



Nutrient Neutrality Statement

Site 5, Clywedog Road South, Wrexham

Presented to: **FI Real Estate Management**

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Report Details

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Report Title	Nutrient Neutrality Statement
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As part of Lucion Services, our combined team of 500 in the UK has a range of specialist skill sets in over 50 environmental consultancy specialisms including asbestos, hazardous materials, ecology, air and water services, geo-environmental and sustainability amongst others.

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1.0 Introduction

1.1 Appointment

- 1.1.1 Delta-Simons Limited ("Delta-Simons") has been instructed by FI Real Estate Management (the 'Client') to provide a Nutrient Neutrality Statement to inform a proposed commercial premises located at Site 5, Clywedog Road South, Wrexham, LL13 9AE (the 'Site').

1.2 Project and Policy Understanding

- 1.2.1 In light of a court Judgement (known as Dutch N), Natural Resources Wales (NRW) have advised Wrexham County Borough Council (WCBC) that, in light of the unfavourable condition of the River Dee, which is a designated Special Area of Conservation (SAC), before determining a planning application that may give rise to additional phosphates within the catchment, competent authorities should undertake a Habitats Regulations Assessment (HRA).
- 1.2.2 NRW states the following non-residential developments can result in an increase to phosphorous loading: *'Self-service and serviced tourist accommodation such as hotels, guest houses, bed and breakfasts, self-catering holiday facilities, camping and caravan sites.'* Consequently, developments where overnight accommodation is provided.
- 1.2.3 WCBC state that they are currently *'creating a phosphate calculator for developers to calculate the level of phosphates their development will generate.'* This tool will be designed to quantify the phosphorous loading of an area of land subject to a change of land use and population, in order to identify if proposed developments will be 'Phosphorous neutral'.
- 1.2.4 The aim of this guidance is to reduce the phosphorous input to the Wrexham Levels from new developments, this is due to growing concerns over eutrophication within these sensitive and scientifically important environments.

1.3 Sources of Information

- 1.3.1 The following sources of information have been reviewed and assessed for the purpose of the Nutrient Neutrality Statement:
- NRW's Phosphorus sensitive catchments and Phosphorus compliant waterbodies¹;
 - WCBC New River Phosphate Level Targets²;
 - Hafren Dyfrdwy - Drainage & Wastewater Management Plan Draft (2019)³; and
 - The Dee Catchment Phosphorous Reduction Strategy Draft (2021 PRS)⁴.
 - Natural England Nutrient Budget Calculator Guidance Document v1, 2022⁵;
 - The Norfolk Nutrient Budget Calculator produced by Royal Haskoning v2.16; and
 - Carmarthenshire County Council Nutrient Budget Calculator.

1.4 Project Limitations

- 1.4.1 The wider Delta-Simons limitations are contained within Appendix A.

¹ <https://datamap.gov.wales/maps/new?layer=inspire-nrw:ComplianceAssessmentOfWelshRiverSacsAgainstPhosphorusTargets#/>

² <https://www.wrexham.gov.uk/service/development-plans-and-other-planning-policy/new-river-phosphate-level-targets>

³ <https://www.hdcymru.co.uk/content/dam/hdcymru/about-us/pr19/updated-plan/6.2-dwmp-draft.pdf>

⁴ <https://www.flintshire.gov.uk/en/PDFFiles/Planning/Examination-Library-Documents/FCC/FCC031-Phosphate-Strategy.pdf>

⁵ https://www.chichester.gov.uk/media/36715/Nutrient-Budget-Calculator-Guidance/pdf/Nutrient_Budget_Calculator_Guidance.pdf

⁶ <https://www.north-norfolk.gov.uk/media/8153/norfolk-budget-calculator.xlsx>

2.0 Site Description

2.1.1 The aim of this section of the report is to outline key environmental information associated with the baseline environment.

