Roxburgh House, Wrexham

Nutrient Neutrality

November 2026

PREPARED FOR

M1 Trade Ltd



Nutrient Neutrality

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Executive Summary

In 2018, the European Court of Justice refined the definition of plans and projects and ruled that mitigation needs to be in place to ensure that there will be no likely significant effect on the conservation status of designated sites. Additional nutrient loading to designated sites already in an unfavourable conservation status is necessarily limited unless mitigation is in place. This ruling has come to be known as 'The Dutch Case.' Within the River Dee catchment, developments must therefore demonstrate that they will not result in a net increase in nutrient loading to the River Dee and Bala Lake Special Area of Conservation.

Roxburgh House is located at 12 Hill Street, at the junction of Hill Street and Regent Street, Wrexham (National Grid Reference SJ 333 503). Planning application P/2025/0833, validated on 30 October 2025, proposes the change of use of 1,933 m² of office accommodation on the second and third floors to create 30 one-bedroom apartments. The proposals also include minor works to provide a bin store, cycle storage and means of escape. The site lies within the River Dee catchment.

At the request of Wrexham County Borough Council, a nutrient-budget assessment has been undertaken using the Nutrient Budget Calculator for Special Areas of Conservation in Wales.

The standard calculator provides a useful precautionary assessment but does not account for the foul wastewater load that could arise from the existing lawful office use, assessed at full occupation. The baseline is the current lawful use of the floors as offices (Use Class B1). Therefore, a site-specific assessment has been completed to compare the proposed residential use with the existing lawful office use, assessed at full occupation.

The proposed residential use is estimated to generate up to 63,000 litres of wastewater per week, compared with 72,490 litres per week under the existing lawful office use, assessed at full occupation—a potential reduction of 9,490 litres per week. Applying the same final effluent concentration to both uses indicates an estimated reduction of 0.50 kg TP/year at 1.0 mg/l and 0.35 kg TP/year at 0.7 mg/l. These figures are illustrative, unbuffered estimates rather than revised calculator outputs or measured discharges.

Dŵr Cymru Welsh Water has confirmed that Five Fords WwTW has a phosphorus consent, is compliant with its relevant performance requirements and has sufficient hydraulic capacity to accommodate foul flows from the proposed 30 apartments. The phosphorus permit limits applied in this assessment are 1.0 mg/l before 31 March 2030 and 0.7 mg/l thereafter.

The site-specific assessment indicates that the proposal would reduce, rather than increase, Total Phosphorus loading. The development is therefore considered nutrient neutral, and no further mitigation is required.

Abbreviations

The following abbreviations may be used in this report.

Acronym	Definition
AA	Appropriate Assessment
WCBC	Wrexham County Borough Council
EMC	Event Mean Concentrations
NRW	Natural Resources Wales
HRA	Habitats Regulations Assessment
NN	Nutrient Neutrality
P	Phosphates
SAAR	Standard Annual Average Rainfall
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
TAL	Technically Achievable Limits
TN	Total Nitrogen
TP	Total Phosphorus
WwTW	Wastewater Treatment Works

1. Introduction

Civic has been commissioned by M1 Trade Ltd to undertake this Nutrient Neutrality Assessment for the proposed redevelopment at Roxburgh House in Wrexham.

Roxburgh House is located at the junction of Hill Street and Regent Street, Wrexham at Ordnance Survey National Grid Reference SJ 333 503. The existing building consists of four storeys. Planning application reference P/2025/0833 was validated on 30 October 2025 and refers to the proposed change of use of the second and third floors of the building. The present use of these two floors comprises 1,933 m² of office space. The proposals are for 30 no. one-bedroom apartments. The proposals also include minor works at the rear of the property to provide a bin store, a cycle store and means of escape.

1.1. Background

In 2018, the European Court of Justice refined the definition of plans and projects in the so-called 'Dutch case' ruling that mitigation needs to be certain at the time of assessment to ensure that there will be no adverse effect on the conservation status of European designated sites which already exceed compliance limits[1].

Nutrient neutrality is a means of ensuring that a plan or project does not add to existing nutrient burdens. Where nutrient neutrality is properly applied and the existing land does not undermine the conservation objectives, Natural Resources Wales (NRW) considers that an adverse effect on integrity alone and in combination can be ruled out[2].

