



An  
Bord  
Pleanála

# Technical Report- Ecology (Addendum to main report) ABP-313586-22

## Development

Extension to existing wastewater treatment plant at Dawn Meats Ireland, Painestown, Seneschalstown, Dollardstown, Hayestown-Carnuff Little & Ardmulchan, Navan, Co. Meath

## Type of Application

Normal Planning Appeal

## Topic:

Aquatic Ecology, Appropriate

## Appropriate Assessment

Assessment (stage 1 and 2)

## EIA: Biodiversity

## Ecologist

Maeve Flynn BSc. PhD. MCIEEM

## Consultant

Dr Barry Walls

## Senior Planning Inspector

Elaine Power

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## 1.0 Introduction

### 1.1. Scope of Report

1.1.1. This technical report has been prepared in response to a Board Direction on case 313586-22, a third-party appeal to the extension of an existing wastewater treatment plant (WWTP) including treated wastewater discharge point at the River Boyne for Dawn Meats Ireland at Painestown, Seneschalstown, Dollardstown, Hayestown-Carnuff Little & Ardmulchan, Navan, Co. Meath. It is part of an addendum comprising a suite of documents prepared to address the Boards request in relation to the following:

- **Assessment of the proposed development with respect to requirements under the Water Framework Directive.**

Report prepared by Dr Barry Walls of BW Consultant Engineer Ltd.

- **Appropriate Assessment of the proposed development with respect to the requirements under the Habitats Directive in view of the conservation objectives of European sites.**

This technical report prepared by Dr Maeve Flynn Inspectorate Ecologist

- **Assessment of the proposed development with respect to the requirements under the Environmental Impact Assessment Directive.**

Inspectors Report Addendum prepared by Senior Planning Inspector Elaine Power

1.1.2. In addressing issues related to hydrology, aquatic ecology and requirements under Water Frame Directive the Board engaged the services of Dr Barry Walls, principal environmental and ecological consultant with BWCE Ltd to prepare a written report comprising an independent assessment of the following:

- Provide an independent appraisal of the assessment presented in the assimilative capacity and mixing models presented in the planning appeal documentation.
- Provide an independent assessment of the implications for the water quality objectives set out for the River Boyne in line with the provisions of the Water Framework Directive (WFD) in view of current best practice.

- Assessment of impacts on hydrology and aquatic ecology based on the information presented in the planning appeal, scientific evidence, and professional judgement of the Environmental Impact Assessment report (EIAR), Natura Impact Statement (NIS) and document titled Report to the Third-Party Appeal reasons (including revised NIS dated June 2022) as relevant to the assessment of impacts on Hydrology.
- Review third-party appeal reasons and submissions as relevant to water quality and the Water Framework Directive including the appeal made by Inland Fisheries Ireland among others.

1.1.3. This technical report (addendum) to the Planning Inspector and the Board is a written record of my review and examination of the submitted information and takes account of the findings of Dr Walls to inform Appropriate Assessment (AA) and Environmental Impact Assessment (EIA) with regard to Biodiversity of the proposed project. In my capacity of Inspectorate Ecologist, I have the relevant expertise to provide a professional opinion as to the adequacy of the information for the Inspector and the Board to undertake AA and EIA.

1.1.4. I have reviewed and examined the following documents including relevant appendices and figures (plans and particulars):

- Natura Impact Statement including AA Screening Report (June 2022)
- EIAR Chapter 8 Biodiversity
- Other relevant EIAR chapters including Chapter 9 – Land- soils, geology and hydrogeology
- Response to third party appeals (June 2022)

1.1.5. The documents have been reviewed with respect to the following current best practice guidance:

- CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (V1.3). Chartered Institute of Ecology and Environmental Management.
- CIEEM (2019) Ecological Impact Assessment Checklist (as relevant to Irish legislation).

- EPA (2022) Guidelines on the information to be contained in environmental impact assessment reports.
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC
- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EC

## **1.2. Third party submissions**

- 1.2.1. I have had regard to the third-party reasons for appeal, submissions and observations related to biodiversity and AA matters. A comprehensive review and summary is provided in Section 2.4 and Table 3 of Dr Walls Report and in the Planning Inspectors report. I have also taken consideration of the Applicants Response to third party appeals document June 2022.
- 1.2.2. Of particular relevance are issues raised by Inland Fisheries Ireland (IFI) in their appeal grounds and submissions which raise significant concerns relating to potential detrimental effects on fish species including Salmon, Lamprey species and European Eel due to deterioration of water quality arising from the discharge of treated effluent at the proposed discharge point within the river Boyne and implications for compliance with the Water Framework Directive. IFI consider that the background water quality data used for Assimilative Capacity Assessment and Mixing Models was not suitable and point to lack of ecological survey data, including for the Dollardstown tributary or other tributaries.

