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27 June 2022

Punch Partnerships (PML) Ltd
c/o Unit 3 Broadbridge Business Centre
Delling Lane
Bosham
West Sussex
PO18 8NF

FAO: Lauren Parsons

Ref: 22062

Re: The King Alfred, Street, Somerset BA16 0HB
Nutrient Neutrality Assessment and Mitigation Strategy

Dear Sirs

The proposed development comprises 2 dwellings within the urban fabric parcel at The King Alfred, Street BA16 0HB. The development parcel is some 0.052 Ha of the wider site area. the wider site area is a public house and is to remain a public house. The 0.052 Ha parcel is currently part of the urban fabric of the public house and will become residential urban fabric which have the same site phosphorus leaching value as currently. The proposed development is shown on PLC Architects drawing 10.00-G attached.

The site is located within the catchment area of the Somerset Levels and Moors Ramsar site and it is a requirement of Mendip DC (MDC) that a nutrient neutrality assessment is undertaken and a mitigation strategy identified. MDC direct use of their phosphorus budget calculator v3.1 accessible from their website for assessment. An assessment has been made issuing this tool with the following inputs:

- 2 dwellings proposed at 2.4 Population each
- Site discharge to the Glastonbury WwTW
- Development area comprises 0.052 Ha urban fabric to become 0.052 Ha urban fabric
- Soil type 9 (impeded drainage) MDC classification as impermeable

The calculator assesses the impact as **+0.42 kgTP/yr** inclusive of the 20% precautionary buffer. A set of the calculations are attached.

MDC website also directs to Somerset CC 'Interim Guidelines on small scale thresholds and nutrient neutrality principle for the somerset Levels and Moors Ramsar catchment.' These relate to small discharges in areas remote from the public sewer network for which septic tank or package treatment plant discharges are proposed. As the site is already served by public sewer, septic tank or package treatment plant discharge would not be permitted.

For sites where mitigation is required the MDC website identifies the following to be required at application stage:

- Phosphate calculator input and output values (these are given above and a copy of the calculations attached)
- For minor developments any information that could be provided to assist the council in understanding the options during the application process. To this ends the following applies:
    1) A water efficiency standard of 110 LPD is proposed
    2) There is insufficient space for on site mitigation and it is not proposed to seek to provide on site mitigation.
    3) Because on site mitigation is not possible it is proposed to either:

i. Seek mitigation credits through a third party nutrient credit scheme if/when one becomes available; OR
ii. Seek mitigation through a strategic mitigation solution coming forward through the Somerset phosphate Strategy.

Due to the small scale of the development the time, cost and complexity of entering bespoke arrangements (3i above) currently renders this approach non-viable.

Royal Haskoning recently (14th March 2021) published the Somerset Levels and Moors Phosphate Mitigation Solutions report. The combined Somerset authorities are currently considering this and the MDC position statement on 'Progress on a Somerset Phosphates Strategy' was recently updated on 26th May 2022 (copy attached). This constitutes (3ii) above. The MDC position statement 26/5/2022 identifies with respect to Strategic solutions/Somerset credit scheme that:

[progress]2022/2023

DEFRA announced £100,000 in funding to planning authorities to support mitigation in Somerset. Officers are now considering how this can be used to develop action plans and further a strategic solution such as credit scheme for phosphates.

The lack of detail and very vague nature of the statement tends to suggest that strategic credits will not be imminently available.

In common with many minor developments the only realistic mitigation option trajectory will be strategic solutions/Somerset credit. In acceptance of planning conditions linking to this applicants currently have no control on when credits will be available for purchase or the unit cost of a credit bot of which are essential to funders at application stage..

Yours Sincerely,

Aqua Callidus Consulting Ltd

Andy Traves

Enc. PLC Architects drawing 10.00-G proposed site layout
Somerset phosphorus budget calculations v3.1
MDC positional statement 26/5/3022 'Progress on a Somerset Phosphates Strategy'

NOTES

GENERAL NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE OTHER RELEVANT CONSULTANTS DRAWINGS.
2.ALL FINISHES ARE TO CONFORM TO THE CURRENT BUILDING REGULATIONS.
3. REFER TO A SEPARATE DOCUMENT FOR THE DESIGNERS RISK ASSESMENT.
4. ALL WORKS OR MATERIALS INDICATED ON THIS DRAWING ARE TO BE TO THE LATEST RELEVANT BRITISH STANDARDS AND CARRIED OUT IN ACCORDANCE WITH THE BRITISH STANDARDS CODES OF PRACTICE OR RECOGNIZED INSTITUTE OR TRADE ASSOCIATION RECOMMENDATIONS AND PUBLICATIONS.

KEY

Bin/Cycle Store

Existing trees

NB- Telegraph pole to be relocated onto PH retained land.
Existing lamp post to be removed.

