment-specific management plans that address local pressures and involve stakeholders in decision-making processes; and
- Climate Adaptation Measures: Enhancing resilience to climate change by incorporating adaptive management strategies and investing in green infrastructure.

As part of the screening process, the WAP 2024 has been reviewed to identify any relevant pressures or planned measures that may intersect with the Proposed Order. The WAP outlines key pressures on water quality in Ireland, including nutrient pollution from agriculture, urban wastewater discharges, physical modifications to watercourses, and the effects of climate change. These pressures are particularly relevant given the rural and hydrologically setting of the Proposed Development. The screening has also considered the WAP's proposed actions, such as improved nutrient management, restoration of natural hydromorphology, and enhanced wastewater treatment, all of which aim to support the achievement of WFD objectives. The presence of these pressures and the alignment of the Proposed Order with the WAP's objectives are important considerations in determining whether the Proposed Order could contribute to cumulative impacts or conflict with existing Programme of Measures (PoM).

2. DESCRIPTION OF HYDROLOGICAL AND HYDROGEOLOGICAL ENVIRONMENT

2.1 Hydrology

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

According to the EPA Maps, Dublin Airport lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and WFD Sub-Catchment Mayne_SC_010. A small section of the site lies within the WFD Sub-Catchment Broadmeadows_SC_010. The Dublin Airport catchment is located within the upstream extents of four major river catchments; the Santry River, Mayne River, Ward River and Sluice River.

With regard to the local watercourse catchments, the site is mainly located within the Upper Cuckoo Stream local Sub-Catchment. The Upper Cuckoo sub-catchment is the largest sub-catchment at Dublin Airport and includes a large proportion of the operational airfield area at Dublin Airport.

The drainage infrastructure of Dublin Airport is defined by its local watercourse catchments. These developed catchments drain towards the east and are part of the Mayne SC_010 WFD sub-catchment. Therefore, the portion of greenfield airport land that is part of the Broadmeadows SC_010 subcatchment (part of the Ward River catchment) is not part of the drainage catchment of the airport and was excluded from this assessment.

Therefore, the surface water at Dublin Airport drains to three primary catchments, subdivided into a further six sub catchments as follows which are associated with the following WFD waterbodies.

Table 2-1. Watercourses within Dublin Airport Area

Catchment	Sub Catchment	WFD Waterbody
Sluice	Kealy Stream	Sluice_010
	Wad Stream	
	Forrest Little Stream	
Santry	Santry River	Santry_010
Mayne	Mayne River	Mayne_010
	Cuckoo Stream	Mayne_010

The Sluice River flows eastwards towards the Baldoyle Estuary and enters the Irish Sea at Portmarnock. Tributaries of the Sluice River include the Forrest Little Stream, Wad Stream as well as the smaller Kealy Stream. As mentioned above, all of these streams occur within the grounds of Dublin Airport.

The Cuckoo Stream flows eastwards towards the confluence with the River Mayne which ultimately discharges to Baldoyle Estuary. This feature is culverted at the R132 and farther east at the M1 Motorway before flowing as predominantly open channel to the confluence with the River Mayne at Balgriffin Road.

The Mayne River rises near Ballystruan south of Dublin Airport. It flows in an easterly direction immediately south of the long-term car park and Dardistown Cemetery and is culverted below the R132 and the M1 Motorway. This river flows through mainly agricultural and recreational land north of the R132 Northern Cross Route Extension before its confluence with its tributary, the Cuckoo Stream, and ultimately discharges to Baldoyle Estuary and the Irish Sea at Mayne Bridge between Baldoyle and Portmarnock.

The Santry River rises near Harristown to the east of the R122. The river flows in a south-easterly direction through Sillogue Park Public Golf Course before being culverted to the immediate west of the M50 interchange with the Naul Road/Ballymun Road at Ballymun. It continues in a south-easterly direction as predominantly open channel flowing through Santry Demesne, Clonshaugh, Coolock and Raheny before discharging to Dublin Bay (via North Bull Island) near Watermill Road.

The Figure 2.1 below presents the Sub-Catchments associated with Dublin Airport and Figure 2.2 presents the local watercourse catchments.

Figure 2.1. Dublin Airport and Sub-Catchments

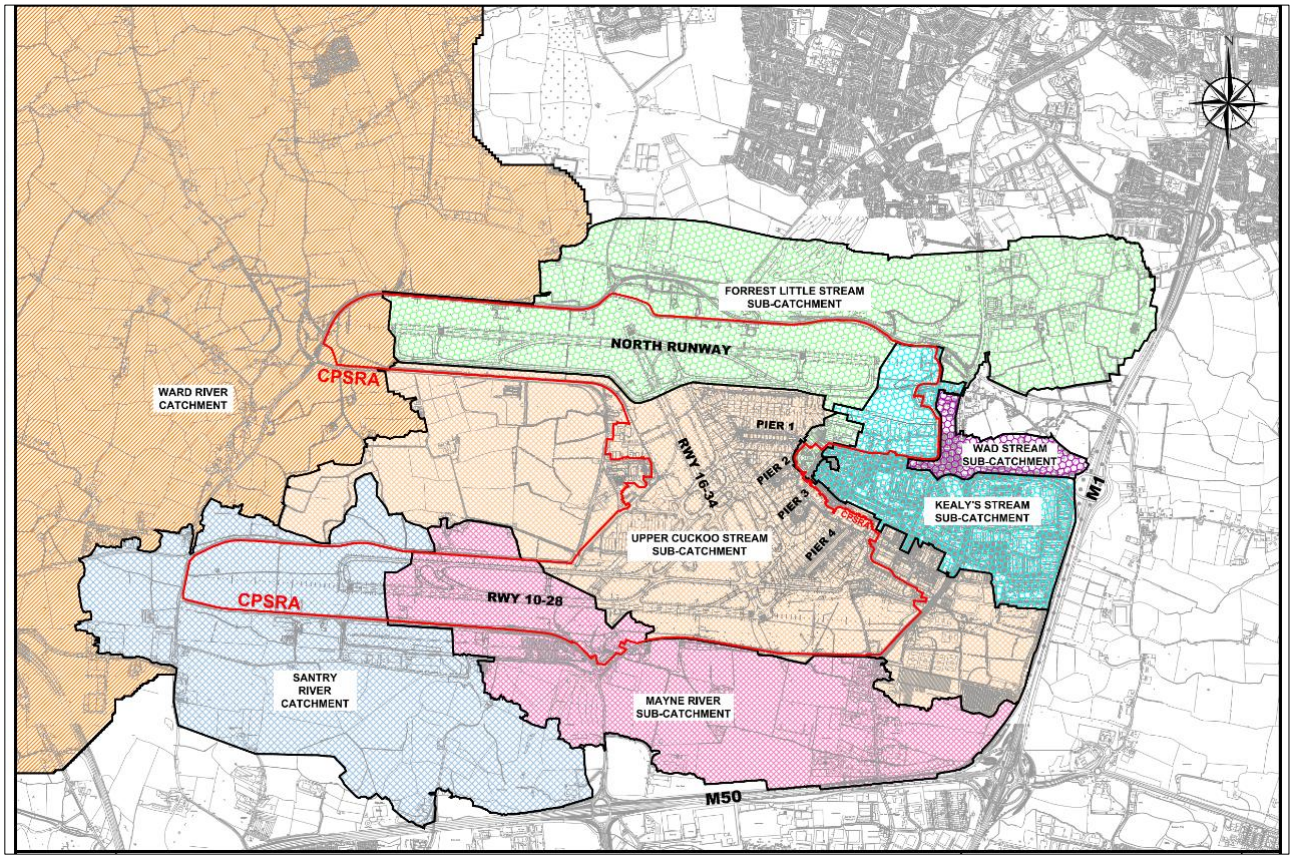
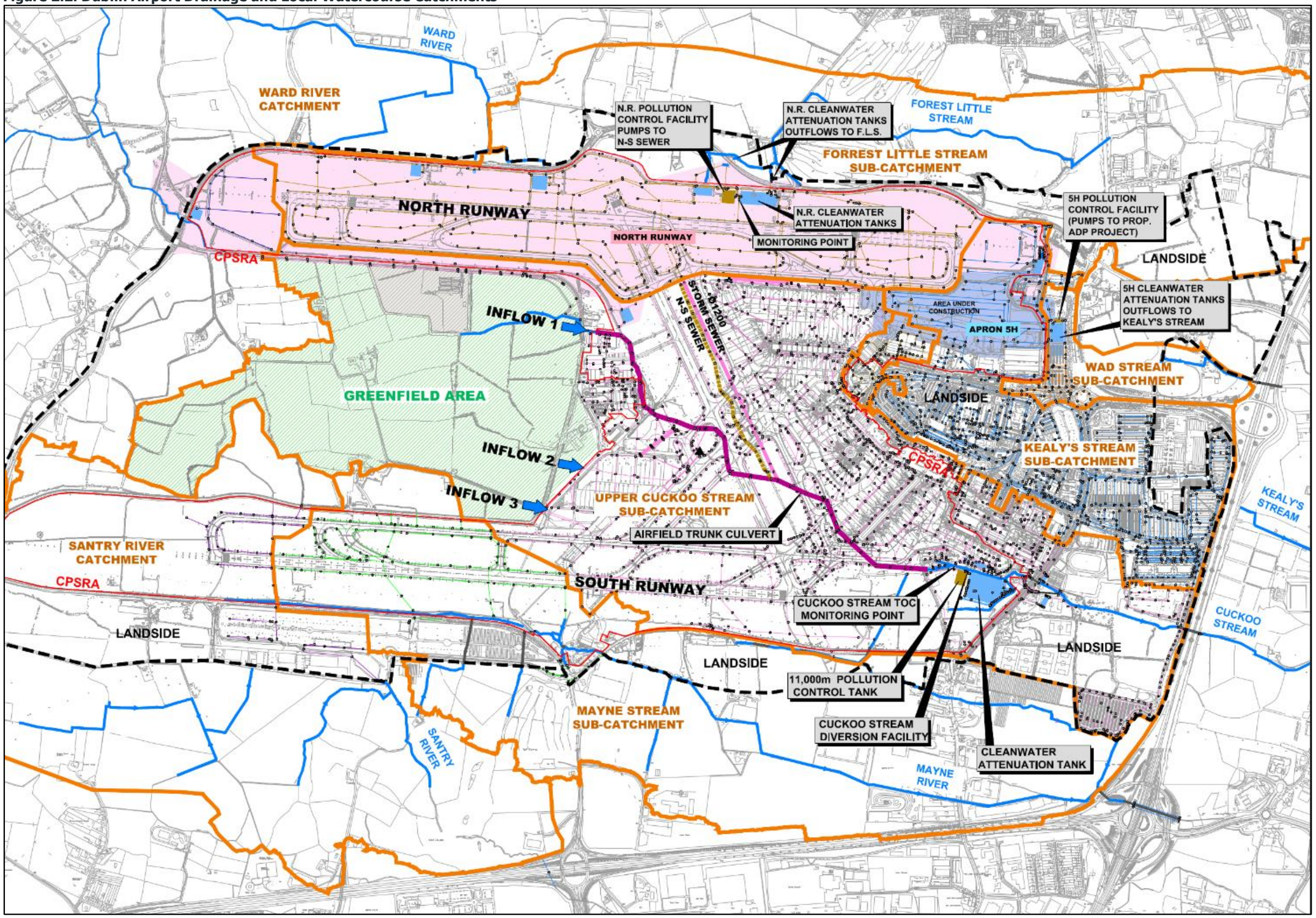


Figure 2.2. Dublin Airport Drainage and Local Watercourse Catchments



2.1.1 Surface Water Quality

2.1.1.1 EPA Database

Surface water quality is monitored periodically by the EPA at various regional locations along principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators (also named Q Values) 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.

