

10679 – Church Road, Laverstock, Salisbury

Technical Note 01 Rv5: Nutrient Assessment and Mitigation Strategy

30 June 2026

Document Status

Rev	Issue Status	Prepared / Date	Checked / Date	Approved / Date
2	Draft	PF 18.03.2026	DS 18.03.2026	DS 18.03.2026
3	Draft	ES 27.03.2026	PF 27.03.2026	HW 27.03.2026
4	Final	ES 30.03.2026	PF 30.03.2026	HW 30.03.2026
4	Final	PF 29.06.2026	HW 30.06.2026	HW 30.06.2026

1 Executive Summary

- 1.1.1 Brookbanks is appointed by Hallam Land to complete a nutrient assessment and mitigation strategy (NNAMS) for the proposed development of 110 dwellings at Church Road, Salisbury ('The Site'). This note sets out an initial nutrient appraisal to determine if any additional Total Phosphorus (TP) will be discharged from the proposed development and outlines a mitigation strategy to ensure nutrient neutrality.
- 1.1.2 It is important that the development achieves nutrient neutrality in response to guidance for Water Quality and Nutrient Neutrality Advice published on the 16th of March 2022 from Natural England (NE). This letter focuses on proposals with the potential to affect the water quality of natural habitats near and downstream of development sites. Surface and foul water discharge from the site outfall into tributaries of the River Avon Special Area of Conservation (SAC). The means that before any development is able to proceed, this site must show that it can achieve nutrient neutrality to protect the SAC.
- 1.1.3 The proposed surface water management strategy incorporates Sustainable Urban Drainage Systems (SuDS) in line with CIRIA guidance (Bradley, 2022). An infiltration basin along the western boundary of the Site is designed to fully infiltrate surface water runoff from urban areas, achieving 100% reduction of phosphorus from surface water. SuDS measures form a key part of the nutrient neutrality strategy by reducing TP contributions from runoff before it enters receiving watercourses.
- 1.1.4 Under the Levelling Up and Regeneration Act (LURA, 2023), certain wastewater treatment works (WwTWs) are required to upgrade to achieve Technically Achievable Limits (TAL) for phosphorus discharge by 2030. Foul flows from the development will be treated at Salisbury Petersfinger WwTW, which is subject to these upgrades. The TP permit at the works will reduce from 1 mg/l to 0.25 mg/l post-2030, reducing the TP load discharged from the development.
- 1.1.5 The nutrient assessment identifies a TP budget of **10.96 kgTP/year** prior to 2030 and **1.98 kgTP/year** following 2030. To ensure that the Site does not result in an adverse effect on the integrity of the River Avon SAC, mitigation will be required to offset these additional nutrient inputs and achieve nutrient neutrality.

- 1.1.6 The mitigation strategy for ensuring the Site remains nutrient neutral is to temporarily fallow **7.41 ha** of cereal land up to 2030 and to permanently fallow **1.34 ha** of cereal land after 2030.

2 Development Context

- 2.1.1 The site is bound to the west by Church Road and existing residential development, to the north and east by agricultural fields and nature reserve, to the south by employment building.
- 2.1.2 **Figure 2-1** illustrates the indicative location of the proposed development site.

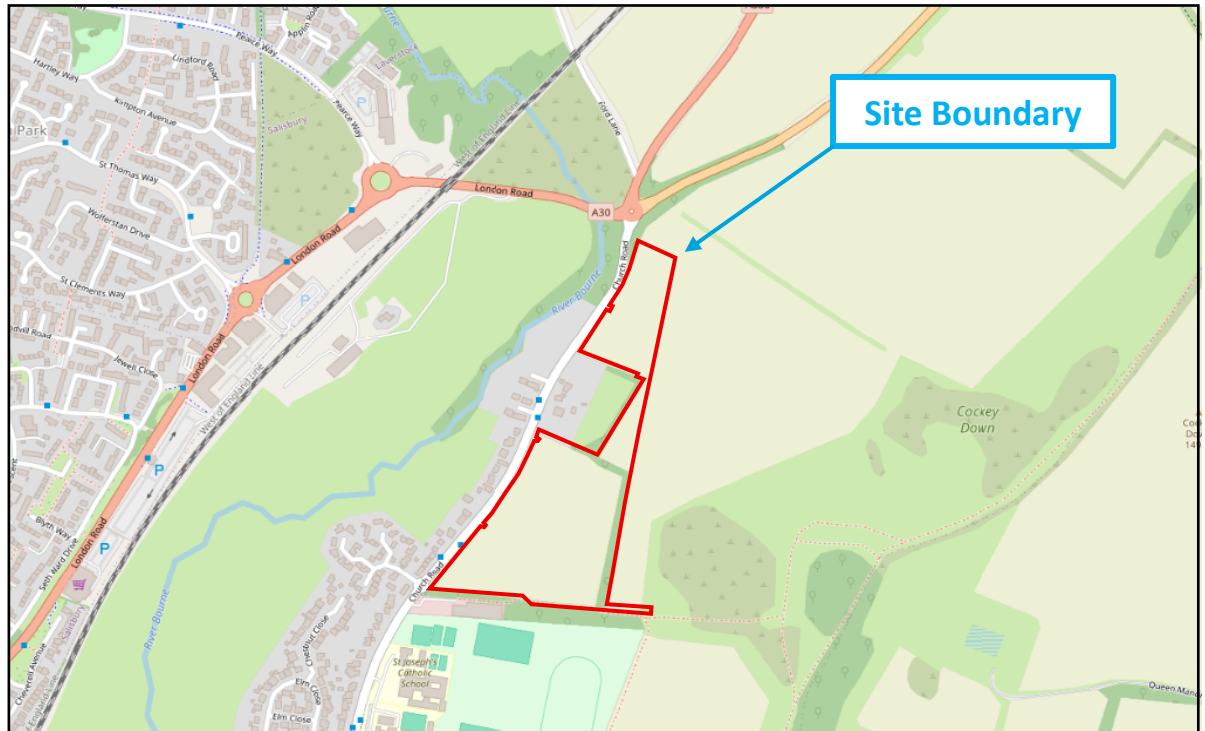


Figure 2-1: Site Location

- 2.1.3 The Parameters Plan (6450_XX_XX_DR_L_02 Rev P16) is shown in **Appendix A**.
- 2.1.4 The red line boundary extends to circa **8.33 ha**, of which **0.26 ha** comprises Church Road. As no change in land use is proposed for Church Road, it has been excluded from the nutrient assessment. Accordingly, the nutrient calculations have been undertaken for **8.07 ha**.