Schedule of Accommodation

Plots 1 & 2:		**Garden**
Plot 1	3 Bed Semi-Detached House @ 84 sqm	106 sqm
Plot 2	3 Bed Semi-Detached House @ 84 sqm	102 sqm

1:200 scale

0 5m 10m

Revision	Date	Description	Dwn	Chkd

PLC ARCHITECTS
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Client :
Punch Partnerships (PML)

Project :
The King Alfred,
Street
BA16 0HB

Drawing Title :
Proposed Site Plan

Drawn By	Date	Checked By	Date	Approved By	Date
AC	Mar' 22				

Drawing No.	Revision:	Scale:
10.00	G	1:200 @ A3

Phosphorous Budget Calculator v3.1

Introduction

Following the Dutch Nitrogen Case which ruled that where a site is failing to achieve condition due to pollution, the potential for a new development to add to the nutrient load is "necessarily limited". Ramsar sites are classified as 'European Sites' under the National Planning Policy Framework (NPPF) Paragraph 176. As such, Natural England's view is that any development proposal that adds phosphorous into the catchment of Ramsar sites, such as the Somerset Levels and Moors, is likely to have a significant effect. Proposed developments likely to affect European Sites should be subject to Habitats Regulations Assessment to assess the Likely Significant Affect on the Ramsar. Application with a Likely Effect will require an Appropriate Assessment to assess the implications of the proposal on the designated site.

This tool is designed to quantify the phosphorous loading of an area of land subject to a change of land use and population, in order to identify is proposed developments will be 'Phosphorous neutral'. Where the proposed development will create additional phosphorous into the system, solutions in how to offset this excess phosphorous and achieve phosphorous neutrality are presented.

This tool is only necessary for proposed developments that have the potential to increase phosphorous loading to rivers that flow into the Somerset Levels and Moors Ramsar site. Developments that are located outside of the hydrological catchment but will connect to a Wastewater Treatment Works (WwTW) that drains to a river within the catchment should not complete Stages 2 and 3.

The methodology employed within this tool was, in part, guided by Natural England's advice on nutrient neutrality in relation to the Stodmarsh designated sites, published in November 2020.

This tool consists of seven main worksheets:

Stage 1 - Identifies the additional phosphorous as a result of changes in the population
Stage 2 - Calculates the phosphorous load from current land use
Stage 3 - Calculates the phosphorous load from future land uses
Stage 4 - Calculates the total change in phosphorous loading as a result of the proposed development
Stage 5 - Calculates the required solutions to achieve phosphorous neutrality under current wastewater permit limits
Stage 6 - Calculates the required solutions to achieve phosphorous neutrality under AMP7 wastewater permit limits
Stage 7 - Calculates the difference in mitigation solutions between current wastewater permit limits and AMP7 permit limits

About

This Phosphorous budget calculator is designed to allow the user to:
- Calculate the phosphorous budget for a proposed development and if, in its current form, the proposed development is phosphorous neutral; and
- Assess the various mitigation options if the proposed development is not phosphorous neutral.

The tool has been designed so that the user is able to update the data and methods in light of any new research or understanding

The information supplied in this tool is for guidance purposes only and is not intended to provide an exact budget calculation due to the limitations and assumptions of the model. The user is responsible for ensuring the accuracy and completeness of all data entered, be it manually or automatically, and used by this tool. The user is also responsible for any commercial decisions taken on any of the outputs of this tool.

Royal HaskoningDHV will not be liable for any of the following arising from the use of this tool (including from any negligence on the part of Royal HaskoningDHV):
(i) loss of anticipated profits or expected future business;
(ii) damage to reputation or goodwill;
(iii) damages, costs or expenses payable by the user to any third party;
(iv) loss of any order or contract; or
(v) indirect or consequential loss of any kind.

This Phosphorous budget calculator has been developed by Royal HaskoningDHV on behalf on Somerset West and Taunton District Council.

Phosphorous budget calculator, v3.1 (released March 2021)

General help

The Tool uses the following colour coding to indicate the functionality to the user. These colours are:

	The user needs to input a value here
	This contains fixed or calculated values and the user does not need to input a value

Stage 1

This stage calculates the change in phosphorous loading as a result of changes in the population of a site.

Step 1: The user should input the additional number of units that are proposed by the development. This is then multiplied by the occupancy rate per dwelling.

Step 2: The user has the option to select whether sewage from the proposed development will be handled by Wastewater treatment works or by Package treatment plants. The user must select one or the other, both options cannot be used.

Step 2a: If the proposed development is to use **Wastewater Treatment Works** (**WwTW)**, then the user should select 'Yes' from the drop down box. Following this, the user should select the WwTW that the development will connect to.

Step 2b: If the proposed development is to use **Package Treatment Plants (PTPs)**, then the user should select 'Yes' from the drop down box. Following this, the user should input the reduction efficiency of the package treatment plant. If the efficiency is unknown then the user should input a precautionary efficiency of 90%.

Stage 2

This stage calculates the phosphorous load from the current land use. Step 2: The user should input the area (hectares) of the current land uses that make up the total area of the development site. A GIS viewer can be used to identify the land uses on a coarse scale (https://gridreferencefinder.com/). However, if more detail is known about the site land uses then this should be manually inputted by the user.

Stage 3

This stage calculates the phosphorous load from the current land use.

Step 2: The user should input the proposed land uses that make up the total area of the development site. Any pre-determined on-site mitigation should also be inputted here.

Bespoke banking coefficients should be inputted for constructed wetland that can be evidenced

Stage 4

This stage provides a summary of the phosphorous loads calculated in stages 1-3 and presents the phosphorous budget for the proposed development.

A 20% precautionary buffer is included to account for uncertainties in the runoff coefficients used. The User has the option to change this buffer should this be appropriate.

