



Nutrient Neutrality Assessment and Mitigation Strategy

Damask Way, Warminster, Wiltshire

Backhouse Housing Limited

Prepared by:

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Basis of Report

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Executive Summary

SLR Consulting Limited has prepared this Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS) on behalf of Backhouse Housing Limited to support a planning application for the proposed development of up to 50 new residential dwellings. The site is located at Damask Way, Warminster, Wiltshire BA12 9RA.

The key findings from the report are that the site will generate additional nutrient loadings post development, and mitigation measures will be required. Mitigation measures incorporated by the development include:

- Each of the proposed dwellings will be fitted with a Control Flow device to reduce water usage to 95 l/person/day.
- All of the surface water runoff from the proposed site will be collected in tanked permeable pavement before discharge to sewer.

Further on-site mitigation is not possible, due to space constraints.

The nutrient loading from the development will be reduced to 3.69 kg total phosphorus (TP) per year to 2030, and to 2.57 kg TP/year from 2030. This remaining nutrient loading will require off-site mitigation. It is therefore proposed that the developer purchases nutrient credits from a credit provider within the Hampshire Avon catchment.



Table of Contents

1.0	Introduction	1
2.0	Site Description	3
3.0	Planning Policy and Guidance	5
4.0	Assessment of Nutrient Neutrality	7
5.0	Mitigation Measures	10
6.0	Conclusions	12

Tables in Text

Table 4-1: Post Development Nutrient Loading for the Site (including 20% buffer).....	9
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Appendices

Appendix A	Proposed Site Layout
Appendix B	Extracts from previous drainage report
Appendix C	Wessex Water records and correspondence
Appendix D	Nutrient Budget Calculations



Acronyms and Abbreviations

AOD	Above Ordnance Datum
BGL	Below Ground Level
BGS	British Geological Survey
EA	Environment Agency
Ha	Hectare
LURA	Levelling Up and Regeneration Act
m AOD	Metres Above Ordnance Datum
NBC	Nutrient Budget Calculator
NE	Natural England
NNAMS	Nutrient Neutrality Assessment and Mitigation Strategy
NVZ	Nitrate Vulnerable Zone
SAC	Special Area of Conservation
TP	Total Phosphorus
WWTW	Wastewater Treatment Works



1.0 Introduction

Authorisation

- 1.1 SLR Consulting has been appointed by Backhouse Housing Limited to prepare a Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS), which will support a planning application for up to 50 proposed residential dwellings at Damask Way, Warminster. Refer to Drawing No. 240707 L 02 01 (Proposed Site Layout – issued February 2026) by Clifton Emery design in **Appendix A**.

Background

- 1.2 The site is a greenfield site approximately 2.25 hectares (ha) in size, and is located to the east of Damask Way, Warminster, Wiltshire BA12 9RA.
- 1.3 According to Natural England, the site is within the catchment of the River Avon (Hampshire) Special Area of Conservation (SAC). Development within this area has the potential to generate adverse impacts with regard to total phosphorus (TP) pollution of the Avon¹.
- 1.4 A NNAMS is required by Wiltshire Council, in order to validate the planning application. This NNAMS has been developed in accordance with the guidelines set out by Natural England with regards to the River Avon SAC².

Aims and Objectives

- 1.5 The aim of this NNAMS is to demonstrate that the site can be developed safely for residential purposes, without increasing the phosphorus loading to the Hampshire Avon SAC. The objectives of this NNAMS are to:
- Review the relevant nutrient policy documents to ensure that the development proposals are in accordance with this and other regional and local guidance.
 - Undertake a desk-based review of the available information to assess the anticipated impacts of the development, using the Hampshire Avon Nutrient Budget Calculator v6.0.
 - Identify nutrient mitigation requirements.
 - Prepare a nutrient mitigation strategy.
 - Summarise the above into an NNAMS report using supporting information and based on guidance from Wiltshire Council and Natural England.

¹ <https://publications.naturalengland.org.uk/publication/6522945605468160> [Accessed: March 2026]

² Natural England (February 2022) Nutrient Neutrality Generic Methodology. <https://publications.naturalengland.org.uk/publication/5143927928913920> [Accessed: March 2026].



Limitations

1.6 The general limitations of this assessment are that:

- A number of sources have been used to compile this document; whilst we consider them to be trustworthy, SLR is unable to guarantee the accuracy of the information that has been provided by others.
- This report is based on information available at the time of preparing the NNAMS. Consequently, there is potential for further information to become available or variations to the development proposals to be made. These changes may lead to future alteration to the conclusions or calculations in this report.



2.0 Site Description

Site Location and Description

- 2.1 The site is located at the southern end of Warminster and is centred at Ordnance Survey (OS) grid reference of ST 87730 44137. The site is currently greenfield.
- 2.2 The area surrounding the site to the north, east and south comprises grassland and mixed woodland³. To the west is residential housing. The River Were is approximately 66m to the north of the site at its closest point. This flows to the east and joins the River Wylye approximately 200m east of the site.
- 2.3 Topographic data from on and around the site, gathered using Light Detection and Ranging (LiDAR) aerial photogrammetric techniques, has been downloaded from the Environment Agency (EA) open data website⁴. This data has been used to provide information in relation to the topography of the land on and around the site. The site gently slopes from the highest elevation in the west of approximately 127.3m Above Ordnance Datum (AOD) to the lowest elevation in the east of approximately 119.2m AOD.

Geology and Hydrogeology

- 2.4 The 1 in 50,000 scale British Geological Survey (BGS) online mapping⁵ indicates that the bedrock geology beneath the site comprises Sandstone of the Cann Sand Member and Boyne Hollow Chert Member. No superficial deposits are indicated to be present beneath the site.
- 2.5 The National Soil Resources Institute (NSRI) known as Soilsdapes was accessed via an online mapping tool⁶. Soil at the site is comprised of freely draining slightly acid loamy soils in the west and loamy and clayey floodplain soils with naturally high groundwater with naturally wet drainage.
- 2.6 A British Geological Survey (BGS) borehole record⁷ (ST84SE23) was noted approximately 220m to the east of the site. This recorded strata of:
- TOPSOIL: 0.25m depth below ground level (bgl);
 - Soft brown clayey amorphous PEAT: 0.4m depth bgl;
 - Soft and very dark brown peaty CLAY: 1m depth bgl;
 - Soft light greyish green CLAY: 1.8m depth bgl;
 - Fine medium and coarse GRAVEL: 2.6m depth bgl;
 - Dark greyish green silty fine and medium SAND: 3.2m depth bgl (end of

³ UKCEH Land Cove Maps. Available at: <https://www.ceh.ac.uk/data/ukceh-land-cover-maps> [Accessed: March 2026]

⁴ DEFRA open data website, <https://environment.data.gov.uk/DefraDataDownload/?Mode=survey>

⁵ BGS Geology of Britain Viewer, Surface Geology available at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed: March 2026]

⁶ Soilsdapes available at <https://www.landis.org.uk/soilsdapes/> [Accessed: March 2026]

⁷ BGS Geology of Britain Viewer, Borehole Scans available at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed: March 2026]



- borehole)
Very slow groundwater seepage at a depth of 0.8m and 2m depth bgl.
- 2.7 A number of ground investigations have been previously undertaken at the site, for a previous planning application. The results have indicated that the soil is insufficiently permeable for infiltration drainage, and that an attenuation-based surface water drainage strategy is required for the site. Refer to extract from Report No. AMc/21:0175/6088 Rev E – Development Surface Water Drainage (by MJA Consulting) in **Appendix B**.
- 2.8 The Sandstone strata beneath the site is classified as a 'Principal' Aquifer', according to the online MAGIC mapping tool⁸. 'Principal' aquifers provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands⁹.