3 Catchment analysis

- 3.1.1 A preliminary catchment analysis of the Site has been completed in order to determine the catchment characteristics of the land.
- 3.1.2 The site lies within the Hampshire Avon catchment particularly Bourne (Hampshire Avon) water body. The development site is located north of Laverstock, it is divided in two sub-catchments that both drain towards the River Bourne.
- 3.1.3 The Light Detection and Ranging (LiDAR) data illustrates topographical high points and low points within the two sub-catchments. The topography indicates that surface water will flow in a westerly direction towards the River Bourne.

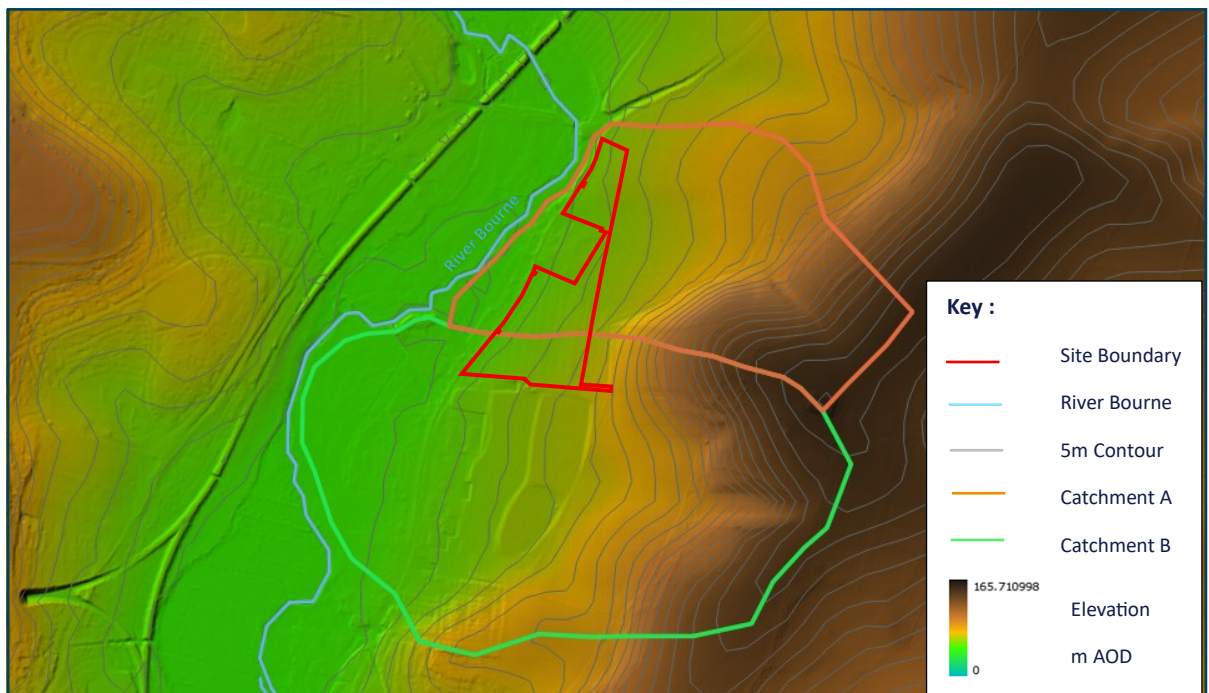


Figure 3-1: LiDAR

- 3.1.4 Sub-catchment 1 comprises of 15.13 ha naturally wet drainage and 71.49 ha of freely draining soil. Sub-catchment 2 comprises of 4.10 ha of natural wet soil and 42.74 ha of freely draining soil.
- 3.1.5 The development site lies entirely within freely drainage landscape with shallow lime-rich soils over chalk or limestone as illustrated in **Figure 3-2**.
- 3.1.6 The development site is located within two sub-catchments. Sub-catchment 1 consists of 29.68 ha agricultural, 37.26 ha grassland and 19.64 ha urban. Sub-catchment 2 consists of 28.67 ha of agricultural, 15.11 ha of grassland and 3.06 ha of urban.