Stage 5

This stage calculates the area and land uses of the mitigation site required for the proposed development to be phosphorous neutral, under current WwTW permit limits.

Step 4: The user has the option to select the amount of phosphorous load to be offset by the various land uses, which will then calculate the relevant area of land (Hectares) that needs to be changed.

Step 5: The user has the option to input the required area of land (hectares) to be mitigated until the project is phosphorous neutral, which will then calculate the equivalent phosphorous load for each land use.

The banking coefficients for wetlands uses a value of 8 kg/ha/yr for guidance purposes only. A site bespoke site-specific value will need to be calculated

Stage 6

This stage calculates the area and land uses of the mitigation site required for the proposed development to be phosphorous neutral, under AMP7 WwTW permit limits.

Step 4: The user has the option to select the amount of phosphorous load to be offset by the various land uses, which will then calculate the relevant area of land (Hectares) that needs to be changed.

Step 5: The user has the option to input the required area of land (hectares) to be mitigated until the project is phosphorous neutral, which will then calculate the equivalent phosphorous load for each land use.

Stage 7

This stage provides a summary in the differences in mitigation land use area between the current WwTW permit limits and the AMP7 WwTW permit limits

Land Use Definitions

The land uses presented in this tool followed the CORINE 2018 land use data. Definitions of key land uses are presented below:

Land Use	Description

Urban	Development which encompasses the built form, gardens, pathing, roads, hardstanding's, parks and small areas of open space, ponds and SuDS. The phosphorous load results from sewer overflows and from drainage that picks up phosphorous on the urban land. Agricultural barns used for storage of materials, farming supplies and temporary livestock can be classified as Urban. However, barns used for a specific farming type (e.g. piggeries and chicken farms) should be classified under the relevant farming land use.
Mineral Workings and Quarries	An open or surface mineral working, usually for the extraction of building stone, as slate, limestone, etc.
Allotment and City farms	Wholly or mainly cultivated for the production of vegetable or fruit crops for consumption by the tenant or local community. In some cases the land will also be used for ornamental plants and the keeping of hens or bees.
Sports and Leisure facilities	Facilities used for recreational purposes such as managed sports pitches, athletic fields, gymnasiums, swimming pools etc.
Transport tracks and ways	Encompasses large infrastructure such as motorways and significant rail infrastructure. Small scale roads and tracks are covered under the Urban land use
Transport terminals	A large scale facility where passengers and freight are assembled or dispersed
Cereals	Holdings on which cereals, combinable crops and set-aside account for more than two thirds of the total standard output.
Dairy	Holdings on which dairy cows account for more than two thirds of their total standard output.
Cropping	Holdings on which arable crops (including field scale vegetables) account for more than two thirds of the total standard output, excluding holdings classified as cereals; holdings on which a mixture of arable and horticultural crops account for more than two thirds of their total SO excluding holdings classified as horticulture and holdings on which arable crops account for more than one third of their total standard output and no other grouping accounts for more than one third.
Horticulture	Holdings on which fruit (including vineyards), hardy nursery stock, glasshouse flowers and vegetables, market garden scale vegetables, outdoor blubs and flowers and mushrooms account for more than two thirds of their total standard output.
Pig Farming	Holdings on which pigs account for more than two thirds of their total standard output.
Lowland grazing / Paddock	Holdings on which cattle, sheep and other grazing livestock account for more than two thirds of their total standard output except holdings classified as diary. A holding is classified as lowland if less than 50% of its total area is in the Less Favoured Area (LFA). A paddock is classified as a small enclosures used for grazing horses.
Mixed livestock	Holdings for which none of the other categories account for more than two thirds of total standard output. This category includes mixed pigs and poultry farms as wells as farms with a mixture of crops and livestock (which neither accounts for more than two thirds of standard output.
Poultry farming	Holdings on which poultry account for more than two thirds of their total standard output.
General Arable	Use this option if unsure of the breakdown of arable land.
Improved grass	Land used for grazing (other than arable land) where over one third of the sward comprises, singly or in a mixture, ryegrass, cocksfoot or timothy, or land that has been improved by management practices such as liming and top dressing, where there is not a significant presence of sensitive plants species indicative of native unimproved grassland.
Unimproved grass	Land used for grazing or mowing which is not normally treated with mineral fertiliser or lime and contains a significant presence of sensitive plant species indicative of native unimproved grassland.
Open Space / Greenfield	Greenfield areas that have not been in agricultural use for at least 10 years and are not subject to unmanaged recreational use.
Woodland	Tree-covered areas which either arose naturally or as a result of plantations. This includes conifer woodland, mixed woodlands and broad-leaved woodlands etc.
shrub / heathland / bracken / bog	Land that contains extensive areas of either shrubs, heath or bracken A bog refers to land that is a wetland area of muddy ground that can accumulate peat.
Freshwater marsh	Non-tidal, non-forested marsh wetland that contains fresh water, and is continuously or frequently flooded.
Meadow / semi natural grassland	A meadow is a field habitat vegetated by grass and other non-woody plant that has an open character and is not grazed by livestock
Wetland	Land use specific to constructed wetland only and does not include ponds or SuDS.