Hydrology and Existing Drainage

- 2.9 1 in 50,000 scale Ordinance Survey (OS) mapping shows the River Were, also known as Swan River, approximately 66m north of the site. This flows in an easterly direction away from the site and flows into the River Wylfe approximately 200m east of the site. The River Wylfe is classified by the Environment Agency as a 'statutory main river'¹⁰.
- 2.10 The River Wylfe is a tributary to the River Nadder, which discharges to the River Avon, approximately 30.3km southeast of the site.
- 2.11 Sewer records have been obtained from Wessex Water and are enclosed in **Appendix C**. These indicate that a 150mm diameter public foul water sewer is located immediately south of the site. This flows to the south-east. In an email dated the 16th April 2025, Wessex Water confirmed that foul water from this sewer is discharged to Warminster Wastewater Treatment Works (WWTW). Refer to correspondence in **Appendix C**. No surface water sewers are present on the site or in the vicinity of the site.
- 2.12 Topographic data indicates the direction of surface water runoff at the existing site. The topography appears to be elevated at the western side of the site at approximately 127.3m AOD, and the ground falls towards the east to around 119.2m AOD. This appears to demonstrate that the majority of surface water runoff from the existing site either infiltrates to the ground or flows away from the site towards the River Wylfe to the east.

⁸ Defra, MAGIC Map available at <https://magic.defra.gov.uk/magicmap.aspx> [Accessed: March 2026].

⁹ EA, Protect groundwater and prevent groundwater pollution. Available at: <https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution> [Accessed: March 2026]

¹⁰ Environment Agency (2023) Statutory Main River Map available at <https://environment.data.gov.uk/dataset/25dde009-ba7d-40de-8380-c5c3bb32ccdc> [Accessed: March 2026].



3.0 Planning Policy and Guidance

Natural England Nutrient Neutrality Advice

- 3.1 Natural England (NE)'s advice applies to development proposals which have the potential to affect water quality in such a way as to cause adverse nutrient impacts on designated habitats sites.
- 3.2 The aim is to enable new development to proceed in a way which is 'nutrient neutral' and will not result in additional nutrient loading to protected habitats post development.

Hampshire Avon SAC

- 3.3 The River Avon SAC and its tributaries make up a large, lowland river system. It supports a diverse fish community by providing a mosaic of different habitats and extensive areas of gravels essential for spawning and growth of juvenile fish species. The Avon catchment is designated as a SAC for several species¹¹. Five aquatic *Ranunculus* species occur in the river system, but stream water-crowfoot *Ranunculus penicillatus* ssp. *pseudofluitans* and river water-crowfoot *R. fluitans* are the main dominants. Some winterbourne reaches, where pond water-crowfoot *R. peltatus* is the dominant watercrowfoot species, are included in the SAC. There is an extensive population of Desmoulin's whorl snail *Vertigo moulinsiana* along the margins and associated wetlands of the Rivers Avon, Bourne and Wylfe.
- 3.4 The River Avon is affected by eutrophication, where nutrients, namely phosphorous (P), enter the water environment and cause dense algal blooms which impact the protected habitats and species.
- 3.5 In March 2022, Natural England designated the River Avon as a 'habitats site in unfavourable condition due to excessive nutrients which require a Habitats Regulations Assessment (HRA) and where nutrient neutrality has been identified as a potential mitigation solution to enable development to proceed'¹². Therefore, a nutrient neutrality assessment and mitigation strategy is required for the site.
- 3.6 The latest Nutrient Budget Calculator (NBC) for the River Avon was published by Natural England in May 2025. A guidance document regarding the River Avon NBC has also been published¹³. These documents have been used to assess the nutrient budget for the site.

¹¹ European Site Conservation Objectives for River Avon SAC. Available at: <https://publications.naturalengland.org.uk/publication/6048472272732160> [Accessed: March 2026]

¹² NE785 Revised Edition Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022)

¹³ River Avon: nutrient neutrality calculator. Available at: <https://www.gov.uk/government/publications/river-avon-sac-nutrient-neutrality-calculator> [Accessed: March 2026]



Policy Conclusions

- 3.7 The development proposals are consistent with the policies set out by Natural England and Wilshire Council. This is because the nutrient budget for the site has been calculated using Natural England guidance. This is discussed in the following sections.



4.0 Assessment of Nutrient Neutrality

Nutrient Neutrality Generic Methodology

- 4.1 A Nutrient Neutrality Generic Methodology (NECR459) has been developed by Natural England and was published in November 2022¹⁴. Therefore, Natural England's Nutrient Neutrality Generic Methodology (NECR459) and the Natural England Nutrient Neutrality Budget Calculator (NBC) for the River Avon SAC (updated May 2025) have been used to assess the nutrient budget for the site. The calculations are included in **Appendix D**.

Stage 1: Calculate nutrient loading from additional wastewater

- 4.2 The proposed development comprises up to 50 new dwellings. The average occupancy rate given by the Hampshire Avon NBC is 2.4 people per dwelling, giving a post development population of 120.
- 4.3 The client has advised that foul water from the proposed development will be discharged to the existing public foul sewer network in the vicinity of the site. Wessex Water have confirmed that the wastewater from the site will discharge to Warminster Wastewater Treatment Works (WWTW). Refer to correspondence in **Appendix C**.
- 4.4 The client has advised that each of the proposed dwellings will be fitted with a Control Flow device to reduce water usage to 95 l/person/day. This figure was added to the NBC.
- 4.5 The phosphorus removal capacity of Warminster WWTW is to be upgraded by 2030, to comply with the requirements of the Levelling Up and Regeneration Act (LURA)¹⁵. This will entail a reduction in milligrams (mg) of total phosphorus (TP) per litre in the final effluent from Warminster WWTW, from the current permit level of 0.5ml TP/litre, to 0.25ml TP/litre from 2030¹⁶.
- 4.6 The additional nutrient loading from wastewater generated by the proposed development has been calculated as **1.87 kg TP/year** before 2030, and **0.94 kg TP/year** from 2030. Refer to the nutrient calculations for Sheet 1 in **Appendix D**.