An Taisce and other appellants raise similar issues and question the validity of the assimilative capacity models used to predict treated effluent levels. Further points of appeal and submissions include: potential impacts on Natura 2000 Sites, implications associated with bacterial, viral or other pathogens on water quality and fish, deficiencies in the EIAR and NIS.

## **1.3. Expertise and technical content of Ecological Reports**

- 1.3.1. The biodiversity chapters of the EIAR, the NIS and associated reports were prepared by Ecologists from Panther Environmental Solutions with a supplemental report on aquatic ecology and otter survey prepared by Ecofact Environmental

Consultants (Appendix 8.2). A statement of authority and detail the personnel involved, their qualifications, experience and specific role in the various ecological assessments is presented in EIAR Section 1.5 and in the NIS.

- 1.3.2. I am satisfied that in general the scope, structure and content of EIAR Chapter 8 has been prepared in accordance with standard guidance as cited in the relevant documents.
- 1.3.3. Scientific information presented included results from desk study, habitat and flora survey, fauna and badger survey, bat survey (potential roost and bat activity), and general bird survey (EIAR Section 8.3). Aquatic habitat, macroinvertebrate and otter surveys were undertaken by Ecofact (2022) in line with best practice methodology for the defined scope of the surveys.
- 1.3.4. The independent review undertaken by Dr Walls, found that the predicted results of the Assimilative Capacity Assessment and Mixing Models were inconclusive. Dr Walls attributes this to data gaps/lacunae regarding the proposed development and its activities, and the lack of representative environmental data relating to the receiving environment at the outfall location and the zone of influence.
- 1.3.5. As the impact assessment of the proposed development is heavily reliant on the outfall levels predicted in the models, the finding that these levels are inconclusive undermines impact predictions for aquatic ecology in particular and introduces scientific doubt to the findings of the NIS.

## **2.0 Consideration of the Likely Significant Effects on a European Site**

### **2.1. Article 6(3) of the Habitats Directive**

The requirements of Article 6(3) as related to Appropriate Assessment of a project under part XAB of the Planning and Development Act 2000 (as amended) are considered in this section. The topics addressed are as follows:

- Screening the need for appropriate assessment (stage 1)
- The Natura Impact Statement and associated documents
- Appropriate assessment of implications of the proposed development on the integrity each European site (stage 2)

### **2.2. Screening for Appropriate Assessment (Stage 1)**

- 2.2.1. The first test of Article 6(3) is to establish if the proposed development is directly connected with or necessary to the management of a European sites and where this is not the case, then whether the development (either alone or in combination with other plans and projects) could result in significant effects to a European site in view of the sites conservation objectives.
- 2.2.2. The project is not directly connected with, or necessary for the management of any European Site and consequently is subject to the Appropriate Assessment Screening process. The River Boyne and Blackwater Special area of Conservation (SAC) and Special Protection Area (SPA) are within the direct zone of influence of the proposed development as treated effluent will be pumped from a rising main within the River Boyne.
- 2.2.3. The AA screening report considers a further 2 European sites located over 20km downstream of the discharge point at the Boyne Estuary. The Board will note that in the intervening period since the appeal was lodged, the Northwest Irish Sea SPA has been designated which overlaps with the Boyne Estuary SPA and therefore I have included this site for consideration (See Table 1 below).

**Table 1:** European Sites within a potential zone of influence of the proposed development.

European Site	Qualifying interests (summary) See NPWS.ie	Distance from proposed development	Ecological connections	Consider further in screening Y/N
River Boyne and River Blackwater SAC (002299)	Alkaline Fen, Alluvial woodland  River Lamprey, Atlantic Salmon, Otter	0m  Treated wastewater discharge directly	Direct – treated wastewater input  Indirect- surface water	Y
River Boyne and Blackwater SPA (004232)	Kingfisher			Y
Boyne Estuary SPA (004080)	Wintering waterbirds, Little Tern, wetland and waterbirds	25.5km	Hydrological via River Boyne	Y
Boyne Coast and Estuary SAC (001957)	Estuaries, Tidal mudflats and sandflats, Annual vegetation of drift lines, Salicornia mud, Atlantic salt meadows, Embryonic shifting dunes, Marram dunes	26.7km	Hydrological via River Boyne	Y
Northwest Irish Sea SPA (004236)	Marine birds (x 21)  Including Little Tern (Boyne Estuary SPA)	>30km	Hydrological via River Boyne	Y

2.2.47. The AA Screening prepared by the applicant concludes that construction and operational phases of the proposed development could result in deterioration of water quality and the spread of invasive species, and that AA is required for the four European Sites examined. Such impacts could affect qualifying interest habitats



and species sensitive to changes in water quality and the ecological requirements supporting conservation status, undermining conservation objectives.

