



Nutrient Neutrality Assessment and Mitigation Strategy

Land at Ashley Coombe, Warminster

December 2025

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Executive Summary

This section presents a non-technical summary of the outcomes of the Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS). The assessment has been undertaken to support a planning application for Land at Ashley Coombe, Warminster, Wiltshire.

The site lies within the Hampshire River Avon Special Area of Conservation (SAC), which is subject to advice issued by Natural England (NE) that all development should be nutrient neutral. This means that development should not increase the loadings of phosphorous (otherwise referred to as 'nutrients') entering the hydrological catchment.

The foul produced by the development is assumed to convey to the Warminster WwTW. Which has a current permit level of 0.5mg/litre for phosphorous. In accordance with the Levelling Up and Regeneration Act (LURA) it is assumed the phosphorus permit at Warminster WwTW will be upgraded to the highest Technologically Achievable Limit (TAL) of 0.25mg/l by 2030.

The nutrient budget for the proposed development has been calculated using the NE River Avon SAC Nutrient Budget Calculator. The nutrient budget has been assessed on the proposals for up to 80 dwellings and associated infrastructure.

The assessment concludes there is a need for nutrient mitigation to make the development nutrient neutral. Mitigation for the proposed residential development will be provided by the proposed surface water drainage strategy, which includes a retention basin, and through the purchase of third-party phosphorus credits within the catchment.



1 Introduction

1.1 Scope of the Report

- 1.1.1 This Nutrient Neutrality Assessment (NNAMS) has been prepared by Stantec on behalf of our Client, Rubix Land Ltd, to support development proposals on land at Land at Ashley Coombe, Warminster.
- 1.1.2 The purpose of this NNAMS is to undertake a desk-based assessment of the development proposals to calculate a nutrient budget. Based on this nutrient budget, a mitigation strategy will be developed which will address the site-specific approach that must be taken to offset the nutrient budget.
- 1.1.3 All work has been undertaken following the advice provided by Natural England (NE) in March 2022 in a letter titled 'Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impact on habitat sites. Natural England produced the River Avon SAC nutrient calculator in February 2024, which reflects the list of wastewater treatment works that are under a duty to meet specific nutrient removal levels.
- 1.1.4 The information given within this report is based on publicly available data at the time of writing and no discussions with consultees have been undertaken.

1.2 Sources of Information

- 1.2.1 The NNAMS has been prepared based on the following sources of information:
- "Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impact on habitats sites" prepared by Natural England dated 16th March 2022.
 - River Basin Management Plan '*South-West River Basin District*' prepared by DEFRA and EA, dated 2015.
 - The Natural England River Avon SAC Nutrient Neutrality Calculator produced by Ricardo Energy and Environment
 - Nutrient Neutrality Catchments (England) produced by Natural England and Environment Agency
 - Defra Magic Map website ^[1];
 - British Geological Survey, UK Soil Map.²
 - UK Centre for Ecology & Hydrology, National River Flow Archive³.
 - Cranfield Soil and Agrifood Institute, Soilscales.⁴
 - Environment Agency, Catchment Data Explorer⁵.

¹ <https://magic.defra.gov.uk/MagicMap.aspx>

² [UK Soil Observatory \(bgs.ac.uk\)](http://uksoil.ac.uk)

³ [Catchment Info for 52016 - Currypool Stream at Currypool Farm \(ceh.ac.uk\)](http://catchment.ceh.ac.uk)

⁴ [Soilscales soil types viewer - National Soil Resources Institute, Cranfield University \(landis.org.uk\)](http://soilscales.cranfield.ac.uk)

⁵ [England | Catchment Data Explorer](http://catchment.data.gov.uk)



2 Background

2.1 Nutrient Neutrality

- 2.1.1 Following the Dutch Nitrogen Case ('Dutch-N') which ruled that, where an internationally important site (i.e. SACs, SPAs and Ramsar Sites) is failing to achieve condition due to pollution, the potential for a new development to add to the nutrient load is "necessarily limited". The Dutch-N case has informed the way in which regulation 63 of the Habitats Regulation 2017 should apply to pollution related incidents.
- 2.1.2 In March 2022, NE issued a letter 'Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impact on habitat sites' providing background and outlines that there is evidence showing high levels of nutrient input to the environment causing eutrophication at specific sites with environmental designations. These nutrient inputs are currently caused by wastewater from existing housing and agricultural sources, and there is uncertainty as to whether new growth will further deteriorate designated sites.
- 2.1.3 One way to address this uncertainty if for new developments to achieve nutrient neutrality. Nutrient neutrality is a means of ensuring that that development does not add to existing nutrient burdens and aims to provide certainty that the whole scheme is deliverable in line with the requirements of the Conservation of Habitats and Species Regulation 2017 (as amended).
- 2.1.4 NE have set out the planning and environmental context for nutrient neutral approach as well as a practical methodology to calculating how nutrient neutrality can be achieved. Natural England states that "the achievement of nutrient neutrality, if scientifically and practically effective, is a means of ensuring that development does not add to existing nutrient burdens".
- 2.1.5 Therefore, in line with national planning policy, the advice is that the competent authority should consider the implications of these matters on the Ramsar Site by undertaking a Habitats Regulation Assessment (HRA), proceeding to an appropriate assessment. The appropriate assessment must rule out any reasonable doubt as to the likelihood of an adverse impact on the integrity of the site, having regard to its conservation objectives.
- 2.1.6 In relation to mitigation, the letter explains that it should be in place so as to avoid either permanent, or temporary increases in phosphate loads to the designated site and must be effective for the duration of the effect. In the case of new housing the duration of the effect is typically taken as in perpetuity, with the costs of maintaining, monitoring and enforcing mitigation calculated for a minimum of 80 – 125 years.