¹⁴ Nutrient Neutrality Generic Methodology: Natural England Commissioned Report NECR459 (November 2022)

¹⁵ Sensitive Catchment Areas. Available at: https://www.gov.uk/government/publications/notice-of-designation-of-sensitive-catchment-areas-2024/information-about-nutrient-significant-plants?pk_campaign=newsletter_6756 [Accessed: March 2026]

¹⁶ Information about nutrient significant plants. Available at: https://www.gov.uk/government/publications/notice-of-designation-of-sensitive-catchment-areas-2024/information-about-nutrient-significant-plants?pk_campaign=newsletter_6756 [Accessed: March 2026]



Stage 2: Calculate existing nutrient load from current land use

- 4.7 The site is located within the Hampshire Avon catchment.
- 4.8 The Landis Soilscales tool¹⁷ was used to determine the soil type for the site, as specified in the 'Information' tab of the NBC. The soils are classified as 'naturally wet'.
- 4.9 The UK Soil Observatory tool¹⁸ was used to determine that the site is within a Nitrate Vulnerable Zone (NVZ).
- 4.10 The annual average rainfall for the site was determined using the National River Flow Archive¹⁹. The annual average rainfall for the site is 800 – 850 mm.
- 4.11 The site currently comprises grassed open land. Therefore, the current land use for the entire site has been classified as 'Greenspace'.
- 4.12 All of the above information was added to the NBC, which calculates the nutrient loading from the existing site.
- 4.13 The existing nutrient loading from the current land use was calculated as **0.05 kg TP/year**. Refer to Sheet 2 in **Appendix D**.

Stage 3: Calculate nutrient load from future land use

- 4.14 The proposed residential development will comprise 1.2 ha, including associated roadways and gardens. This area has been classified as 'Residential urban land'. The remainder of the site (1.05 ha) comprises public open green space. Refer to **Appendix A**. This area has therefore been classified as 'Greenspace'.
- 4.15 The nutrient loading from the post development site was calculated as **2.0 kg TP/year**. Refer to Sheet 3 in **Appendix D**.

Stage 4: Calculate input from on-site Sustainable Urban Drainage Systems (SuDS)

- 4.16 The client has advised that all of the surface water runoff from the proposed site will be collected in tanked permeable pavements before discharge to sewer. The phosphorus removal rate for the tanked permeable pavement has been calculated as 38%, in accordance with CIRIA C808²⁰. The nutrient loading which can be

¹⁷ Cranfield University (2024) Landis Soilscales Viewer <https://www.landis.org.uk/soilscales/> [Accessed: March 2026]

¹⁸ UK Soil Observatory (2024) Nitrate Vulnerability Zones (NVZ) – England UK Soil Observatory (bgs.ac.uk) [Accessed: March 2026]

¹⁹ National River Flow Archive, available at National River Flow Archive (ceh.ac.uk) [Accessed: March 2026]

²⁰ Bradley, J. Haygarth, P, Stachyra, K and Williams, P (2022) Using SuDS to reduce phosphorus in surface water runoff, C808, CIRIA, London, UK.



removed via SuDS was calculated as **0.75 kg TP/year**. Refer to Sheet 4 in **Appendix D**.

Stage 5: Calculate the net change in nutrient load from the proposed development

- 4.17 The Natural England methodology added the calculated nutrient loading from the additional population and the net change in nutrient loading from the proposed land use change, to calculate the nutrient budget for the proposed site.
- 4.18 A 20% precautionary buffer was added to the result by the calculator, to account for uncertainties in the nutrient methodology. This is therefore reflected in the outputs below.
- 4.19 The total post development nutrient budget for the site has been calculated based on the current permit limit for Warminster WWTW, and the post 2030 permit discharge limit. The calculations include the 20% buffer. Refer to **Table 4-1** and calculations in **Appendix D** for the post development nutrient loadings for the site.

Table 4-1: Post Development Nutrient Loading for the Site (including 20% buffer)

	Pre-2030 Loading (kg /year)	Post 2030 Loading (kg/year)
Total Phosphorus (TP)	3.69	2.57



5.0 Mitigation Measures

- 5.1 It is proposed to discharge post development surface water runoff to a surface water drainage ditch network to the south of the site, which connects to the River Wylfe.
- 5.2 Post development foul flows will be discharged to the public foul sewer network, which connects to Warminster WWTW.

On-Site Mitigation

- 5.3 All of the proposed dwellings will be fitted with a Control Flow device to reduce water usage to 95 l/person/day.
- 5.4 On-site infiltration testing has shown that the site is unsuitable for infiltration drainage. Refer to **Appendix B**. Surface water flows will be routed through tanked permeable pavement, which will provide a measure of mitigation.
- 5.5 These mitigation measures will reduce the nutrient loading from the site by 1.2 kg TP/year prior to 2030, and 1.5 kg TP/year from 2030. However, space constraints indicate that mitigation cannot be entirely provided on-site, and off-site mitigation will also be required.

Off-Site Mitigation

- 5.6 Off-site mitigation can include the conversion of agricultural land upstream of the site within the River Wylfe catchment to new woodland or wetland, to remove an equivalent quantity of phosphate from the River Wylfe catchment. This would require a long-term agreement with a third-party landowner.

Nutrient Credit Schemes

- 5.7 A private nutrient credit scheme operated by Green Agri Land is currently operational in the Wylfe catchment²¹.
- 5.8 It is envisaged that some additional nutrient mitigation will be secured via the purchase of credits, and that this will be secured via a planning condition and a legal agreement with the credit provider.

Interim Measures

- 5.9 A higher level of mitigation (3.69 kg TP/year) is required from the time of first occupation of the site until 2030, when Warminster WWTW is due to be upgraded. From 2030, the mitigation requirements will fall to 2.57 kg TP/year. This can be provided by purchasing short term credits from interim off-site measures such as

²¹ <https://www.greenagriland.co.uk/> accessed March 2026



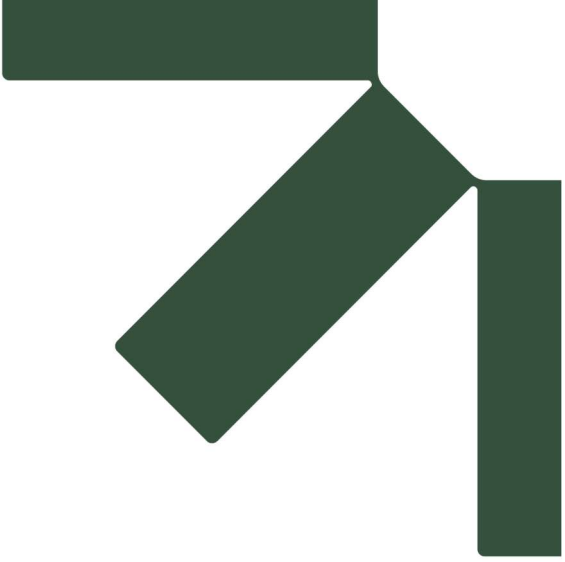
land fallowing, the planting of cover crops or riparian buffer strips, from credit providers within the Wylfe catchment.



