



Proposed Residential Development -

John Barleycorn PH

Weymouth Street

Warminster

Nutrient Neutrality Assessment

Project No. 1394

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Revision log

Revision A – Report updated to reflect minor amendments to development proposals.

Nutrient Neutrality Assessment

Introduction

NC29 Ltd have been appointed to provide consultancy services for a proposed residential development located at the former public house The John Barleycorn, Weymouth Street, Warminster.

This Nutrient Neutrality Assessment has been developed to support the proposed development. The site is located within the River Avon Special Area of Conservation (SAC) which is designated to be nutrient sensitive for Phosphorous.

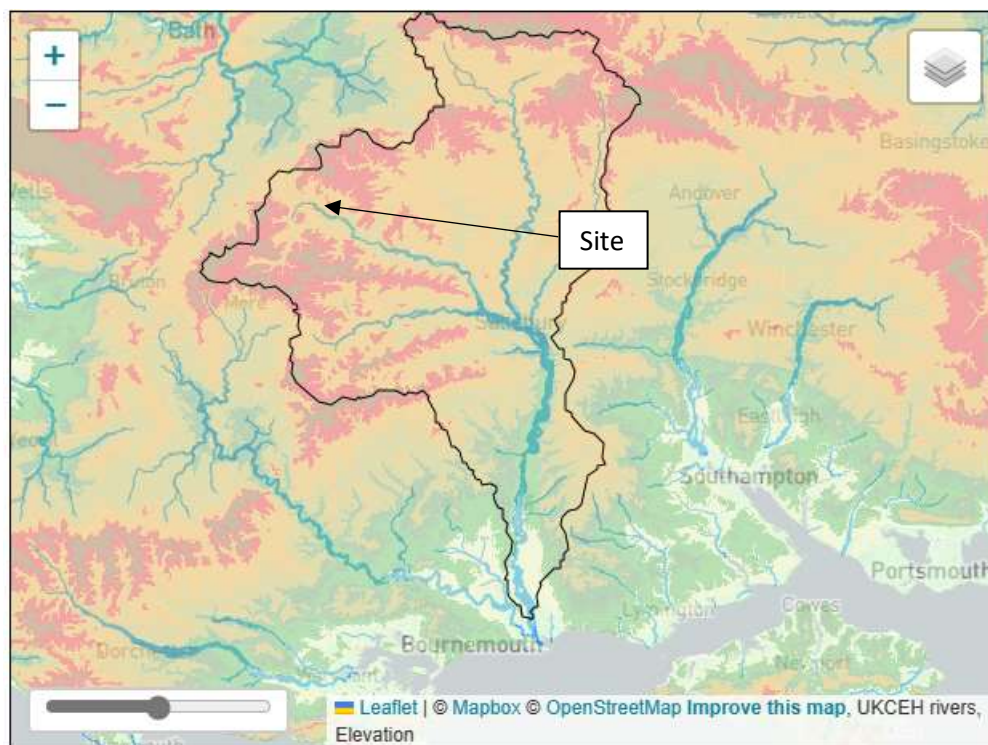


Figure 1 River Avon SAC (c/o UKCEH)

An “Appropriate Assessment” is required by Wiltshire Council, as Local Planning Authority, to ensure that the development proposals meet the requirements of the Habitats Regulations.

The assessment has been undertaken using the Natural England Neutrality budget calculator for the River Avon SAC developed by Ricardo Energy and Environment. The assessment also makes use of the accompanying guidance published on the Gov.uk website.

Development Proposals

The development proposals include the erection of a single dwelling in a former car parking area and the change of use to a former public house into nine apartments (ten dwellings total). The total site is approximately 600m² in area. The development site access is via existing access from Weymouth Street.

Nutrient Calculation Parameters

The Tables in the following sections indicate the derived parameters used in the nutrient neutrality calculations. These are derived from a number of sources included default values, values interpreted from the development proposals and also values obtained via third party data.

