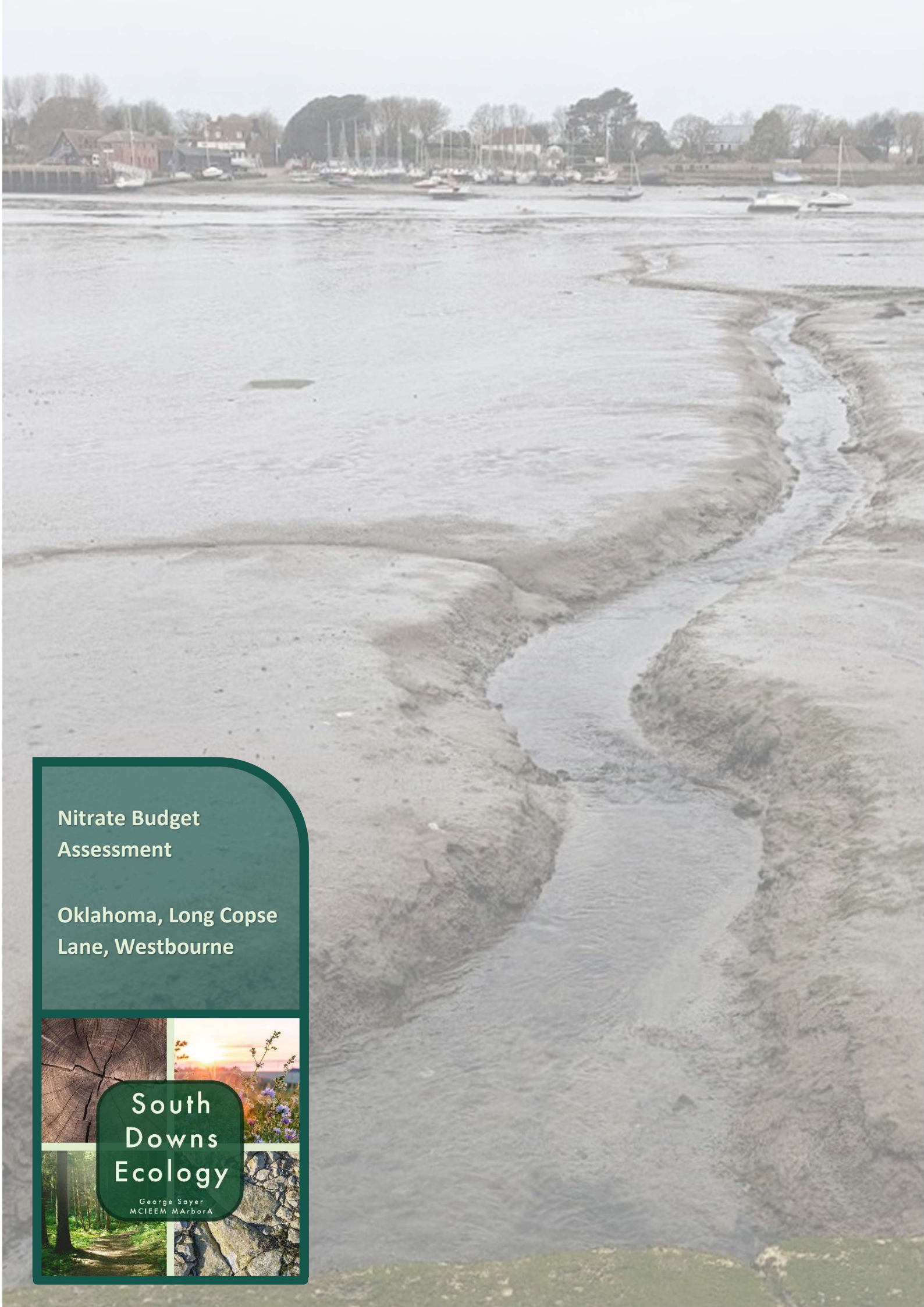

Nitrate Budget Assessment

Oklahoma, Long Copse Lane, Westbourne

South Downs Ecology

George Sayer
MCIEEM MArborA

Nitrate Budget Assessment

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Summary

The applicant has commissioned a Nutrient Budget Assessment for the demolition of the existing building & the construction of 5 new dwellings at Oklahoma, Long Copse Lane, Westbourne.

The existing site consists of a detached dwelling in grounds, in New Brighton, west of Westbourne.

Calculation of the nutrient budget for the scheme, when compared to the existing baseline has been undertaken in accordance with the recently-updated Natural England Advice (*2024)* and the Havant Occupancy Calculator (2024).

The calculator indicates that the proposal would result in a net increase in nitrogen load of 4.51 kg per year to the Chichester and Langstone Harbours SPA, resulting in a negative impact upon the harbour which may constitute a 'significant effect' under the Habitats Regulations.