2.2 Water Quality

- 2.2.1 The Water Framework Directive (WFD) (Commission of the European Communities, 2000) (ref 13.2) establishes a framework for a European-wide approach to action in the field of water policy. Its ultimate aim is to ensure all inland and near shore watercourses and water bodies (including groundwater) are of 'Good' status or better, in terms of ecology, and also chemical, biological and physical parameters, by the year 2027. Therefore, any activities or developments that could cause detriment to a nearby water resource or prevent the future ability of a water resource to reach its potential status, must be mitigated so as to reduce the potential for harm and allow the aims of the Directive to be realised.
- 2.2.2 The Environment Agency (EA) Catchment Data Explorer website has water quality data available for watercourses. This includes background data on the catchment, the existing standards of water quality and expected standards of water quality the watercourse is expected to achieve by set dates which are reviewed on a seven-year cycle. Also included are any national or local protected areas.



- 2.2.3 The Environment Agency Catchment Data Explorer website has water quality data relating to the WFD targets for 2027. Based on the most recent water quality data recorded in 2019, the Avon Hampshire Management catchment data indicates 71% of water bodies have not achieved good ecological status and 100% have not achieved good chemical status. Evidence indicates that of the classification elements for not achieving good is total phosphorus.

Types of Phosphorus

- 2.2.4 The forms of phosphorous need to be recognized when calculating nutrient budgets. The key measure for still and very slow flowing waters such as lakes or ditches is total phosphorous (TP) because this is available for algae and plant growth. For rivers, the designated sites standards are for Soluble Reactive Phosphorous (SRP) as both an annual and a growing season mean. The relationship between SRP and TP is not straight forward and can vary between, and even within catchments. Modern WwTW permits usually have values for total phosphorous and the Environment Agency guidance on technically achievable limit (TAL) is for total phosphorous.

Designation Current Condition

- 2.2.5 The River Avon system supports habitats and species of national and international importance, with Sites of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA) designations. The total catchment area is approximately 1,750 km² with 205 km of river designated as SSSI.
- 2.2.6 The River Avon is listed as a Special Area of Conservation (SAC) under the Conservation of Habitats and Species 2017 (the Habitats Regulations). The River Avon its tributaries are chalk rivers flowing through narrow chalk valleys that converge at Salisbury. The River Avon supports over 180 species of plants. The diverse aquatic plant communities support an extremely rich invertebrate life such as mayfly and snails that in turn support aquatic species such as Atlantic salmon and bullhead. Adjacent and linked wetland on the floodplain comprises wet swamp and fen, providing habitat for the Desmoulin's whorl snail.
- 2.2.7 Some of the designated sites have high levels of phosphorus input to the protected water environment with sound evidence that these nutrients are causing eutrophication at these designated sites. These nutrient inputs currently mostly come either from agricultural sources or from wastewater from existing housing and other development.

2.3 Levelling Up and Regeneration Act

- 2.3.1 The Levelling Up and Regeneration Act (LURA) places a legal obligation on water and sewerage providers to upgrade Wastewater Treatment Works (WwTW), also referred to as WRC, to the "highest Technologically Achievable Limit (TAL)" by 2030 (serving a population equivalent of greater than 2000), which is enforceable via the provisions of Section 18 of the Water Industry Act, 1991.
- 2.3.2 The government released a list of nutrient significant plants⁶ which are required to be upgraded in accordance with the LURA, the list indicates the phosphorus permit for Warminster WwTW is to be upgraded to 0.25mgTP/l by 2030.

⁶ <https://www.gov.uk/government/publications/notice-of-designation-of-sensitive-catchment-areas-2024/information-about-nutrient-significant-plants>



3 Proposed Development Site

3.1 Site Description

- 3.1.1 The proposed development site (hereafter referred to as '*the site*') is located at Land at Ashley Coombe, Warminster. The site is located north of the A36 and east of Deverill Road. (see **Figure 3.1**) (see **Appendix A**).