Wastewater Permit Limits

Current WwTW permit limits Vs AMP7 WwTW permit limits

The Water industry is looking to update and bring in new final effluent phosphorous consent which should come in before 2025, as part of the Water Industry National Environment Programme (WINEP). The enhancements are required to meet more onerous environmental permit requirements. Many WwTW in Somerset do not currently have a permit limit. However, following plans by Wessex Water, a large number will operate to a new permit level under AMP7. Further information regarding AMP7 permit limits can be found in the following documents:

0501C Atkins Phosphorus removal technology review

Representation C3 WINEP - Phosphorus removal

Soil Drainage

Criteria

The drainage characteristics of soil has a control over the dominant flow pathways for pollutant losses and as such controls the loading of Phosphorous into surface water bodies. Therefore the runoff coefficients from various land uses are different in freely draining soil compared to impermeable soil. For impermeable soil under Arable land use, it is assumed that man made drainage systems would be in place, whereas rough grazing and woodland areas would not be drained. For free-draining soil, the majority of the flow would be to groundwater, and it is assumed that drainage would not be required. The user should use the Soilscapes tool (Cranfield soil and Agrifood insitute, 2020) to determine the dominant soil type on their site. Soilscapes can be found at http://www.landis.org.uk/soilscapes/index.cfm

The following table is used to identify the dominant drainage type of the proposed development from the soil type identified above. The drainage type should then inform Stage 2 of the calculator

Free draining			Impermeable		
Colour	ID	Name	Colour	ID	Name
	3	Shallow lime-rich soils over chalk or limestone		1	Saltmarsh soils
	4	Sand dune soils		2	Shallow very acid peaty soils over rock
	5	Freely draining lime-rich loamy soils		8	Slightly acid loamy and clayey soils with impeded drainage
	6	Freely draining slightly acid loamy soils		9	Lime-rich loamy and clayey soils with impeded drainage
	7	Freely draining slightly acid but base-rich soils		15	Naturally wet very acid sandy and loamy soils
	10	Freely draining slightly acid sandy soils		16	Very acid loamy upland soils with a wet peaty surface
	11	Freely draining sandy Breckland soils		17	Slowly permeable seasonally wet acid loamy and clayey soils
	12	Freely draining floodplain soils		18	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils
	13	Freely draining acid loamy soils over rock		19	Slowly permeable wet very acid upland soils with a peaty surface
	14	Freely draining very acid sandy and loamy soils		20	Loamy and clayey floodplain soils with naturally high groundwater
				21	Loamy and clayey soils of coastal flats with naturally high groundwater
				22	Loamy soils with naturally high groundwater
				23	Loamy and sandy soils with naturally high groundwater and a peaty surface
				24	Restored soils mostly from quarry and opencast spoil
				25	Blanket bog peat soils
				26	Raised bog peat soils
				27	Fen peat soils

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Planning Application Reference No.	To be confirmed

Site address:	King Alfred Street BA16 0HB

Site proposal:	Construction of 2 residential dwellings

Date:	27/6/2022

Additional information:

Stage 1 — Calculate Total Phosphorous (TP) in (Kg/year) derived from the development as a result of increased population

*Note: This calculation should only include the **additional** units resulting from the proposed development, including any development that will result in overnight accommodation. For land not currently in residential use, this will be the total units proposed by the development. However, for land already in residential use, this should only be the increase in units.*

1. Calculate the additional population	Value	Unit
Number of units as flats, care-home, residential institution proposed		dwellings
Average occupancy	1.65	persons/dwelling
Number of houses proposed	2	dwellings
Average occupancy	2.4	persons/dwelling
Number of **additional** rooms above 6 residents (sui generis) for houses in multiple occupation		dwellings
Average occupancy	1.65	persons/dwelling
Number of rooms in a hotel or guest house proposed		dwellings
Average occupancy	1.65	persons/dwelling
Number of weeks open per year (1-52)		Weeks
Average occupancy rate (1-100)		%
Total population increase generated by the development	**5**	**Persons**

Note: The national average occupancy rate of 2.4 persons per dwelling is used for in this model. The number of proposed units should be evidenced. In the case of hotel and guest house average occupancy rates should also be evidenced. Developments that do not fall within these classifications such contact the council and bespoke calculations may be used.

Please select how the sewage from the proposed development will be handled, noting that a development must be handled by either wastewater treatment plants or package treatment, and cannot be handled by both.

Is sewage to be handled by wastewater treatment works? Yes

Is sewage to be handled by Package Treatment plants? No

2a. TP budget that would exit the Wastewater Treatment Works (WwTW) after treatment

Note: If the sewage is to be treated by wastewater treatment plants then the user should select "Yes" in the list above. If package treatment plants are to be used instead, then the user should select "No" above.

This is the process of collecting wastewater from houses and guiding it, via the sewage network, to WwTW (also known as sewage works). The Phosphorous concentration of the influent is calculated by multiplying the number of people by the expected water usage per day. The Phosphorous concentration within the effluent is calculated by applying the discharge level of the appropriate WwTW. The Phosphorous loading is expressed in kg/year.

Calculate the wastewater volume generated	Value	Unit
Total population increase generated by the development	5	Persons
Water use per person	110	Litres/person/day
Wastewater volume generated by the development	**528**	**Litres/day**

2b. TP budget for Package Treatment Plants (PTPs)

Note: If the sewage is to be treated by package treatment plants then the user should select "Yes" in the list above. If wastewater treatment plants are to be used instead, then the user should select "No" above.