6.0 Conclusions

- 6.1 This Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS) has been prepared to accompany a planning application for construction of up to 50 new dwellings at a site at Damask Way, Warminster, BA12 9RA.
- 6.2 This report has been prepared by SLR Consulting on behalf of Backhouse Housing Limited in accordance with the guidelines set out by Natural England.
- 6.3 The site will generate additional nutrient loadings post development for both the current permit limit from Warminster WWTW, and for the reduced permit limit from 2030. Mitigation measures will be required.
- 6.4 The client has advised that each of the proposed dwellings will be fitted with a Control Flow device to reduce water usage to 95 l/person/day.
- 6.5 It is anticipated that post development surface water runoff will be collected in an on-site drainage network, including tanked permeable pavement, and discharged to a ditch to the south of the site which is within the catchment of the River Wylye.
- 6.6 Post development foul effluent will be discharged to the existing public foul sewer network, subject to approval from Wessex Water.
- 6.7 It is proposed that mitigation credits to offset the remaining nutrient loading from the proposed development will be purchased from a credit provider operating within the River Wylye catchment. The initial mitigation will be 3.69 kg TP/year. A reduced number of credits to offset will be required from 2030 (for 2.57 kg/TP/year), as upgrades to Warminster WWTW will reduce the loading from the proposed development. The purchase of credits will be secured via a planning condition.





Appendix A Proposed Site Layout

Nutrient Neutrality Assessment and Mitigation Strategy

Damask Way, Warminster, BA12 9RA

Backhouse Housing Limited

SLR Project No.: 402.066106.00001

30 March 2026



- NOTES:
- Application boundary
 - Affordable units
 - 15m Existing building offset
 - 20m Existing building offset
 - Acidic grassland
 - 20m Badger sett offset

Accommodation schedule

Affordable Mix (30%)

Unit Type	no.
TA1.1	4
FOG	1
TA2.2	6
TA3.2	4

TOTAL AFFORDABLE: 15 units

Open Market Mix (70%)

Unit Type	no.
FOG	1
Bramford	6
Lock	13
Cary	4
Mead	5
Gables	4
Stanton	1

TOTAL OPEN MARKET: 34 units

TOTAL HOUSES: 49 units

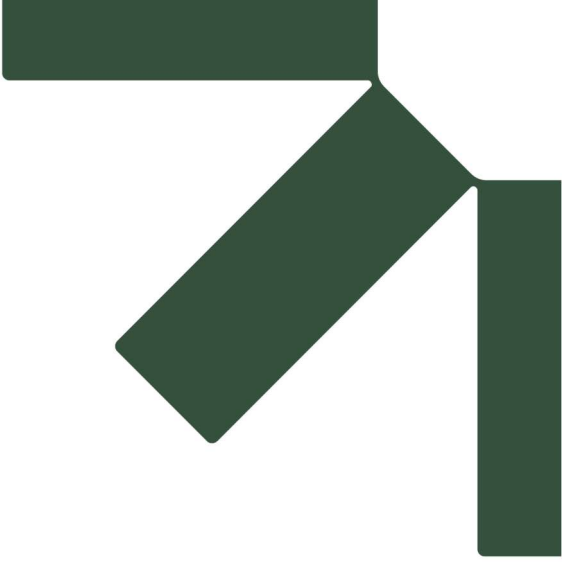
REV	NOTES	DATE
	Damask Way, Warminster Proposed Site Layout	B JH/DC
240707 L 02 01	1:500@A1	Feb 26

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DRAWING-STATUS: DRAFT for comment

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM. THIS DRAWING IS COPYRIGHT.



Appendix B Extracts from previous drainage report

Nutrient Neutrality Assessment and Mitigation Strategy

Damask Way, Warminster, BA12 9RA

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30 March 2026

- As part of the Flood risk Assessment a number of sources of flooding were considered including Fluvial, Tidal, Groundwater, surface and artificial. None of the sources were considered an issue. As stated in the report the site lies within **Flood Zone 1** and is not at risk of flooding from any source.
- No existing Wessex Water surface water sewers were found within the vicinity of the site.
- No specific ground investigation was undertaken at the outline planning stage. The development ground conditions were based on geological mapping and adjacent site data only.
- Based on there being no surface water sewer being present in the area and adjacent site data ground conditions were assumed to be permeable.
- The surface water runoff design was based primarily on infiltration methods utilising permeable paving and soakaways for the plots, permeable paving for small road areas with the main access roads draining via highway ring soakaways.
- An assumed infiltration rate of 3.75×10^{-5} was used based on the findings from an adjacent development.
- The Greenfield Runoff Rate for the development area was assessed using Micro Drainage Software and based on a permeable soil type. Runoff rates were assessed as follows:

Site Characteristics		Greenfield Runoff	
Area	2.2 Ha	Q Bar	1.2 l/sec
SAAR	915mm	1 year	1.0 l/sec
Soil Type	0.15	30 year	2.3 l/sec
		100 year	2.9 l/sec

Preliminary Reserved Matters Design

The development preliminary surface water designs were undertaken using the inductive infiltration rates as indicated above. This led to initial indications that the strategy was suitable for the proposed development. However, in accordance with the Planning Conditions further detailed infiltration testing to BRE 365 was required.

The site-specific ground investigations were undertaken these include an Interpretive report by Structural Soils in February 2019, with further investigations by Ruddlesden Geotechnical in July/August 2020 and infiltration testing being undertaken in November 2020.

From the various reports ground conditions encountered were similar as highlighted within the table below. However, the site-specific infiltration testing in November 2020 did highlight a more changeable sub strata below the topsoil with the Upper Green Sand Formation containing a more clayey silty sand which could account for the variable infiltration results.

Summary of Ground Conditions			
Strata Encountered	Depth to top of strata	Range Thickness	Notes
Topsoil / Made Ground	G.L.	0.3 – 0.45 0.85	
Shaftesbury Sandstone Member	0.30 – 0.75m	Up to 4.65m	Upper Greensand Formation
Cann Sand Member	1.40 – 5.30m	.10.35m	Upper Greensand Formation
No groundwater was encountered			

As part of the Structural Soils investigation in February 2019 one Infiltration test was undertaken within the middle of the site. This indicated good infiltration at 2×10^{-4} m/s.

The Infiltration testing by Ruddlesden Geotechnical in November 2020 showed a variable permeability throughout the site ranging from 1.24×10^{-4} m/s to 9.74×10^{-6} m/s. Some areas of testing failed to reach suitable results. Details and summary of test locations within relevant appendix.