In the Dee River catchment in Wrexham, developments could adversely affect River Dee and Bala Lake, which is designated a Special Area of Conservation (SAC) and the river system is underpinned nationally by separate SSSIs divided by the national border—the River Dee (England) SSSI and the Afon Dyfrdwy (River Dee) SSSI in Wales. Several protected designations in the River Dee catchment—particularly the River Dee and Bala Lake Special Area of Conservation (SAC) in Wales—are at risk or failing due to eutrophication (an unfavourable conservation status) driven by elevated Total Phosphorus and nutrient levels and therefore the ruling of the Dutch Case applies.

The practical implication of the Dutch Case across Wales is the necessity to mitigate increases in nutrient loading from new development including nutrients contained in surface water runoff and an increase in wastewater flows to any of the Wastewater Treatment Works (WwTW) in the relevant catchment.

In accordance with The Environmental Permitting (England and Wales) Regulations, the Five Fords (the Wastewater Treatment Works WwTW relevant to this project), will have to meet stricter effluent concentration requirements. It is understood that this will come into practice on the 31st March 2030, and so two different nutrient budgets will be calculated for the development.

1.2. Scope of Study

The main objectives of this study are to:

- Provide an overview of NRW's position with respect to water quality within the Habitats Sites.
- Provide a calculation for the Total Phosphorus loading arising from the proposed development; and
- If required - outline the mitigation strategy proposed to manage surface and wastewater from the proposed development and present supporting calculations in order to ensure that the proposed development is nutrient neutral.

[1] Joined Cases C-293/17 and C-294/17 of the European Court of Justice
[2] Natural Resources Wales / Principles of nutrient neutrality in relation to development or water discharge permit proposals

2. Water Quality in the Dee

The River Dee catchment from Snowdonia to the weir in Chester is designated under the Water Resources Act 1991 as a Water Protection Zone.

2.1. The River Dee and Bala Lake Designated Sites

The Afon Dyfrdwy (River Dee) SSSI[3] supports the following habitats and species listed in the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora):

- Rivers with floating vegetation often dominated by water crowfoot - Annex I
- Otter – Annex II & IV
- Sea lamprey – Annex II
- River lamprey – Annex II & V
- Brook lamprey – Annex II
- Atlantic salmon – Annex II & V
- Bullhead – Annex II
- Freshwater pearl mussel – Annex II & V
- Grayling – Annex V
- The otter and the freshwater pearl mussel are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

The River Dee and Bala Lake SAC[4] are designated for the following qualifying species

- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation – Annex I
- Atlantic Salmon - Annex II
- Floating water-plantain – Annex II
- Sea lamprey – Annex II
- Brook lamprey – Annex II
- River lamprey – Annex II
- Bullhead – Annex II
- Otter – Annex II

The focus of this assessment is on the evidence of degrading water quality in the Afon Dyfrdwy SSSI and the River Dee and Bala Lake SAC, henceforth referred to as the 'Habitats Sites.'

2.2. Nutrients of Significance

It has been found that the nutrients of the highest significance in terms of water quality in the Habitats Sites are Total Nitrogen (TN) and Total Phosphorus (TP).

This report considers TP as requested by the planning department at WCBC. TP includes all phosphorus components – phosphate phosphorus (PO4-P), dissolved organic phosphorus and particulate phosphorus in algal and bacterial cells – and also includes mineral particles such as clay.

2.3. Water Quality

The condition of the Habitats Sites (which support the designated features) is in part dependent on the water quality within them. The occurrence of excessive nutrients in the Habitats Sites can impact the competitive interactions between high plant species, and between higher plant species and algae, which can result in dominance in attached forms of algae, and a loss of characteristic plant species.

Changes in plant growth and community composition can have implications for the wider food web and the species present. Increased nutrients and the occurrence of eutrophication can also affect the dissolved oxygen levels in the waterbody, which can also impact the biota within the Habitats Sites.

Elevated nutrient concentrations can stimulate excessive algal and cyanobacterial growth, particularly during warm, sunny, and low-flow conditions. Llyn Tegid has a recognised history of blue-green algal blooms, and catchment

[3] CYNGOR CEFN GWLAD CYMRU
[4] River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid - Special Areas of Conservation

measures are being undertaken to reduce phosphate inputs from agricultural land. When blooms die and decompose, microbial activity consumes dissolved oxygen; dense blooms can also cause marked day–night fluctuations in oxygen and pH. These effects may stress or kill fish and aquatic invertebrates, reduce light penetration, and alter aquatic plant communities, with potential consequences for the habitats and qualifying species of the River Dee and Bala Lake SAC.