The proposals intend to purchase credits to this extent from the Havant Borough Warnford Park Mitigation Scheme. No other nutrient inputs are considered significant at this location and as such the LPA can, through appropriate assessment of the proposals determine that nitrogen runoff from the site would not constitute a significant effect.

1.0 Introduction

1.1 The applicant has commissioned a Nutrient Budget Assessment for the demolition of the existing building & the construction of 5 new dwellings at Oklahoma, Long Copse Lane, Westbourne. The following report details the rationale, methodology, calculation, mitigation and management required as part of this assessment. This assessment has been carried out by George Sayer BSc(Hons) PgDip, MCIEEM, MArborA – Ecologist.

Site Description and Surrounding Area

1.2 The site consists of an area of an existing detached dwelling, surrounded by gardens. The site covers c.0.22 hectares and is rectangular in shape. To the south, east and west are further dwellings, whilst to the north is the verge and road of Long Copse Lane, and a grassland field to the north.

Proposals

1.3 The proposals are for demolition of the existing dwelling and construction of 5no. dwellings on the site. It is understood the existing access would be re-used. The houses would be accompanied by parking and gardens.

Scope of Assessment

1. *Assess the current baseline nutrient load of the site*
2. *Assess the likely change in nutrient (specifically nitrogen) load to the wastewater treatment works*
3. *Assess any proposed mitigation measures to reduce any increases in nutrient load*

1.4 This appraisal and assessment is deemed to be relevant for a maximum of one year due to the possibility of changes in the habitats on-site and the methodology used to calculate nutrient budgets and mitigate for excess nutrients. Should the site conditions, methodologies or proposals alter, an ecologist should be consulted to confirm that the assessment is still valid.

2.0 Legislative Background

Legislation

2.1 The legislation of particular relevance to this assessment is The Conservation of Habitats and Species Regulations 2017.

2.2 During the summer of 2018, a review of the condition of designated sites water environment in the Solent harbours was undertaken. The best available up-to-date evidence has identified that some interest features at the designated sites, such as intertidal mudflat habitat and the wildlife they support are widely in unfavourable condition due to existing levels of nutrients and are therefore at risk from additional nutrient inputs.

2.3 It is Natural England's view that there is a likely significant effect on several internationally designated sites (*Special Protection Areas, Special Areas of Conservation and Ramsar sites*) due to the increase in wastewater from the new developments coming forward. The uncertainty about the impact of new development on designated sites needs to be recognised for all development proposals that are subject to new planning permissions and have inevitable wastewater implications. These implications, and all other matters capable of having a significant effect on designated sites in the Solent, must be addressed in line with Regulation 63 of the Conservation of Habitats and Species Regulations 2017.

2.4 Regulation 63 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") states that: ….before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in-combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, [the competent authority] must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

2.5 The proposals consist of a residential development which would increase the level of overnight accommodation on the site from by two additional residential units. As such the proposals must be assessed to determine if they are likely to result in an increase in nutrient runoff, such that mitigation can be provided and an Appropriate Assessment undertaken by the LPA.

3.0 Methodology

Assessment Method

3.1 The recently-revised Natural England Advice on Achieving Nutrient Neutrality (2024) was consulted to ensure the assessment accord with current guidelines and best practice. This is available on the Gov.uk website: *https://www.gov.uk/guidance/using-the-nutrient-neutrality-calculators*

3.2 The Nutrient Neutrality Generic Methodology (NECR459, published 24th November 2022) was also used to aid assessment. Any variation from the guidance has been justified below.

Calculations

3.3 All calculations were carried out using the recently-published 'Solent' version of the nutrient budget calculator (*Nutrient_Calculator_Solent_Maritime_V_03_01_2_1_; Natural England, 2024*).

3.4 It has been determined that the dwelling shall be constructed to the 110l higher Buildings Regulations standards. The 2022 methodology guidance suggested that a further 10l should be added to any figure "to account for changes to less water efficient fittings through the lifetime of the development". This direction is contrary to the industry direction of travel, Southern Water's own water supply policies which NE recognise in their February 2022 advice note regrading water neutrality within the Sussex North Water Supply Zone and associated Frequently Asked Questions document (December 2021) in which this demonstrates explicit awareness of Southern Water's Target 100 "to reduce water consumption in Southern Water's whole water supply area in the long term (not just Sussex North), as set out in their Water Resources Management Plan." The evidence therefore points to a long term reduction in use rather than an increase. At this time, the 10l buffer has been added to calculations.

3.5 The average occupancy rate of 2.98 persons per dwelling has been calculated using the Havant Occupancy Calculator downloaded from the Havant Borough Council website on 19/11/2024. The relevant Wastewater Treatment Works (WwTW) has been determined to be Thornham, which is closer and directly south of the site, with Budds Farm WwTW being further west.