2.2.48. Table 2 presents a summary of the applicants AA Screening findings combined with my determination in view of conservation objectives.

**Table 2:** Summary of potential impacts that could result in significant effects in view of conservation Objectives for European Sites within zone of influence of the proposed development.

European Site	Potential impacts Construction phase	Potential impacts Operational phase	Potential for significant effects in view of conservation objectives
River Boyne and River Blackwater SAC (002299)	Direct: construction of outfall in River Boyne  Disturbance of QI species (excluded by applicant)  Indirect: Deterioration of water quality due to construction related pollutants  Spread of invasive species	Deterioration of water quality arising from treated effluent –  Applicant considers that hydrological analysis shows that treated effluent will not impact water quality of the Boyne and European Sites located downstream- River has sufficient assimilative capacity  However, measures required to ensure that effluent meets emission limit values	Yes  Conservation objectives related to water quality and disturbance of Salmon, River lamprey and Otter or their habitats could be undermined  Conservation objectives related to Habitat structure and function of Alluvial woodland and Alkaline Fen could be undermined if within zone of influence
River Boyne and Blackwater SPA (004232)	As above  Disturbance (excluded by applicant)		Yes  Conservation objectives for Kingfisher related to water quality could be undermined
Boyne Estuary SPA (004080)	Indirect: Deterioration of water quality due to construction related pollutants		Uncertain (screen in)  Ecological conditions required to maintain and benthic communities in wetland habitat and fish biomass could be

			undermined by changes in water quality/ nutrients
Boyne Coast and Estuary SAC (001957)			Uncertain (screen in) Ecological conditions required to maintain benthic communities in intertidal estuarine mud could be undermined by changes in water quality/ nutrients
Northwest Irish Sea SPA (004236)			Uncertain (screen in) As above for Boyne Estuary SPA common SCI species Little Tern only Conservation objectives set for other Marine bird species would not be affected.

- 2.2.57. In his examination and assessment Dr Barry Walls identifies scientific uncertainty and inconclusive results regarding the assimilative capacity/ modelling undertaken. This uncertainty undermines the Applicants assertion that the proposed discharge of treated effluent to the river Boyne would not have any significant impacts on the River Boyne and Blackwater SAC and SPA in particular. The applicant considers that the management and measures needed to ensure emission limit values is the trigger for stage 2 AA in relation to the treated effluent.
- 2.2.58. I consider that the exclusion of potential for significant disturbance of QI features of the River Boyne and Blackwater SAC and SPA at the screening stage is premature and that instream works in the Rive Boyne to install the rising main would require more detailed assessment to exclude potential for significant effects.
- 2.2.59. In a further update since the appeal was lodged, site specific conservation objectives for the River Boyne and River Blackwater SPA (Kingfisher) have been published (NPWS,2024). The conservation objective is to maintain the favourable conservation condition of Kingfisher within the River Boyne and Blackwater SPA

and one of the key targets is Q values of  $\geq 4$  therefore water quality deterioration requires consideration in stage 2.

- 2.2.60. In terms of potential for effects at European Sites downstream of the discharge point at the Estuarine area of the Rive Boyne, I agree with the Applicant that such effects are unlikely to be significant however, a degree of uncertainty remains in terms of residual effects and possible in combination effects and as management and mitigation measures are proposed that would reduce this likelihood, I consider that it is appropriate to screen in these sites for AA and the adjacent Northwest Irish Sea SPA also, as the site encompasses SCI birds for the River Boyne Estuary SPA (Little Tern only).

### **2.3. Screening determination**

- 2.3.1. The proposed development involving an extension to the WWTP at Dawn Meats facility is screened in for the need for Appropriate Assessment as there is potential for significant effects on the River Boyne and River Blackwater SAC and SPA in view of the conservation objectives of these sites. The possibility of significant effects cannot be excluded for a further three sites, namely Boyne Estuary SPA, Boyne Coast and Estuary SAC and Northwest Irish Sea SPA.
- 2.3.2. This screening determination is based in part on information presented in the NIS prepared by Panther Environmental Solutions which found that construction and operational phases of the proposed development could result in deterioration of water quality and the spread of invasive species. However, I consider that the applicant did not fully consider other sources of impact that could give rise to significant effects such as disturbance of qualifying interest species.

### **2.4. Summary of the Natura Impact Statement**

- 2.4.1. The assessments undertaken in section 7 of the NIS are focused on qualifying interest features at risk from deterioration of water quality that may arise from release of suspended solids/nutrients, cementitious materials and hydrocarbons into the River Boyne during the construction phase of development in particular, and potential operational impacts arising from released treated effluent including

organic pollutants, suspended solids, oils and fats. The potential spread of invasive species is also considered.