Recent operational evidence demonstrates the sensitivity of the River Dee to this combination of pressures. During the June 2026 heatwave, NRW increased the discharge from Llyn Tegid by 2 m³/s (approximately 30%) for two to three days to reduce the risk of fish deaths associated with high temperatures, low river levels and reduced dissolved oxygen. This was a precautionary intervention rather than evidence that a fish-kill event had occurred. Further nutrient enrichment from the proposed development could add to the conditions that favour blooms and oxygen depletion; maintaining nutrient neutrality is therefore important to avoid increasing this existing ecological risk[5].

In the case of the River Dee, it has been estimated that the dominant source of phosphate is effluent from sewage treatment works (34% of the average daily load (kg/d), rural land use (contributing 48%), storm overflows (contributing 11%) and a further 7% from other sources including septic tanks and urban run-off.[6]

2.4. Strategic Approach

Where a European site is already in an unfavourable condition because of elevated nutrient levels, the competent authority must be satisfied, in view of the site's conservation objectives, that any additional nutrient inputs from a plan or project, either alone or in combination with other plans and projects, will not adversely affect the integrity of the site.

To address the associated uncertainty and risk to the Habitats Sites, this assessment has calculated the likely Total Phosphorus load that will be generated by the development so that this can be considered in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended)[7] and relevant case law.

The assessment has considered the latest applicable Natural Resources Wales (NRW) guidance and methodology to calculate the nutrient budget for the proposed development (Appendix A).

Recent technical evidence submitted in connection with appeal CAS-03789-W3C7T6[8] challenges the classification of the River Dee–Chester Weir to Ceiriog waterbody as failing its Total Phosphorus target. Analysis of longer-term NRW and Environment Agency datasets indicates mean concentrations below the applicable 50 µg/l target and suggests that Total Phosphorus headroom may be available. This evidence has not, however, been adopted as a formal revised compliance determination by NRW. Accordingly, the present assessment retains a precautionary nutrient-neutral approach unless and until the competent authority accepts an alternative position.

Project-specific correspondence from Dŵr Cymru Welsh Water confirms that the position remains unchanged from its email of 14 January 2026[9]: Five Fords WwTW has a phosphate consent, is compliant with that consent, and has sufficient capacity to accommodate foul flows from the proposed 30 apartments. This report has therefore been prepared to quantify the predicted change in Total Phosphorus loading between the existing office use and the proposed residential use, so that the competent authority can consider the effect of the change in use and any resulting mitigation requirement (Chapter 5). It is recognised that confirmation of treatment capacity does not, by itself, replace the need for this nutrient-budget comparison.

[5] Natural Resources Wales / Extra water released to protect River Dee fish during heatwave
[6] SAC Rivers: Source Apportionment Reports | Dŵr Cymru Welsh Water
[7] The Conservation of Habitats and Species Regulations 2017
[8] Reference: CAS-03789-W3C7T6
[9] Reconfirmed email response from Dŵr Cymru Welsh Water titled - RE: Site at Roxburgh House, 12 Hill Street, Wrexham Your Reference PLA0091480 (6809) latest response dated 28.05.2026.

3. Site Description

3.1. Location

The application site is located in Wrexham, on the junction between Hill Street and Regent Street in the city centre. The address is Roxburgh House, 12 Hill Street, Wrexham LL11 1SN.

The existing building consists of four storeys, with the proposed change of use to the second and third floors of the building. The present use of these two floors comprises 1,933 m² of office space. The proposals are for 30 no. one-bedroom apartments. The proposals also include minor works at the rear of the property to provide a bin store, a cycle store and means of escape.

The site is located within the River Dee catchment Water Protection Zone that runs from Snowdonia to the weir in Chester, as designated under the Water Resources Act 1991. This designation is in place to help prevent water pollution arising from activities that cannot be controlled using other permits.

The site boundary and location and its location in respect to the Dee Water Protection Zone is shown in Figure 1.