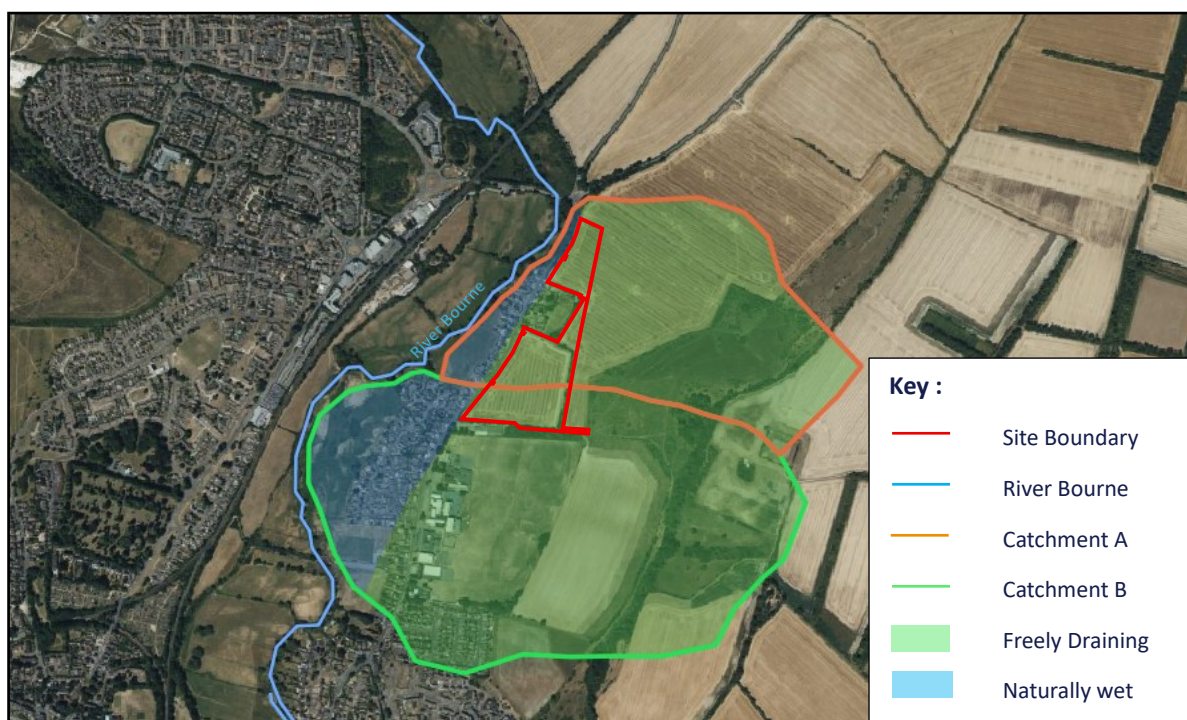


Figure 3-2: Catchment Drainage Characteristics

3.1.7 **Figure 3-3**, illustrates the land uses identified. Agricultural land is identified in yellow, grassland is orange and urban is pale grey. The Site is located entirely as an agricultural landscape.

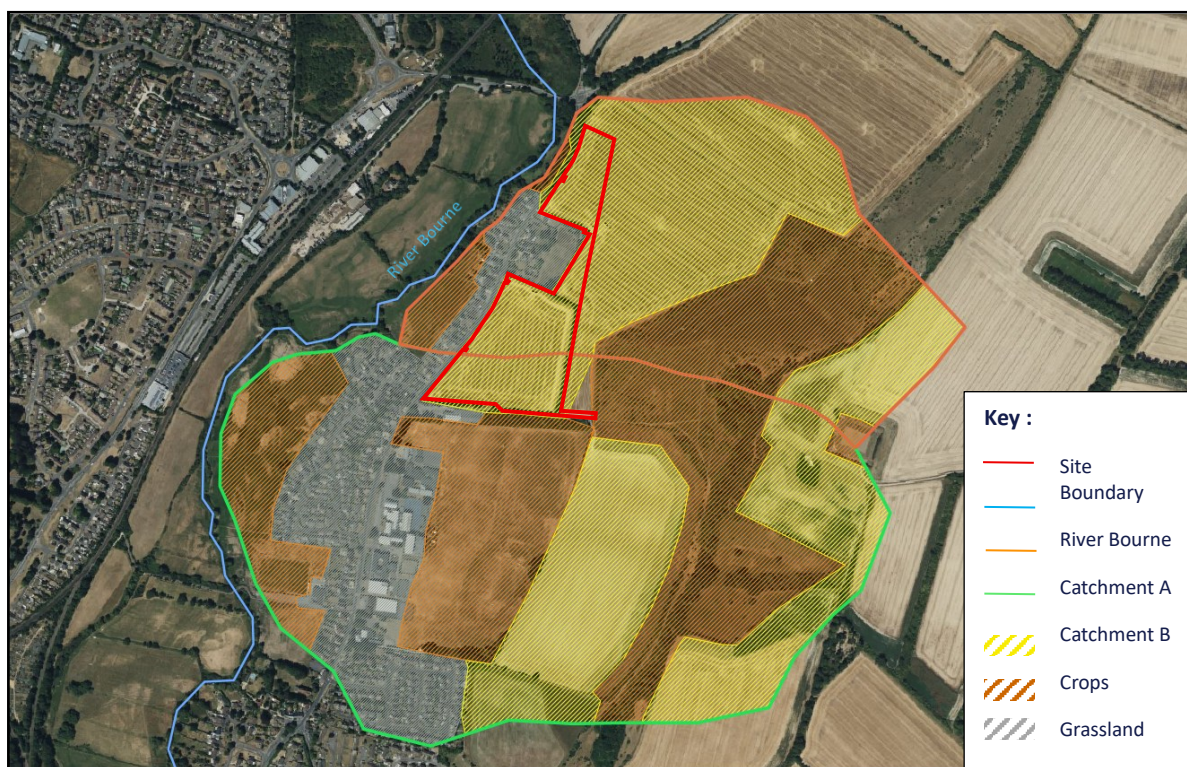


Figure 3-3: Catchment Land Use

4 Nutrient Budget Analysis

4.1.1 NE provide a practical methodology for assessing nutrient neutrality using their nutrient budget calculators. For this Site, the River Avon SAC nutrient budget calculator is required. The calculation follows a structured four-stage process, which comprises the following steps:

4.1.1.1 Calculating wastewater Total Phosphorus Load from the proposed development

- Calculating additional population
- Wastewater Volume
- Wastewater Treatment Works
- Applying a deduction of TP Loading
- TP Load discharged from the Wastewater Treatment Works.

4.1.1.2 Calculating Phosphorus Load from current land use

- Calculate the Total Existing Agricultural Land
- Confirmation and Calculation of Phosphorus Loss

4.1.1.3 Calculating the adjusted Phosphorus Load to account for the future land uses

- Calculation of Phosphorus Load from proposed future Land Uses
- Combine the Phosphorus Load from the proposed future Land Uses
- Calculate the TP reduction by Sustainable Drainage Systems (SuDS)

4.1.1.4 Total Phosphorus Budget

- Calculate net change in Phosphorus from Land Use Changes
- Determine the Phosphorus Budget

4.1.2 On the advice of NE, the **River Avon Nutrient Budget Calculator** has been used for this assessment. This calculator was published in February 2024, and has been updated since, most recently in May 2025. In order to carry out the nutrient budget calculations, **Table 4-1** sets out the assumptions applied.