3.6 The catchment, rainfall and soil hydrology have been determined in accordance with the guidance (Natural England 2024). The catchment is Western Streams, the land exhibits impeded drainage and the rainfall is within the 750-800mm range. The site lies in the Chichester, Langstone and Portsmouth Harbours Eutrophic Zone.

Site Assessments

3.7 Site assessments for the proposal site were carried out by George Sayer (BSc(Hons) Environmental Sciences, PgDip Endangered Species Recovery, MCIEEM, MArborA), an experienced ecologist, arboriculturalist and silviculturalist. Site visits were undertaken in December 2023, and November 2024.

4.0 Summary of Nutrient Budget Calculations

4.1 For the purposes of this calculation, the site is considered to consist of 0.22 Ha residential urban land in the form of the existing building and gardens. Given the overall form, use and drainage of the site is not changing, this is not altered by the proposals – the quantities of runoff from non-waste sources would not alter significantly. As the nature of the land use is not changing, the only increase in nitrogen is that of the new dwellings.

4.2 With the above parameters and the 20% precautionary buffer applied, the proposals would result in a nominal net increase in nitrogen load of 4.51 kg per year to the Chichester and Langstone Harbours SPA, resulting in a negative impact upon the harbour which may constitute a 'significant effect' under the Habitats Regulations.

Summary of Calculator No. 01 - Proposals

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 B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 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 B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 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 whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: 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 nitrogen (TN) in cell C11. 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 B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

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):	01/01/2026	
Average occupancy rate (people/dwelling or people/unit):	2.98	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	4	
Include deductible acceptable loading?	Yes	
Wastewater treatment works:	Thornham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**8.00**	
Not applicable	**Not applicable**	
Not applicable	**Not applicable**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Wastewater nutrient loading	
Additional population (people):	**11.92**
Wastewater by development (litres/day):	**1430.40**
Annual wastewater TN load (kg TN/yr):	**3.76**
Not applicable	
Not applicable	**Not applicable**
Not applicable	
Not applicable	**Not applicable**

Current Land Use

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 and 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 nitrogen (TN). The total nutrient load from current land uses is shown in cell C28 for TN.			
Current land use information			
Description of required information	**Data entry column - user inputs required**		
Operational catchment:	Western Streams		
Soil drainage type:	Impeded drainage		
Annual average rainfall (mm):	750.1 - 800		
Within nitrate vulnerable zone (NVZ):	Yes		
Current land uses			
Existing land use type(s) - user inputs required	**Area (ha) - user inputs required**	**Annual nitrogen nutrient export (kg TN/yr)**	**Notes on data**
Residential urban land	0.22	**3.18**	Not applicable

Proposed Land Use (No change)

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 nitrogen (TN). The total nutrient load from future land uses is shown in cell C22 for TN.		
Future land uses		
New land use type(s) - user inputs required	**Area (ha) - user inputs required**	**Annual nitrogen nutrient export (kg TN/yr)**
Residential urban land	0.22	**3.18**

Summary

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 cell 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 B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**3.76**
Net land use TN change (kg TN/year):	**0.00**
TN budget:	**3.76**
TN budget + 20% buffer:	**4.51**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**4.51**
Not applicable	
Not applicable	**Not applicable**
Not applicable	
Not applicable	**Not applicable**

5.0 Mitigation

5.1 It is proposed to purchase off-site credits to mitigate the nitrate runoff. It is proposed to purchase these from the Warnford Park Mitigation Scheme which serves the East Hampshire Rivers Catchment https://www.nitrate-offset.co.uk/project/

5.2 Purchase of such credits is confirmed within the attached *European Site avoidance and mitigation checklist* and will be secured through a Grampian condition.

6.o Conclusions

6.1 The proposals would result in a small net increase in nitrogen runoff of 4.51kg per year. Credits to offset this would be purchased from the East Hampshire Warnford Park Mitigation Scheme.

6.2 No other nutrient inputs are considered significant at this location and as such the LPA can, through appropriate assessment of the proposals determine that nitrogen runoff from the site would not constitute a significant effect.

7.0 References

Havant Borough Council (2024). Nitrate Neutrality – What Developers Need to Know. Available Online (Accessed 12th November 2024): https://www.havant.gov.uk/planning-services/planning-policy/supplementary-planning-documents/nutrient-neutrality/nutrient-0-1

Natural England (2024) Nitrate Budget Calculator, Solent Version: Nutrient_Calculator_Solent_Maritime_V_03_01_2_1_ Available Online (Accessed 12th November 2024): https://www.gov.uk/guidance/using-the-nutrient-neutrality-calculators#nutrient-neutrality-habitats-sites

Natural England (2024) Tools and Resources for Calculatig Nutrient Neutrality. Available Online (Accessed 20th March 2024): *https://www.gov.uk/guidance/using-the-nutrient-neutrality-calculators*

Ricardo and Natural England (2022). The Nutrient Neutrality Generic Methodology NECR459 Published November 2022.