

An
Coimisiún
Pleanála

Technical Note R500739_TN

Development

Four aviation-related cargo handling units with ancillary office space.

Location

Lands within the townland of
Huntstown, Swords, Co. Dublin

Planning Authority

Fingal County Council

Applicant(s)

D.A. Terminal 3 Limited

Type of Application

Planning Appeal

Topics

Wastewater Treatment Proposal

Scientist

Finbarr Quigley

Inspector

Anthony Kelly

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1.0 Introduction

1.1. Appeal details

- 1.1.1. This is a First Party normal planning appeal to An Coimisiún Pleanála under the Planning and Development Act, 2000 (as amended). This appeal is against Fingal County Council's decisions to refuse permission for a proposed aviation-related development under ref. FW25A/0480E.
- 1.1.2. One of the reasons for refusal related to the proposed wastewater treatment option provided by the applicant. The Planning Authority stated that *"The proposed development is considered premature due to the absence of Uisce Éireann infrastructure in the proximity of the site. It is considered that the private wastewater treatment system is neither applicable, appropriate, nor adequate with regards to the scale of the proposed development and would be contrary to Objective DMS0196 of the Fingal Development Plan 2023-2029"*.

1.2. Scope of Report

- 1.2.1. Regarding the appeal, the Inspector requested a Technical Note from the Environmental Scientist with the following considerations:
- Is the proposed WWTS sized appropriately?
 - Is the proposed WWTS acceptable at this location?
 - The potential for impacts on waterbodies.
- 1.2.2. In my capacity as Senior Environmental Scientist with over twenty years of professional experience, I have the relevant expertise to provide a professional opinion in relation to the items above.
- 1.2.3. This report to the Inspector and available to the Commission is a written record of my review and examination of the submitted information and will support the Inspectors report in relation to this application.

1.3. Site Location and Description of Proposed Development

- 1.3.1. The site location and proposed development is described in detail in the Inspectors report and not repeated here.

2.0 Documentation

- 2.1.1. I have read the documentation attached to this appeal and planning application relating to Hydrogeology and Wastewater including the relevant sections of the EIAR and appendices. I have also reviewed the relevant drawings, plans and particulars etc.
- 2.1.2. Other sources of information which were consulted in preparation of this report include:
- The Geological Survey Ireland online mapping tool [IE GSI Groundwater Data Ireland ITM Viewer](#)
 - The WFD Application on the EPA's Environmental Data Exchange Network (EDEN)
 - The EPA's *Guidance on the Authorisation of Discharges to Groundwater*, 2011
 - Water quality data from www.catchments.ie

3.0 Assessment

3.1. Calculation of expected wastewater loadings

- 3.1.1. In section 1.0 of the site characterisation report, the applicant outlined the data used to generate a population equivalent (p.e.) value. This p.e. value was calculated using the following usage data for the proposed development:
- 150 staff/day with canteen facilities
 - 200 staff/day without canteen facilities
 - 50 visitors/day

Table 3 of the 1999 EPA Wastewater Treatment Manual *Treatment Systems for Small Communities, Business, Leisure Centres and Hotels* provides recommended wastewater loading rates from commercial premises. I used these loading rates to calculate a total loading rate for both hydraulic loading and organic loading of 102 p.e. and 150 p.e. respectively (see Table 3-1 below). These figures are based on a total hydraulic loading of 15.25m³/day and a total organic loading rate of 9kgBOD/day for the development.

- 3.1.2. The applicant reported a loading of 250 p.e. which is significantly higher than that calculated using the hydraulic and organic loading rates for the number of users proposed. The rationale for this 250 p.e. has not been adequately explained in the application or appeal documentation.

Table 3-1 Estimated Hydraulic and Organic Loading rates based on the usage data provided by the applicant

Development Loading				
	Usage (l/p/day)	Total Flow (m ³ /day)	Usage (gBOD/p/day)	Total BOD (kg/day)
150 staff visitors with canteen facilities	60	9	30	4.5
200 staff without canteen facilities	30	6	20	4
50 visitors	5	0.25	10	0.5
Totals		15.25		9.0
Population Equivalent		15.25/0.15* = 102 p.e.		9.0/0.06** = 150 p.e.

*150L (0.15m³)/p/day standard hydraulic loading factor **60g (0.06kg)BOD/p/day standard organic loading factor