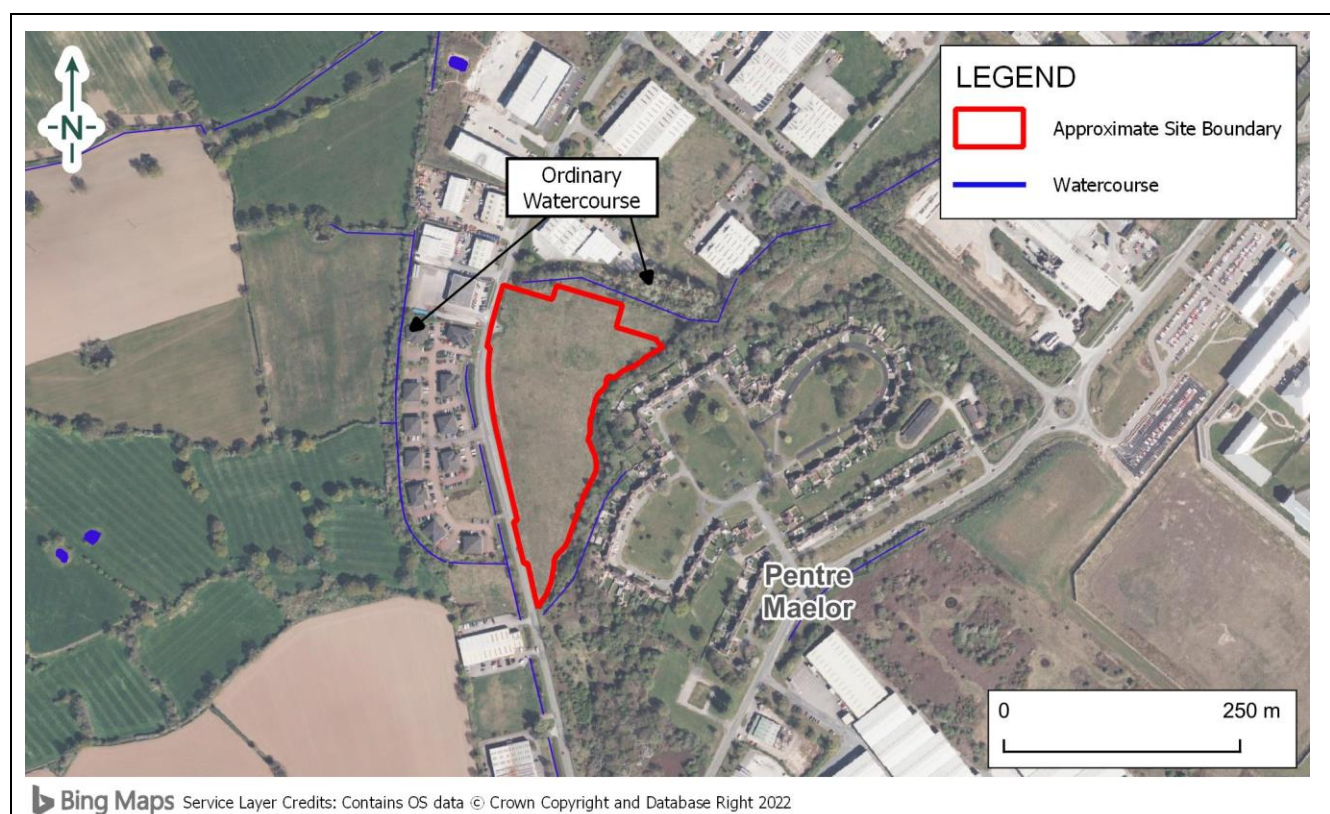


Figure 1: Illustrative Site Layout Plan

Co-ordinates	Centred at National Grid Reference (NGR) 337080, 349100.	Area	3.01 Ha
Site Location	The Site is located to the south-west of Wrexham Industrial Estate, east of Clywedog Road South. The Site lies within the jurisdiction of WCBC.		
Existing Site Conditions	Online mapping (including Google Maps accessed October 2022) shows that the Site comprises of wholly undeveloped greenfield land. The Site is bordered by Clywedog Road South in the west beyond which lies residential developments, residential developments to the south and east, and Nu Instruments to the north, as part of the Wrexham Industrial Estate.		
Proposed Site Conditions	The proposed development is for the erection of one commercial unit with associated HGV loading bays, parking, access and soft landscaping. A proposed development plan is included in Appendix B.		
Receiving WwTW	The receiving Wastewater Treatment Works (WwTW) for the proposed development is Five Ffords.		