- 2.4.2. A series of tables 'outline' the Qualifying interest (QI) features for each European Site that may be impacted with reference to conservation objectives set for those sites. The assessment expands on the screening test considering the occurrence of the relevant QI relative to the impact mechanisms of the proposed development and certain aspects of the conservation objectives and finds that there is potential for the proposed development to have an impact on certain QI features by water pollution generated impacts, and mitigation measures are required to exclude such impacts.
- 2.4.3. Mitigation measures focused on the protection of water quality and prevention of disturbance are detailed for the construction and operational phases of the proposed development in sections 8.1 and 8.2. Measures to prevent spread of invasive species and biosecurity measures are detailed in sections 8.3 and 8.4 and integrated into the CEMP.
- 2.4.4. The assessment of in-combination effects presented in NIS Section 9 considered EPA licensed facilities within 15km of the proposed treated effluent outfall and EPA Section 4 discharges in proximity to the proposed outfall. In considering existing Wastewater Treatment Plants including, Navan, Slane and Donore and other licensed facilities the applicant asserts that there was no observable impact on water quality or upon the water framework directive status. It is stated that the effluent levels for the proposed Dawn Meats development have been calculated taking account of lowest water levels in the River Boyne and future climatic conditions and that there would be no significant risk of in-combination impacts on water quality.
- 2.4.5. Following detailed assessment and the application of mitigation measures, the NIS finds 'no potential for significant impacts on the Nature 2000 network' as a result of the proposed development alone or in combination with the other developments.
- 2.4.6. The board will note that the test for stage 2 Appropriate Assessment is the exclusion of adverse effects on site integrity.

## **2.5. Appropriate Assessment (stage 2)**

- 2.5.1. Following stage 1 screening, it has been determined that Appropriate Assessment is required as it cannot be excluded on the basis of objective information that the proposed development of the proposed extension to the Dawn Meats Ireland facility (alone) will have a significant effect on the following European sites
- River Boyne and River Blackwater SAC (002299)
  - River Boyne and Blackwater SPA (004232)
  - Boyne Estuary SPA (004080)
  - Boyne Coast and Estuary SAC (001957)
  - Northwest Irish Sea SPA (004236)
- 2.5.2. The following is an objective assessment of the implications of the proposal in view of relevant conservation objectives of the European sites based on scientific information provided by the applicant in the NIS and considering expert opinion through observations on nature conservation and an independent examination by Dr Barry Walls.
- 2.5.3. A summary matrix of potential adverse effects in view of conservation objectives is presented for each European Site in Tables 3-5 with a conclusion as to impacts on the integrity of the site.

### **Key issues**

- 2.5.4. Third-party appeal submissions and the independent review of Dr Walls raise significant issues in relation to the adequacy of the scientific information underpinning the assessment.
- 2.5.5. The independent appraisal of the assimilative capacity assessment and mixing models undertaken by Dr Walls proved inconclusive, thereby undermining the assumptions made by the Applicant in their assessment.
- 2.5.6. I refer the Board to Section 2.3 of Dr Walls Report where he identifies data gaps and lacunae within the information and scientific evidence provided for the assessment of impacts on the River Boyne and River Blackwater SAC and SPA. These relate to inadequate characterisation of construction and operational impacts, the lack of adequate data relating to the receiving environment, and limited

assessment of impacts (and effects) to the QI/SCI species listed, in terms of their respective attribute targets. I consider that the report prepared by Ecofact (2022) goes some way to address these short fallings regarding the localised area of the outfall.

- 2.5.7. In Table 2 of his report, Dr Walls provides a summary of the potential impacts on the qualifying interest aquatic species of the River Boyne and River Blackwater SAC and for the SCI Kingfisher for the River Boyne and River Blackwater SPA which includes impact factors not considered in detailed assessment by the Applicant.
- 2.5.8. I note that The NIS does not differentiate the tests required for stage 1 screening and for stage 2 AA referring to potential significant impacts throughout without reference to the exclusion of adverse effects on site integrity. An additional shortfall of the NIS is that does not relate the impacts identified to the conservation objectives set to maintain or restore the favourable conservation condition.
- 2.5.9. The Board will note that where a conservation objective is set to restore favourable conservation status, the AA must demonstrate that the proposal will not interfere with or delay the attainment of such measures and that the proposal will not add to the threats and pressures already being exerted on the SAC/SPA or ecological processes required to support the integrity of the site. This NIS does not consider this.
- 2.5.10. Submissions and observations by third party appellants related to the NIS were addressed by the Applicant in the response document, however, I do not consider that all reasonable scientific doubt was removed for the purpose of appropriate assessment.
- 2.5.11. The assessment of water quality undertaken by Ecofact at locations upstream and downstream of the proposed discharge point found Q3 values based on macroinvertebrate assemblages equivalent to a poor WFD status. The Q value is upgraded to Q3-4 'Moderate' taking account of local habitat characteristics. These localised values are in line with EPA Q values for the River Boyne (Table 2 Ecofact Report). The river is considered an *At Risk* waterbody and as stated in the report, there are significant pressures on the river at the site including known anthropogenic pressures and domestic wastewater with further pressures at the sub catchment level. I consider that the in-combination assessment did not