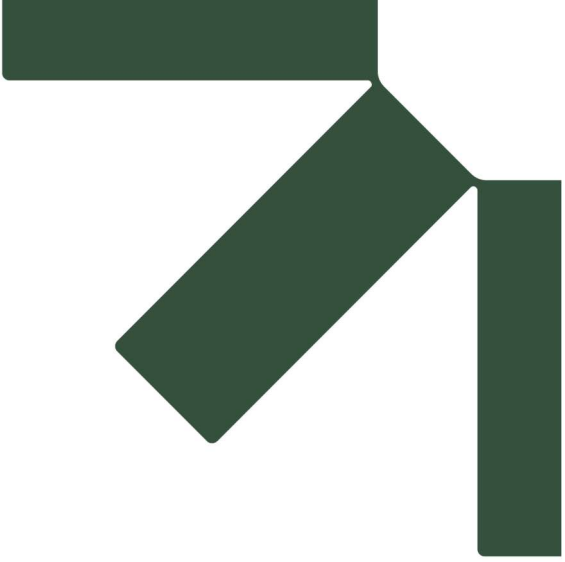
From the findings of the infiltration testing a proportion of the site including the access is largely impermeable and unsuitable for permeable type drainage techniques. As part of the planning condition and in consultation with Wiltshire Council LLFA it was agreed that an alternative surface water strategy and design would be required for the site. The initial proposals put forward for discussion were to utilise a mix of the original permeable drainage design in suitable areas with a more traditional attenuation and positive discharge for areas of non-permeability. However, due to the variable nature of the impermeable soils the surface water drainage strategy will be now based on a full gravity piped and attenuated scheme with SUDs elements within driveway areas.

Total development site area equates to 2.2 Hectares, the non-permeable area of the site equates to approximately 1.9 Hectares. The Greenfield Runoff assessment has been taken for the developable area of development excluding the areas of open space. The original assessment as based on the whole site area and with a very permeable soil type. As were now all aware the soil type isn't permeable and therefore, we've reviewed the runoff against actual less permeable sub soil.

Greenfield Runoff

Site Characteristics		Greenfield Runoff	
Area	0.9 Ha	Q Bar	8.3 l/sec
SAAR	867mm	1 year	7.1 l/sec
Soil Type	4	30 year	18.8l/sec
SPR	0.47	100 year	26.5 l/sec