3.0 Nutrient Budget Calculations

3.1 Background

- 3.1.1 The Dee Catchment Phosphorus Reduction Strategy (2021 PRS) details the approach by which developments should undertake a high-level nutrient budget assessment.
- 3.1.2 Section 4.3 outlines the outcome (along with the approach, methodology and key parameters) of the high-level nutrient budget assessment undertaken by the affected authorities completed as part of the DCPRS, which will inform the identification of the required measures to mitigate any surplus P loading arising from growth anticipated as a result of the emerging LDP. Both Councils (WCBC and Flintshire County Council) have said in their respective letter to the Planning Inspectors that "A proportionate assessment of the overall nutrient budget of the development in each plan will be made (i.e. how much phosphorus the planned development in each plan is likely to produce)." The councils reiterated that the catchment wide HRA's do not replace project specific HRAs or implementation monitoring that must be undertaken to provide the necessary certainty required under the Habitats Regulations.
- 3.1.3 The report reiterates that the approach utilised by Natural England's Stodmarsh Lake Nutrient Neutrality Guidance was used and that only new residential developments and other new commercial/employment developments that involve overnight accommodation (e.g. hotels) or any new tourism attractions that will be connected to a WwTW are included in nutrient budget assessment. This is because anyone living in the local WwTW catchments assessed in Flintshire and Wrexham also work and uses facilities in these catchments. Therefore, wastewater generated by that person can be calculated using the population increase from new homes and other overnight accommodation, to avoid double counting. However, new tourism attractions and tourism accommodation are exceptions as these land uses attract other people into the local catchments and generate additional wastewater and consequential nutrient loading to the impacted River Dee freshwater catchment.
- 3.1.4 According to WCBC, the types of development that may be affected by phosphorous river levels and require use of a Phosphate Budget Calculator include:
- *'New residential units including homes, gypsy and traveller sites/pitches;*
 - *Tourism attractions and commercial developments where overnight accommodation is provided;*
 - *Agricultural development, including prior notifications (developments that don't require planning permission, but where we need to check that it is allowed) including additional barns and slurry stores likely to lead to increased herds;*
 - *Prior notifications for change of use of office to homes and agricultural buildings to homes;*
 - *Operations which generate phosphate such as fisheries and car washing facilities.'*
- 3.1.5 The proposed development is a commercial development and, no overnight accommodation is included as part of the proposals. The proposals will not increase the local population and therefore, site users and their phosphate loading has already been accounted for in their residential setting.
- 3.1.6 However, following consultation with WCBC they have requested that an assessment of the phosphate loading from the site is assessed as new commercial / industrial development may increase the population as well as the housing stock within the catchment. This can cause an increase in nutrient discharges.
- 3.1.7 The River Dee is designated as a SAC, and the majority of Wrexham County Borough is located within its catchment. The river is currently failing against NRW's targets. A Nutrient Constraint Zone Map is included within Appendix C.

- 3.1.8 In lieu of formalised guidance on nutrient loading calculations from NRW or Wrexham Borough Council we have utilised the Carmarthenshire County Council Nutrient Budget Calculator and where necessary cross reference the works with the Norfolk Nutrient Budget Calculator which allows for a greater manipulation of the base line data (rainfall and WwTW TP loading) which brings it closer in line with the actual characteristics of the site and catchment. The calculators are included as Appendix D.
- 3.1.9 The following section highlights the four stages utilised to calculate the nutrient budget for the proposed development using the methodology set out in Natural England's 'Nutrient Budget Calculator Guidance Document v1'. The calculations have been completed using the accompanying calculator. The output

3.2 Stage 1

- 3.2.1 The proposed development is for the erection of one commercial unit with associated HGV loading bays, parking, access and soft landscaping.
- 3.2.2 Model Logic Ltd have undertaken a detailed assessment of the population dynamics within the catchment area (Worker Catchment Area Analysis dated February 2023 included as Appendix E). The general assessment comprised the following. A map of the River Dee and Bala Lake SAC was used to identify the postcode sectors that are captured within its boundary. For each of the postcode sectors, within 80km, estimates of the 2021 population were used in conjunction with the calculated travel time from the Wrexham Industrial Estate. The latest 2022 ONS travel to work profile was used to apply the percentage of workers travelling within defined distance bands. Using the travel to work profile, together with the detailed mapping, the analysis calculated that the percentage of workers at the Wrexham Industrial Estate site who would live within the SAC boundary would be 91.6% leaving 8.4% who live outside equating to approximately 15 additional people commuting into the SAC as a result of the development.
- 3.2.3 Given the additional population as a result of the development has been estimated as 15, the Carmarthenshire County Council Nutrient Budget Calculator has been manipulated to include 1 Unit at an average occupancy of 15 people.
- 3.2.4 The Carmarthenshire County Council Nutrient Budget Calculator only includes 'Annual Wastewater TP Loads' from the local WwTW's in the area and all are provided as having an efficacy of 8 mg/l which is far lower than the permitted limit at the Five Fords WwTW's which serves the Site which is stated as 1 mg/l and actual measured level of 0.49 mg/l.
- 3.2.5 Stage 1 of the assessment calculated using Carmarthenshire County Council Nutrient Budget Calculator the estimated Total Phosphate (kg per year) derived by the development and discharged by the receiving WwTW, measured at **2.19 kg/year**. However, this is seen as highly conservative given the difference in the efficacy of the WwTW's.
- 3.2.6 Cross referencing the Carmarthenshire County Council Nutrient Budget Calculator with the Norfolk Nutrient Budget Calculator, the Norfolk Nutrient Budget Calculator allows for greater control over the efficacy of the WwTW's when using the Belaugh WwTW's with an efficacy of 1 mg/l the calculated Total Phosphate (kg per year) derived by the development and discharged by the receiving WwTW, measured at **0.63 kg/year**.