Packaged wastewater treatment plants are pre-manufactured treatment facilities used to treat wastewater in smaller communities or on individual properties. This concept is defined as decentralized wastewater treatment. The Phosphorous influent is calculated by multiplying the number of people by the expected loading per person. The Phosphorous effluent is calculated by applying the PTP reduction efficiency. The Phosphorous loading is expressed in kg/year.

Calculate TP load prior to treatment	Value	Unit
Total population increase generated by the development	0	Persons
Average Phosphorous loading per person	0.99	Kg/person/year
Total Phosphorous prior to treatment	**0.00**	**Kg/year**

Confirm receiving WwTW and permit limit	Value	Unit
Select the WwTW the development will connect to	Glastor	
WwTW discharge level	**1.80**	**mg/L**

Note: Please use the drop down lists to select the WwTW that the proposed development will be connected to. If the WwTW is not known, then please select 'Unknown' from the drop down list.

Calculate TP load after treatment	Value	Unit
Receiving PTP reduction efficiency	0	%
Total Phosphorous discharge after PTP treatment	0.00	Kg/year

Note: The user mist input the reduction efficiency of the PTP. The efficiency of the PTP used must be evidenced. The evidence should include the test result documents from the lab (in English) and/ or measured effluent concentrations from real world applications. If the efficiency is unknown then a precautionary value of 90% can be used.

Calculate the TP discharged by the WwTW	Value	Unit
TP discharged by WwTW	950.4	mg/day
TP discharged by WwTW	0.0010	Kg/day
Phosphorous loading from WwTW	**0.35**	**Kg/year**

Calculate TP load from development wastewater with on-site PTP	Value	Unit
PTP Total Phosphorous load	**0.00**	**Kg/year**

3.	Calculate the additional population TP load	Value	Unit
	Total Phosphorous load from additional population	**0.35**	**Kg/year**

Stage 2 Calculate existing (pre-development) TP from current land use of the development

Note: Where development sites include existing areas that are to be retained, these areas can be excluded from the calculations in both Stages 2 and 3.

1.	Total area of development site	Value	Unit
	Enter the total area of the development site	**0.052**	**Hectares**

2.	Identify current land uses of the development site	Value	Unit
	Identify the drainage type of the soil on site		
	Is the soil type free draining?	No	

Note: Identify the soil drainage type from the Viewer, and use the criteria table in the Help tab to identify if the soil is either permeable or impermeable

Urban development	0.052	Hectares
Mineral workings and quarries		Hectares
Open space / Greenfield		Hectares
Allotments and city farms		Hectares
Sports and leisure facilities		Hectares
Transport tracks and ways		Hectares
Transport terminals		Hectares
Cereals		Hectares
Dairy		Hectares
Cropping		Hectares
Horticulture		Hectares
Pig Farming		Hectares
Lowland Grazing / paddock		Hectares
Mixed livestock		Hectares
Poultry Farming		Hectares
General Arable		Hectares
Improved grass		Hectares
Unimproved grass		Hectares
Woodland (e.g. conifer, mixed, broad-leaved)		Hectares
shrub / heathland / bracken / bog		Hectares
freshwater marsh		Hectares
Meadow / semi natural grassland		Hectares
Sum total of land uses	**0.052**	**Hectares**

Note: The sum total of land uses must equal the development site area - the box will colour red if the areas do not match.

3.	Calculate TP from current land usage	Value	Unit
	TP load from current land usage	**0.04**	**Kg/year**

Stage 3 **Calculate TP for the proposed development**

Note: This section should include all land uses within the proposed development. Where the proposed scheme is to create new wetlands, woodlands, nature reserves, etc. within the development site area, then this should be included within this section. Any offsite mitigation, proposed by either the developer or the Council should not be included below, and should instead be inputted in Stage 5 (if mitigation is required).

1.	Total area of development site	Value	Unit
	Total area of the development site	**0.052**	**Hectares**

2.	Identify proposed land uses of the development site	Value	Unit
	Urban development	0.052	Hectares
	Open Space / Greenfield		Hectares
	Woodland		Hectares
	Nature reserve		Hectares
	Heathland / Bog		Hectares
	Allotment		Hectares
	Meadow/semi-natural grassland		Hectares
	Sports and Leisure facilities		Hectares

Note: The sum total of land uses must equal the development site area inputted in stage 1 - the box will colour red if the areas do not match. Wetland refers to specific wetland off a watercourse - for more information refer to the land use definitions in the help tab.

3.	Designed Wetlands / SuDS		
	Wetland / SuDS area		Hectares
	Banking coefficient		Kg/ha/year

Note: Please input the banking coefficient calculated for the designed wetland / SuDS. The calculated value should be justifiable.

	Sum total of land uses	**0.052**	**Hectares**

4.	Calculate TP from proposed land usage	Value	Unit
	TP load from proposed land usage	**0.04**	**Kg/year**

5.	Calculation of gross P loading	Value	Unit
	Gross TP load from current and proposed land usage	**0.35**	**Kg/year**

Note: this step is for illustrative purposes when iteratively creating mitigation land on-site

Stage 4 **Calculate the net change in Phosphorous load from the proposed development**

Note: This stage calculates the net change in total phosphorous load to the catchment from the proposed development. This is derived by calculating the difference between the total phosphorous load calculated for the proposed development (wastewater, urban area, open space etc.) and that for the existing land uses. The phosphorous budget for the site has been calculated under current and AMP7 WwTW permit levels.