Calculation Assumptions		
Number of dwellings	110	No.
Average Occupancy	2.30	Person average per dwelling (Southwest ONS Data 2020-2024)
Water Consumption	120	litres/person/day
Total Development Site Area	8.07	Ha Excluding 0.26ha – Church Rd
Current Land Use	8.07	ha – cereal (historical aerial imagery)
Future Land Use	3.19	ha – residential urban (Appendix A)
	0.04	ha – open urban (Appendix A)
	0.18	ha – water (Appendix A)
	4.66	ha – greenspace (Appendix A)
Wastewater Treatment Works	Salisbury Petersfinger	(Wessex Water, 2026)
Current WwTW TP permit	1	mgTP/l
Post 2030 WwTW TP permit	0.25	mgTP/l
Operational Catchment	Avon Hampshire	(EA Catchment Data, 2026)
Average Annual Rainfall	750-800 800-850	mm (NRFA, 2026) 0.44ha within 750-800mm
Nitrate Vulnerable Zone	Yes	(UKSO, 2026)
Soil Type	Freely draining – Shallow lime-rich soils over chalk or limestone (LandIs, Soilscales, 2026)	

Table 4-1: Nutrient Budget Calculation Assumptions

- 4.1.3 The default average occupancy within the NE Nutrient Budget Calculator is 2.40 persons per dwelling. However, a more recent population analysis published on 23 July 2025 by the Labour Force Survey (LFS), produced by the Office for National Statistics (ONS), indicates that the average household size in the UK was 2.30 persons per dwelling for the period 2020–2024. As this represents the most recent robust dataset covering a multi-year period, an occupancy rate of 2.30 persons per dwelling has been applied within the nutrient budget calculations.
- 4.1.4 A local or regional occupancy rate may be used within the nutrient budget where it is supported by reliable evidence demonstrating household trends over an extended period. Appropriate sources include datasets published by the ONS. NE guidance states that as a minimum, the evidence used to derive an alternative occupancy rate should cover a period of at least five years.
- 4.1.5 The optional higher Building Regulations water efficiency standard of 110 l/p/d should be applied where this requirement is secured through a planning condition. In accordance with NE guidance, water use should be increased by an additional 10 l/p/d within the calculation to account for the potential reduction in water efficiency over the lifetime of the development due to the gradual replacement of fixtures and fittings with less efficient alternatives.

- 4.1.6 WwTWs typically maintain operational headroom between the concentration of the discharged effluent and the permitted limit to ensure consistent compliance with the permit conditions. To reflect this operational approach, the nutrient budget calculation assumes that the concentration of phosphorus in the final effluent is 90% of the permitted discharge limit, both for current permit conditions and for any future permit limits. Accordingly, the permit limits are multiplied by a factor of 0.9 when used as input values within the nutrient budget calculation.
- 4.1.7 The average annual rainfall across the Site falls within two rainfall bands; **812 mm**, which covers the majority of the Site, and **793 mm**, which applies to a small area in the northern part of the Site. The NE calculator only provides default rainfall ranges, and in this case, the Site covers both of these ranges 750-800mm and 800-850mm. Rainfall values can influence the residential urban leachate rate within the nutrient budget calculation. However, as the proposed drainage strategy includes an infiltration SuDS basin, which removes 100% of surface water runoff of the residential area from the nutrient calculation, the variation in rainfall across the Site does not materially affect the overall nutrient budget.

4.2 The Levelling Up and Regeneration Act (LURA)

- 4.2.1 The Levelling Up and Regeneration Act (LURA), has introduced a legal duty for water companies in England to upgrade certain WwTWs by 2030 in designated nutrient-sensitive catchments. These upgrades require facilities serving populations greater than 2,000 population equivalent (P.E.) to meet the Technically Achievable Limit (TAL) for nutrient discharge permits.
- 4.2.2 Based on the Site's proximity, local topography, and the configuration of the drainage network, foul flows from the proposed development are expected to be treated at Salisbury Petersfinger WwTW. This facility currently serves a population equivalent of 72,128 P.E. and therefore falls within the scope of the required upgrades under the LURA (Drainage and Wastewater Management Plan, Wessex Water, 2026). The current TP permit limit for the works is 1.0mgTP/l, which will be reduced to 0.25mgTP/l following the planned upgrades by 2030.

4.3 Sustainable Urban Drainage Systems (SuDS)

- 4.3.1 In accordance with Schedule 3 of the Flood and Water Management Act (2010), new developments are required to incorporate Sustainable Drainage Systems (SuDS). SuDS are designed to manage surface water runoff close to its source, improving water quality, reducing runoff rates, and protecting downstream watercourses and habitats. NE has advised that SuDS features can provide varying levels of phosphorus treatment depending on the type and configuration of the drainage components. Further guidance on the phosphorus removal potential of SuDS is provided by CIRIA (2022) in *Using SuDS to reduce phosphorus in surface water runoff (C808)* (Bradley, 2022).
- 4.3.2 The proposed drainage strategy indicates that surface water runoff from the residential urban areas will be directed via a conveyance swale to an infiltration basin located along the western boundary of the Site. The latest drainage strategy is provided in **Appendix B**.
- 4.3.3 As the proposed SuDS basin is designed to fully infiltrate surface water, the approach is assumed to remove 100% of the TP load associated with urban surface water runoff, in accordance with the CIRIA C808 guidance on phosphorus removal through infiltration-based SuDS.

4.4 Total Phosphorus Budget Calculations

- 4.4.1 Based on the assumptions set out above in **Table 4-1** and using the calculator provided by River Avon, **Table 4-2** sets out the phosphorus budget baseline conditions for the development boundary.