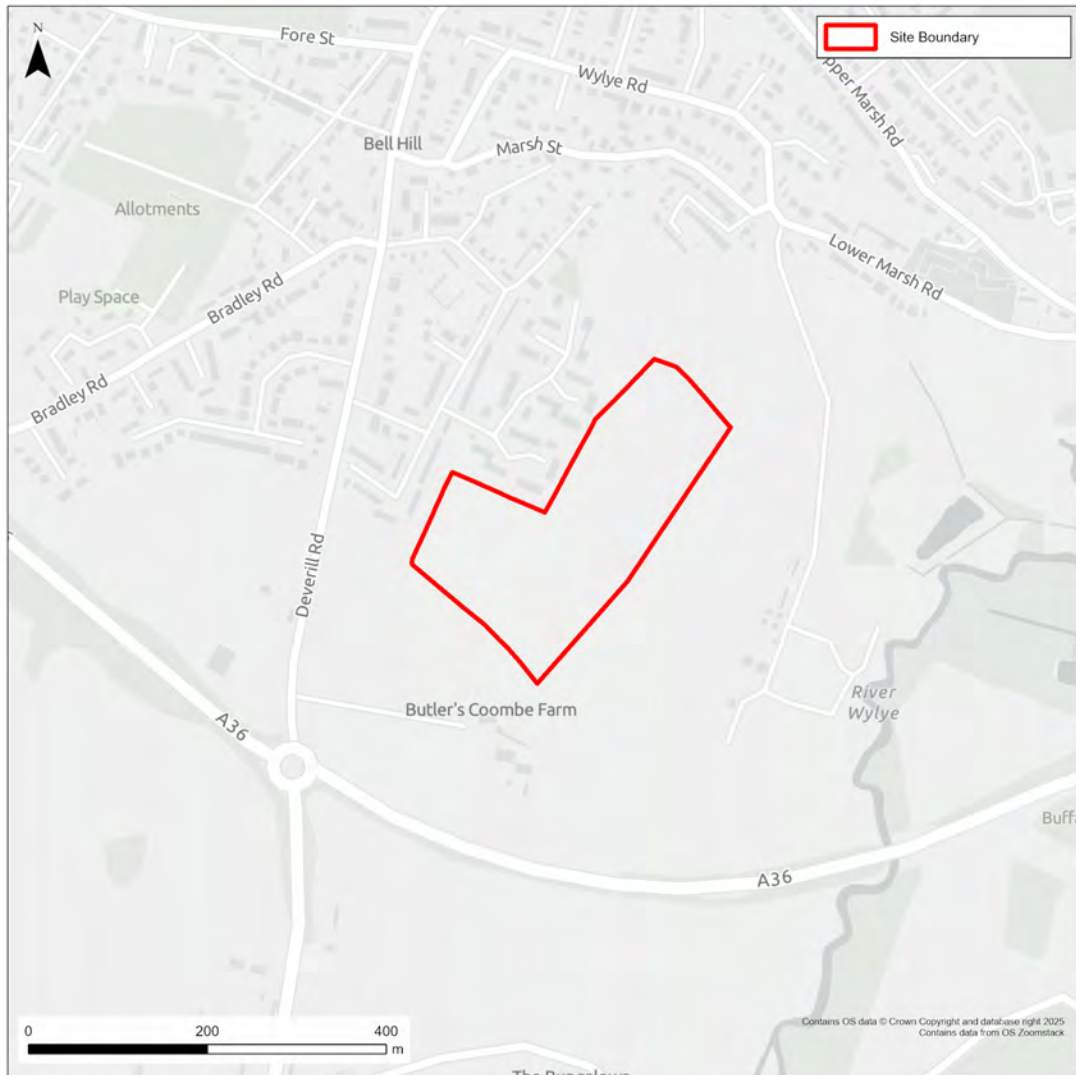


Figure 3.1: Site Location

- 3.1.2 The site is centred around the Ordnance Survey (OS) grid reference 387050m E, 143775m N and with an area of approximately 5.54 ha.

3.2 Hydrological Setting and the Water Framework Directive

- 3.2.1 The nearest watercourse to the site is the River Wylve located approximately 0.3 km east of the site. The River Wylve flows northeast and discharges into the River Nadder approximately 30 km downstream, ultimately discharging into the River Avon.



Water Framework Directive

- 3.2.1 The site falls within the Wylfe (Headwaters) Water Body (part of the Avon Hampshire Operational Catchment). The Environment Agency (EA) Catchment Data Explorer website has water quality data relating to the WFD targets for 2027. Based on the most recent water quality data recorded in 2019, the Wylfe (Headwaters) Water Body received a 'Poor' ecological classification and a 'Fail' for chemical water quality.
- 3.2.2 Data shows the reasons for the Wylfe (Headwaters) Water Body not achieving 'Good' status. These include but aren't limited to natural mineralisation effecting phosphate.

3.3 Geology and Hydrogeology

- 3.3.1 The Geology of Britain viewer provided by the British Geological Survey (BGS) indicates the site is predominantly underlain by a bedrock of Boyne Hollow Chert Member – Sandstone, with an area in the south of the site underlain by Shaftsbury Sandstone Member – Sandstone.
- 3.3.2 The aquifer designation map indicates the bedrock geology of the site is designated as a Principal aquifer, and superficial deposits designated as a Primary aquifer.
- 3.3.3 Soilsmap indicates the site to be Soilsmap 6 – freely draining slightly acid loamy soils. The site is indicated to lie within a Nitrate Vulnerable Zone (NVZ).

3.4 Development Proposals

- 3.4.1 This report will review the nutrient management for a proposed development for up to 80 residential dwellings, greenspace and associated infrastructure.
- 3.4.2 Foul water from the proposed development is assumed to be treated by the nearest Wastewater Recycling Centre (WRC), which has been identified as Warminster WwTW. The surface water drainage strategy proposes to discharge via surface water sewer.
- 3.4.3 A masterplan is provided in **Appendix B**.



4 Nutrients Budget Assessment

4.1 Methodology

- 4.1.1 The Nutrient Budget Assessment has been undertaken by applying the NE River Avon SAC Budget Calculator. The four stages of the nutrient budget calculations are outlined below. A copy of the calculation is provided in **Appendix E**.