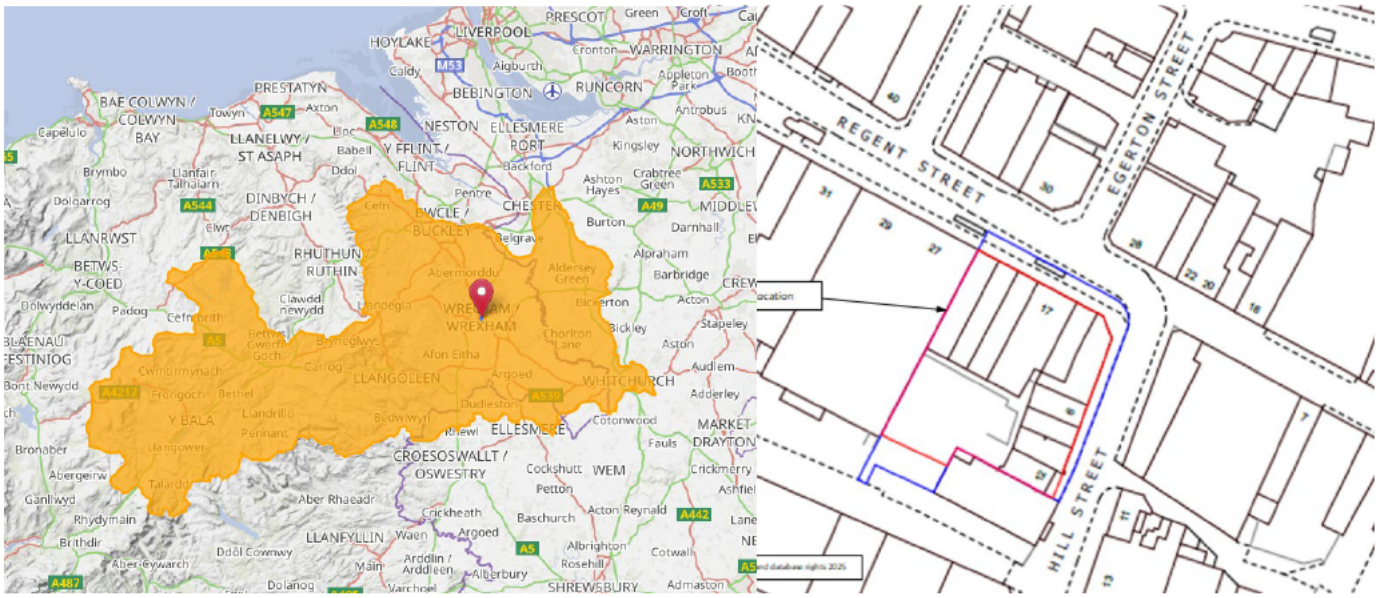


Figure 1 – Dee Water Protection Zone & Detailed Site Location

3.2. Proposed Development

Roxburgh House is located at the junction of Hill Street and Regent Street, Wrexham at Ordnance Survey National Grid Reference SJ 333 503 as shown in Figure 1.

A planning application (ref P/2025/0833) was validated on the 30th October 2025 for a proposed "*change of use of second and third floor of building from class b1 (offices) to create 30 no apartments (class c3) including creation of additional parking spaces*[10]*, bin store, cycle storage and means of escape*".[11]

The existing building consists of four storeys, and the proposed development is for the proposed change of use of the second and third floors of the building to 30 no. one-bedroom apartments. The proposals also include minor works to provide a bin store, a cycle store and means of escape. The present use of these two floors comprises 1,933 m² of office space (Use Class B1: offices/business) and the application seeks a change of use to Class C: residential. The ground and first floor of the building are currently in use as retail premises and this use will continue. A visualisation of the development proposals is provided in Figure 2.

[10] No longer part of the application
[11] P/2025/0833



Figure 2 – Visualisation of Proposed Development

When comparing the proposed development with the existing situation, there are no major amendments proposed to the external building fabric with all changes will be undertaken internally.

4. Methodology

There is a standard methodology in place to calculate a nutrient budget for a new development within one of the nine Special Areas of Conservations (SACs) within Wales. This is the Nutrient Budget Calculator for Special Areas of Conservation (SACs) in Wales[12]

The development categories included in the calculator include residential, commercial, tourism, leisure and public service infrastructure and it uses the planning permission use classes. The nutrient budget for a site is then calculated in four key stages with an additional optional stage in which information about the proposed SuDS features on the site can be entered (if relevant).