		Current	AMP7		Summary	
					No. of dwellings	2
1.	Identify the Phosphorous load from additional population	Value	Value	Unit	WwTW location	Glastonbury
					Current permit limit	1.8
	Phosphorous loading from additional population	**0.35**	**0.35**	**Kg/year**	AMP7 permit limit	1.8
2.	Calculate net change in Phosphorous load from land use change	Value	Value	Unit	TP current land use	0.04
	Phosphorous load from land use change	**0.00**	**0.00**	**Kg/year**	TP proposed land use	0.04
3.	Calculate phosphorous budget for the development site	Value	Value	Unit		
	Phosphorous budget for the site	**0.35**	**0.35**	**Kg/year**		
4.	Calculate phosphorous budget precautionary buffer	Value	Value	Unit		
	Buffer amount	20	20	%		
	Phosphorous precautionary buffer	**0.07**	**0.07**	**Kg/year**		

Note: The figures used throughout this model are based on scientific research, evidence and modelled catchments and represent the best available evidence. However, it is important that a precautionary buffer is used that recognises the uncertainty with these figures and ensures, with reasonable certainty, that there will be no adverse effect on site integrity. As such, a 20% precautionary buffer is built into the calculation.

5.	**Total phosphorous budget for the development site**	Value	Value	Unit
	Total Phosphorous budget for the site	**0.42**	**0.42**	**Kg/year**

Current WwTW Permit levels

Development will generate additional Phosphorous (Mitigation required) - Please progress to Stage 5

AMP7 WwTW Permit levels

Development will generate additional Phosphorous (Mitigation required) - Please progress to Stage 6

Stage 5 **Calculate the current TP banking for the proposed development**

Note: This section is only required for projects that will generate additional phosphorous and as a result need to implement mitigation measures, in order to achieve phosphorous neutrality under the current WwTW permit limits.

1.	Total Phosphorous budget for the development site	Value	Unit
	Total phosphorous budget to be mitigated	**0.42**	**Kg/year**

2. Identify current land use of mitigation area

2a. On-site mitigation [No]

2b. Off-site mitigation [ ]

Note: If the mitigation is to be implemented on-site then the user should select "Yes" in the list above. If off-site mitigation is to be implemented instead, then the user should select "No" above.

Note: If the mitigation is to be implemented off-site then the user should select "Yes" in the list above. If on-site mitigation is to be implemented instead, then the user should select "No" above.

Identify current land use on-site mitigation area	Value		Unit
Average land use of the on-site mitigation area	**0.83**	No	**Kg/ha/year**

Identify current land use of off-site mitigation area

Identify the drainage type of the soil on the mitigation site

Is the soil type free draining? [ ]

Note: Identify the soil drainage type from the Viewer, and use the criteria table in the Help tab to identify if the soil is either permeable or impermeable

Specific land use of on-site mitigation area				**Specific land use of off-site mitigation area**
Urban development	**0.83**	No	Kg/ha/year	Urban development
Mineral workings and quarries		No	Kg/ha/year	Mineral workings and quarries
Open space / Greenfield		No	Kg/ha/year	Open space / Greenfield
Allotments and city farms		No	Kg/ha/year	Allotments and city farms
Sports and leisure facilities		No	Kg/ha/year	Sports and leisure facilities
Transport tracks and ways		No	Kg/ha/year	Transport tracks and ways
Transport terminals		No	Kg/ha/year	Transport terminals
Cereals		No	Kg/ha/year	Cereals
Dairy		No	Kg/ha/year	Dairy
Cropping		No	Kg/ha/year	Cropping
Horticulture		No	Kg/ha/year	Horticulture
Pig Farming		No	Kg/ha/year	Pig Farming
Lowland Grazing		No	Kg/ha/year	Lowland Grazing
Mixed Livestock		No	Kg/ha/year	Mixed Livestock
Poultry Farming		No	Kg/ha/year	Poultry Farming
General Arable		No	Kg/ha/year	General Arable
Improved grass		No	Kg/ha/year	Improved grass
Unimproved grass		No	Kg/ha/year	Unimproved grass
Woodland (e.g. conifer, mixed, broad-leaved)		No	Kg/ha/year	Woodland (e.g. conifer, mixed, broad-leaved)
shrub / heathland / bracken / bog		No	Kg/ha/year	shrub / heathland / bracken / bog
freshwater marsh		No	Kg/ha/year	freshwater marsh
Meadow / semi natural grassland		No	Kg/ha/year	Meadow / semi natural grassland

On-site mitigation land runoff coefficient	**0.00**	**Off-site mitigation land runoff coefficient**	**NaN**

mitigation land runoff coefficient

3. Identify proposed land uses for mitigation	Value	Unit
Constructed wetland	0.052	Hectares
Open Space / Greenfield	-2.973	Hectares
Nature reserve	-20.814	Hectares
Woodland	-20.814	Hectares
Heathland / Bog	-20.814	Hectares
Meadow/semi-natural grassland	-2.081	Hectares

Designed Wetland banking coefficient

Banking coefficient	8	Kg/ha/year

Note: This section calculates the required area (hectares) needed for each land use type to individually mitigate the total excess phosphorous. This is included to provide context for the user when inputting required mitigation land uses in either section 4 and 5. Constructed wetland uses a generic runoff coefficient of -8 kg/ha/yr for guidance purposes only. Site-specific values will differ from this value and can be manually inputted above.