As presented below, evidence from the EPA and other sources indicate that the Mayne River (Cuckoo Stream) and other catchments on or near the airport campus are below 'good status' and subject to multiple pressures. This is consistent with small water courses in catchments dominated by intensive agriculture and urban development.

Table 2-2, Table 2-3 and Figure 2.3 below present the EPA monitoring stations along the subject river waterbodies, the data from which is used by the EPA to assesses the water quality and biological indicators of these watercourses. In addition, Table 2-3 presents the biological indicator (Q Values) associated with these stations.

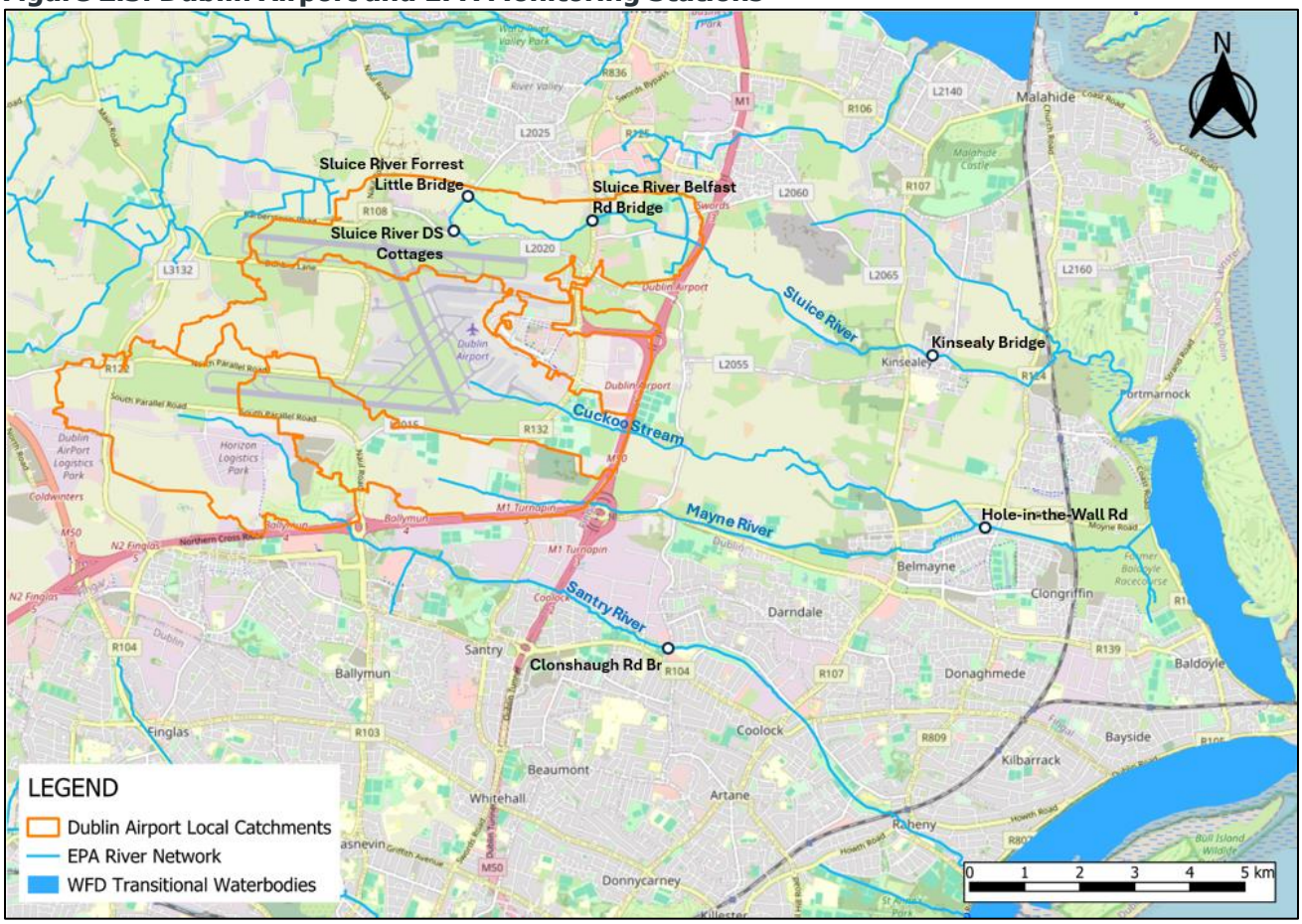
Table 2-2. EPA Water Quality Monitoring Stations

Waterbody	Station code	Station Name
Sluice_010	RS09S070200	Sluice River DS Cottages
Santry_010	RS09S010300	Clonshaugh Rd Br
Mayne_010	RS09M030500	Hole-in-the-Wall Rd Br

Table 2-3. EPA Biological Indicator Monitoring Stations

Waterbody	Station code	Station Name	Biological Indicator (Q Values)				
			2016	2019	2021	2022	2025
Sluice_010	RS09S070400	Sluice River Belfast Rd Bridge			3	3	3
	RS09S070840	Kinsealy Bridge			3-4	3-4	3-4
Santry_010	RS09S010300	Clonshaugh Rd Br	3	2-3		2-3	2-3
Mayne_010	RS09M030500	Hole-in-the-Wall Rd Br	2-3	2-3		3	3

Figure 2.3. Dublin Airport and EPA Monitoring Stations



As can be seen above, the most recent Q Values (2025) indicate that the following pollution status and conditions:

- Sluice_010: Moderately polluted and unsatisfactory condition (Q3);
- Santry_010: Moderately polluted and unsatisfactory condition (Q2-3);
- Mayne_010: Moderately polluted and unsatisfactory condition (Q3).

Water quality data from the stations presented in Table 2-2 above and collected by the EPA over the last decade has been processed. Figure 2.4 to Figure 2.6 below present historical trends for some water quality parameters of interest compared with the Average Annual "Good" Threshold value for each parameter as defined under the EU Environmental Objectives (Surface Water) Regulations (S.I. 272/2009 and amendment S.I. 77/2019). Values presented in the graphs are annual average values; therefore, results from 2026 should be read carefully as they are representative of Q1 only.

Figure 2.4. Historical Trend for average annual Ammonia as N concentrations (Source: EPA, 2026)

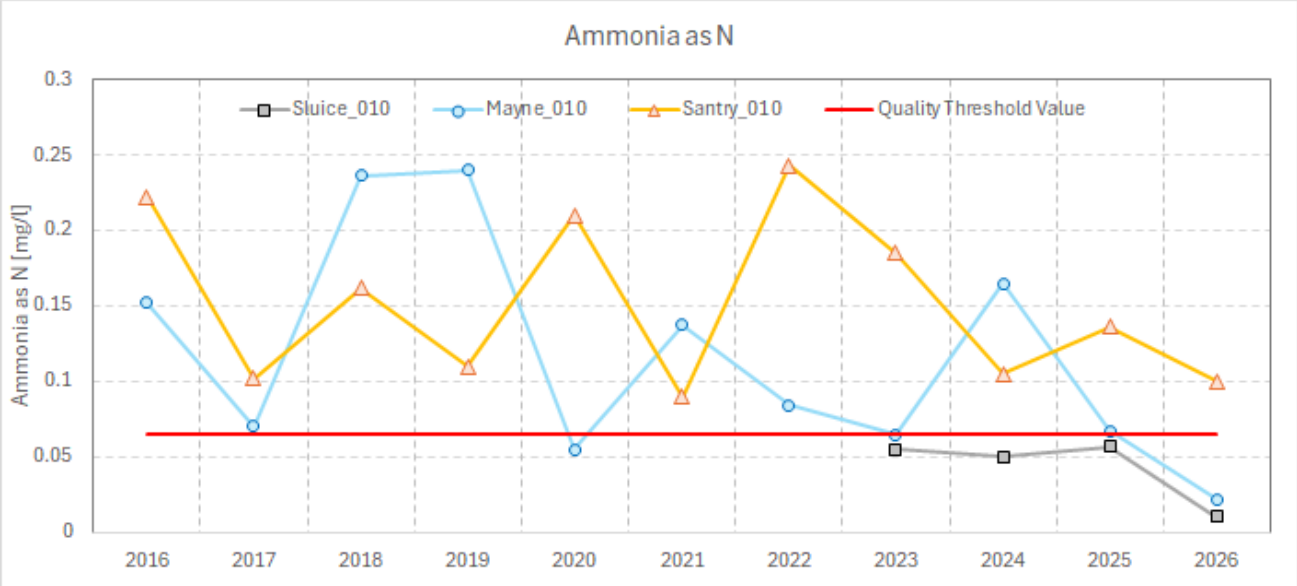


Figure 2.5. Historical Trend for average annual Biological Oxygen Demand (BOD) (Source: EPA, 2026)

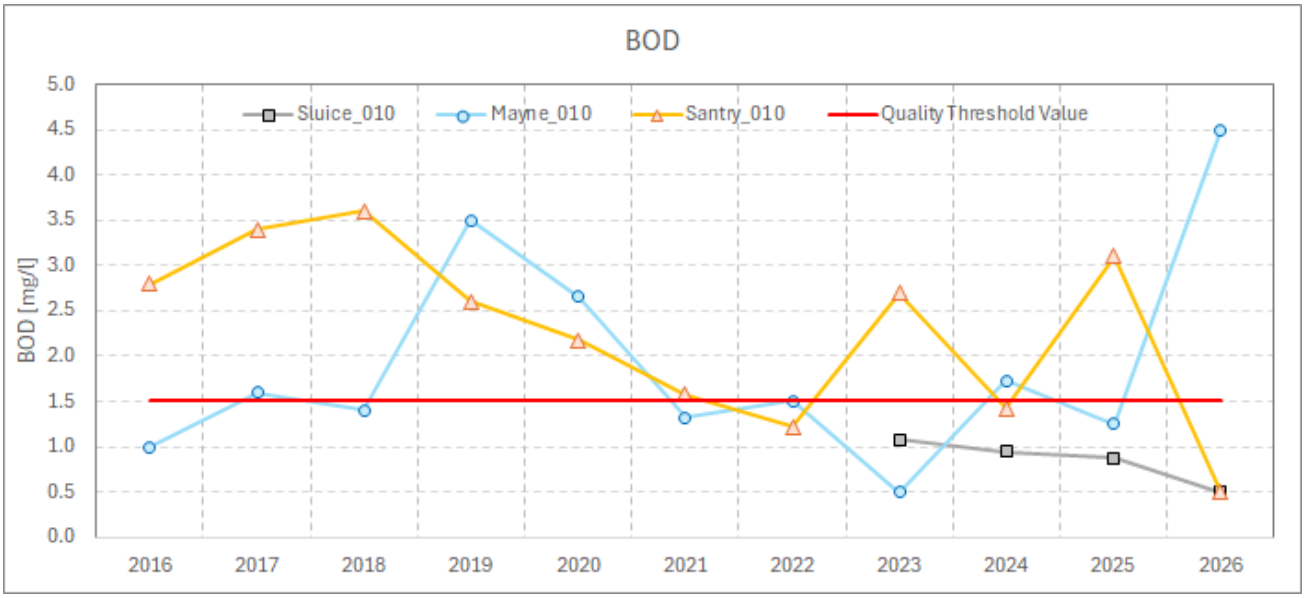
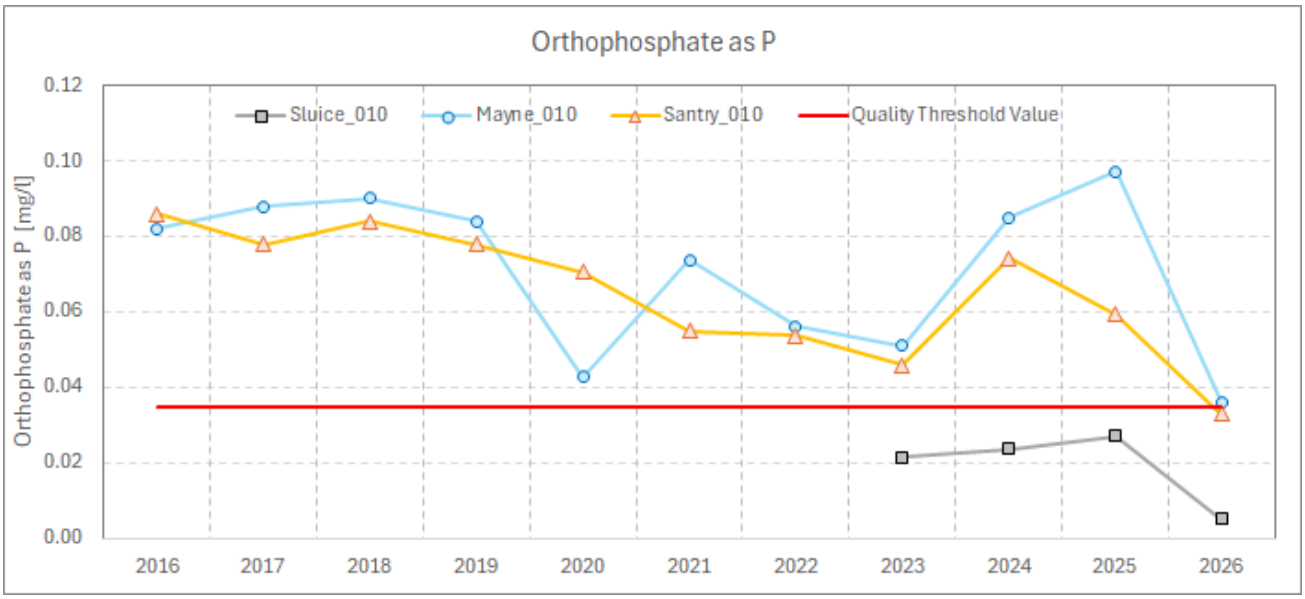