Based on HR Wallingford uksuds website – Greenfield Runoff Assessment



Appendix C Wessex Water records and correspondence

Nutrient Neutrality Assessment and Mitigation Strategy

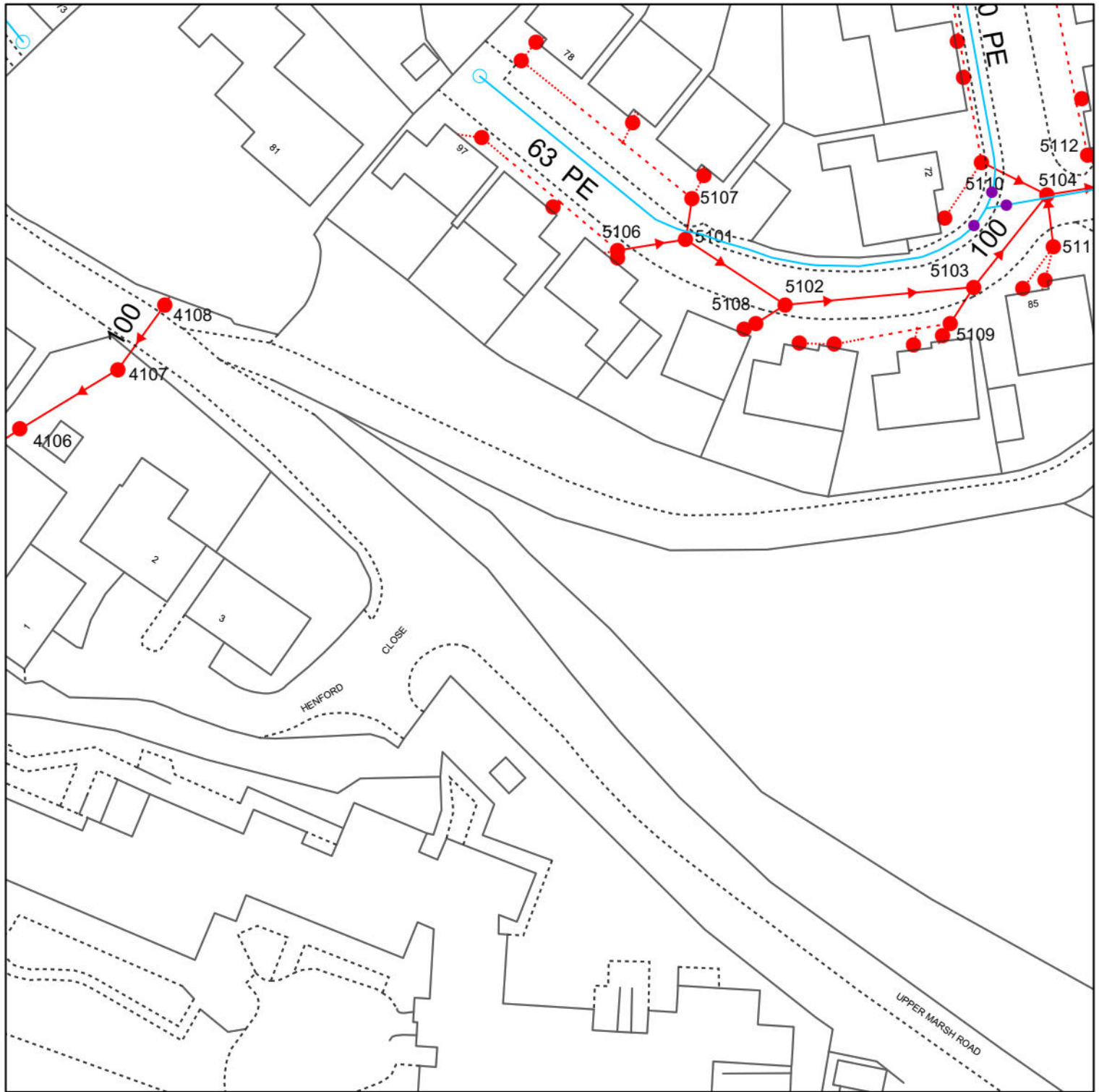
Damask Way, Warminster, BA12 9RA

Backhouse Housing Limited

SLR Project No.: 402.066106.00001

30 March 2026

Wessex Water Network Map



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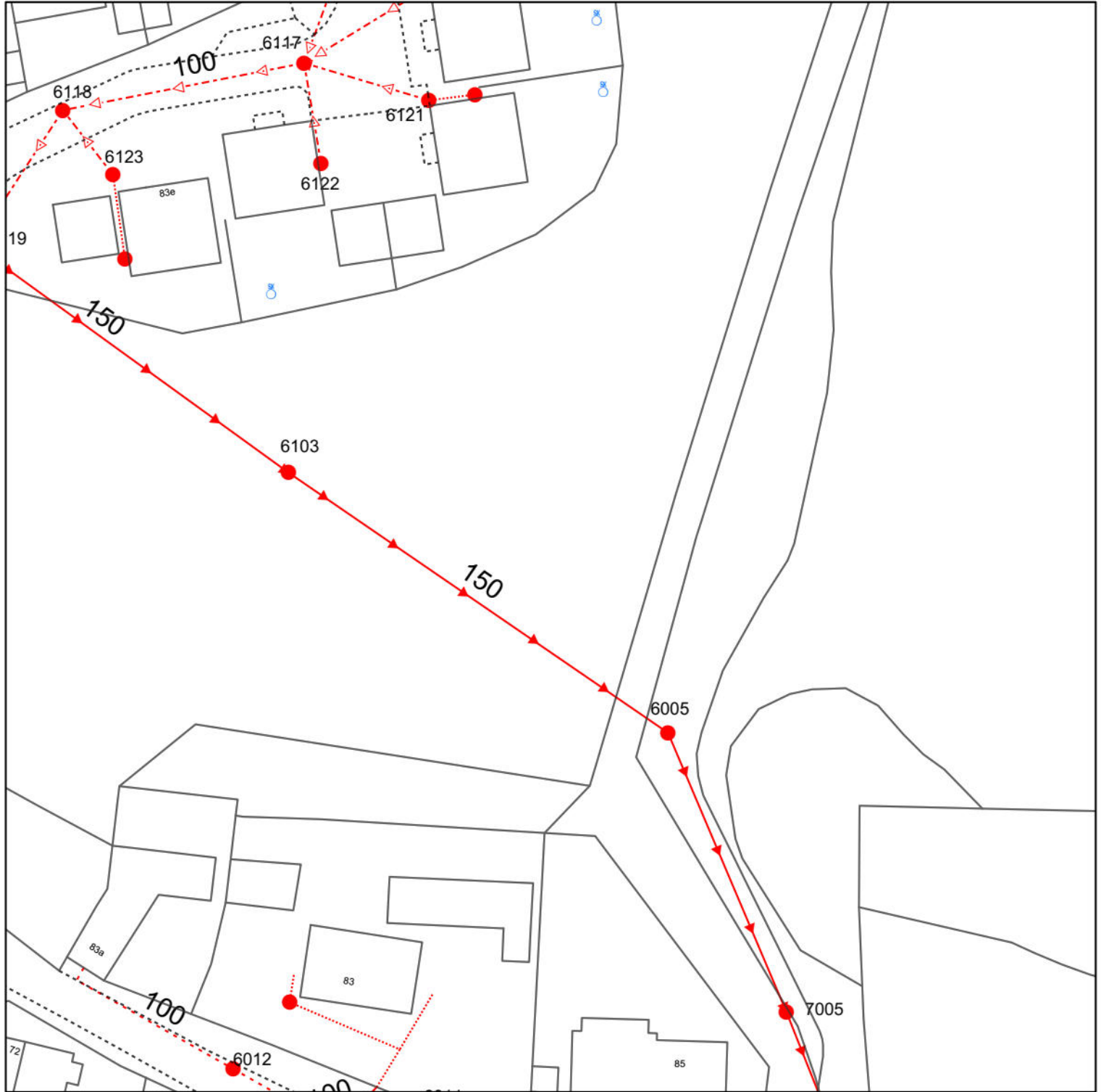
WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul								Rising Mains		Private Rising Mains
	Washout		Surface								Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined								EDM Effluent Disposal		Highway Drain
	Abandoned		Abandoned								Overflow		Use Unknown
	Private										Syphon		Status Unknown
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.													
FITTINGS		STRUCTURES											
	Hydrant		Manhole - Foul		Pumping Station - Surface								
	Other		Manhole - Surface		Pumping Stn - Foul/Combined								
			Manhole - Combined		Gully								
			Inlet		Vent Column								
			Outfall		Rodding Eye								
			Lamphole		Catchpit								
			Bifurcation - Foul		Flushing Chamber								
			Bifurcation - Surface		Soakaway								
			Bifurcation - Combined		Non Return Valve								
			Combined Sewage Overflow		Air Valve		Hatch Box		Washout				
OTHER STRUCTURES Attenuation Tank Tunnel Storage Tank Interceptor													

Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.

Date: 16/04/2025
Centre: 387536E, 144134N
Scale: 1:625
(when printed at A4 size)



Wessex Water Network Map



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WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul								Rising Mains		Private Rising Mains
	Washout		Surface								Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined								Effluent Disposal		Highway Drain
	Abandoned		Abandoned								Overflow		Use Unknown
	Private										Syphon		Status Unknown
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.													
FITTINGS		STRUCTURES											
	Hydrant		Manhole - Foul		Pumping Station - Surface								
	Other		Manhole - Surface		Pumping Stn - Foul/Combined								
			Manhole - Combined		Gully								
			Inlet		Vent Column								
			Outfall		Rodding Eye								
			Lamphole		Catchpit								
			Bifurcation - Foul		Flushing Chamber								
			Bifurcation - Surface		Soakaway								
			Bifurcation - Combined		Non Return Valve								
			Combined Sewage Overflow		Air Valve		Hatch Box		Washout				
OTHER STRUCTURES Attenuation Tank Tunnel Storage Tank Interceptor													