4.2 Stage 1 - Wastewater

- 4.2.1 The aim of Stage 1 is to calculate TP in kilograms per annum derived from the development that would exit the WwTW after treatment. This only applies to WwTW that discharge to the River Avon SAC.
- 4.2.2 In the NE River Avon SAC Budget Calculator, the additional population is determined by applying suitable occupancy rates. For houses, the occupancy rate is 2.4 persons/dwelling.
- 4.2.3 The nutrient load is calculated from the scale of water used. Thus, the higher water efficiency standards under the building regulations would minimise the increase in nutrients from the development. The NE River Avon calculator applies a water usage of 120 litres per person per day, which is inclusive of a 10l buffer recommended by NE.
- 4.2.4 For most planning applications the WwTW provider is not confirmed until after the planning permission is granted. The nutrient calculation should be based on the permit levels of the most likely WwTW, which for this development, is Warminster WwTW. The permit level for Warminster WwTW is currently set at 0.5mg/l.
- 4.2.5 Based on the proposals of 80 dwellings, the Total phosphorus discharge after treatment at the sewage works calculated for the site is **3.79 kgTP/yr**.

4.3 Stage 2 – Pre-Development Land Use

- 4.3.1 The aim of Stage 2 is to adjust the Phosphorous load to offset the existing nutrient load from current land. The phosphate budget calculator uses a Farmscoper model for the River Avon SAC catchment to estimate the loss of nutrients from different farm types in relevant catchments and takes into account the drainage type of the soil on site.
- 4.3.2 It is recommended that the selection of the farm type is based on last 10 years land use and professional judgement as to what the land would revert to in the absence of the proposed development.
- 4.3.3 Based on a review of the historic aerial imaging and the Crop Map of England (CROME) dataset, the pre-development land use of the site has been determined and are presented in **Table 4.1** and in **Figure 4.1**.

Table 4.1: Post-Development Land Uses

Land Use	Area (ha)
Cereals	2.19
Greenspace	3.35
Total	5.54





Figure 4.1: Pre-Development Land Use Plan

- 4.3.4 The output from Stage 2 is the total nutrient load resulting from the current land use. The nutrient load from current land usage is **0.33 kgTP/yr**.

4.4 Stage 3 – Post-Development Land Use

- 4.4.1 The aim of Stage 3 is to adjust the phosphorus load to account for land uses with the proposed development. This includes the nutrient load from the proposed urban development and from the new open space including any Suitable Alternative Natural Greenspace (SANG), Nature Reserves or Bird Refuge Areas.
- 4.4.2 The areas for the proposed development, provided in **Table 4.2** as based upon the masterplan (see **Figure 4.2**).

Table 4.2: Post-Development Land Uses

Land Use Definition	Proposed Land Uses	Area (ha)
Residential	Residential dwellings, verges, roads	2.33
Open Urban	LEAP/LAP	0.19
Greenspace	Greenspace, SuDS	3.02
Total		5.54



Figure 4.2: Development Proposals

- 4.4.3 The output from Stage 3 is the total nutrient load resulting from the proposed land usage. The nutrient load generated by the proposed land uses within the masterplan is **4.32 kgTP/yr**.

4.5 Stage 4 – Nutrient Budget

- 4.5.1 The aim of Stage 4 is to calculate the net change in the nutrient load that would result from the development.



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4.5.2 The net change is calculated by the difference between the TP load calculated for the proposed development and that for the existing land use, using the best available data and evidence. A precautionary buffer of 20% is applied to the nutrient budget. This precautionary buffer is used to recognise the uncertainty with the data and ensures the approach is precautionary.

4.5.3 **Table 4.3** presents a breakdown of the nutrient budgets for the proposed development.

Table 4.3: Calculated Nutrient Budget

Calculation Stage	Calculation Output	Budget (kgTP/yr)
Stage 1	Annual Wastewater load (kg/yr)	3.79
Stage 2	Pre-development Annual Nutrient Export (kg/yr)	0.33
Stage 3	Post-development Total Annual Nutrient Export (kg/yr)	4.32
Stage 4	Nutrient Budget (kg/yr)	7.78
Stage 4	Nutrient Budget incl 20% buffer (kg/yr)	9.33

4.5.4 The results shown in **Table 4.3** demonstrate there is a nutrient surplus created by the development proposals assessed. Therefore, there will be a requirement for the development to demonstrate nutrient neutrality through the application of mitigation in order to achieve planning consent.

4.6 2030 Scenario

4.6.1 In accordance with the LURA, as Warminster WwTW serves a population greater than 2,000 and is included in the DEFRA list of nutrient significant plants, the permit limit will be reduced to 0.25mgTP/l by 2030. Therefore, an assessment of the nutrient budget has been undertaken for the post TAL scenario, the outcomes are presented in **Table 4.4**. For the TAL scenario, the NE River Avon Calculator applies discharge levels based on 90% of the TAL limits, e.g. 0.23mgTP/l. A copy of the calculations is provided in **Appendix E**.

Table 4.4: Post 2030 Nutrient Budget

Calculation Stage	Calculation Output	Budget (kgTP/yr)
Stage 1	Annual Wastewater load (kg/yr)	1.89
Stage 2	Pre-development Annual Nutrient Export (kg/yr)	0.33
Stage 3	Post-development Total Annual Nutrient Export (kg/yr)	4.32
Stage 4	Nutrient Budget (kg/yr)	5.88
Stage 4	Nutrient Budget incl 20% buffer (kg/yr)	7.05



5 Mitigation Strategy

5.1 Overview

- 5.1.1 The nutrient budget assessment indicates there is a requirement for mitigation to achieve neutrality. This section outlines the elements that will form the mitigation strategy for the proposed development.