Figure 2.6. Historical Trend for average annual Orthophosphate as P (Source: EPA, 2026)



As can be seen in the graphs above, concentrations recorded during the last cycle have been, in general, following a downward trend over the SI Regulations for Mayne and Santry catchments and below the SI Regulations for the Sluice catchment.

2.1.1.2 EPA Hydromorphological Status

The European Water Framework Directive (WFD) 2000/60/EC requires the assessment of the ecological status of water bodies, which is comprised of biological, physico-chemical and hydromorphological quality elements. Hydromorphology is a term used in the WFD to describe the processes operating within, and the physical form of a waterbody. The term encompasses both hydrological and geomorphological characteristics that, in combination, help support a healthy ecology. Hydromorphological elements contribute towards WFD status classification.

The Environmental Protection Agency (EPA) in the Republic of Ireland and the Northern Ireland Environment Agency (NIEA), through the North South Shared Aquatic Resource (NS SHARE) project, agreed a field assessment technique for WFD classification called the River Hydromorphology Assessment Technique (RHAT), the newest version of which was published in 2014.

These guidelines assume that natural systems support ecology better than modified systems. Hence the RHAT method classifies river hydromorphology based on a departure from naturalness. It assigns a morphological classification directly related to that of the WFD: High, Good, Moderate, Poor and Bad, based on semi-qualitative and quantitative criteria.

From the surface waterbodies above, the EPA has qualified the hydromorphological status only for the Sluice_010 WFD Waterbody.

Table 2-4. Hydromorphological Status in Sluice_010 (Source: EPA, 2026)

Waterbody	Station code	Station Name	Hydromorphology (RHAT) Class
Sluice_010	RS09S070300	Sluice River Forrest Little Bridge	Poor
	RS09S070400	Sluice River Belfast Rd Bridge	Moderate
	RS09S070840	Kinsealy Bridge	Poor

The 'Poor' status is mainly associated with poor bank vegetation riparian landcover and floodplain connectivity conditions.

2.1.1.3 Local Water Quality - daa Water Quality Programme

In addition, routine water sampling has been conducted by daa in the subject watercourses for over 10 years. The obtained results from 2021 to present are presented below in Table 2-5 below. Location of these stations is presented in Figure 2.7.

Figure 2.8 to Figure 2.12 present historical trends of annual average values for some water quality parameters of interest compared with EU Environmental Objectives (Surface Water) Regulations (S.I. 272/2009 and amendment S.I. 77/2019).

It should be noted that de-icing fluids used on aircraft and airfield pavements rely on glycols or acetates, which introduce high levels of COD into runoff. Therefore, COD is the most representative parameter of interest for the de-icing process and does not have an established threshold value in the aforementioned regulations. In addition, the COD/BOD ratio is a key indicator of water or wastewater biodegradability (where a COD/BOD ratio greater than 4.0 is representative of poor biodegradable waters). Deicing fluids typically have COD to BOD ratios of between 1.7 and 2.

Table 2-5. Local Water Quality Results

Station	Waterbody/ Location	WFD Waterbody	Period of records	Number of records
R132	Cuckoo Stream at R132	Mayne_010	Feb 2021- Mar 2026	260
C9	Cuckoo Stream at M1	Mayne_010	Jul 2021- Mar 2026	128
C4	Cuckoo Stream at West Apron	Mayne_010	Dec 2021-Feb 2026	52
M5	Mayne River	Mayne_010	Aug 2021-Mar 2026	238
S4	Santry River	Santry_010	Aug 2021-Mar 2026	41
K1	Wad Stream	Sluice_010	Sep 2022-Feb 2026	50
K4	Kealys Stream	Sluice_010	Jul 2021-Mar 2022	29

Figure 2.7. Dublin Airport Water Quality Programme Monitoring Stations

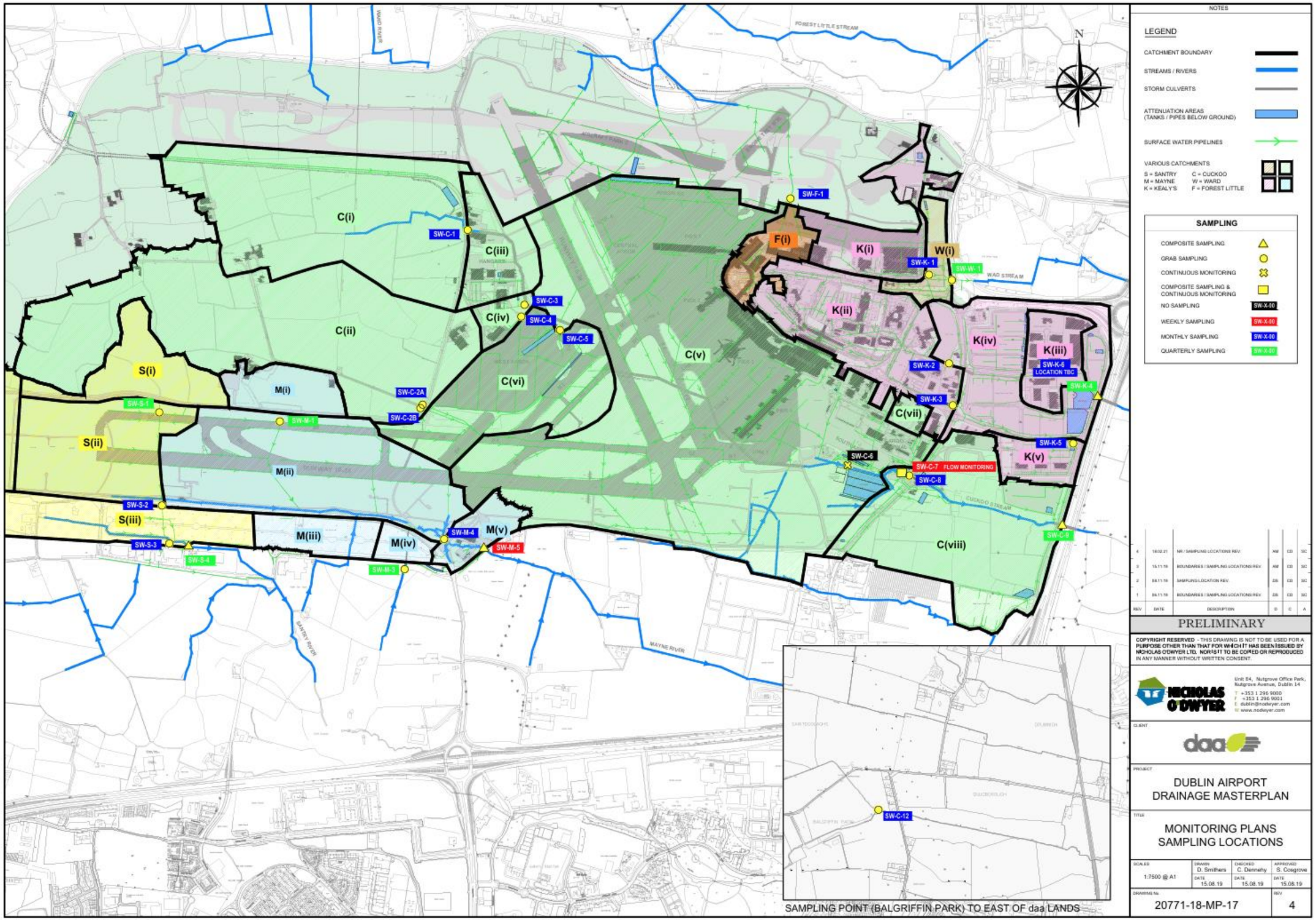


Figure 2.8. Historical Trend for Ammonia as N annual average concentrations (Source: daa, 2026)

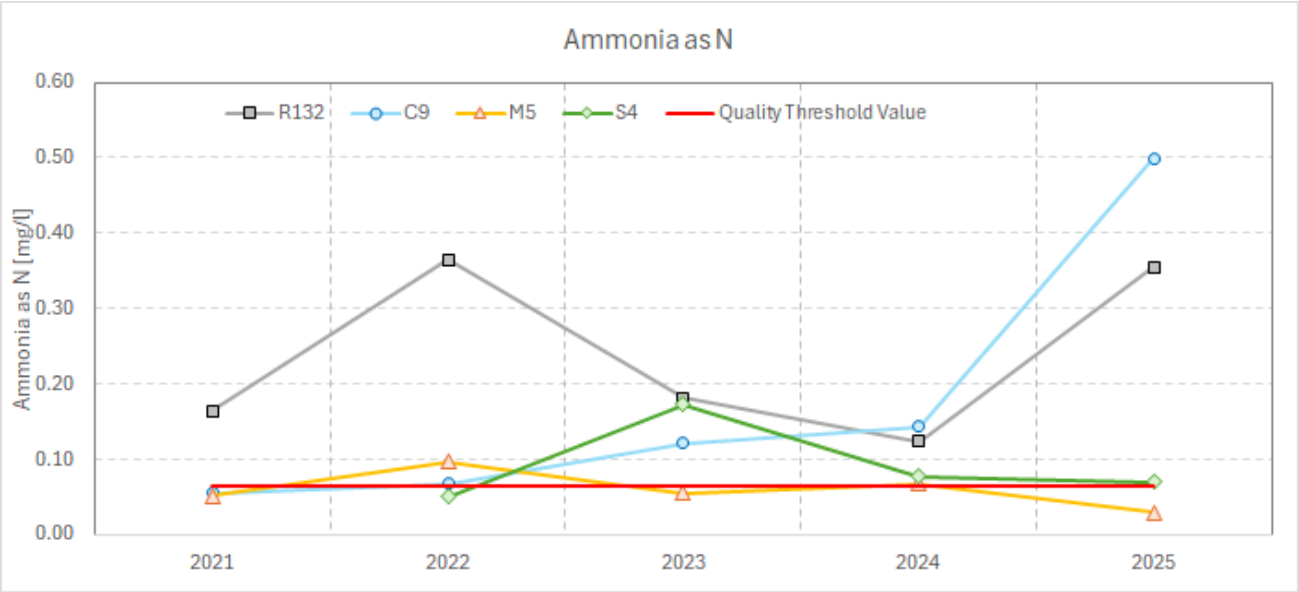


Figure 2.9. Historical Trend for Biological Oxygen Demand (BOD) annual average concentrations (Source: daa, 2026)