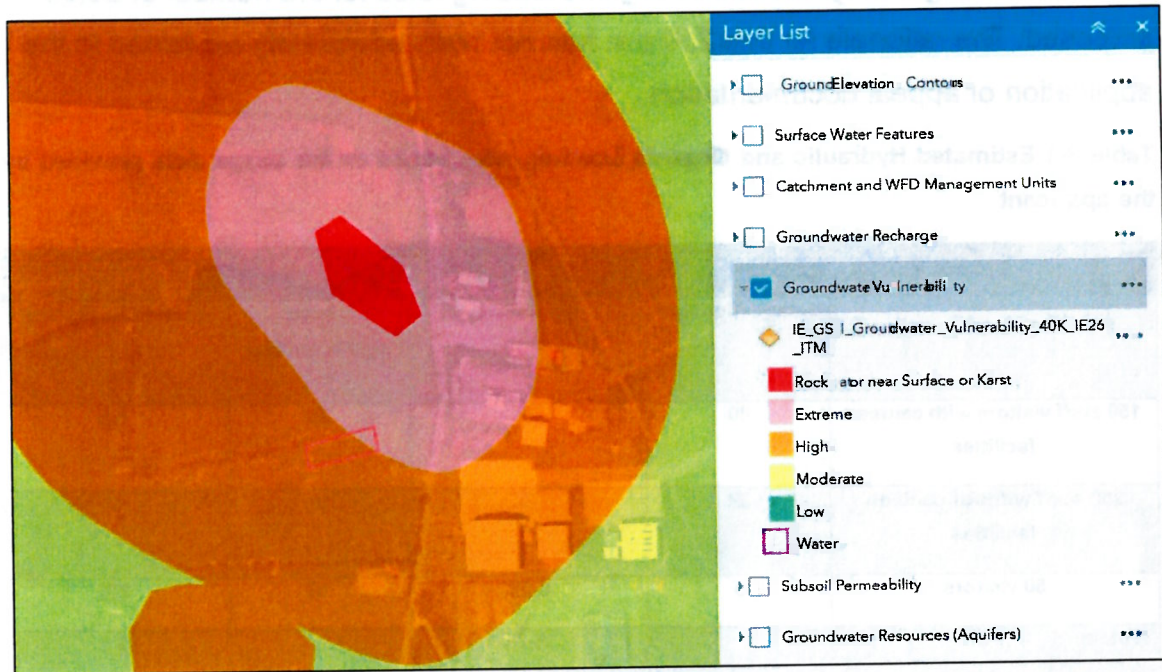
- 3.1.3. Having reviewed the available documentation, I consider that the Applicant has not demonstrated sufficient evidence to clarify why a 250 p.e. wastewater treatment system is required to serve this proposed development.

3.2. Suitability of the location for the WWTP and Polishing Filter

- 3.2.1. The Groundwater Vulnerability map produced by the Geological Survey Ireland (GSI) shows land areas across Ireland where groundwater can be easily polluted. It also shows areas where it is well protected by the subsoil layers. The vulnerability category given to a site or an area is based on how easy it is for water which may contain pollutants to reach the groundwater.

The site characterisation report (SCR) identified the proposed location of the polishing filter to be in an area of High groundwater vulnerability. Having reviewed the online GSI Groundwater Map viewer I believe the proposed polishing filter is located in an area of both High and Extreme groundwater vulnerability (see Figure 3-1 below).

Figure 3-1 Groundwater vulnerability mapping with site investigations area (trial hole and percolation test holes) identified



- 3.2.2. One trial hole was excavated by the applicant as part of the site characterisation process. This hole was dug to 2.1m below ground level and the SCR suggests that neither bedrock nor groundwater was encountered at this depth. The SCR refers to 'gravel and cobble' being present from 0.4m to 2.1m below ground level. The SCR included photographs of the trial hole and excavated material on pages 27 and 28. Having reviewed these photographs, I believe that what the applicant describes as 'gravel and cobbles' is fractured bedrock, given the evidence of large (>200mm) pieces of rock within the excavated material. This coupled with the photographic evidence of 'impact marks' on rock/stone in the trial hole walls suggests that fractured bedrock may be present within 1.5m of the surface at this location.
- 3.2.3. With regard to the High/Extreme groundwater vulnerability classification provided by the GSI for this location, along with the photographic evidence provided by the applicant in the SCR, I am not satisfied that the site's suitability has been adequately assessed.
- 3.2.4. The EPA document *Guidance on the Authorisation of Discharges to Groundwater*, 2011 provides guidance on the technical assessments that are needed to authorise discharges to groundwater, as a means of satisfying the requirements of the European Communities Environmental Objectives (Groundwater) Regulations, 2010

(S.I. No. 9 of 2010) as amended. The guidance provides a practical framework for the processes, types of information, and criteria that are considered important for granting or refusing an authorisation to discharge, or alternatively, to point to what specific information might be needed to address technical areas of uncertainty.

The document includes guidance on:

- Appropriate levels of technical assessment for different types and scales of discharges;
- Predicting impact on groundwater quality

The technical assessment methodology is aimed at examining Source Pathway Receptor relationships, specifically:

- Demonstrating that a site has sufficient infiltration capacity to physically “accept” the effluent, thereby avoiding surface ponding and effluent runoff;
- Demonstrating that a site has adequate attenuation potential to limit the loading of substances to groundwater;
- In certain cases, predicting an impact on groundwater quality;
- Where necessary, verifying predicted impacts by checking compliance with relevant groundwater quality objectives and standards.

The level of technical assessment should be proportionate to the risk posed by the discharge activity. Three tiers of assessment are defined, which involve increasing degrees of complexity. Guidance is provided on the types of data and information that might be needed for prior site investigation for each tier of assessment.