adequately consider these issues in a detailed manner, providing a qualitative summary of issues rather than detailed assessment.

- 2.5.12. Q values of at least Q4 are a conservation objective target for Salmon and Kingfisher within the River Boyne and River Blackwater SAC and SPA and the impact of the proposed development on the achievement of this target is not considered in the NIS.
- 2.5.13. Overall, in view of gaps identified in the overall assessment and scientific uncertainty related to predicted outfall parameters, I am not satisfied that the information presented in the NIS allows the Board to come to complete, precise and definitive findings as part of the Appropriate Assessment of the implications of the proposed development on the integrity of The River Boyne and River Blackwater SAC and SPA in view of the conservation objectives of those sites.
- 2.5.14. The potential for adverse effects on European Sites at a distance of over 20km downstream of the discharge point at the Estuarine area of the Rive Boyne is significantly reduced by distance and assimilative and dilution effects of the River Boyne, estuarine and marine influences notwithstanding uncertainties regarding the treated wastewater effluent models. Distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality would be adequate to interrupt the impact pathway and exclude adverse effects on site integrity for the Boyne Estuary SPA, Northwest Irish Sea SPA and Boyne Coast and Estuary SAC.

**Table 3:** River Boyne and River Blackwater SAC

<p><b>River Boyne and River Blackwater SAC (002299)</b></p> <p><b>Summary of Key issues that could give rise to adverse effects:</b></p> <ul style="list-style-type: none"><li>• Disturbance of mobile species</li><li>• habitat degradation (construction and operation)</li><li>• Water quality degradation (construction and operation)</li><li>• Spread of invasive species</li></ul> <p>See NIS Table pg. 48-50 and mitigation measures Consultants Report (Dr Walls) Table 2</p> <p>Site Specific Conservation Objectives (NPWS 2011)</p>
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Qualifying Interest	Conservation Objectives Targets and attributes (summary)	Potential adverse effects	Mitigation measures (summary- See NIS Section 8)
<b>Alkaline Fen</b>	Maintain Favourable conservation condition  Habitat area, ecosystem function including soil nutrients, water quality, vegetation composition and structure	No direct effects as habitat is not in range of proposed development. Potential risk from decreased water quality and nutrient enrichment if habitat present downstream- unconfirmed.	Standard pollution prevention measures during construction, CEMP  Predicted effluent quality parameters and management  Invasive species management
	<b>Assessment:</b> I am satisfied that this habitat type is outside a likely zone of influence of the proposed development and notwithstanding uncertainties regarding the treated wastewater effluent models, I consider that distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality would be adequate to interrupt the impact pathway and exclude adverse effects.		
<b>Alluvial Forests</b>	Restore Favourable conservation condition  Habitat area and distribution, woodland structure, hydrological regime, vegetation composition	No direct effects as habitat is not in range of proposed development. Potential risk to vegetation composition identified from spread of invasive species to known location downstream (>15km)	As above
	<b>Assessment:</b> I am satisfied that this habitat type is outside a likely zone of influence of the proposed development and notwithstanding uncertainties regarding the treated wastewater effluent models, I consider that distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality and spread of invasive species would be adequate to interrupt the impact pathway and exclude adverse effects.		
River Lamprey	<b>Restore</b> Favourable conservation condition Distribution (barriers to movement) distribution, population structure and density of larval stage, extent and distribution of <b>spawning nursery habitat</b>	Likely to occur in zone of influence of the effluent discharge. Disturbance Habitat degradation (construction and operation) Water quality degradation (construction and operation)  Ecofact survey identifies thick layer of siltation on rock substrate is not optimal lamprey habitat. Placement of rising main would not damage spawning habitat	Standard pollution prevention measures during construction, CEMP  Predicted effluent quality parameters and management