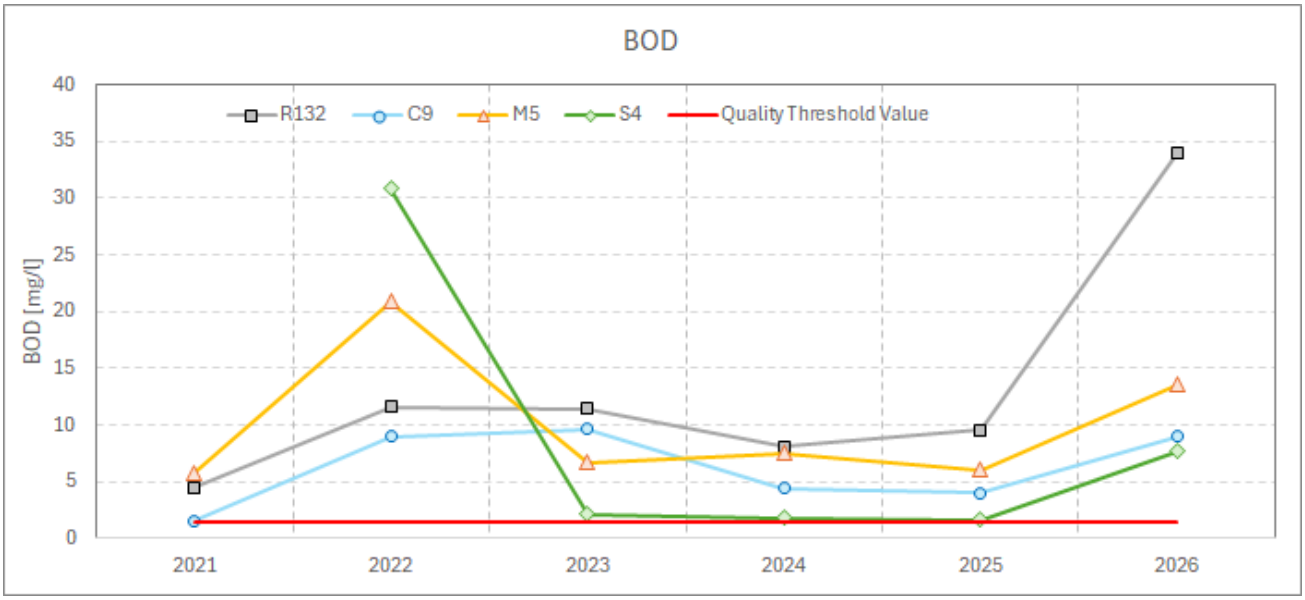


Figure 2.10. Historical Trend for Chemical Oxygen Demand (COD) annual average concentrations (Source: daa, 2026)

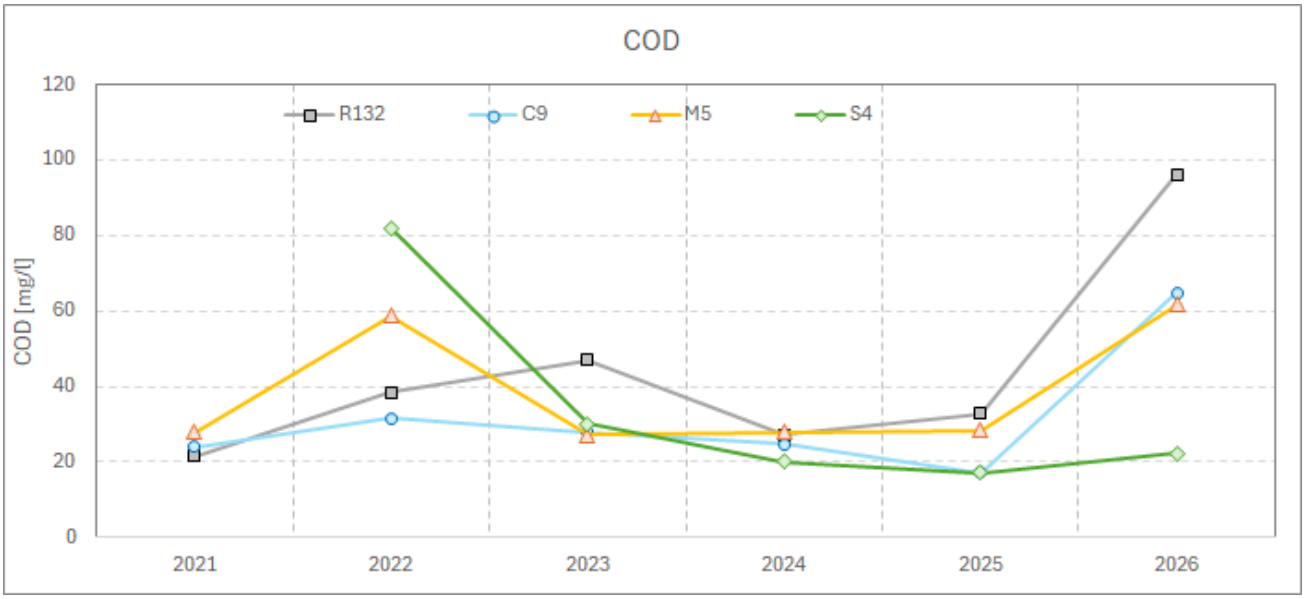


Figure 2.11. Historical Trend for COD/BOD ratio annual average (Source: daa, 2026)

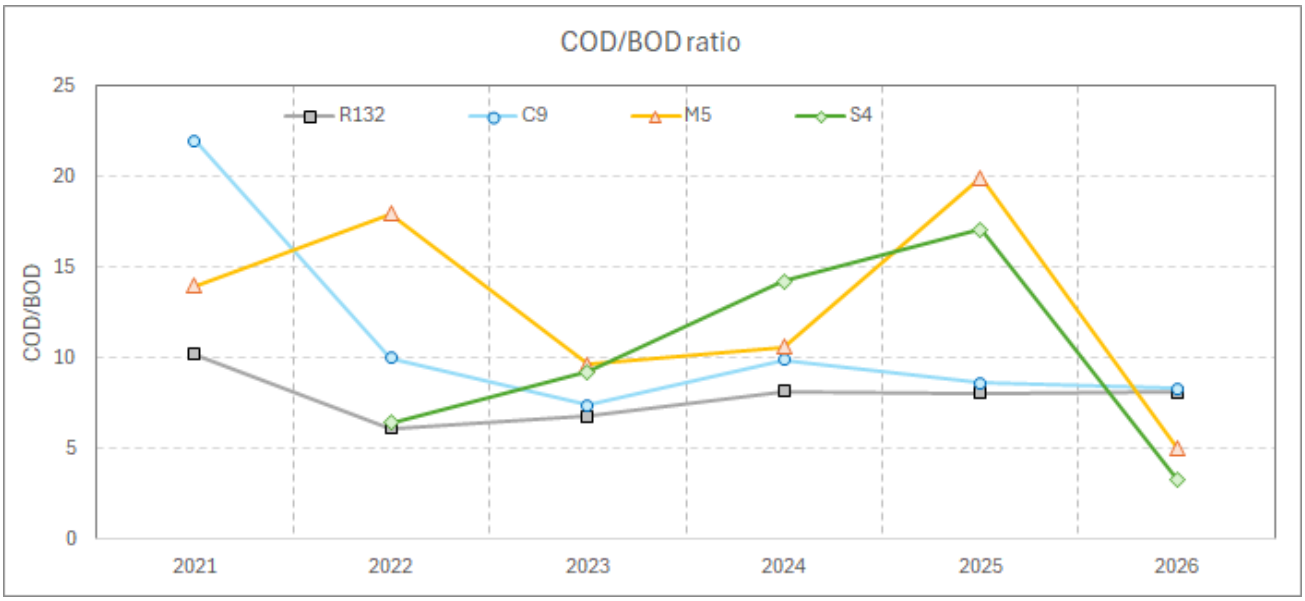
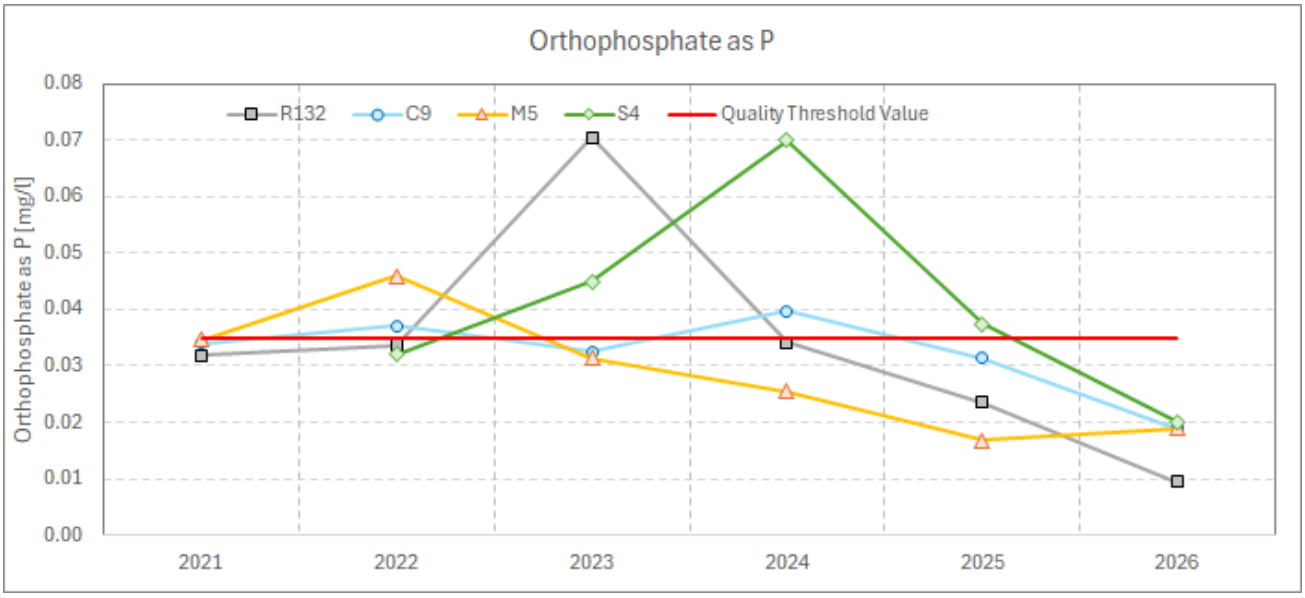


Figure 2.12. Historical Trend for Orthophosphate as P annual average concentrations (Source: daa, 2026)



As can be seen above, there is a direct relationship between the COD and BOD trends, with elevated COD/BOD ratio. All aircraft are de-iced at the aircraft stands in the upper Cuckoo catchment, with the result that aircraft de-icer applied at the airport, which is mobilised following rainfall events, is conveyed to the drainage system. All pavement de-icing which takes place within the upper Cuckoo Stream catchment also flows to the Airfield Trunk Culvert. It should be noted that pavement de-icers are the primary source of COD in the Mayne and Santry catchments and that pavement de-icing is independent of aircraft operations.