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OTHER STRUCTURES

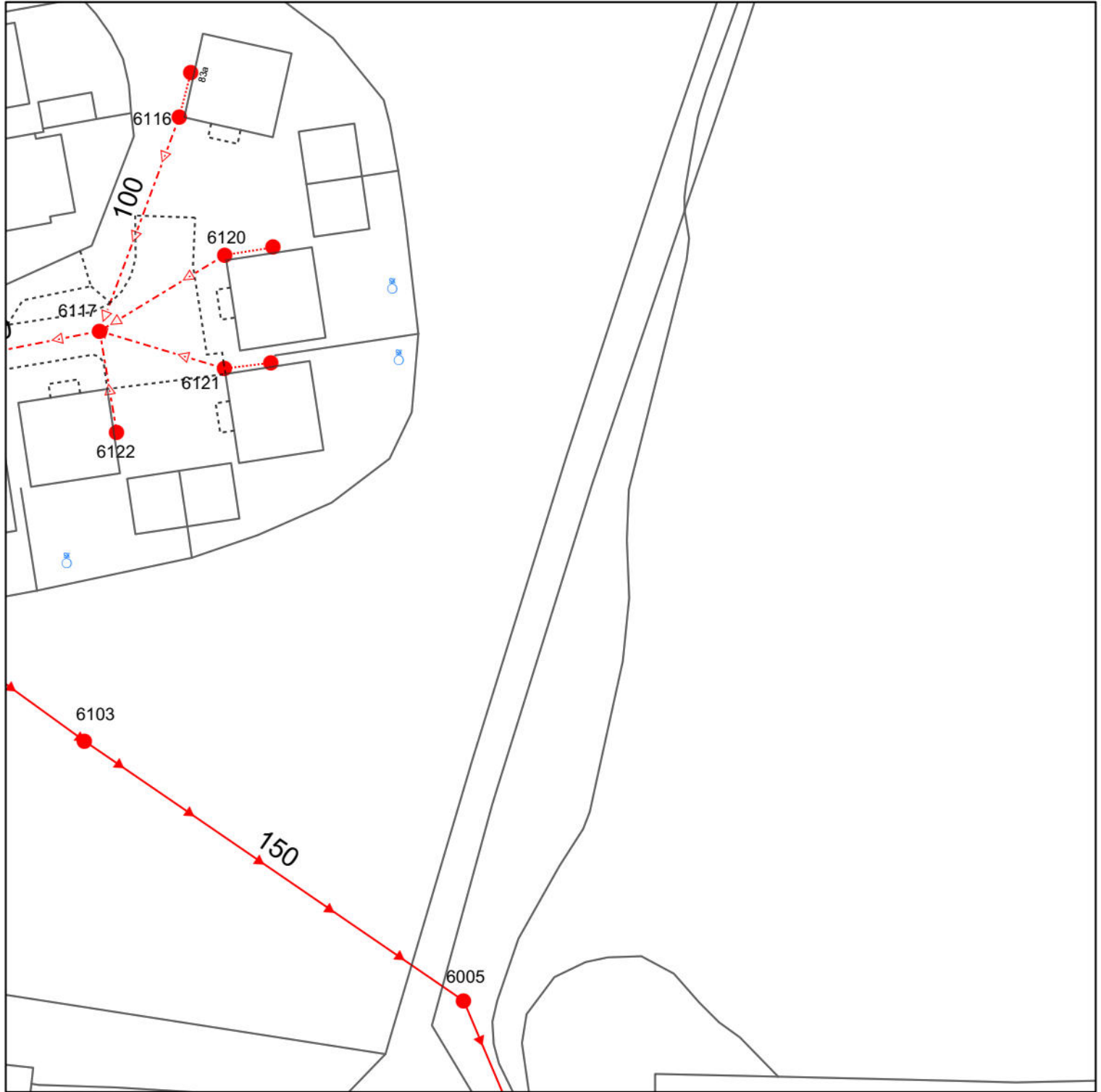
	Attenuation Tank		Tunnel
	Storage Tank		Interceptor

Wessex Water
YTL GROUP

Date: 16/04/2025
Centre: 387679E, 144100N
Scale: 1:625
(when printed at A4 size)



Wessex Water Network Map



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WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul								Rising Mains		Private Rising Mains
	Washout		Surface								Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined								EDM Effluent Disposal		Highway Drain
	Abandoned		Abandoned								Overflow		Use Unknown
	Private										Syphon		Status Unknown
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.													
FITTINGS		STRUCTURES											
	Hydrant		Manhole - Foul		Pumping Station - Surface								
	Other		Manhole - Surface		Pumping Stn - Foul/Combined								
			Manhole - Combined		Gully								
			Inlet		Vent Column								
			Outfall		Rodding Eye								
			Lamphole		Catchpit								
			Bifurcation - Foul		Flushing Chamber								
			Bifurcation - Surface		Soakaway								
			Bifurcation - Combined		Non Return Valve								
			Combined Sewage Overflow		Air Valve		Hatch Box		Washout				
OTHER STRUCTURES Attenuation Tank Tunnel Storage Tank Interceptor													

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OTHER STRUCTURES

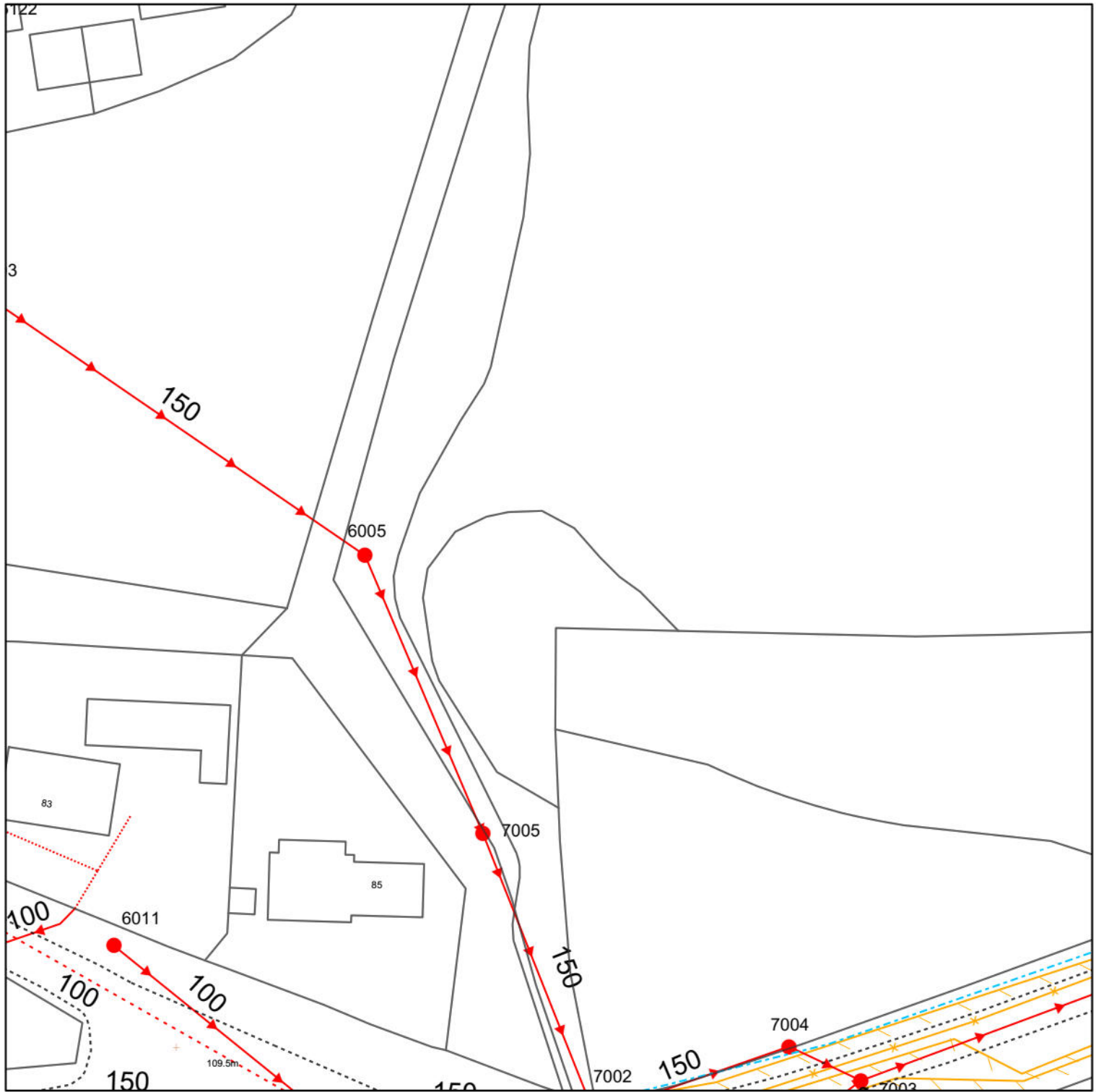
	Attenuation Tank		Tunnel
	Storage Tank		Interceptor