4. Identify proposed land uses for mitigation	Value	Unit	Value	Unit
Constructed wetland		kg/year	0	Hectares
Open Space / Greenfield		kg/year	0	Hectares
Nature reserve		kg/year	0	Hectares
Woodland		kg/year	0	Hectares
Heathland / Bog		kg/year	0	Hectares
Meadow/semi-natural grassland		kg/year	0	Hectares
Sum total area needed to be created	**0.42**	**Kg/year**	**0.000**	**Hectares**

Note: This section allows the user to input the required total phosphorous to be offset for the various land uses, with the equivalent area that would be required to be created. If the mitigation is to be implemented on-site then the actual area of mitigation land may differ from the value quoted due to the relative reduction in other land uses on-site. Therefore, for on-site mitigation these areas should be used a guide and but back into Stage 3 iteratively until the project is Phosphorous neutral.

5. Identify proposed land uses for mitigation	Value	Unit	Value	Unit
Constructed wetland		hectares	0.00	kg/year
Open Space / Greenfield		hectares	0.00	kg/year
Nature reserve		hectares	0.00	kg/year
Woodland		hectares	0.00	kg/year
Heathland / Bog		hectares	0.00	kg/year
Meadow/semi-natural grassland		hectares	0.00	kg/year
Sum total area needed to be created	**0.000**	**hectares**	**0.42**	**Kg/year**

Note: This section allows the user to input the required area for the various land uses to be created, with the equivalent total phosphorous to be offset in order for the development to be phosphorous neutral. The same applies as above regarding on-site mitigation.

Stage 5 **Calculate the AMP7 TP banking for the proposed development**

Note: This section is only required for projects that will generate additional phosphorous and as a result need to implement mitigation measures, in order to achieve phosphorous neutrality under the AMP7 WwTW permit limits.

1.	Total Phosphorous budget for the development site	Value	Unit
	Total phosphorous budget to be mitigated	**0.42**	**Kg/year**

2. Identify current land use of mitigation area

2a. On-site mitigation: No

2b. Off-site mitigation:

Note: If the mitigation is to be implemented on-site then the user should select "Yes" in the list above. If off-site mitigation is to be implemented instead, then the user should select "No" above.

Note: If the mitigation is to be implemented off-site then the user should select "Yes" in the list above. If on-site mitigation is to be implemented instead, then the user should select "No" above.

Identify current land use on-site mitigation area	Value		Unit
Average land use of the on-site mitigation area	**0.83**	No	**Kg/ha/year**

Identify current land use of off-site mitigation area

Identify the drainage type of the soil on the mitigation site

Is the soil type free draining?

Note: Identify the soil drainage type from the Viewer, and use the criteria table in the Help tab to identify if the soil is either permeable or impermeable

Specific land use of on-site mitigation area				**Specific land use of off-site mitigation area**
Urban development	**0.83**	No	Kg/ha/year	Urban development
Mineral workings and quarries		No	Kg/ha/year	Mineral workings and quarries
Open space / Greenfield		No	Kg/ha/year	Open space / Greenfield
Allotments and city farms		No	Kg/ha/year	Allotments and city farms
Sports and leisure facilities		No	Kg/ha/year	Sports and leisure facilities
Transport tracks and ways		No	Kg/ha/year	Transport tracks and ways
Transport terminals		No	Kg/ha/year	Transport terminals
Cereals		No	Kg/ha/year	Cereals
Dairy		No	Kg/ha/year	Dairy
Cropping		No	Kg/ha/year	Cropping
Horticulture		No	Kg/ha/year	Horticulture
Pig Farming		No	Kg/ha/year	Pig Farming
Lowland Grazing		No	Kg/ha/year	Lowland Grazing
Mixed Livestock		No	Kg/ha/year	Mixed Livestock
Poultry Farming		No	Kg/ha/year	Poultry Farming
General Arable		No	Kg/ha/year	General Arable
Improved grass		No	Kg/ha/year	Improved grass
Unimproved grass		No	Kg/ha/year	Unimproved grass
Woodland (e.g. conifer, mixed, broad-leaved)		No	Kg/ha/year	Woodland (e.g. conifer, mixed, broad-leaved)
shrub / heathland / bracken / bog		No	Kg/ha/year	shrub / heathland / bracken / bog
freshwater marsh		No	Kg/ha/year	freshwater marsh
Meadow / semi natural grassland		No	Kg/ha/year	Meadow / semi natural grassland

On-site mitigation land runoff coefficient	**0.00**	**Off-site mitigation land runoff coefficient**	**NaN**

mitigation land runoff coefficient

3. Identify proposed land uses for mitigation	Value	Unit
Constructed wetland	0.052	Hectares
Open Space / Greenfield	-2.973	Hectares
Nature reserve	-20.814	Hectares
Woodland	-20.814	Hectares
Heathland / Bog	-20.814	Hectares
Meadow/semi-natural grassland	-2.081	Hectares

Designed Wetland banking coefficient

Banking coefficient	8	Kg/ha/year

Note: This section calculates the required area (hectares) needed for each land use type to individually mitigate the total excess phosphorous. This is included to provide context for the user when inputting required mitigation land uses in either section 4 and 5. Constructed wetland uses a generic runoff coefficient of -8 kg/ha/yr for guidance purposes only. Site-specific values will differ from this value and can be manually inputted above.