2.2 Hydrogeology

Mapping from the Geological Survey of Ireland (GSI, 2026) indicates that the bedrock underlying the site and the surrounding area is dominated by rocks from the Carboniferous Age. The superficial deposits presented above underlain by limestones and mudstones of the Tober Colleen Formation, the Lucan Formation and the Malahide Formation. The Tober Colleen Formation (rock unit code: CDTOBE) underlies most of the airport lands and is described as a dark-grey, calcareous, commonly bioturbated mudstones and subordinate thin micritic limestones. The Lucan Formation (rock unit code: CDLUCN) underlies the south-eastern portion of the airport lands (to the east of R132) and is described as a dark grey to black, fine-grained, occasionally cherty, micritic limestones. The Malahide Formation (rock unit code CDMALH) underlies the western zone of the airport and is a limestone composed of calcareous shales, siltstones and sandstones, and occasional thin limestones at its base.

There is no evidence of karstification in the immediate vicinity of the Site according to the GSI Karst and well database.

Dublin Airport site overlies 2 no. groundwater bodies (GWB): Dublin (EU code: IE_EA_G_008) and Swords (EU code: IE_EA_G_011) which are described as 'Poorly productive bedrock' by the EPA. The Swords GWB underlies the north-western portion of the lands. There are also the Industrial Facility GWBs delineated within both the Swords GWB and the Dublin GWB which has been delineated in relation to specific licensed facilities and does not involve the airport area (except for a small part of the Corballis Road South).

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological 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 (2026) guidance classifies the bedrock aquifer vulnerability in the region as 'Low' and 'Moderate' which denotes >5m thickness of low permeability clay. Site investigations in the area generally encountered the bedrock at depths greater than 10mbgl which is representative of a 'Low' vulnerability.

The GSI/ Teagasc (2025) mapping database of the quaternary sediments in the area of the subject site indicates that the principal subsoil type comprises Glacial Tills. This indicates that the aquifer is moderately protected by low permeable overburden.

It should be noted that Per-fluoroalkyl and Poly-fluoroalkyl Substances (PFAS) has been established as present on the lands of the airport. daa has published the results of a comprehensive two-year risk assessment of PFAS on the grounds of Dublin Airport which concluded that the main use of PFAS compounds from an airport perspective was the historical use of firefighting foam that contained PFAS (not used anymore). However, historic use of PFAS containing foams before 2013 means legacy PFAS contamination exists in the ground, particularly in old fire training grounds.

The analysis conducted by daa confirms that varying levels of PFAS were found across the lands with higher concentrations being found closer to areas where PFAS-firefighting foam was used historically. daa has developed an external risk profile for both ground and surface water, and a suite of appropriate management and remediation options to address PFAS, where found.

It should also be noted that the Proposed Order does not affect any potential mobilisation of PFAS.

3. WATERBODIES IDENTIFICATION AND STATUS

The Water Framework Directive (WFD) 2000/60/EC 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 2015 or at least 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 study area for this assessment is associated with the WFD waterbodies with direct hydrological/hydrogeological connection with daa facilities. This WFD Screening has identified four (4) no. WFD surface waterbodies and two (2) no. WFD groundwater bodies of relevance due to the close proximity and connection of these waterbodies during the operation of the Proposed Order to the Dublin Airport site. These surface waterbodies are directly connected to Dublin Airport through its drainage infrastructure, whilst these groundwater bodies underlie Dublin Airport.

Table 3-1 below presents the WFD Status and Risk Score associated with these waterbodies.

According to the EPA information, the 'Poor' status of the Sluice, Mayne and Santry waterbodies is due to its biological (invertebrate) status or condition, in addition to the 'Poor' hydromorphological conditions in the Sluice. Their oxygenation and nutrient conditions are classified as being 'Good' or 'High', as can be seen in Table 3-1 to Table 3-4 below. Their WFD Risk Score ('At Risk' for Mayne and Santry) are likely related to the historical exceedance of the environmental quality standards established in the EU regulations for some parameters, despite the observed downward trends presented above.

It should be noted that other surface waterbodies indirectly connected to the airport lands but are located further away (associated with Mayne Estuary and Irish Sea), and therefore, outside of the study area mentioned above, were excluded from the assessment due to their distance from the subject site and significant dilution factor through its pathway.

According to the WFD Cycle 3 Liffey and Dublin Bay Catchment Report (EPA, 2024) and the sub-catchment assessment of the Mayne_SC_010 subcatchment carried out by the EPA in 2022, there are a number of pressures within this sub-catchment that impact on the hydrological environment associated mainly with urban run-off and anthropogenic pressures (refer to www.catchments.ie).

Table 3-1. Current WFD Status and Risk Score of the relevant waterbodies (Source: EPA, 2026)

Source	WFD Classification	Waterbody Name/ Code	WFD Status (2019-2024)				Status Confidence	WFD Risk Score (3rd Cycle)
			Biological	Chemical	Hydro-morphological	Overall Ecological		
Surface Water	River Waterbody	Sluice_010 (IE_EA_09S071100)	Poor	Good	Poor	**Poor**	Medium	Review
		Mayne_010 (IE_EA_09M030500)	Poor	Good	N/A	**Poor**	Medium	At Risk
		Santry_010 (IE_EA_09S010300)	Poor	Good	N/A	**Poor**	High	At Risk

Source	WFD Classification	Waterbody Name/ Code	WFD Status (2019-2024)			WFD Risk Score (3rd Cycle)
			Quantitative	Chemical	Overall	
Groundwater	Groundwater Body	Dublin (IE_EA_G_008)	Good	Good	**Good**	Review
		Swords (IE_EA_G_011)	Good	Good	**Good**	At Risk

Table 3-2. Drawdown of WFD Status and Risk Score for Sluice_010 (Source: EPA, 2026)

Waterbody: SLUICE_010

Name:	**SLUICE_010**	Code:	**IE_EA_09S071100**
Subcatchments:	09_17 Mayne_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	**53.429719**	Longitude:	**-6.195631**
Cycle 1 RBD:	**Eastern**	Local Authority:	**Fingal County Council**
Waterbody Category:	**River**	WFD Risk:	**Review**
Protected Area:	**No**	High Status Objective:	**No**
Heavily Modified:	**Unknown**	Artificial:	**Unknown**
Area (Km^2):	**N/A**	Length (Km):	**15.17**
Transboundary:	**No**	Canal:	**No**

Status	Assessment Technique	Status Confidence	Value
▼ Ecological Status or Potential	Monitoring	medium confidence	Poor
▼ Biological Status or Potential			Poor
Invertebrate Status or Potential			Poor
▼ 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			High
Nitrate			High
Ammonium			High
▼ Phosphorous Conditions			High
Orthophosphate			High

Table 3-3. Drawdown of WFD Status and Risk Score for Mayne_010 (Source: EPA, 2026)

Waterbody: MAYNE_010

Name:	**MAYNE_010**	Code:	**IE_EA_09M030500**
Subcatchments:	09_17 Mayne_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	**53.414241**	Longitude:	**-6.1925755**
Cycle 1 RBD:	**Eastern**	Local Authority:	**Fingal County Council**
Waterbody Category:	**River**	WFD Risk:	**At risk**
Protected Area:	**No**	High Status Objective:	**No**
Heavily Modified:	**Unknown**	Artificial:	**Unknown**
Area (Km²):	**N/A**	Length (Km):	**16.52**
Transboundary:	**No**	Canal:	**No**

SW 2019-2024

Status	Assessment Technique	Status Confidence	Value
▼ Ecological Status or Potential	Monitoring	medium confidence	Poor
▼ Biological Status or Potential			Poor
Invertebrate Status or Potential			Poor
▼ Supporting Chemistry Conditions			Good
▼ General Conditions			Good
▼ Oxygenation Conditions			Pass
Dissolved Oxygen (% Sat)			Pass
Other determinand for oxygenation conditions			High
▼ Acidification Conditions			Pass
pH			Pass
▼ Nutrient Conditions			Good
▼ Nitrogen Conditions			Good
Nitrate			Good
Ammonium			High
▼ Phosphorous Conditions			Good
Orthophosphate			Good

Table 3-4. Drawdown of WFD Status and Risk Score for Santry_010 (Source: EPA, 2026)

Waterbody: SANTRY_010

Name:	**SANTRY_010**	Code:	**IE_EA_09S010300**
Subcatchments:	09_17 Mayne_SC_010	Catchments:	09 Liffey and Dublin Bay
Latitude:	**53.4063876**	Longitude:	**-6.2550904**
Cycle 1 RBD:	**Eastern**	Local Authority:	**Fingal County 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):	**7.60**
Transboundary:	**No**	Canal:	**No**

SW 2019-2024

Status	Assessment Technique	Status Confidence	Value
▾ Ecological Status or Potential	Monitoring	high confidence	Poor
▾ Biological Status or Potential			Poor
Invertebrate Status or Potential			Poor
▾ Supporting Chemistry Conditions			Good
▾ General Conditions			Good
▾ Oxygenation Conditions			Pass
Dissolved Oxygen (% Sat)			Pass
Other determinand for oxygenation conditions			High
▾ Acidification Conditions			Pass
pH			Pass
▾ Nutrient Conditions			Good
▾ Nitrogen Conditions			Good
Nitrate			Good
Ammonium			Good
▾ Phosphorous Conditions			Good
Orthophosphate			Good

4. PROPOSED ORDER OPERATIONAL SCENARIO

4.1 General

As mentioned in Section 1.1 above, the Proposed Order relates to the following conditions:

- The amendment of the permitted 32mppa Conditions will involve a change in the operational conditions of the Airport to be in a position to process more passengers.
- No physical works are either included as part of the Proposed Order or are required in order to facilitate the Proposed Order.
- In this context, and taking into account available stands, gates, baggage handling and surface accessibility, the Airport Capacity Report (2026) demonstrates that the estimated capacity of the existing facilities, infrastructure, operational processes and current demand profile of Dublin Airport is 40.5mppa.

Therefore, what is being assessed in this report is:

- The growth in passenger numbers to 40mppa by 2029 (2029 Proposed Operation);
- From the 2025 bases of (i) 2025 Permitted Operation [32mppa]; and (ii) 2025 Current Operation [36mppa].

The 40mppa assessment scenario assumes that the embedded operational measures described in the Drainage Report associated with the proposal are implemented.

4.2 Effects of Proposed Order Scenario on Water Quality

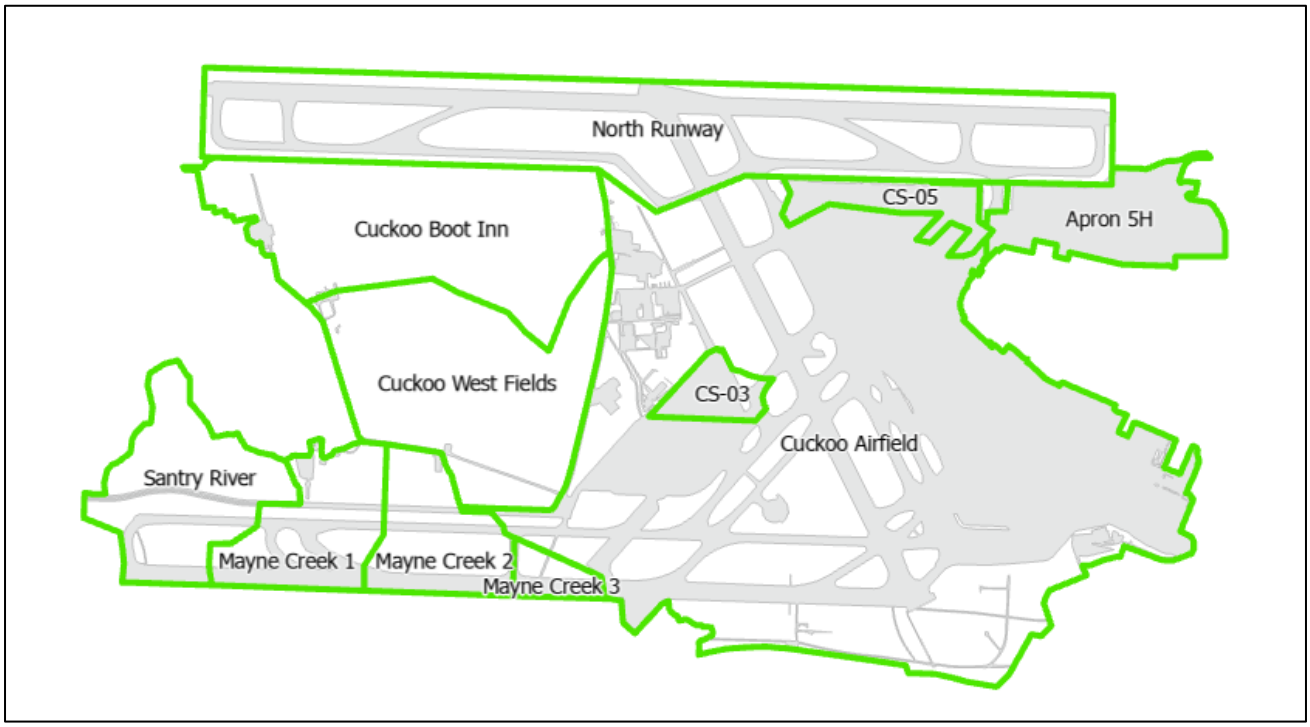
4.2.1 Modelling Background

An assessment of de-icer pollution impacts from the airport passenger growth as part of the Proposed Order was prepared by Gresham Smith (2026). This assessment comprises a conservative numerical model which simulated the mass load of deicer chemical generated COD lost to receiving waters under the base cases and the 40mppa assessment scenario.