	River Avon NE Nutrient Budget Calculator	Pre-2030 kgTP/year	Post-2030 kgTP/year	Explanation
1	Nutrients from Wastewater	9.98	2.50	Pre-2030: 1mgTP/l Post-2030: 0.25mgTP/l
2	Nutrients from Current Land Use	0.98	0.98	Cereal: 0.12kgTP/ha/year
3	Nutrients from Future Land Use	5.40	5.40	Residential urban: 1.55kgTP/ha/year Greenspace: 0.02kgTP/ha/year
	SuDS Reduction	5.27	5.27	100% nutrient reduction of urban surface water runoff due to infiltration
	Nutrients from Future Land Use after SuDS	0.13	0.13	Nutrients from future land use including nutrient removal by SuDS
4	Total Phosphorus Budget	10.96	1.98	Stage 1 + (Stage 3 – Stage 2) + 20%

Table 4-2: TP Phosphorus Budget Calculations

- 4.4.2 Due to the positive budget resulting from the change in land use at the Site, mitigation measures will be required to offset additional **10.96 kgTP/year** pre-2030 and **1.98 kgTP/year** post-2030, to ensure the Site is delivered with nutrient neutrality.
- 4.4.3 The nutrient budget calculations are detailed in **Appendix C**.

5 Mitigation strategy

5.1 Fallowing land

- 5.1.1 A mitigation strategy is proposed in this section to offset the TP export from foul water discharged from the proposed development Site. The strategy proposes the fallowing of the available **22.59 ha** cereal crop land parcels (Post code: SP3 6PG). The land parcels are split into permanent and temporary fallowing, and their locations are shown in **Figure 5-1** below. There is circa **7.87ha** of permanent fallow land available and circa **14.72ha** of temporary fallow land available.



Figure 5-1 : Land available for fallowing

- 5.1.2 There are a number of assumptions that have been made to indicate whether the proposed mitigation land can offset the development at Church Road. **Table 5-1** sets out the assumptions applied for the proposed mitigation land.

Calculation Assumptions		
Total mitigation land area	22.59	Ha
Mitigation land use	Cereal Crop	(based on historical farming records)
Catchment	Avon Hampshire (NE River Avon Nutrient Budget Calculator)	
Average annual rainfall	900.1-950	Mm (according to National River Flow Archive)
Nitrate vulnerable zone	No	(DEFRA, 2026)
Soil type	Impeded Drainage (LandIS Soilscales)	

Table 5-1: Offsite Mitigation Land Assumptions

- 5.1.3 Historical farming records indicates the field cropping history from 2009 to 2021 comprises of Barely Spring, Rape Winter, Wheat Winter, Oats Winter and grass. This is characterised as cereal crop farming for the purposes of the NE Avon calculator, which has a leachate rate of **1.50 kgTP/ha/year**.
- 5.1.4 Applying a fallow rate buffer of **-0.02 kgTP/ha/year** to the leachate rate of land proposed above can determine the number of credits create by fallowing. The fallow rate buffer refers to the woodland/shrubland/greenspace land use type to generate a nutrient export coefficient, as this is the closest value to be considered the same as fallowing land.
- 5.1.5 Only a proportion of the land parcels is required to offset the development both pre and post 2030. The amount of land requires for fallowing under the current WwTW permit conditions is set out in **Table 5-2**.

Pre-2030 Mitigation		Explanation
TP budget pre-2030 (kgTP/year)	10.96	Calculated in Table 4-2
Area required for mitigation (ha)	7.41	Based on NE mitigation calculations
Fallow rate (kgTP/ha/year)	1.48	Cereal leachate rate 1.50kgTP/ha/year Greenspace leachate rate 0.02kgTP/ha/year
Mitigated TP (kgTP/year)	10.97	(7.41 ha x 1.48kgTP/ha/year)
Betterment	0.02	KgTP/year

Table 5-2: Pre-2030 Mitigation calculations

- 5.1.6 The calculations above demonstrate that temporarily fallowing **7.41 ha** of the land parcels is required to mitigate the pre-2030 budget of **10.96 kgTP/year**.
- 5.1.7 **Table 5-3** below sets out the amount of land required for fallowing to mitigate the Post 2030 TP budget discharged from the development.

Post-2030		Explanation
TP budget post-2030 (kgTP/year)	1.98	Calculated in Table 4-2
Area required for mitigation (ha)	1.34	Based on NE mitigation calculations
Fallow rate (kgTP/ha/year)	1.48	Cereal leachate rate 1.50kgTP/ha/year Greenspace leachate rate 0.02kgTP/ha/year
Mitigated TP (kgTP/year)	1.98	(1.34 ha x 1.48 kgTP/ha/year)
Betterment	0.00	KgTP/year

Table 5-3: Post-2030 Mitigation calculations

- 5.1.8 From the calculations above, permanently fallowing **1.34ha** of the land parcels would mitigate the post 2030 TP budget of **1.98kgTP/year**.
- 5.1.9 This section has demonstrated that through fallowing a portion of the offsite land, there are no further mitigation measures required under current or future WwTW conditions. Pre 2030 figures indicate **7.41 ha** should be fallowed temporarily. Post 2030 figures indicate that **1.34 ha** requires permanent fallowing after 2030.
- 5.1.10 A detailed Fallow Land Management Plan (FLMP) for the proposed mitigation strategy will be required to ensure that this strategy can be maintained in perpetuity and to prove that the proposed development will not have an impact on the River Avon SAC.