Nutrient loading from additional wastewater

Table 1 Nutrient Loading from additional wastewater (worksheet 1)

Description of required information	Data entry column - user inputs required	NC29 comment
Date of first occupancy (dd/mm/yyyy):	01/12/2025	Assumed
Average occupancy rate (people/dwelling or people/unit):	2.40	Default value
Water usage (litres/person/day):	120	Default value
Development proposal (dwellings/units):	10	As proposals
Wastewater treatment works:	Warminster WwTW	As proposals

Nutrient loading from current land use

Table 2 Nutrient loading from current land use (worksheet 4)

Description of required information	Data entry column - user inputs required	NC29 comment
Operational catchment:	Avon Hampshire	As proposals
Soil drainage type:	Freely Draining	Reference Soilscales Map
Annual average rainfall (mm):	810	SAAR for NRFA 43021- Avon at Knapp Mill
Within nitrate vulnerable zone (NVZ):	No	As identified in NC29 Drainage Strategy
Current Land Use	600m ² or 0.06ha Residential urban land	As proposals

Nutrient loading from future land use

Table 3 Nutrient loading from future land use (worksheet 3)

Description of required information	Data entry column - user inputs required	NC29 comment
SuDS Catchment	300m ² or 0.03ha Residential urban land	As proposals

Nutrient loading from future land use after treatment through a sustainable urban drainage system (SuDS)

Table 4 Nutrient loading from future land use after treatment through a sustainable urban drainage system (SuDS) (worksheet 4)

Description of required information	Data entry column - user inputs required	NC29 comment
Pervious Pavement catchment area	Pervious pavement which manages flows from 50% of the catchment area.	As proposals
Pervious Pavement TP removal	The current area is assumed to drain to the Wessex Water sewer. The proposed Pervious Pavement will remove this inflow from the sewer and discharge via infiltration, thus achieving a 50% TP removal rate.	As proposals

Summary of results - Nutrient budget calculations

Table 5 Nutrient budget calculations (worksheet 5)

Description of values generated	Values generated
Wastewater TP load (kg TP/year):	0.24
Net land use TP change (kg TP/year):	-0.02
TP budget:	0.22
TP budget + 20% buffer:	0.26

The proposed SuDS system removes runoff from existing impermeable areas and discharges this via infiltration thus offering the maximum benefits of TP removal.

Table 5 indicates an increase Wastewater load of **0.24kg TP/yr** as a result of the development proposals. The Net land use TP change of **-0.02kg TP/yr** is not sufficient to mitigate the increase in Wastewater load, therefore further mitigation is required.

Full calculations using the Nutrient_Calculators_River_Avon_SAC_V_03_01_2 are provided as Appendix A.

Appendices

Appendix A – Nutrient Neutrality Worksheet

Nutrient_Calculators_River_Avon_SAC_V_03_01_2

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):	01/12/2025	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	10	
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):	24.00	
Wastewater by development (litres/day):	2880.00	
Annual wastewater TP load (kg TP/yr):	0.24	
Pre-2030 wastewater nutrient loading		
Annual wastewater TP load (kg TP/yr):	0.47	
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 A12, B11 to B12 in the second table 'Current land use'. Cells C11 to C28 are automatically calculated. You will state a '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state a 'Not Allowed' 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 known, choose 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 use'

Cells B11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.

Cells B11-B27: Enter the percentage 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):	800.1 - 850
Within nitrate vulnerable zone (NVZ):	No

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
Commercial/industrial urban land	0.06	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
		0.00	Not applicable
		0.00	Not applicable
Totals:	0.06	0.07	

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	0.06	0.10
		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:	0.06	0.10

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):	0.24
Net land use TP change (kg TP/year):	-0.02
TP budget:	0.22
TP budget + 20% buffer:	0.26
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	0.26
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	0.54
Not applicable	
Not applicable	Not applicable