	<b>Assessment:</b> The information in the NIS does not consider the objective to restore favourable conservation condition. Survey at the outfall point shows degradation of habitat and sub optimal conditions for spawning, however the zone of influence of the outfall likely extends beyond the area surveyed. Reasonable scientific doubt as to the adequateness of the assessment is raised in the independent examination in relation to water quality deterioration, disturbance, and potential further riverine habitat degradation within the zone of influence.		
Atlantic Salmon	<b>Restore</b> Favourable conservation condition Distribution, adult spawning, fry abundance, out migrating smolt abundance, number and distribution of redds, water quality at <b>least Q 4</b> at all sites sampled by EPA	Likely to occur in zone of influence of the effluent discharge.  Ecofact survey finds rock substrate not suitable spawning habitat Placement of rising main would not damage spawning habitat	Standard pollution prevention measures during construction, CEMP Management of instream works  Timing of works to avoid spawning period  Predicted effluent quality parameters and management
	<b>Assessment:</b> The information in the NIS does not consider the objective to restore favourable conservation condition. Survey at the outfall point shows degradation of habitat and sub optimal conditions for Salmon spawning, However the zone of influence of the outfall likely extends beyond the area surveyed. Reasonable scientific doubt as to the adequateness of the assessment is raised in the independent examination in relation to water quality deterioration, disturbance, and potential further riverine habitat degradation within the zone of influence.		
Otter	Maintain Favourable conservation condition Distribution, extent of habitat (terrestrial and freshwater) couching sites and holts, <b>fish biomass available</b> , barriers to connectivity	Likely to occur within the zone of influence of the proposed development. Ecofact survey found no evidence of holts, slide or couches  Potential for temporary disturbance during construction phase  A significant deterioration in water quality would affect fish biomass available	Standard pollution prevention measures during construction, CEMP  Predicted effluent quality parameters and management
	<b>Assessment:</b> Reasonable scientific doubt as to the adequateness of the assessment is raised in the independent examination in relation to water quality deterioration, fish biomass availability habitat fragmentation and disturbance within the zone of influence. Based on the information provided and surveys undertaken by Ecofact, I consider that any temporary disturbance during the construction period would not undermine the distribution or movements of Otter to a degree that would undermine the conservation objectives. Uncertainty regarding the treated effluent levels alone and in combination with other projects could result in reduced abundance of prey items within the zone of influence.		
Overall conclusion: Integrity test			

The applicant determined that following the implementation of mitigation measures the construction and operation of the proposed development will not result in significant effects on this European site alone or in combination with other plans and projects.

However, based on the information provided and taking account of the independent examination, I consider that the proposed development alone and in combination with other projects could undermine the attainment of conservation objectives set for Otter and could delay the attainment of conservation objectives set for River Lamprey and Atlantic Salmon.

There is reasonable scientific doubt as to the validity of the conclusions in the NIS and therefore adverse effects on site integrity cannot be excluded.

**Table 4: River Boyne and River Blackwater SPA**

<b>River Boyne and River Blackwater SPA [004232]</b> <b>Summary of Key issues that could give rise to adverse effects:</b> <ul style="list-style-type: none"><li>• Disturbance</li><li>• habitat degradation (construction and operation)</li><li>• Water quality degradation (construction and operation)</li><li>• Impacts on prey availability</li></ul> <b>See NIS Table pg. 51 and mitigation measures</b> <b>Consultants Report (Dr Walls) Table 2</b>  <b>Site Specific Conservation Objectives (NPWS 2024)</b>			
Qualifying Interest	Conservation Objectives Targets and attributes (summary- inserted)	Potential adverse effects	Mitigation measures (summary- See NIS section 8)
Kingfisher	Maintain favourable conservation condition:  No. and spatial distribution of breeding territories, productivity rate, extent and quality of nesting banks, forage distribution, extent, abundance and availability Water quality- (Q value ≥4 satisfactory), barriers to connectivity, disturbance to breeding sites	Temporary disturbance during instream works (July-September) (not considered in NIS)  Deterioration of water quality (construction and operation)  Reduction in prey availability due to disturbance and water quality impacts	Standard pollution prevention measures during construction, CEMP  Predicted effluent quality and management
	<b>Assessment:</b> The information in the NIS does not fully consider all potential impacts on Kingfisher, uncertainty regarding the treated effluent levels means the attainment of Q4 water quality at this location is unlikely and the proposed development could result in reduced abundance of prey items within the zone of influence.		
<b>Overall conclusion: Integrity test</b>			

The applicant determined that following the implementation of mitigation measures the construction and operation of the proposed development will not result in significant effects on this European site alone or in combination with other plans and projects.

However, based on the information provided and taking account of the independent examination, I consider that the proposed development could undermine the attainment of conservation objectives set for Kingfisher.

There is reasonable scientific doubt as to the validity of the conclusions in the NIS and therefore adverse effects on site integrity cannot be excluded.