The model was based on estimates of flow and COD mass load in contaminated stormwater released to receiving waters. The pollution model includes simulation of 30 seasons of historical weather data, application of aircraft and pavement de-icers at Dublin Airport, capture of de-icers in stormwater runoff, diversion of contaminated stormwater runoff to pollution control facilities across the airport, and discharge of contaminated stormwater to the foul sewer.

The model has estimated the COD released to all four adjacent receiving waters: Cuckoo Stream, Forest Little River, Mayne River, and Santry River. Their modelled catchments are presented in Figure 4.1 below.

Figure 4.1. Catchment Areas considered in the Model



4.2.2 Results of the Model

The modelling scenarios are based on the following conditions:

- 32 mppa (2025 Permitted Operation). Uses 32 mppa winter flight forecast for simulations and 2025 drainage and deicer operation conditions.
- 36 mppa (2025 Current Operation). Same as 32 mppa, but with 36 mppa flight forecast
- 40 mppa (2029 Proposed Operation). 40 mppa flight forecast with Apron 5H development completed and the associated pollution control system in operation, and embedded operational measures implemented.

The results are then subject to comparison of de-icers released to stream (not captured) over 30 seasons of simulated weather conditions.

Figure 4.2. Model Results – COD Mass Load to Cuckoo Catchment

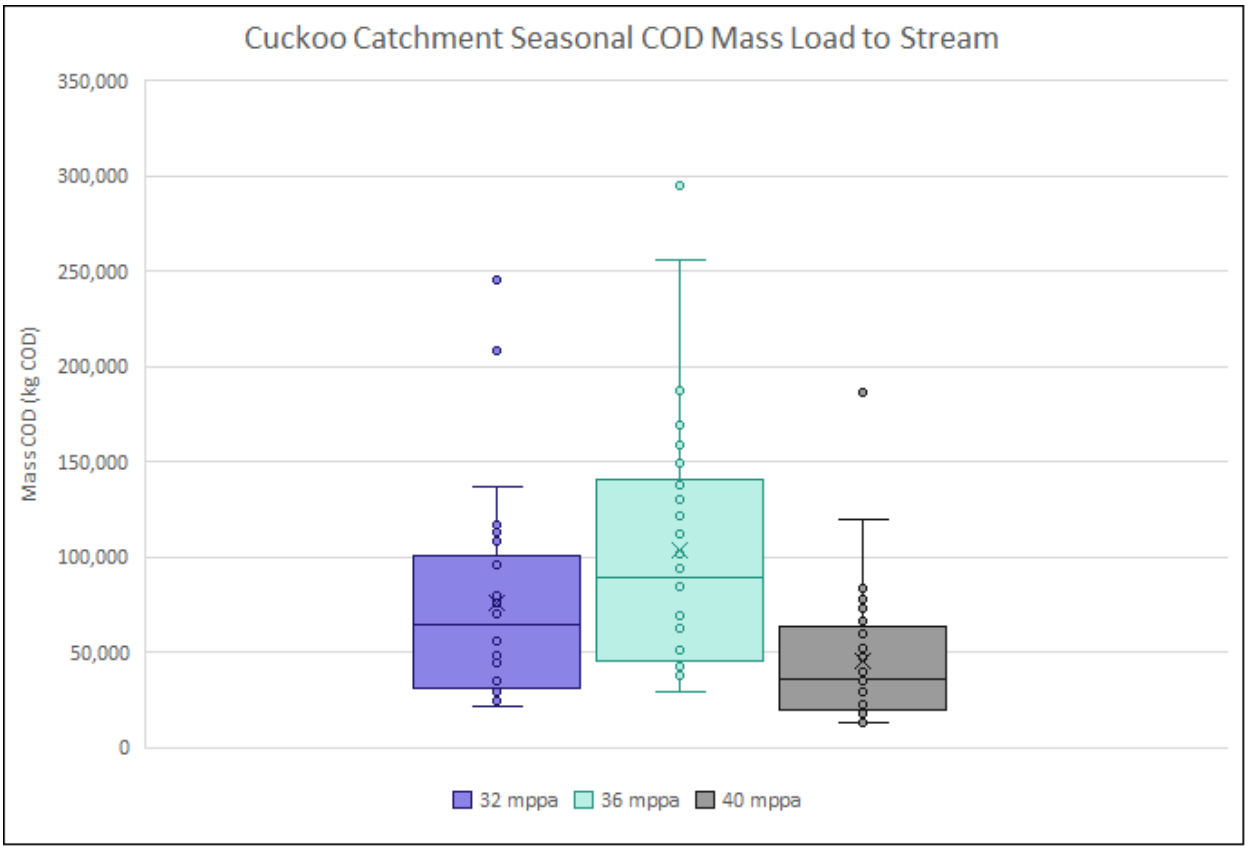


Figure 4.3. Model Results – COD Mass Load to Little Forest Catchment

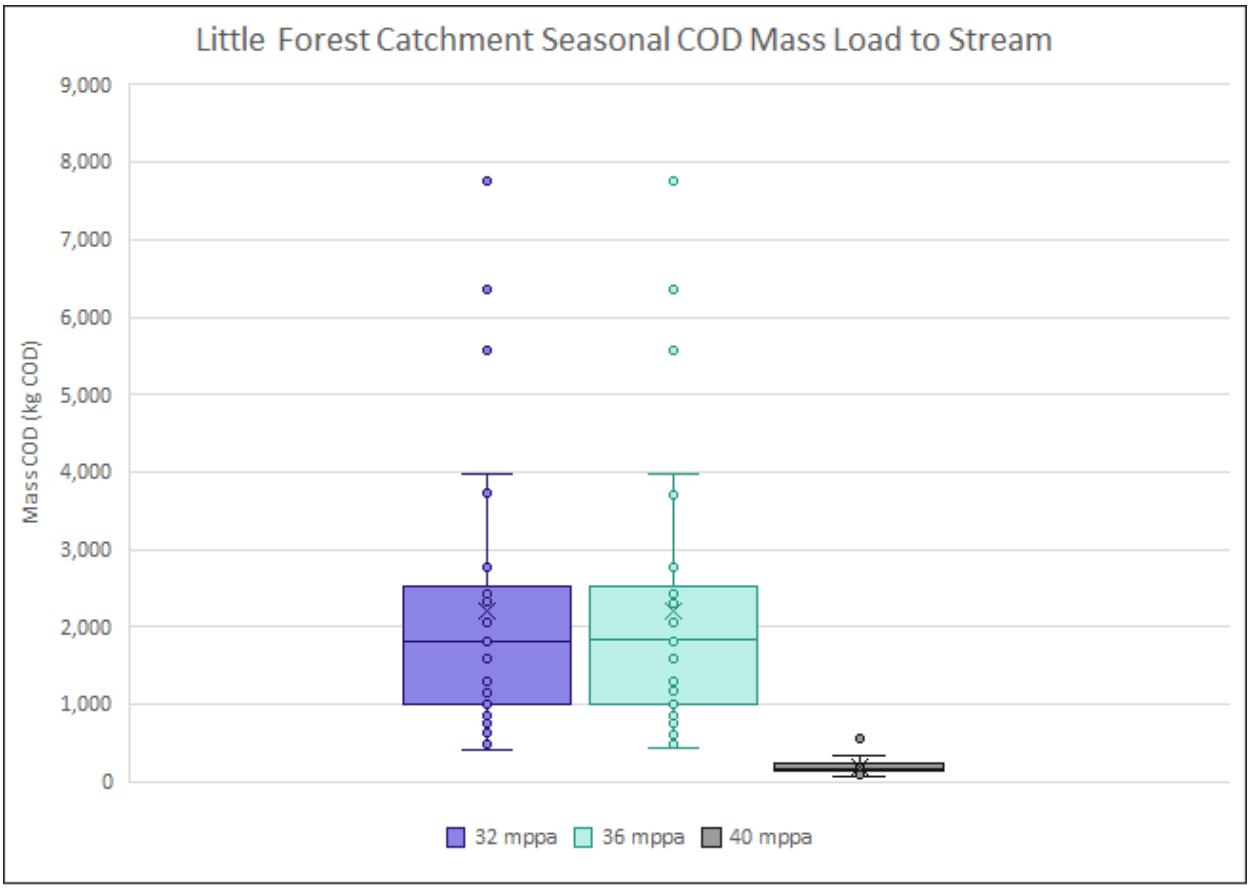


Figure 4.4. Model Results – COD Mass Load to Mayne Catchment

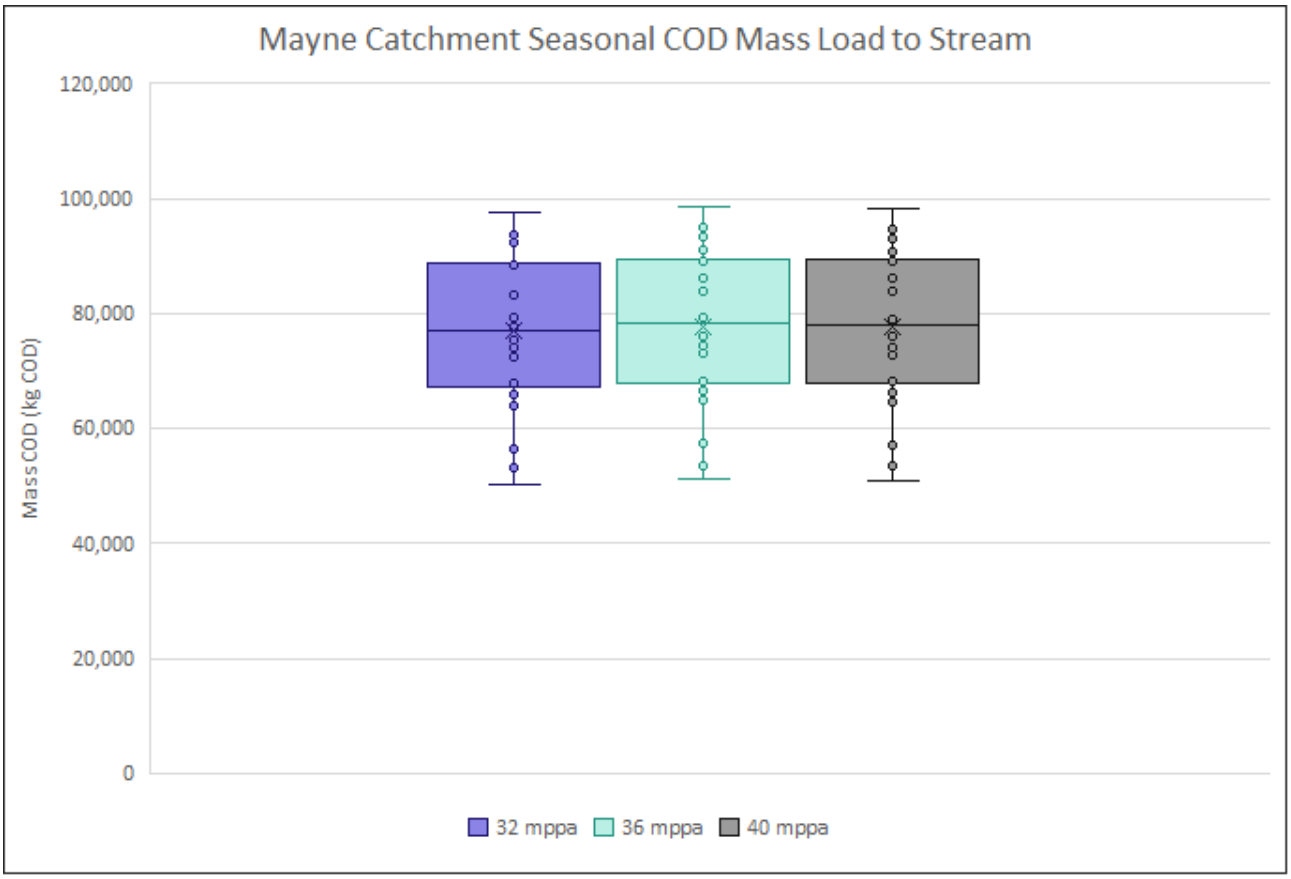


Figure 4.5. Model Results – COD Mass Load to Santry Catchment

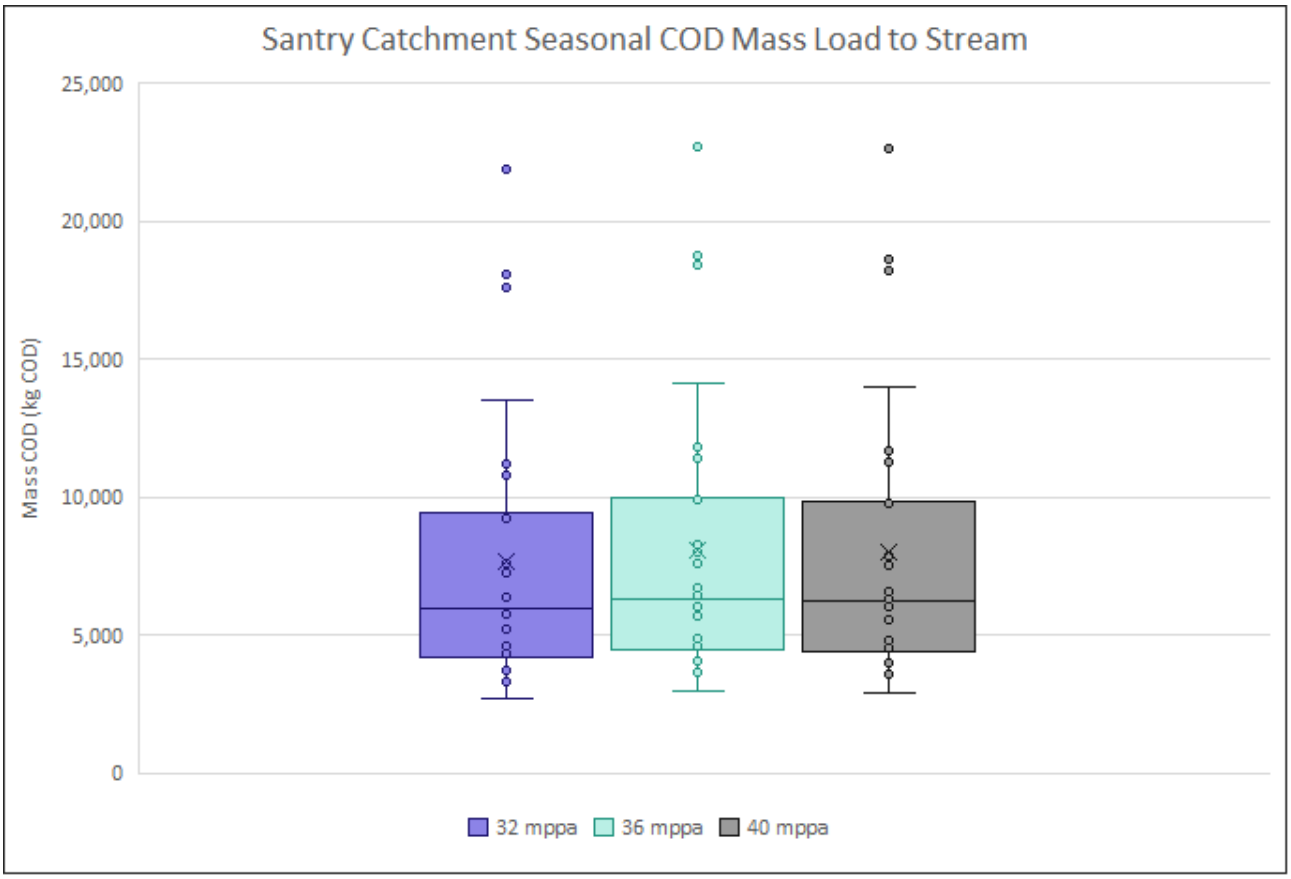


Table 4-1. Summary of Modelling Results

WFD Waterbody	Watercourse	Mean COD Mass Loading Value [kg COD]		
		32 mmpa	36 mmpa	40 mmpa
Mayne_010	Cuckoo Stream	64,573	89,570	36,331
Sluice_010	Forest Little	1,815	1,832	170
Mayne_010	Mayne River	77,097	78,344	78,034
Santry_010	Santry River	5,967	6,339	6,223

As can be seen from the graphs and Table 4-1 above, a significant reduction in the COD mass load of 59% and 90% is foreseen in the Cuckoo Stream and Forest Little watercourses, respectively, under a 40 mppa scenario, due to imbedded operational measures being implemented at the Cuckoo Pollution Control Facility, and the completion and operation of the Apron 5H pollution control tank.

Most of the COD in the Mayne (Mayne River) and Santry catchments is attributed to pavement de-icer application, as there are no aircraft stands present in these catchments. Pavement de-icer application is independent of aviation count and therefore not subject to change under the Proposed Order conditions.

4.2.3 Conclusions of the Modelling Assessment

The main conclusions of the modelling assessment are as follows:

- None of the four receiving waters experienced a statistically significant increase in COD released to the environment from the 32 or 36 mppa level to the 40 mppa.

- COD released at the 40 mppa development level significantly decreased for the Cuckoo and Forest Little catchments due to improvements in drainage system operation.
- COD released in the Mayne and Santry catchments remained unchanged due to pavement de-icers being the primary source of COD in the catchments, which are independent from aviation count.

5. NO DETERIORATION ASSESSMENT

5.1 Hydrological Environment

5.1.1 Assessment in Mayne_010 Waterbody

5.1.1.1 Cuckoo Stream

A significant reduction in the COD mass load of 44% and 59% is estimated under a 40 mppa scenario (2029 Proposed Operation) is foreseen in the Cuckoo Stream, with respect to the 32 mmpa (2025 Permitted Operation) and 36 mmpa (2025 Current Operation) due to implementation of embedded operational measures.

This reduction will improve the water quality conditions along the watercourse and will certainly accelerate the downward trend already observed at R132 and C9 daa monitoring station points over the 2021-2025 period. It is expected that, due to the expected significant reduction in the COD (chemical oxygen demand) mass load downstream, this improvement in quality will translate into better oxygenation, and therefore biological conditions and enhance the biological status downstream (current Q3 biological status in Mayne River).

As such, the Proposed Order is deemed not to cause any significant deterioration in or negative change in water quality status.

No significant changes in the hydrological and hydromorphological regime (including transport of sediments) are expected in the Cuckoo Stream and the Mayne_010 river waterbody due to the Proposed Order.

5.1.1.2 Mayne River