6 Summary

- 6.1.1 This note has set out an appraisal of the Total Phosphorus budget for the proposed development at Church Road, Salisbury and has set out a mitigation strategy for delivering a phosphorus neutral development. Due to the positive TP budget resulting from change in land use at the site, mitigation measures will be required to offset additional **10.96 kgTP/year** discharged from the site under current WwTW conditions and **1.98 kgTP/year** discharged from the site Post 2030.
- 6.1.2 Surface water from the site will drain into the onsite basin which will reduce 100% of TP export from the residential urban area. Consequently additional TP generated from future residential land is mitigated by incorporating SuDS on site.
- 6.1.3 Foul water outfall of the proposed development site is assumed to connect into Salisbury WwTW, which discharges into the River Avon SAC. By following the proposed offsite mitigation land, that drains into the River Sem, a tributary of the River Avon and upstream of the WwTW outfall location, TP discharged from the proposed development is offset.
- 6.1.4 Through the following strategy outlined in this technical note, the proposed **110** dwellings can be delivered while maintaining TP neutrality; and thus will not have an adverse impact on the downstream Habitats Sites that lie within the River Avon SAC. This strategy involves permanent and temporary following in which **7.41 ha** will need to be temporarily followed until 2030 and post 2030 **1.34 ha** will be permanently followed.

7 Disclaimer

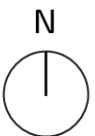
- 7.1.1 The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the site.
- 7.1.2 Third party information has been used in the preparation of this report, which Brookbanks, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks accepts no liability for same.
- 7.1.3 The benefits of this report are provided solely to Hallam Land for the proposed development at Church Road, Laverstock, Salisbury only.
- 7.1.4 Brookbanks excludes third party rights for the information contained in the report.

Appendix A – Parameters Plan (6450_XX_XX_DR_L_02 Rev P16)

0 70 m

KEY

- Application Site Boundary 8.33 ha
- Residential [up to 110 dwellings @ 35 DPH] 3.15 ha
- Existing Trees, Hedgerows & Vegetation to be retained
- Open Access Land
- Proposed Structural Planting
- Proposed Amenity Greenspace
- Proposed SANGS Area
- Proposed LEAP 0.04 ha
- Proposed Vehicular Access Point
- Potential Pedestrian Connection to Church Road
- Pedestrian Connection to SANGS Area
- Pedestrian Connection Only to Cockey Down
- Proposed Indicative Drainage Basin



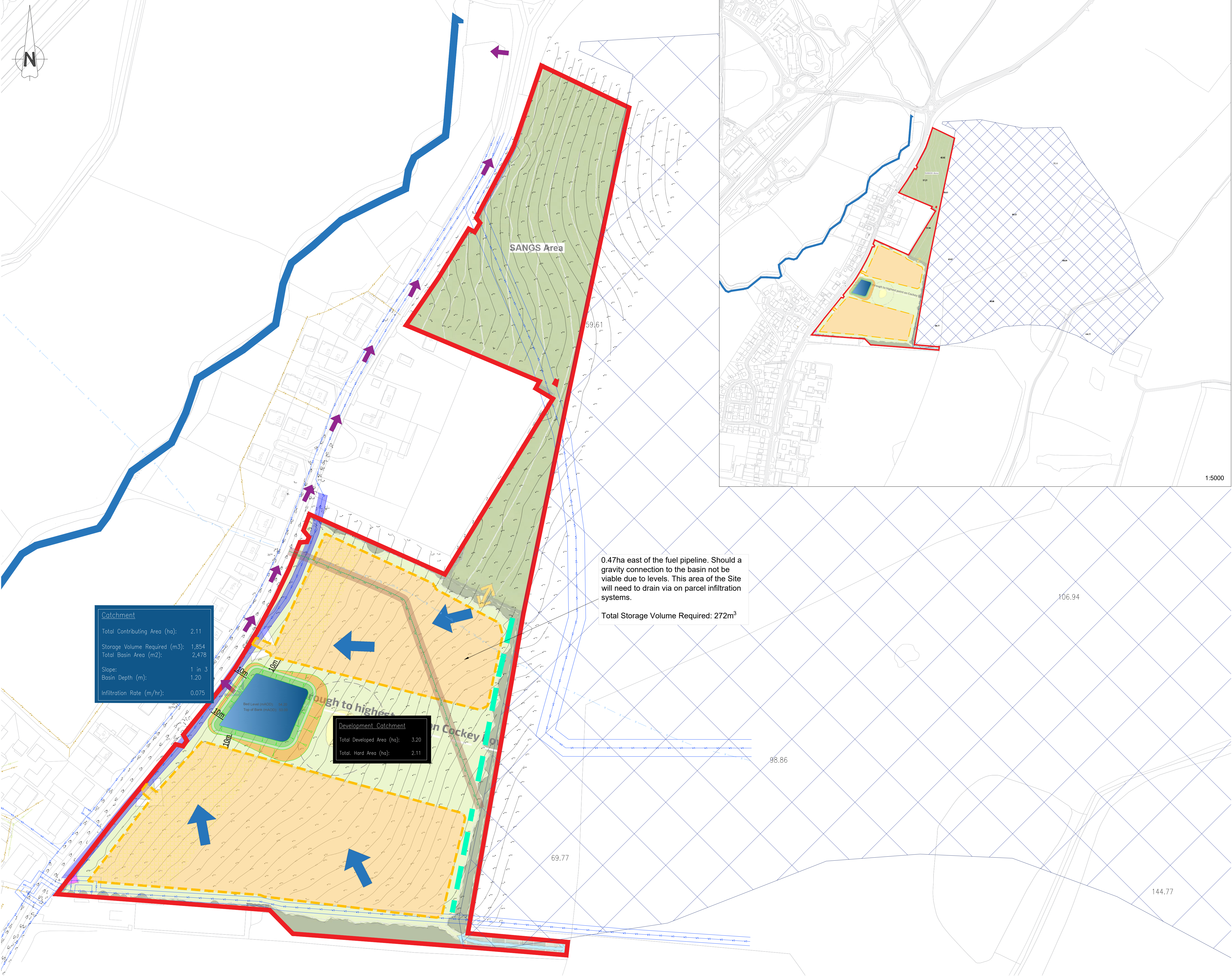
drawn/chkd	scale	date
JUB / CEH	1:1250 @ A1	22.06.2026
number	status	rev
6450-FPCR-DR-XX-XX-DR-L-0002	S3	P16

client
Hallam Land Management Ltd

project
**Land off Church Road,
Laverstock**

title
PARAMETERS PLAN

| Appendix B – Drainage Strategy



NOTES:

1. Do not scale from this drawing.
2. All dimensions are in metres unless otherwise stated.
3. Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
4. No part of this drawing may be copied or duplicated without the express permission of Brookbanks Consulting Ltd.
5. The SuDS basin has been located in the lowest lying areas of the Site. The basins shown are indicative and will be developed alongside the master planning.
6. A Topographic Survey was completed by SUMO Services Ltd in May 2026. All levels currently shown are indicative and are subject to change.
7. Sewer Locations are approximate based off Wessex Water Record Plans.
8. Indicative ground raising has been based assuming an indicative 1 in 300 pipe run.
10. SuDS basin has been located a minimum of 10m from the highway and existing building as it is assumed that infiltration will be used to discharge storm water from the Site.

KEY:

- Red Line Boundary
- 1m Contours
- Catchment Boundary
- Flow Direction
- Infiltration SuDS Basin
- Indicative Conveyance Swales
- Potable Water Main and 6m Easement
- Foul Water Sewer
- Surface Water Sewer
- Abandoned Water Main
- Esso Fuel Pipe Line and 3m Easement (approx location)
- Cutoff Ditch to Prevent any Runoff from the East - to remain as an infiltration feature, with the potential to divert exceedance flows towards the SuDS basin in the west.
- Exceedance Flow Route
- Spot Levels - Existing
- Proposed Areas of Ground Raising
- Catchment Area Draining towards the Site

A	Updated Drainage Information	KP	HW	HW	08.06.26
-	First Issue	KP	CP	HW	17.03.26



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Hallam Land

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Salisbury

Illustrative Surface Water
Drainage Strategy

Status		Status Date
Draft		JUN 2026
Drawn	Checked	Date
KP	CP	17.03.26
Scale	Number	Rev
1:1250	10679-DR-03	A
0 20 40 60 80 100		
METRES		

| Appendix C – Nutrient Budget Calculations

Natural England Nutrient Neutrality budget calculator for the River Avon SAC	
This calculator was created by Ricardo Energy and Environment.	
This calculator contains 6 worksheets with 9 tables in total.	
This is the instructions cover sheet. It tells you how to use the calculator and gives an overview of each worksheet.	
You can move between worksheets using the tabs at the bottom of the page.	
If you use screen reading software, you can use 'Ctrl' + 'Page Down' keys to move between the tabs.	
If you use a keyboard only, to open any link in this form first select the cell with the link and then press the 'Shift' + 'F10' keys or the 'Fn' + the 'Menu' keys, then press the letter 'O' twice to highlight 'Open Hyperlink' and press 'Enter'.	
If you use a keyboard only, access dropdown lists by clicking the dropdown arrow or pressing the 'Alt' + 'Down' keys when the cell is selected.	
Table of contents	
Topic of each table	Link to each worksheet
Worksheet 1 Nutrient loading from additional wastewater	Nutrients from wastewater
Worksheet 2 Nutrient loading from current land use	Nutrients from current land use
Worksheet 3 Nutrient loading from future land use	Nutrients from future land use
Worksheet 4 Nutrient loading from future land use after treatment through a sustainable urban drainage system (SuDS)	SuDS
Worksheet 5 Nutrient budget calculations	Final nutrient budgets
General information about the calculator	
This calculator helps you calculate the nutrient budget for a new residential development.	
The nutrient budget for a site is calculated in 4 key stages with an additional optional stage in which information about the SuDS features on the site can be entered. Each stage is implemented in worksheets 1-5 of this calculator.	
Each worksheet is connected through a set of formulas which calculate the nutrient budget. As such, all sheets which represent the four key stages require data inputs in order to calculate the nutrient budget.	
The total nutrient budget is calculated automatically by adding the values from the 'Nutrients_from_wastewater' and the outputs from the 'Nutrients_from_future_land_use' minus the 'SuDS' (if applicable), and then subtracting the values from the 'Nutrients_from_current_land_use', then adding a 20% precautionary buffer to the result. This calculation is completed in the 'Final_nutrient_budgets' worksheet.	
Before a nutrient budget can be completed using the methodology, certain site-specific details for the development site need to be determined.	
The guidance to this calculator and gives further information on the user inputs required.	
The instructions for completing each stage of the nutrient budget methodology are shown in cell A2 of each worksheet.	
This calculator uses a set of lookup tables to find relevant values in a hidden spreadsheet titled the 'Value_look_up_tables' worksheet.	
It is advisable to retain a blank copy of this calculator and 'Save as' a new copy each time you calculate a budget to minimise the risk of using incorrect data inputs and to ease the calculation of new nutrient budgets.	
The values already included have been chosen based on research to determine suitable inputs to the nutrient budget that meet the Habitat Regulations Assessment (HRA) tests of beyond reasonable scientific doubt, in perpetuity (practically speaking this is 80 to 125 years) and in accordance with the precautionary principle.	
If editing any values in this calculator, you must make sure there is a sufficient evidence base to justify these changes and that the new inputs are selected in accordance with the precautionary principle.	
Notes about the nutrients from wastewater worksheet	
This sheet contains 2 tables.	
The table under the heading 'Water infrastructure information' allows the user to enter key information about the wastewater generated and water infrastructure on the site. This table contains a mix of user specified values and values that are calculated automatically depending on the user selected inputs.	
The date of first occupancy is required because some wastewater treatment works (WwTW) may be due an upgrade in 2025 or 2030 which will change the nutrient concentration permit values. This will be shown through 2 or 3 values for the permits and nutrients load from before and after the upgrade.	
The amount of wastewater generated as a result of the population needs to be calculated using the following:	
- an average occupancy rate - a per capita water usage figure - the number of new developments	
The default water usage value is preset in the worksheet. The default setting for the average occupancy rate is preset in the worksheet and is the national occupancy rate of 2.4 people per dwelling or unit. Only change this value if there is sufficient evidence that the development will be different to the national average. The number of new developments is not preset and must be a whole number.	
If it is uncertain what WwTW the development will drain into, find this information from your sewerage company before completing the calculator. If it is not feasible to connect to a WwTW and a septic tank or package treatment plant is being used, select this option.	
If the total phosphorus (TP) final effluent concentrations (in mg/l) are specified by the manufacturer, select 'Septic Tank user defined' or 'Package Treatment Plant user defined' and enter the manufacturer specified value in the cell where prompted.	
The table under the heading 'Final calculation of nutrient load from wastewater' contains the calculation of the nutrient load from additional wastewater. This table may present up to 3 different values for the nutrient load.	