3.3 Stage 2

- 3.3.1 Stage 2 is to calculate the existing nutrient load from the current land use. Pre-development landcover types and areas have been derived from aerial imagery. The nutrient loss from the current land use will be removed and replaced by that from the proposed development land use. The net change in land use will need to be subtracted from or added to the wastewater Total Nutrient load.
- 3.3.2 Given the Site in undeveloped, inputting a total area of 3.01 ha of greenspace results in a total annual phosphate of **0.06 kg/year**.

3.4 Stage 3

- 3.4.1 Stage 3 is to calculate the future nutrient load from land use on the development Site post-development. Pre-development landcover types and areas have been derived from the latest development drawing (drawing Ref. 1200-02-001 Dated October 2022), in CAD.
- 3.4.2 Inputting a total area of 0.63 ha of greenspace and 2.38 ha of commercial / industrial land results in a total annual phosphate of **3.24 kg/year**.

3.5 Stage 4

- 3.5.1 The final stage of the nutrient budget calculator is to calculate the net change in nutrient loading from the development to the River Dee SAC with the addition of a buffer. The net change of nutrient loading plus the buffer is the nutrient budget.
- 3.5.2 The total nutrient budget for the development is estimated as **6.44 kg/year** when using the Carmarthenshire County Council Nutrient Budget Calculator. Although this figure is thought to be highly conservative given the reasons described above including:
- Greater rainfall rates than that predicted in the River Dee Catchment; and
 - Lower efficacy of the WwTW's allowed for in the calculator when compared to those serving the Site.
- 3.5.3 Utilising the Norfolk Nutrient Budget Calculator, and manipulating the inputted for rainfall and the WwTW's efficacy more in line with actual conditions results in an estimated uplift in phosphate output by 3.65 kg/year.

3.6 Summary

Table 1: Phosphate Budget Summary

Stage	Description	Value		Unit
		Carmarthenshire	Norfolk	
1	Nutrient loading from additional population	0.63	2.19	Kg/year
2	Nutrient load from land use change	2.41	3.18	Kg/year
3	Nutrient budget for the development Site	3.04	5.37	Kg/year
4	Total Nutrient Budget with 20% precautionary budget	3.65	6.44	Kg/year

3.7 Mitigation

- 3.7.1 Mitigation of additional phosphate loading is a relatively new requirement and there is a lack of guidance on how to provide mitigation in both Wales and the UK as a whole.
- 3.7.2 Some ways in which developers could provide mitigation, which may be accepted by the LPA and NRW include:
- a) An on-site obligation to include SuDS mitigation schemes within the development to reduce phosphate output in line with CIRIAS: 'Using SuDS to reduce phosphorus in surface water runoff (C808F)' document.

- b) Purchasing land that has an existing phosphorus output and rewilding the land, thereby offsetting the net increase in phosphate caused by the development. This would need to be maintained and managed by an expert body, it is understood that Dŵr Cymru Welsh Water are potentially offering to collaborate on offsetting schemes however, no fixed guidance was available at the time of writing.
- c) Purchasing offsetting credits whereby third parties including government backed schemes undertake rewilding schemes and sell the resulting 'credits' to developers. No offsetting schemes are understood to be near completion.

3.7.3 Given the potential delays for bringing off-site mitigation forward option 'a)' has been considered in detail.

3.7.4 BarnsleyMarshall Limited have undertaken a comprehensive drainage design and undertaken a calculation to determine the level of phosphate mitigation resulting from the proposed scheme. The proposed drainage plan and phosphate mitigation calculation is included in Appendix F. Post development it is anticipated that phosphate loads will be reduced down to **0.04 kg/year** which is considered to be negligible in the context of the catchment area.

Appendix A - Limitations

Limitations

The recommendations contained in this Report represent Delta-Simons professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Delta-Simons obtained, reviewed, and evaluated information in preparing this Report from the Client and others. Delta-Simons conclusions, opinions and recommendations has been determined using this information. Delta-Simons does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Appendix B – Proposed Development Plan

Appendix C - Nutrient Constraint Zone

Appendix D - Phosphate Calculators

Appendix E - Worker Catchment Area Analysis

Appendix F – Phosphate Mitigation