As mentioned above, COD released in the Mayne River catchment remained unchanged due to pavement de-icers being the primary source of COD in the catchments, which are independent from aviation count.

As such, the Proposed Order will not cause any significant deterioration or negative change in water quality status.

5.1.1.3 Conclusions

The WFD status of the Mayne River has been estimated based on the records obtained at the EPA station 'Hole-in-the-Wall Rd Br', located downstream the confluence of the Mayne River and Cuckoo Stream. The BOD conditions have shown a downward trend over the period 2019-2025 with annual values oscillating slightly above/below the quality standard threshold values. It is expected that, with the embedded operational measures in place, due to the expected reduction in discharged COD concentrations, this downward trend would be more pronounced (due the direct relationship between BOD and COD conditions) and therefore the WFD Risk Score may potentially improve to a 'Not at Risk' condition.

The Proposed Order will not cause any significant deterioration or change in water quality status of the Mayne_010 WFD Waterbody. Since the 2029 Proposed Operation involves a reduction in COD conditions and therefore an improvement in the water quality for this waterbody, it is expected that the Proposed Order will not prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the third cycle river basin management plan (2022-2027) i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland.

5.1.2 Assessment in Sluice_010 Waterbody

Significant reduction in the COD mass load of 90% is estimated under a 40 mppa (2029 Proposed Operation) scenario is foreseen in the Forrest Little Stream, with respect to both 32 mmpa (2025 Permitted Operation) and 36 mmpa (2025 Current Operation) due to additional pollution control measures being implemented at the Apron 5H development.

This reduction will improve the water quality conditions along the watercourse. It is expected that this improvement in quality will translate into better oxygenation and biological conditions and enhance the biological status downstream (current Q3 and Q3-4 biological rating).

As such, the Proposed Order will not cause any significant deterioration or change in water quality status of the waterbody or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the third cycle river basin management plan (2022-2027) i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland.

5.1.3 Assessment in Santry_010 Waterbody

COD released in the Santry River catchment remained unchanged due to pavement de-icers being the primary source of COD in the catchments, which are independent from aviation count. As such, the Proposed Order will not cause any significant deterioration or negative change in water quality status. Hence, it is expected that the Proposed Order will not prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the third cycle river basin management plan (2022-2027) i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland.

5.2 Hydrogeological Environment

The Proposed Order will have a no effect on local recharge to ground as it will not involve the introduction of new/redeveloped impermeable area.

As such, the Proposed Order will not cause any deterioration or change in groundwater quality/quantity status.

5.3 Assessment in Terms of Future Good Status

The WFD Objectives of achieving 'Good' Status by 2027 are not currently achieved for the relevant river waterbodies (Mayne_010, Sluice_010, and Santry_010). Currently, the EPA classifies the WFD Ecological Status for these waterbodies as 'Poor' during the period 2016-2021 based on current monitoring with a current WFD River Waterbody risk score of 1a, 'At risk of not achieving good status' by 2027 (with the exception of Sluice_010, whose risk score is under review). Therefore, the objective is currently not being achieved. These 'Poor' statuses are mainly based on their biological conditions.

Given that the 2029 Proposed Operation scenario (inclusive of embedded operational measures) involves a reduction in COD conditions and therefore an improvement in the water quality for these waterbodies, it is expected that the Proposed Order will not prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the third cycle river basin management plan (2022-2027) i.e. Water Action Plan 2024 - A River Basin Management Plan for Ireland. The quality conditions will remain unchanged in Santry_010 due to pavement de-icers being the primary source of COD in this catchment, which are independent from aviation count.

Based on the above information it is not considered that any aspects of the Proposed Order will prevent the WFD objectives from being achieved or to meet the requirements and/or objectives in the Water Action Plan 2024 - A River Basin Management Plan for Ireland, (Department of Housing Local Government & Heritage, Sept 2024).