**Table 5: Boyne Estuary SPA, Northwest Irish Sea SPA and Boyne Coast and Estuary SAC**

The following European Sites are located downstream of the proposed development at distances of between 20 and 20km. They are considered together in this table as the project level impacts that could arise are common to all. Ecological conditions required to maintain and benthic communities in wetland habitat and fish biomass could be undermined by changes in water quality/ nutrients

**Boyne Estuary SPA [004080]: Site Specific Conservation Objectives (NPWS 2013)**

**Northwest Irish Sea SPA : Site Specific Conservation Objectives for Little Tern only (NPWS 2024)**

**Boyne Coast and Estuary SAC: Site Specific Conservation Objectives (NPWS 2012)**

**Summary of Key issues that could give rise to adverse effects:**

- **Water quality degradation (construction and operation)**

**See NIS Table pg. 51-53 and mitigation measures**

**Boyne Estuary SPA [004080]:**

**Conservation objective is to maintain the favourable conservation condition for the following:**

Shelduck, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Black-tailed Godwit, Redshank, Turnstone, Little Tern, Wetland and Waterbirds

This achieved for wintering water birds where the long-term population trend is stable or increase and there is no significant decrease in the range, timing or intensity of use of areas other than from natural patterns of variation and where the permeant area of wetland habitat is stable

Conservation objectives for breeding little tern and in common with the **Northwest Irish Sea SPA [004236]** include:

No significant decline in breeding population, productivity rate, distribution at breeding colonies, prey biomass available, no significant barriers to connectivity or disturbance

<b>Potential adverse effects</b>	<b>Mitigation measures (summary- NIS Section 8)</b>
Indirect: water quality deterioration affecting prey availability or biomass	Standard pollution prevention measures during construction, CEMP
Adverse effects which could affect wetland habitat condition and prey biomass are not anticipated	Predicted effluent quality and management

**Assessment:** Notwithstanding uncertainties regarding the treated wastewater effluent models I consider that distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality would be adequate to interrupt the impact pathway and exclude adverse effects on site integrity for the Boyne Estuary SPA and Northwest Irish Sea SPA.

**Boyne Coast and Estuary SAC [001957]**

**Estuaries [1130]-** Maintain favourable conservation condition in terms of habitat area and community distribution

**Mudflats and sandflats not covered by seawater at low tide [1140]** Maintain favourable conservation condition in terms of habitat area and community distribution

**Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]** Maintain favourable conservation condition in terms of habitat area, distribution, physical structure, vegetation structure

**(outside of possible impact consideration)**

Annual vegetation of drift lines [1210]

Salicornia and other annuals colonising mud and sand [1310]

Embryonic shifting dunes [2110]

Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]

Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]

**Potential adverse effects**

Indirect: water quality deterioration

Adverse effects which could affect habitat condition are not anticipated

**Mitigation measures**

**(summary- See NIS Section 8)**

Standard pollution prevention measures during construction,  
CEMP

Predicted effluent quality and management

**Assessment:** Notwithstanding uncertainties regarding the treated wastewater effluent models I consider that distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality would be adequate to interrupt the impact pathway and exclude adverse effects on site integrity for the Boyne Coast and Estuary SAC.

**Overall conclusion: Integrity test**

The applicant determined that following the implementation of mitigation measures the construction and operation of the proposed development will not result in significant impacts on the Boyne Estuary SPA or the Boyne Coast and Estuary SAC alone or in combination with other plans and projects.

I have also considered the Northwest Irish Sea SPA as this recently designated candidate site is adjacent to the Boyne Estuary SPA and shares SCI species of breeding little Tern.

Based on the information provided I consider that potential for adverse effects on these European Sites at a distance of over 20km downstream of the discharge point at the Estuarine area of the Rive Boyne is significantly reduced by distance and assimilative and dilution effects of the River Boyne, estuarine and marine influencers notwithstanding uncertainties regarding the treated wastewater effluent models. Distance from source impacts combined with standard mitigation measures proposed to prevent construction related impacts on water quality would be adequate to interrupt the impact pathway and exclude adverse effects on site integrity for the Boyne Estuary SPA, Northwest Irish Sea SPA and Boyne Coast and Estuary SAC.

**The proposed development will not affect the attainment of conservation objectives for these sites and adverse effects on site integrity can be excluded.**

**2.5.15. Appropriate Assessment Conclusion: Integrity Test**

Following an examination, analysis and evaluation of the NIS and associated material submitted and taking into account Third party appeal submissions and the independent expert examination of aquatic ecology and hydrology issues, I consider reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the River Boyne and Blackwater SAC and River Boyne and Blackwater SPA arising from treated wastewater effluent element of the proposed development in view of the conservation objectives of these sites.