5.2 Onsite SuDS

- 5.2.1 Sustainable Drainage System (SuDS) features are an effective way to treat a development's surface water to reduce the amount of pollution entering watercourses from new development.
- 5.2.2 The proposed surface water drainage strategy for the site is to discharge via surface water sewer using a retention basin. Therefore, an assessment of the nutrient removal benefit provided via the proposed SuDS features has been undertaken in accordance with CIRIA C808F, 'Using SuDS to treat phosphorus in surface water runoff' (2024).
- 5.2.3 CIRIA C808F provides removal efficiency for different SuDS features given for particulate phosphorus (PP) and dissolved phosphorus (DP) and assumed Total Phosphorus is comprised of a PP:DP ratio of 55:45. The phosphorus removal efficiencies for a retention basin are provided in **Table 5.1** below.

Table 5.1: SuDS Phosphorus Removal Efficiencies extracted from CIRIA C808F

SuDS Feature	PP Removal	DP Removal	TP Removal Efficiency
Retention Basin	28%	23%	51%

- 5.2.4 The TP removal efficiency of 51% has been applied within the NE River Avon SAC Budget Calculator, reducing the nutrient budget. The nutrient budgets accounting for SuDS are provided in **Table 5.2**.

Table 5.2: Nutrient Budget including SuDS

Permit Scenario	TP Budget (kgTP/yr)
Current	6.84
Post TAL	4.56

- 5.2.5 A copy of the calculations is provided in **Appendix F**.

5.3 Nutrient Credits

- 5.3.1 Accounting for the benefit provided via SuDS and through the permit upgrades at Warminster WwTW, the remaining nutrient budget will be mitigated through the purchase of temporary and permanent from a third-party credit provider within the catchment to achieve nutrient neutrality in the current and post-2030 scenario.



Nutrient Neutrality Assessment and Mitigation Strategy

5.3.2 Due to the permit upgrades at Warminster WwTW, the nutrient credit requirement is separated into temporary and permanent credits, outlined below:

- Temporary (Pre-2030): 2.28 kgTP/yr
- Permanent (In perpetuity): 4.56 kgTP/yr



6 Summary

6.1 Overview

- 6.1.1 This NNAMS has been prepared to support a planning application for the proposed residential development at the land at Ashley Coombe, Warminster, Wiltshire. This information given within this report is based on publicly available data at the time of writing and no discussion with consultees have been undertaken.
- 6.1.2 The site lies within the Avon Hampshire Operational Catchment, more specifically the Wylfe (headwaters) Water Body, which received a 'Poor' ecological classification and a 'Fail' for chemical water quality. It is assumed that foul water from the proposed development will discharge to Warminster WwTW.
- 6.1.3 The site and proposed WwTW discharge lie within the River Avon SAC catchment and are required to demonstrate nutrient neutrality.

6.2 Nutrient Budget

- 6.2.1 The nutrient budget has been assessed using the NE River Avon SAC Budget Calculator, based on the proposal for up to 80 dwellings, associated infrastructure, and greenspace. The calculated nutrient budget demonstrates the requirement for nutrient mitigation to achieve nutrient neutral development.
- 6.2.2 The nutrient budget calculations account for future permit upgrades in accordance with the Levelling Up and Regeneration Act.