5.4 Potential Impact on Water Action Plan Programme of Measures

Based on the findings of this WFD Assessment it is concluded that the Proposed Order will not adversely affect or impede the implementation of the Water Action Plan 2024 Programme of Measures.

As mentioned in Section 3 above, there are a identifies pressures within the Mayne_SC_010 subcatchment associated mainly with urban run-off and anthropogenic pressures. Due to the implementation of embedded operational measures, it is expected an improvement in water quality conditions as explained in Section 5.3 above. The 2029 Proposed Operation scenario involves a reduction in COD conditions and therefore an improvement in the water quality for these waterbodies.

Accordingly, the Proposed Order is consistent with the objectives and measures of the Water Action Plan 2024. It will not conflict with the implementation of the WAP Programme of Measures, and will not prevent attainment, or compromise achievement of the WFD objectives to meet the requirements and/or objectives in the third cycle river basin management plan (2022-2027).

6. CONCLUSIONS

Appendix A contains the background information and the WFD classification elements for surface water body status. Appendix B contains the final 'No Deterioration Assessment' spreadsheet. The colour coded system referred to in Table 1-1 above are used to give a visual impression of the surface water assessment.

The WFD assessment indicates that, based on the current understanding of the Proposed Order, there is no potential for adverse or long-term effects on the involved surface waterbodies (Mayne_010, Sluice_010, and Santry_010). Therefore, it has been assessed that the Proposed Order (2029 Proposed Operation) 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 third RBMP 2022-2027.

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Dublin/Swords groundwater bodies. Therefore, it has been assessed that it is unlikely that the Proposed Order 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 third RBMP 2022-2027.

The Proposed Order is also consistent with the objectives and Programme of Measures contained in the Water Action Plan 2024. Accordingly, the Proposed Development will not affect compliance with the EU Water Framework Directive, the European Communities (Environmental Objectives) (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009, as amended), or the European Communities (Environmental Objectives) (Groundwater) Regulations 2010 (S.I. No. 9 of 2010, as amended) WFD Article 4 Objectives.

The assessment concludes that the Proposed Development adheres to the Article 4 objectives of the WFD.

The Proposed Development will not:

- Cause deterioration in the status of the involved waterbodies mentioned above;
- Prevent attainment, or potential to achieve good surface water or groundwater status;
- Permanently prevent or compromise the achievement of WFD objectives; or
- Conflict with the implementation of the Water Action Plan 2024 Programme of Measures.

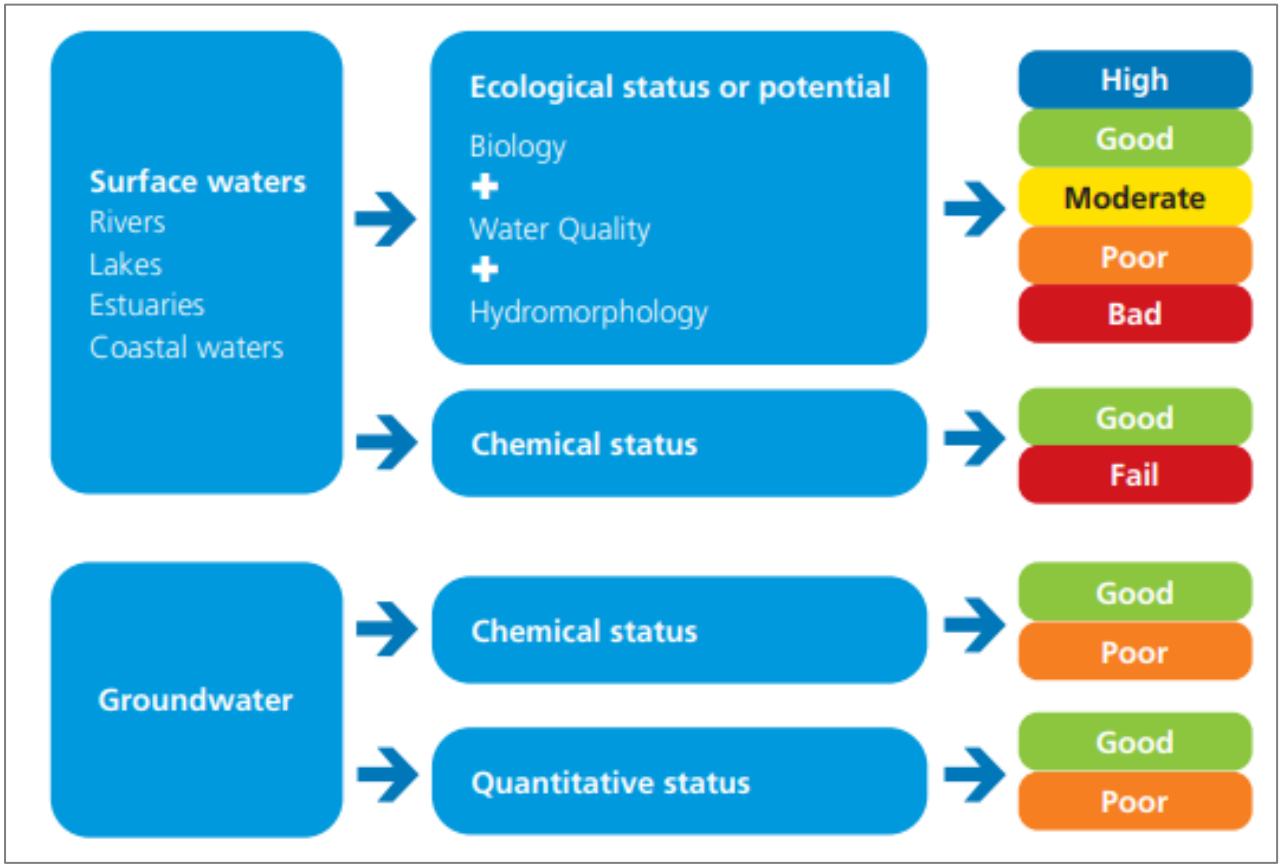
APPENDIX A. WFD ASSESSMENT MATRIX

WATER FRAMEWORK DIRECTIVE ASSESSMENT MATRIX

1.1 Background to Surface Water Body Status & Groundwater 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 1.

Figure 1. WFD Classification Elements for surface water body status (Source: EPA, 2026)



1.1.2 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.

1.1.3 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.

1.2 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 below.

1.2.1 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).

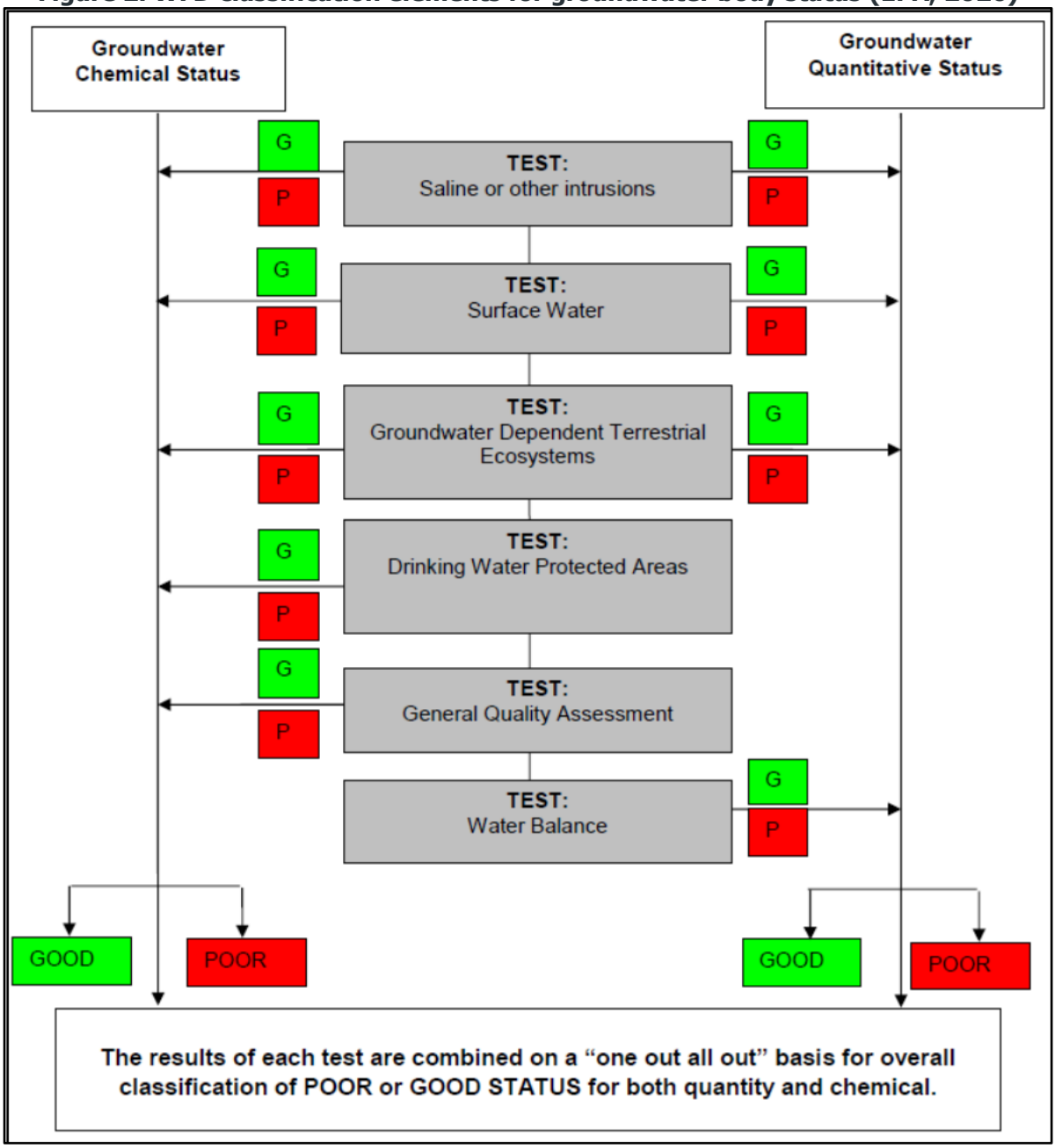
- **Water balance:** This test is designed to identify groundwater bodies where groundwater abstraction exceeds the "available groundwater resource", defined as the rate of overall recharge to the groundwater body itself, as well as the rate of flow required to meet the ecological needs of associated surface water bodies and GWDTEs.

1.2.2 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. WFD classification elements for groundwater body status (EPA, 2026)



APPENDIX B. NON-DETERIORIATION ASSESSMENT

Table 1 - Risk screening of potential to cause deterioration of current WFD status					
	Surface Water	Scheme Elements	**Proposed Order**		Overall Impact
	Sluice_010 (IE_EA_09S071100) **Mayne_010 (IE_EA_09M030500)** **Santry_010 (IE_EA_09S010300)**	Identified Quantitative Impacts	Changes in run-off and COD loading	Changes in Hardstanding Area	
WFD 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 anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Macroinvertebrates		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 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 anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Total Nitrogen		No measurable change anticipated.	No measurable change anticipated.	No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	Oxygenation conditions BOD and COD		**Sluice_010**: Minor/ localised beneficial	No measurable change anticipated.	Localised improvement due to the embedded operational measures, no change in status of WFD element
			Mayne_010: Major Beneficial		Increase in status of one or more WFD element giving rise to a predicted rise in status class for that waterbody. This is due to the embedded operational measures.
			Santry_010: 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 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 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 anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	River continuity		No measurable change anticipated.	No measurable change anticipated.	No anticipated impacts to the hydrological environment with no deterioration to the WFD Status
	River depth and width variation bed		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 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 anticipated impacts to the hydrological environment with no deterioration to the WFD Status