There is also guidance available on how to apply this calculation and sets out the process of calculating the nutrient budget and provides worked examples.

The following chapter sets out the methodology recommended and how it applies to the proposed development.

4.1. Stage 1 – Total Wastewater Load

Stage 1 calculates the additional nutrient loading from wastewater generated by the development. It applies to residential, commercial or tourism development.

The wastewater nutrient load is calculated from the estimated wastewater volume and the final effluent nutrient concentration for the receiving Wastewater Treatment Works (WwTW). The receiving WwTW should be confirmed with the sewerage undertaker and selected in the calculator. Where a septic tank or package treatment plant is proposed, the relevant default or independently supported user-defined final effluent concentration should be entered.

Water consumption is used as a proxy for wastewater generation. The Welsh calculator applies a default rate of 120 litres per person per day, comprising the Welsh Building Regulations standard of 110 litres per person per day plus a precautionary allowance of 10 litres. With the proposed uses on site (residential) – suitable assumptions have been made with regards to predicted usage per person per day.

4.2. Stage 2 and Stage 3 – Existing and Future Surface Water Loads

Stages 2 and 3 calculate the annual nutrient loading from surface-water runoff associated with the pre-development and post-development land covers, respectively. They are required where surface water from the development drains to the River Dee and Bala Lake SAC.

Typically, this is where the changes in land usage would be entered, however for this proposed development, there is no proposed change in land area just that it will change from commercial/industrial land to residential.

The calculator asks for the predominant soil drainage type and the site's average annual rainfall band which are also entered; for this particular development, the proposals do not change either of these aspects with no change to the exterior building fabric, size, or scale.

The Stage 3 calculation provides the future annual surface-water nutrient load with the proposed development in place. Any nutrient removal attributable to qualifying SuDS is assessed separately at Stage 3S and only where the drainage features comply with Schedule 3 of the Flood and Water Management Act 2010 and the national standards. With no changes to land use, there are no SuDS proposed for this development.

The Stage 2 and Stage 3 outputs are subsequently used in Stage 4 to determine the change in surface-water nutrient loading.

4.3. Stage 4 – Final Unmitigated Nutrient Budget

Stage 4 of the calculation is the final stage and uses the following formula

Stage 4 = Stage 1 − Stage 2 + Stage 3 − Stage 3S.

A buffer (factor of safety) of 20% is added to the total, and this is then referred to as 'the nutrient budget'. If the nutrient budget comes out as less than or equal to zero, then the development has achieved nutrient neutrality.

[12] Nutrient budget calculator | GOV.WALES

To calculate the post 2030 budgets, the following calculation was used

> *Annual Wastewater Production (litres) multiplied by Phosphorus permitted limit (mg TP/l) divided by 1000000 (to convert milligrams to kilograms) and then rounded to two decimal places.*

These numbers were then used to create the Stage 4 totals and the Stage 4 totals plus 20%.

5. Assessment

The standard calculator has been used to estimate the potential Total Phosphorus impact of the proposed development (Appendix A). However, it does not provide a mechanism for accounting for the foul wastewater flows that could arise from the existing lawful office use.

Consultation between the developer and Y Gyfarwyddiaeth Gynllunio / Planning Directorate confirmed:

"The nutrient calculator is a model for estimation, based on the best scientific advice available at the time it was produced. It is open to an applicant for planning permission to use the calculator to inform their development proposals, or to provide their own scientific assessment of the ground conditions, including land cover analysis and nutrient runoff, to support their application. Such evidence would need to withstand the scrutiny of the relevant local planning authority and statutory consultees."

A site-specific assessment has therefore been undertaken to compare the estimated wastewater loads associated with the existing office use and the proposed residential use. The comparison applies stated assumptions regarding occupancy, operating days, and final effluent concentration. No changes are proposed to the building fabric as part of the proposed development with all changes will be undertaken internally.

5.1. Baseline

The baseline is the existing lawful office use, assessed at full occupation (Use Class B1). The appropriate comparison is therefore with the reasonable wastewater load that could arise from occupation of the premises under that lawful use.