6.3 Mitigation Strategy

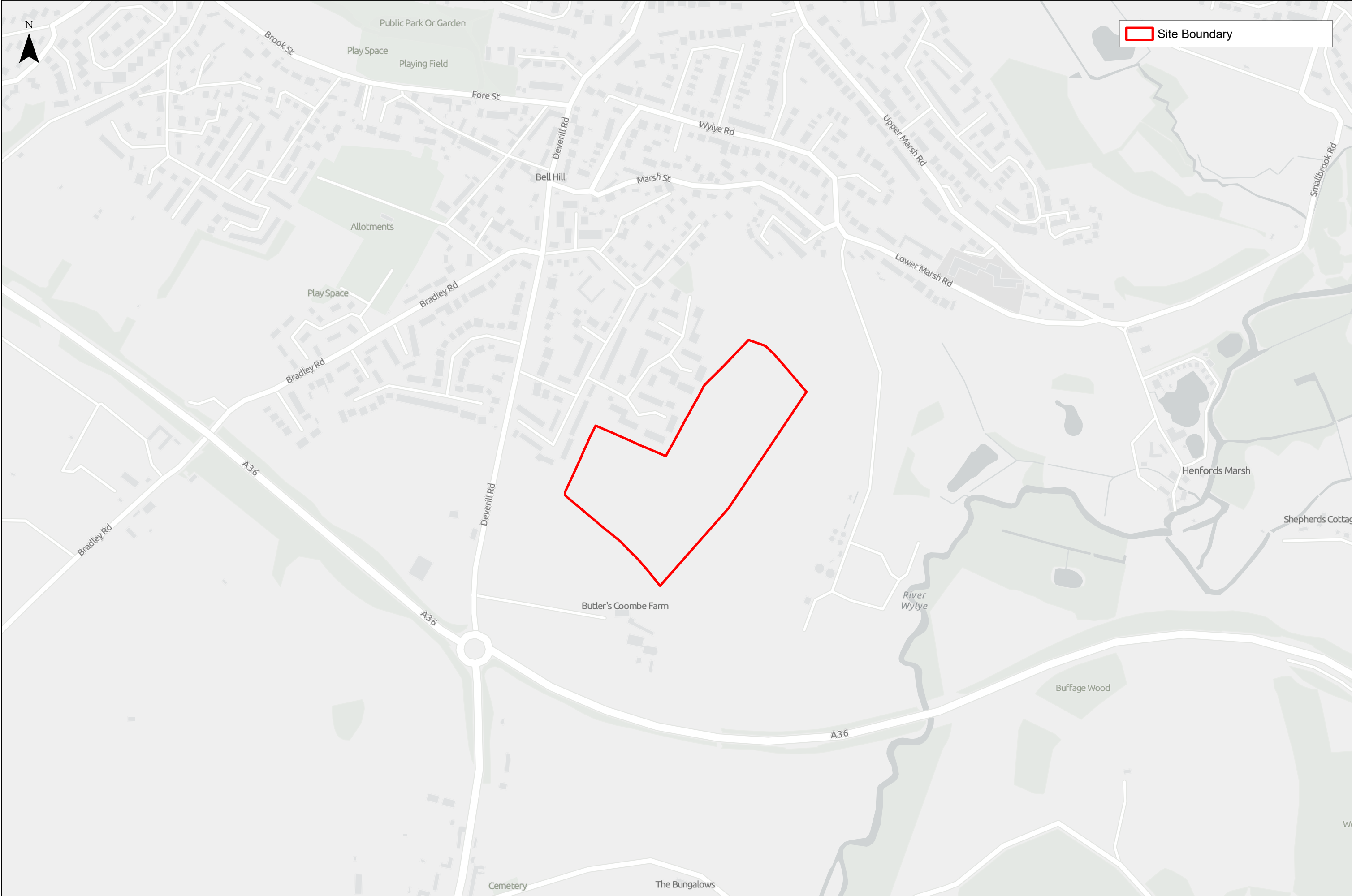
- 6.3.1 The NNAMS demonstrates that the nutrient budget will be mitigated by the proposed surface water drainage strategy, which includes a retention basin, and through the purchase of phosphorus credits, allowing the entire proposed development to achieve neutrality.