- **Tier 1** assessments cover low-risk activities. The most significant discharge activity in this category is effluent from on-site wastewater treatment systems of less than 5 m³/d.
- **Tier 2** assessments generally cover moderate risk activities, including inputs greater than 5 m³/d and less than or equal to 20 m³/d of domestic wastewater.
- **Tier 3** assessments generally cover higher risk activities such as Inputs greater than 20 m³/d of domestic wastewater, landfills etc.

Based on the above criteria, it is my opinion that the proposed development having a proposed discharge of 15m³/d, requires a Tier 2 assessment.

- 3.2.5. The 2011 Guidance document suggests that a Tier 2 site assessment must demonstrate sufficient infiltration capacity and adequate attenuation potential. However, Tier 2 assessments also involve the prediction of an impact on groundwater quality using basic calculation procedures. Subsoil characterisation, establishing depths to bedrock and provide estimates of subsoil permeability which can subsequently be used to estimate (calculate) infiltration capacity should also be included in a Tier 2 assessment.

A Tier 2 assessment also requires groundwater characterisation involving the drilling and testing of boreholes and, possibly, the construction of monitoring wells for water level monitoring and sampling purposes. The number of boreholes and/or monitoring wells that may be needed for site characterisation and monitoring is a function of the size of the discharge activity and the conceptual hydrogeological model of the site. The level of detail needed is case specific, but the objective is to provide representative hydrogeological data.

- 3.2.6. Having reviewed the documentation, It is my professional opinion that the level of assessment applied by the applicant to this proposed discharge to groundwater is not consistent with that of a Tier 2 assessment as outlined above. The applicant has not characterised the existing groundwater sufficiently, created a hydrogeological conceptual model or adequately assessed attenuation potential or impacts on receiving waters. The excavation of one trial hole for a proposed gravel filtration bed of 1,875m² area does not provide sufficient characterisation of the underlying soil, bedrock and groundwater to adequately assess impacts from the proposed discharge.

- 3.2.7. Section 5.0 of the SCR submitted by the applicant suggested that the wastewater generated on-site would be treated in a secondary treatment system and discharged to ground via a sand polishing filter. The applicant suggested that the invert of the gravel distribution layer underlying the sand filter would be at 0.9m below ground level. The applicant suggests the in-situ subsoil depths noted in the trial hole will provide sufficient attenuation above bedrock and the water table. Given the concerns outlined in 3.2.2. I am not satisfied that adequate depth of subsoil does exist below

this proposed invert level to provide sufficient removal of pathogens and nutrients thus protecting the receiving groundwater resource.

3.3. Water Framework Directive Impact Assessment

- 3.3.1. Chapter 8 of the EIAR submitted with the planning application deals with impacts of the proposed development on hydrology and hydrogeology. In my opinion, the level of engagement with the issue of compliance with the Water Framework Directive within this chapter is not sufficient.
- 3.3.2. In relation to the proposed wastewater treatment system to serve the development, the discussion on impacts is limited to the following: *"The foul water on site is all to be discharged to a newly designed on site wastewater treatment system. This system is to be designed by Mitchell Environmental and has been designed according to all relevant standards and guidelines. Due to this aspect of the design, the potential for impact on the environment due to the foul water discharge from the site is considered to be **long-term, imperceptible and neutral.**"*
- 3.3.3. The applicant has failed to adequately address the potential impacts of the development on the local and regional hydrology and hydrogeology and therefore has not carried out an appropriate WFD Impact Assessment. The Commission therefore cannot rule out the potential for significant impacts on waters from the proposed development.

4.0 Conclusion

- 4.1.1. Having reviewed the results of the site characterisation undertaken by the applicant I am not satisfied that the necessary level of assessment has been applied to the site. Given the proposed volume of wastewater to be discharged into groundwaters, the applicant has failed to carry out an appropriate level of investigation in accordance with the requirements of a Tier 2 Assessment as specified in the EPA document *Guidance on the Authorisation of Discharges to Groundwater*, 2011.
- 4.1.2. Given the absence of adequate assessment of the potential impacts of this proposed discharge to groundwaters, the Commission cannot be satisfied that significant impacts on groundwater quality would not arise from this development. Therefore, the following reason for refusal should be considered:

Having regard to the nature, scale, and location of the proposed development, and in particular its location within the Swords Groundwater waterbody and the Dublin Groundwater waterbody, which are both designated as Good status water bodies under the Water Framework Directive, the Commission is not satisfied that the proposed development would not give rise to a risk of deterioration in the chemical or quantitative status of said water bodies, the proposed development would be therefore be contrary to the requirements of Article 4 of the EU Water Framework Directive (2000/60/EC), as transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), as amended, and would be inconsistent with the objectives of the Water Action Plan 2024 and the proper planning and sustainable development of the area.

I confirm that this report represents my professional assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, following my professional assessment and recommendation set out in my report in an improper or inappropriate way.

Finbarr Quigley

Senior Environmental Scientist

18th May 2026



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