The proposed development will not affect the attainment of conservation objectives for other European Sites Considered in the AA, namely Boyne Estuary SPA, Northwest Irish Sea SPA and Boyne Coast and Estuary SAC and adverse effects on site integrity can be excluded for these sites.

### **3.0 Likely effects on the Environment: Biodiversity**

#### **3.1. Biodiversity**

- 3.1.1. Effects on biodiversity and water quality are considered in EIAR Chapter 8 and associated appendices. This chapter describes and assesses direct and indirect effects of the proposed development on biodiversity and aquatic ecology taking account of sites designated for nature conservation, species and habitats protected under the Habitats and Birds Directives and the Wildlife Act. In this section I present an evaluation of the adequateness of the information provided in the EIAR for the Planning Inspector to inform the EIA.
- 3.1.2. As outlined in section 1.3 of this report, I am satisfied that in general the scope, structure and content of EIAR Chapter 8 has been prepared in accordance with standard practice. Scientific information presented includes results from desk study, habitat and flora survey, fauna and badger survey, bat survey (potential roost and bat activity), and general bird survey (EIAR Section 8.3). The ecological value of habitats and species is presented in tables 8.24 to 8.26 and ranges from areas of low ecological value (improved agricultural grassland) to international importance (River Boyne).

#### **Terrestrial ecology**

- 3.1.3. In terms of impacts on terrestrial ecology (excluding aquatic ecology and water quality) I consider that predicted impacts arising from the construction of the extension to the proposed WWTP compound and the installation rising main pipeline are accurate (Table 8.28) and that overall, a finding of no significant effects on terrestrial habitats and species after mitigation measures is reasonable.

### **Aquatic Ecology**

- 3.1.4. I refer to the independent examination and assessment provide by Dr Walls in terms of water quality and impacts on aquatic ecology. His assessment finds that potential significant impacts on hydrology and aquatic ecology cannot be entirely ruled out beyond reasonable scientific doubt based on the information and scientific evidence provided within the planning appeal.
- 3.1.5. He identifies data gaps and lacunae within the information and scientific evidence provided, which prevent a robust assessment of the potential impacts on hydrology and aquatic ecology, without a degree of scientific uncertainty. These relate to inadequate characterization of construction and operational impacts, the lack of adequate data relating to the receiving environment, and limited assessment of impacts (and effects) to the QI/SCI species listed, in terms of their respective attribute targets.
- 3.1.6. Furthermore, and central to the overall assessment, significant concerns have been outlined regarding the Assimilative Capacity Assessment and Mixing Models (section 2.1) and the implications for the water quality objectives set out in line with the provisions of the Water Framework Directive (section 2.2). This has implications for the conclusions related to water quality impacts throughout the EIAR and NIS as they are based on the results of the Assimilative Capacity Assessment and Mixing Models, both of which have been deemed to be inconclusive.
- 3.1.7. I consider that Dr Walls makes valid criticism of certain shortfalls relating to characterisation of the receiving environment, however, I consider the report prepared by Ecofact (2022) which describes aquatic habitats, water quality and otter survey local to the discharge point demonstrates best practice in view of the scope of the survey (local to the discharge point). I consider that temporary

impacts on the riverbed could be managed adequately with mitigation measures however greater clarity regarding a method statement for instream works is required.

#### **4.0 Recommendations for appropriate assessment and biodiversity impacts assessment:**

##### **4.1. Appropriate Assessment**

Following an examination, analysis and evaluation of the NIS all associated material submitted and taking into account Third party appeal submissions and an independent expert examination of aquatic ecology and hydrology issues, I consider that scientific doubt remains as to the absence of adverse effects on the integrity of the River Boyne and Blackwater SAC and River Boyne and Blackwater SPA arising from treated wastewater effluent element of the proposed development in view of the conservation objectives of these sites.

##### **4.2. Biodiversity**

- 4.2.1. Following examination, analysis and evaluation, I consider that the information presented for the biodiversity impact assessment as part of the EIAR for terrestrial ecology and excluding aquatic ecology is proportionate to the ecological receptors identified and adequate for the purpose of identifying likely significant effects for the purpose of EIA. I am satisfied that the findings of no likely significant effects for terrestrial elements of the proposal are reasonable.
- 4.2.2. I am not satisfied that the applicant has provided adequate information on the likely direct, indirect, and cumulative effects of the of the proposed development on water quality, which has the potential to directly impact on the River Boyne, which is a Salmonid River and SAC of international significance for Salmon, River Lamprey and Otter, European Eel and other aquatic species.

**Signed:**



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Maeve Flynn BSc. PhD, MCIEEM  
Inspectorate Ecologist  
An Bord Pleanála

18<sup>th</sup> December 2024