Appendix A Site Location



Project Number: 332612941

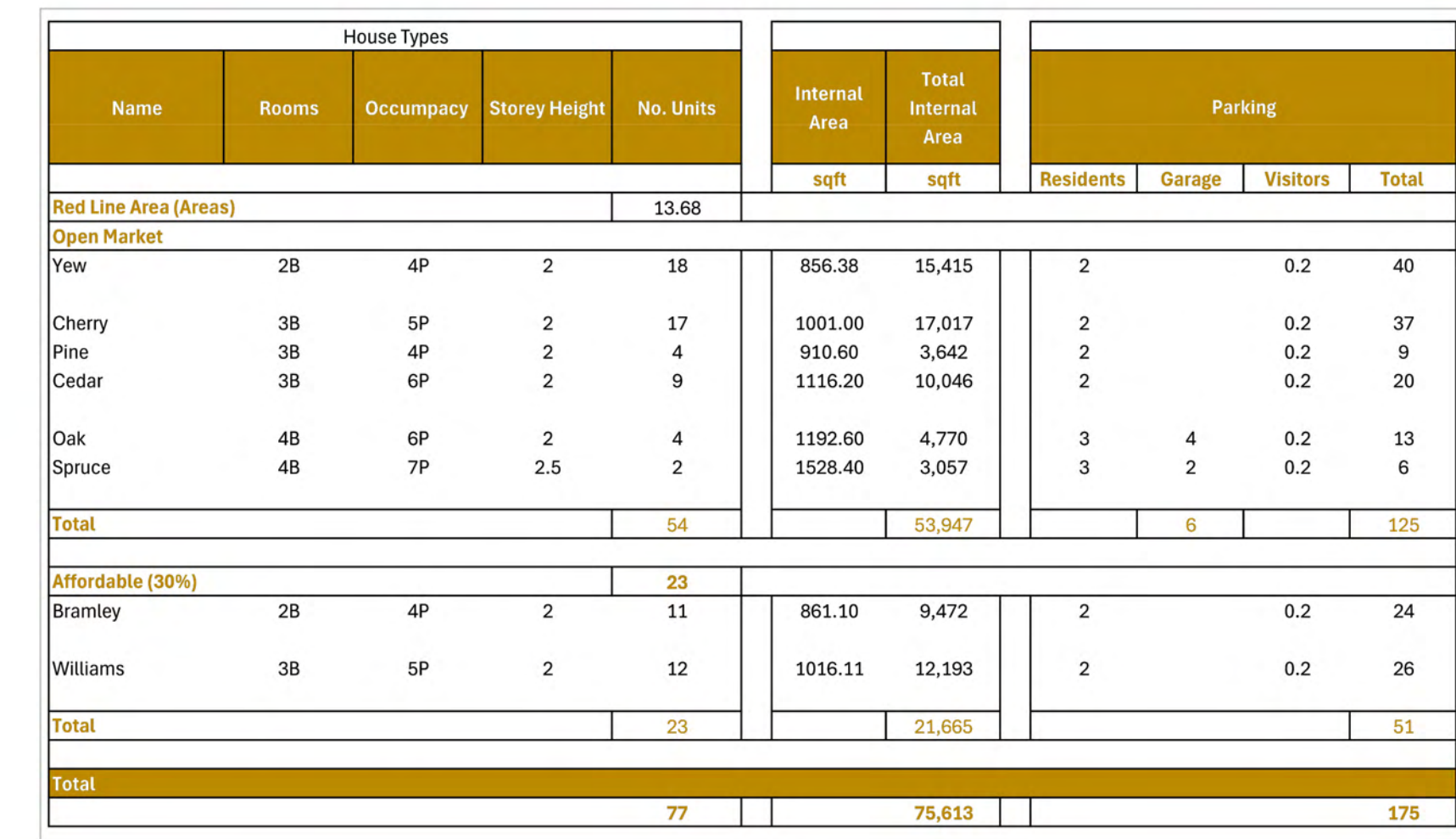


 Stantec	Client	LAND AT ASHLEY COOMBE, WARMINSTER Site Location	0 250 500 m Contains OS data © Crown Copyright and database right 2025 Contains data from OS Zoomstack	1:5,000 @ A3	Date: 10/11/2025
	Rubix Land Ltd			Drawn: EJ	Checked: RR
				Figure: 01	Rev: A

Appendix B Development Proposals



Project Number: 332612941



	Acres	Hectares
Coverage		
Gross Site Area	13.68	5.54
POS	7.93	3.21
Infrastructure	0.15	0.06
Net Site Developable Area	5.60	2.27
Dwellings Per Net Coverage	14 13.503	

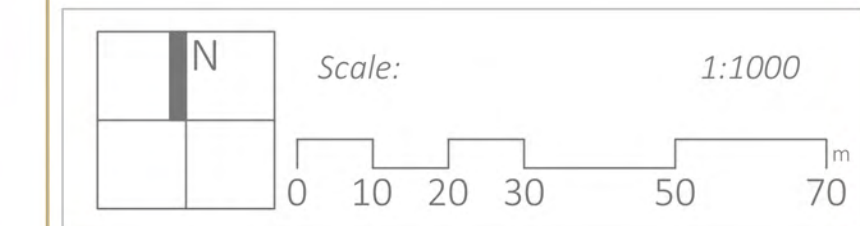
Land Off Ashely Combe
Warminster

Illustrative Layout

Project Number	RL102
Location	Warminster
Client	Rubix Land

Drawing Number:	Revision:
120	A

Date:	Drawn By:	Paper:
05/25	AW	A1



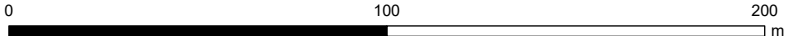
This plan is provided as an illustration only, without the benefit of full due diligence. No reliance should be placed on the accuracy of this plan.

Appendix C Pre-Development Land Use



Project Number: 332612941



	Client Rubix Land Ltd	LAND AT ASHLEY COOMBE, WARMINSTER Pre-development Land Use	 Microsoft, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community		1:2,000 @ A3	Date: 10/11/2025
					Drawn: EJ	Checked: RR
			Figure: 02			Rev: A

Appendix D Post-Development Land Use



Project Number: 332612941



	Client	LAND AT ASHLEY COOMBE, WARMINSTER Post-development Land Use	 Contains OS data © Crown Copyright and database right 2025 Contains data from OS Zoomstack	1:2,000 @ A3	Date: 10/11/2025
	Rubix Land Ltd			Drawn: EJ	Checked: RR
				Figure: 03	Rev: A

Appendix E Nutrient Budget Calculations



Project Number: 332612941

Nutrients from wastewater		
This sheet contains 2 tables. The tables are separated by a heading, which describes the following table. Note: You will need to fill in cells B5 to B9 in the first table 'Water infrastructure information'. Cells B10 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A11 to A12 and B11 to B12 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B9. You may need to fill in cell C10 depending on the information you entered in cell B9. Cells C5 to C9 and cells C11 to C12 are intentionally blank cells. You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B16 to B18 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A19 to A22, cells B20 and B22 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B15, cell B19 and cell B21 are intentionally blank cells. How to fill in the table 'Water infrastructure information' Cell B5: Enter the date of first occupancy. Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence. Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used. Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date. Cell B9: Choose the receiving wastewater treatment works (WwTW) from the dropdown list. If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total phosphorus (TP) in cell C10. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater. Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B10 to B12. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B18, B20 or B22.		
Water infrastructure information		
Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	80	
Wastewater treatment works:	Warminster WwTW	
Current wastewater treatment works P permit (mg TP/litre):	0.50	
Not applicable	Not applicable	
Post 2030 WwTW P permit (mg TP/litre):	0.25	
Final calculation of nutrient load from wastewater		
Description of values generated	Values generated	
Post-2030 wastewater nutrient Loading		
Additional population (people):	192.00	
Wastewater by development (litres/day):	23040.00	
Annual wastewater TP load (kg TP/yr):	1.89	
Pre-2030 wastewater nutrient loading		
Annual wastewater TP load (kg TP/yr):	3.79	
Not applicable		
Not applicable	Not applicable	

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.

Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28, C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.

How to fill in the table 'Current land use information'

Cell B5: Choose the operational catchment the site is located within from the dropdown list.

Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.

Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.

Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.

How to fill in the table 'Current land uses'

Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list. Cells B11-B27: Enter the area in hectares of each land use type.