5.2. Assessment

In this instance, it is also important to note that an illustrative like-for-like comparison can also be made by converting the estimated wastewater volumes for both uses into annual Total Phosphorus loads using the same final effluent concentration:

load (kg TP/year) = wastewater volume (litres/year) × final effluent TP concentration (mg/l) ÷ 1,000,000.

The daily flows and five-day/seven-day operating assumptions have been reproduced from the existing report's account of the Weetwood technical note[14]. The retrieved note identifies its baseline as the existing lawful office use, assessed at full occupation.

At full occupation, the proposed residential use is estimated to generate 9,000 litres/day over seven days, or 63,000 litres/week. The existing lawful office use, assessed at full occupation is estimated to generate 14,498 litres/day over five days, or 72,490 litres/week, giving a potential reduction of 9,490 litres/week. Using a common 365-day year, with office operation represented by 5/7 of the year, the annual volumes are approximately 3,779,836 litres for the office and 3,285,000 litres for the apartments.

At an assumed common final effluent TP concentration of 1.0 mg/l, the corresponding loads are 3.780 and 3.285 kg TP/year, respectively: proposed minus existing equals −0.50 kg TP/year. At 0.7 mg/l, the corresponding loads are 2.646 and 2.300 kg TP/year, respectively, with a net change of −0.35 kg TP/year.

These are whole-site wastewater-load estimates, not a revised calculator budget or measured discharges but highlight that the proposed change of use should result in an overall reduction based upon the information available to date and the figures presented in the technical note.

6. Mitigation Strategy

When considering the results of the site-specific assessment, it would appear that the proposed development should result in an overall reduction in the nutrient load and therefore should not require further mitigation.

In addition, consultation has also been undertaken with Dŵr Cymru, and this confirmed the following

"*Further to your email, we can advise that this WwTW has a phosphorus consent limit and is currently compliant with the 95% quartile for its flow passed forward (FPF) performance, at the time of this consultation. The WwTW has a phosphates permit of 1 mg/l, due to be restricted to 0.7mg/l by 31/3/30. Accordingly, we would advise there is currently suitable hydraulic capacity in the public sewerage system and downstream WwTW to accommodate foul water flows for a 30 apartment development*."[13]

Based upon the results of the assessment using the site-specific methodology, the assessment indicates that the proposed change of use would reduce, rather than increase, the Total Phosphorus load. On that basis, the development is considered nutrient neutral and no further mitigation is required.

[13] Email received from Dŵr Cymru Welsh Water on the 14th January 2026.

7. Conclusions

The proposed development comprises the change of use of the second and third floors of Roxburgh House, 12 Hill Street, Wrexham, from 1,933 m² of office accommodation to 30 one-bedroom apartments, together with minor works to provide a bin store, cycle storage and means of escape.

Following a request from Wrexham County Borough Council, an assessment has been undertaken in accordance with the Nutrient Budget Calculator for Special Areas of Conservation (SACs) in Wales to determine the likely change in Total Phosphorus loading arising from the proposed development.

The standard calculator provides a useful and precautionary method for assessing nutrient loading but does not fully represent the circumstances of this change-of-use proposal. In particular, it does not account for the foul wastewater load from the existing lawful office use, assessed at full occupation.

A site-specific assessment has therefore been completed, assessing the existing and proposed uses. The proposed residential use is estimated to generate up to 63,000 litres of wastewater per week, compared with 72,490 litres per week under the occupied-office baseline—a potential reduction of 9,490 litres per week. Applying the same final effluent concentration to both uses gives an estimated reduction of 0.50 kg TP/year at 1.0 mg/l and 0.35 kg TP/year at 0.7 mg/l. These are illustrative, unbuffered estimates rather than revised calculator outputs or measured discharges.

Dŵr Cymru Welsh Water has confirmed that Five Fords WwTW has a phosphorus consent, is compliant with its relevant performance requirements and has sufficient hydraulic capacity to accommodate foul flows from the proposed 30 apartments. The applicable phosphorus permit limits used in this assessment are 1.0 mg/l before 31 March 2030 and 0.7 mg/l thereafter.

Using the site-specific methodology, the assessment indicates that the proposed change of use would reduce, rather than increase, the Total Phosphorus load. On that basis, the development is considered nutrient neutral and no further mitigation is required.