4. Identify proposed land uses for mitigation	Value	Unit	Value	Unit
Constructed wetland		kg/year	0	Hectares
Open Space / Greenfield		kg/year	0	Hectares
Nature reserve		kg/year	0	Hectares
Woodland		kg/year	0	Hectares
Heathland / Bog		kg/year	0	Hectares
Meadow/semi-natural grassland		kg/year	0	Hectares
Sum total area needed to be created	**0.42**	**Kg/year**	**0.000**	**Hectares**

Note: This section allows the user to input the required total phosphorous to be offset for the various land uses, with the equivalent area that would be required to be created. If the mitigation is to be implemented on-site then the actual area of mitigation land may differ from the value quoted due to the relative reduction in other land uses on-site. Therefore, for on-site mitigation these areas should be used a guide and but back into Stage 3 iteratively until the project is Phosphorous neutral.

5. Identify proposed land uses for mitigation	Value	Unit	Value	Unit
Constructed wetland		hectares	0.00	kg/year
Open Space / Greenfield		hectares	0.00	kg/year
Nature reserve		hectares	0.00	kg/year
Woodland		hectares	0.00	kg/year
Heathland / Bog		hectares	0.00	kg/year
Meadow/semi-natural grassland		hectares	0.00	kg/year
Sum total area needed to be created	**0.000**	**hectares**	**0.42**	**Kg/year**

Note: This section allows the user to input the required area for the various land uses to be created, with the equivalent total phosphorous to be offset in order for the development to be phosphorous neutral. The same applies as above regarding on-site mitigation.

Stage 7 **Difference in mitigation land uses between current WwTW permit limits and AMP7 WwTW permit limits**

1. Total Area of proposed mitigation land uses	Current WwTW	AMP7 WwTW	Difference	
	Value	Value	Value	Units
Constructed wetland	0.000	0.000	0.000	Hectares
Open Space / SANG (<0.5 ha)	0.000	0.000	0.000	Hectares
Nature reserve	0.000	0.000	0.000	Hectares
Woodland	0.000	0.000	0.000	Hectares
Heathland / Bog	0.000	0.000	0.000	Hectares
Meadow/semi-natural grassland	0.000	0.000	0.000	Hectares
Sum total area needed to be created	**0.000**	**0.000**	**0.000**	**Hectares**

Note: This section demonstrates to the user the amount of mitigation land that is no longer required for the project to be 'Phosphorous Neutral' following

Progress on a Somerset Phosphates Strategy Last updated 26th May 2022	
The five Somerset Local Planning Authorities appointed Royal Haskoning DHV (RH) in March 2021. RH were tasked to develop a Somerset nutrient calculator and review solutions leading to a Mitigation Strategy. Progress on the various aspects of the Strategy and use in Mendip is set out below and will be updated.	
Description	**Progress**
Area at risk subject to phosphate mitigation Review of initial risk map with evidence from Wessex Water, Environment Agency (EA) and Internal Drainage Boards.	**Update published on 16th March 2022** These areas have been confirmed by Natural England. Note – there are also parts of Mendip outside the area of risk but which have sewer connections within the area of risk.
Phosphate Mitigation Solutions Report Report reviewing available solutions including 'interim' measures and permanent mitigation for phosphate removal. Included feedback from stakeholder events held during August 2021.	**Report published 16th March 2022**
Somerset Phosphate Calculator This tool provides a calculation of net phosphate loading from developments. It includes phosphate offsetting calculations for on and off site locations. Use of the calculator has been agreed with Natural England. A national policy statement on nutrients and revised advice from Natural England was published on 16th March 2022. This includes the release of a national Nutrient Neutrality methodology and local catchment calculators. The calculator is likely to be updated to reflect the national approach. Natural England have confirmed that the Royal Haskoning Somerset calculator should continue to be used. No decision has been made on when the revised calculator will come into effect	**Published in Feb 2021** with revisions in March 2021 **Summer 2022** RH will undertake further work on the calculator including - reviewing national calculator and differences in approach and assumptions. - Discussions with NE on use of local evidence - advice on when a when a revised calculator may come into effect.
Strategic solutions/ Somerset credit scheme	**2022/2023** DEFRA announced £100,000 in funding to planning authorities to support mitigation in Somerset. Officers are now considering how this can be used to develop action plans and further a strategic solution such as credit scheme for phosphates.
Developer / Technical Guidance Standard Guidance to assist applicants in making applications.	**Autumn 2022** Guidance for particular types of development is under discussion. Officers will review timelines in light of the latest NE advice. National NE guidance will be published when available – e.g. on wetland creation/ small schemes and use of package treatment plants

Types of development and applications subject to Habitats Regulations Assessment	**Updates Ongoing** LPAs. Somerset Ecology and Natural England have a working list of development types which require mitigation. However, some applications will always need case-specific review. There are regular joint meetings to agree a common approach to affected applications across Somerset and to review legal advice etc.
Validation Requirements for Major Schemes in the Area of Risk within Mendip	**Published and in effect Nov 2021** High level mitigation details will need to be submitted to validate applications See Website guidance on requirements.