The nutrient load from current land uses is shown in cells C11-C27 for total phosphorus (TP). The total nutrient load from current land uses is shown in cell C28 for TP.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	Avon Hampshire
Soil drainage type:	Freely draining
Annual average rainfall (mm):	850.1 - 900
Within nitrate vulnerable zone (NVZ):	Yes

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)	Notes on data
Cereals	2.19	0.27	Not applicable
Greenspace	3.35	0.07	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	5.54	0.33	

Nutrients from future land use

This sheet contains one table.

Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'

Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.

The nutrient load from future land uses is shown in cells C5 to C21 for total phosphorus (TP).

The total nutrient load from future land uses is shown in cell C22 for TP.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)
Residential urban land	2.33	4.08
Open urban land	0.19	0.18
Greenspace	3.02	0.06
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	5.54	4.32

Final nutrient budgets	
This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets. Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cells B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank. This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B24 for total phosphorus (TP).	
Total nutrient budget calculations	
Description of values generated	Values generated
Wastewater TP load (kg TP/year):	1.89
Net land use TP change (kg TP/year):	3.99
TP budget:	5.88
TP budget + 20% buffer:	7.05
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	7.05
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	9.33
Not applicable	
Not applicable	Not applicable

Appendix F Mitigation Strategy



Project Number: 332612941

Nutrients from wastewater		
This sheet contains 2 tables. The tables are separated by a heading, which describes the following table. Note: You will need to fill in cells B5 to B9 in the first table 'Water infrastructure information'. Cells B10 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A11 to A12 and B11 to B12 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B9. You may need to fill in cell C10 depending on the information you entered in cell B9. Cells C5 to C9 and cells C11 to C12 are intentionally blank cells. You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B16 to B18 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A19 to A22, cells B20 and B22 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B15, cell B19 and cell B21 are intentionally blank cells. How to fill in the table 'Water infrastructure information' Cell B5: Enter the date of first occupancy. Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence. Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used. Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date. Cell B9: Choose the receiving wastewater treatment works (WwTW) from the dropdown list. If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total phosphorus (TP) in cell C10. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater. Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B10 to B12. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B18, B20 or B22.		
Water infrastructure information		
Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	80	
Wastewater treatment works:	Warminster WwTW	
Current wastewater treatment works P permit (mg TP/litre):	0.50	
Not applicable	Not applicable	
Post 2030 WwTW P permit (mg TP/litre):	0.25	
Final calculation of nutrient load from wastewater		
Description of values generated	Values generated	
Post-2030 wastewater nutrient Loading		
Additional population (people):	192.00	
Wastewater by development (litres/day):	23040.00	
Annual wastewater TP load (kg TP/yr):	1.89	
Pre-2030 wastewater nutrient loading		
Annual wastewater TP load (kg TP/yr):	3.79	
Not applicable		
Not applicable	Not applicable	

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.

Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28, C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.

How to fill in the table 'Current land use information'

Cell B5: Choose the operational catchment the site is located within from the dropdown list.

Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.

Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.

Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.

How to fill in the table 'Current land uses'

Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list. Cells B11-B27: Enter the area in hectares of each land use type.

The nutrient load from current land uses is shown in cells C11-C27 for total phosphorus (TP). The total nutrient load from current land uses is shown in cell C28 for TP.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	Avon Hampshire
Soil drainage type:	Freely draining
Annual average rainfall (mm):	850.1 - 900
Within nitrate vulnerable zone (NVZ):	Yes

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)	Notes on data
Cereals	2.19	0.27	Not applicable
Greenspace	3.35	0.07	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	5.54	0.33	

Nutrients from future land use

This sheet contains one table.

Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'

Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.

The nutrient load from future land uses is shown in cells C5 to C21 for total phosphorus (TP).

The total nutrient load from future land uses is shown in cell C22 for TP.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)
Residential urban land	2.33	4.08
Open urban land	0.19	0.18
Greenspace	3.02	0.06
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	5.54	4.32

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.

Note: You will need to fill in cells B5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SD3 to remove nutrients from the surface runoff. Cells B30, D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.0' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients, from_future_land_use'. Row 30 is a Total Row. The Total Row states 'Totals': in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell C30, cell F30 and cell H30 are intentionally blank.

How to fill in the table 'SuDS information'

Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.

Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.

The annual total phosphorus (TP) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29

Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.

Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TP.
Values for column E must be identified by the user and must be specific to the SuDS features being implemented

The annual TP load removed by the SuDS features are automatically calculated in cells G5 to G29. These values are subtracted from the nutrient budget.

You do not need to fill in column H 'Notes on data'. It will state "Not applicable" unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients from future land use'

The total nutrient load removed through the SuDS features is shown in cell G30 for TP.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual phosphorus inputs to SuDS feature(s) (kg T/yr)	Name of SuDS feature(s) - user inputs required	TP removal rate for features - user specified (%) - user inputs required	Annual phosphorus load removed by SuDS (kg TP/yr)	Notes on data
Residential urban land	2.33	100.00	4.08	Retention Basin	51.00	2.08	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	2.33		4.08			2.08	

Final nutrient budgets	
This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets. Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cells B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank. This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B24 for total phosphorus (TP).	
Total nutrient budget calculations	
Description of values generated	Values generated
Wastewater TP load (kg TP/year):	1.89
Net land use TP change (kg TP/year):	1.91
TP budget:	3.80
TP budget + 20% buffer:	4.56
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	4.56
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	6.84
Not applicable	
Not applicable	Not applicable