Appendix A

Stage 1 - Additional Wastewater – residents

Typically, wastewater is conveyed from the development to the public sewerage and onto the WwTW for treatment before discharge to surface waters.

The proposed development comprises 30 new one bed apartments and some minor works at the rear of the property to provide a bin store, a cycle store and means of escape.

The standard annual average rainfall has been sourced from the Hawarden Airport Location-specific long-term averages - Met Office website which indicates an annual rainfall of 728.74mm. The calculator predicted 799 so this has been used as a worst case.

LandIS Soil Data Portal indicates that the site comprises Soil Drainage Type of "Freely Draining" (FreeDrain) and the site is not located within a Nitrate Vulnerable Zone. The site is in fact hardstanding.

The typical flows associated with the proposed development have been provided by Weetwood[14] as part of their Technical Note and these have been calculated utilising the *Flows and Loads – 4, British Water Code of Practice for Sizing Criteria, Treatment Capacity for Sewage Treatment Systems, November 2013.*

Flows and Loads – 4' recommends a water usage of 150 litres/person/day for residential development. The proposals are for 30 no. one-bedroom flats so the maximum number of persons on site is 60. The maximum calculated post development water usage per day is therefore 9,000 litres.

The wastewater for the proposed development will be conveyed to Five Fords Wastewater Treatment Works (WwTW) for treatment. Five Fords WwTW has a licence limit of 1.00 mg/l for Total Phosphorus pre 2030 and a reduced limit of 0.7 mg/l for phosphorus post 31st March 2030[15].

Entering these figures into the calculator gives the following future wastewater nutrient load for the different phases of the development and to account for the tightening regulations after the 31st March 2030.

> Stage 1 Result – **3.29 kg** TP/year (pre 2030) / **2.30 kg** TP/year (post 2030) (not including any buffer)

Stage 2 – Nutrient Loading from Existing Land Covers

The site is currently two floors comprising 1,933 m² of office space. The current landcover has been entered into the calculator as shown in Table 3.

Table 1 – Landcover classification - existing

Landcover	Area (hectares)
Commercial/industrial land	0.11
Total	0.11
Nutrient Load	
kg TP/year	0.13

[14] Weetwood Services Ltd, Technical Note - Foul Water Flow Calculation and Impact of Phosphates, January 2026

[15] Natural Resources Wales / Phosphorus limits on environmental permits for wastewater treatment work discharges

Stage 3 – Nutrient Loading from New Land Covers

With the proposed development there is no change to the land cover and therefore it has been entered the same as shown in Table 3.

Stage 3S - Nutrient Loading Removed Through SuDS

With no change in land cover, there is no proposed sustainable drainage strategy (SuDS) for the proposed development.

The Phosphorus Budget

The Total Phosphorus budget for this proposed development has been automatically calculated by adding the future wastewater and surface water nutrient loads together then subtracting the existing nutrient load. The calculator also adds a 20% buffer to account for uncertainty and future change, the final nutrient budget for this development is provided in Table 6, which reflects the pre and post 2030 budgets.

Table 2 – Total Phosphorus Budget

Stages	Pre 2030	Post 2030
	Values generated	
Phosphorus		
Stage 1 phosphorus load (kg TP/year):	3.29	2.30
Stage 2 nutrient loading from pre-existing land covers (kg TP/year):	0.13	0.13
Stage 3 nutrient loading from new land covers (kg TP/year):	0.13	0.13
Stage 3S phosphorus load removed through SuDS (kg TP/year):	0.00	0.00
Stage 4 – Final Nutrient Budget – Total Phosphorus budget ((Stage 1 - Stage 2) + (Stage 3 - Stage 3S)):	3.29	2.30
Stage 4 – Final Nutrient Budget – Total Phosphorus budget + 20% buffer	3.95 kg TP/year requires mitigation	2.76 kg TP/year requires mitigation

Based upon these calculations, the budget for the total site would be as follows

- Pre2030 (including 20% buffer) – 3.95 kg TP/year
- Post2030 (including 20% buffer) – 2.76 kg TP/year

Table 6 presents the output of the standard calculator, which assesses wastewater arising from the proposed residential development but does not account for wastewater associated with the existing lawful office use. It is therefore not the determinative site-specific comparison for this change-of-use proposal.

The appropriate assessment is the like-for-like comparison between the existing lawful office use and the proposed residential use presented in Chapter 5.