If a nutrient permit is changing for the selected WwTW as of 01/01/2025, or 01/04/2030, the table will be broken down into up to 3 parts: - post-2030 wastewater nutrient loading - pre-2030 wastewater nutrient loading - pre-2025 wastewater nutrient loading If applicable, 3 nutrient budgets will be calculated for the loading before and after the 2030 and 2025 WwTW permit upgrades, and will be presented in cells B18, B20 or B22.
Notes about the nutrients from current land use worksheet
This worksheet contains two tables that are used for calculating the annual nutrient load from existing (pre development) land use on the development site. Environmental information about the current site is required for the first table. The second table requires the user to input the existing type(s) and area(s) of landcover present in order to generate nutrient loads associated with the current landcovers on the site. Only landcovers for the land that is being altered by the development should be entered. <u>The dropdown list of landcover types contains up to 8 agricultural landcover types and 8 different non-agricultural landcover types. The full list of landcovers can be found in the calculator guidance (link incoming) or in the dropdown list. Find out what landcover types are within the development before completing this table. If there is a landcover within the development area that is not in the list select the most similar landcover type.</u> <u>The calculator guidance gives further information about the landcover types used.</u>
Sources of information required for nutrients from current land use worksheet
Description of the information:
<u>The operational catchment within which the development is located can be found using the Environment Agency Catchment Data Explorer</u>
<u>The drainage associated with the predominant soil type within the development site can be found using the Soilscales Map</u>
<u>The annual average rainfall that the development will receive can be found using the National River Flow Archive for the '43021 - Avon at Knapp Mill</u>
<u>Whether the development is located within a nitrate vulnerable zone (NVZ) can be found using the UK Soil Observatory 'Nitrate Vulnerable Zones - England' map</u>
Notes about the nutrients from future land use worksheet
This worksheet contains one table which is used to calculate the annual nutrient load from new (post-development) land use on the development site. The type(s) and area(s) of landcover present on the new development is required to generate nutrient loads associated with the current landcovers on the site. The type(s) of landcover present on the new development site can be selected from a list of 8 different landcover types: - greenspace - woodland - shrub - water - residential urban land - commercial or industrial urban land - open urban land - community food growing Find out what landcover types will be within the development site before completing this table. If there is a landcover within the development site that is not in the list select the most similar landcover type. <u>The calculator guidance gives further information about the landcover types used in this calculator.</u>
Notes about the SuDS worksheet
This worksheet contains one table in which the user can enter key information about the use of SuDS to treat the runoff from the site and reduce the nutrient loading from future land uses. ~~The table allows the user to enter the SuDS features or SuDS management trains that are proposed to treat the nutrient loading from future land uses. The land covers within the SuDS catchment area and the areas of these landcovers can be entered. Only landcovers entered into the 'Nutrients from future land use' worksheet can be selected. The nutrient loads associated with these landcovers are automatically calculated using the values from the worksheet 'Nutrients from future land use'.~~ The user must enter the percentage of flow that will be directed through the SuDS. Any numerical value less than or equal to 100% can be entered for the percentage of flow. Any numerical value less than or equal to 100% can be entered for the removal rates. However, the user will be required to present all evidence of these removal rates to the competent authority. As such, the most up to date SuDS guidance on SuDS for nutrient removal should be followed. The user can enter any text for the SuDS feature to allow for variability in the names of the SuDS features or management trains planned.
Notes about the final nutrient budgets
This final stage automatically calculates the results from worksheets 1-5.
The value(s) shown represent the nutrient mitigation required in kilograms per year to achieve nutrient neutrality.
If there are 2 or 3 values due to changing permits, the calculator will show the total amount of nutrient mitigation that is needed before and after the changing permit date.

Nutrients from wastewater

This sheet contains 2 tables. 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 find 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 B19 are automatically generated and will state 'Not applicable' unless the user inputs have been entered. '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'. Cells 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

phosphorus (P) in cell 516. 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):	2.30	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	110	
Wastewater treatment works:	Salisbury (Petersfinger)	
Current wastewater treatment works P permit (mg TP/litre):	1.00	
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):	253.00
Wastewater by development (litres/day):	30360.00
Annual wastewater TP load (kg TP/yr):	2.50
Pre-2030 wastewater nutrient loading	
Annual wastewater TP load (kg TP/yr):	9.98
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

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):	800.1 - 850
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	8.07	0.98	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
		0.00	Not applicable
		0.00	Not applicable
Totals:	8.07	0.98	

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	3.19	5.27
Greenspace	4.66	0.09
Open urban land	0.04	0.04
Water	0.18	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:	8.07	5.40

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

[illegible]

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (%) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual phosphorus inputs to SuDS feature(s) (kg Tpy)	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 Tpy)	Notes on date
Residential urban land	3.19	100.00	5.27	Infiltration	100.00	5.27	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
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			0.00			0.00	Not applicable
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			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:	3.19		5.27			5.27	

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):	2.50
Net land use TP change (kg TP/year):	-0.85
TP budget:	1.65
TP budget + 20% buffer:	1.98
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	1.98
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	10.96
Not applicable	
Not applicable	Not applicable