Wessex Water
YTL GROUP

Date: 16/04/2025
Centre: 387703E, 144131N
Scale: 1:625
(when printed at A4 size)



Wessex Water Network Map



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WATER MAINS	SEWERS	STRATEGIC PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES	NON-WESSEX / UNKNOWN	
Distribution	Foul				Rising Mains	Private Rising Mains	
Washout	Surface				Standby Rising Mains	Culverted Watercourse	
Raw Water	Combined				EDM Effluent Disposal	Highway Drain	
Abandoned	Abandoned				Overflow	Use Unknown	
Private	Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.				Syphon	Status Unknown	
FITTINGS	STRUCTURES					OTHER STRUCTURES	Chamber
Hydrant	Manhole - Foul	Pumping Station - Surface				Attenuation Tank	Tunnel
Other	Manhole - Surface	Pumping Stn - Foul/Combined				Storage Tank	Interceptor
	Manhole - Combined	Gully					
	Inlet Outfall	Vent Column					
	Lamphole	Rodding Eye					
	Bifurcation - Foul	Catchpit					
	Bifurcation - Surface	Flushing Chamber					
	Bifurcation - Combined	Soakaway					
	Combined Sewage Overflow	Non Return Valve					
		Air Valve					
		Hatch Box					
		Washout					

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Chloe Bird

From: Mapping <asset.enquiries@wessexwater.co.uk>
Sent: 16 April 2025 14:36
To: Chloe Bird
Subject: RE: Danmask Way

You don't often get email from asset.enquiries@wessexwater.co.uk. [Learn why this is important](#)

Hi Chloe,

You are correct in suggesting the wastewater treatment works the foul water drains into is Warminster STW.

Unfortunately, I have no information on any future works which are to take place.

Kind regards,

Rhys Fielding
Administration Assistant



Wessex Water
Operations Centre, Claverton Down, Bath BA2 7WW

Email: sewer.buildover@wessexwater.co.uk
Phone: 01225 526422
Web ytl.com | wessexwater.co.uk



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From: Chloe Bird <[REDACTED]>
Sent: 16 April 2025 12:23
To: Mapping <asset.enquiries@wessexwater.co.uk>
Subject: Danmask Way

Dear Sir/ Madam,

Please can I ask which Wastewater treatment works the foul water drains into from Damask Way, Warminster, BA12 9RA. Attached is a site location plan to provide context of where we require clarification about the drainage for.

We have assumed it will be Warminster WWTW, but please inform us if this is correct. If you have any additional information on the maintenance or proposed works at the treatment works that would also be much appreciated.

Kind regards,

Chloe

Chloe Bird

Project Hydrologist - Hydrology & Hydrogeology

O +44 (0) 330 088 6631

E cbird@slrconsulting.com

SLR Consulting Limited

3rd Floor, Brew House, Jacob Street, Tower Hill, Bristol, United Kingdom BS2 0EQ



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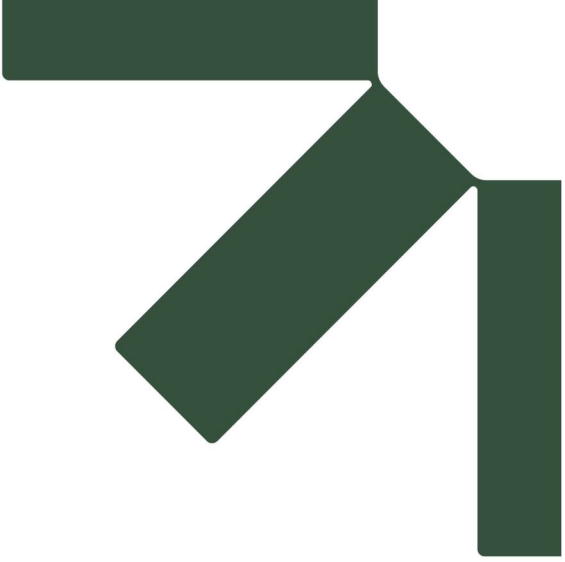
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Appendix D Nutrient Budget Calculations

Nutrient Neutrality Assessment and Mitigation Strategy

Damask Way, Warminster, BA12 9RA

Backhouse Housing Limited

SLR Project No.: 402.066106.00001

30 March 2026

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):	01/11/2027	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	95	
Development proposal (dwellings/units):	50	
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):	120.00	
Wastewater by development (litres/day):	11400.00	
Annual wastewater TP load (kg TP/yr):	0.94	
Pre-2030 wastewater nutrient loading		
Annual wastewater TP load (kg TP/yr):	1.87	
Not applicable		
Not applicable	Not applicable	

Nutrients from current land use

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

Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'.

Cells B28, C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.

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

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

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

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

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

How to fill in the table 'Current land uses'

Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.

Cells B11-B27: Enter the area in hectares of each land use type.

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

The total nutrient load from current land uses is shown in cell C28 for TP.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	Avon Hampshire
Soil drainage type:	Naturally wet
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
Greenspace	2.25	0.05	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
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	2.25	0.05	

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	1.20	1.98
Greenspace	1.05	0.02
		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:	2.25	2.00

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

This sheet contains one table.

Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cells D30, D35 to D30 and cells G30 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landscaper entered is larger than the total area of the landscaper entered into the worksheet 'Nutrients', from 'future_land_use'. Row 30 is a Total Row. The Total Row states 'Total in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell C30, cell E30, cell F30 and cell H30 are intentionally blank.

How to fill in the table 'SuDS information'

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

Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.

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

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

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

Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TP.

Values for column F must be identified by the user and must be specific to the SuDS features being implemented.

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

You do not need to fill in column H Notes on that. It will state 'Not applicable' unless the total area of each landscaper within the SuDS catchment area is larger than the area of the landscapers entered into the worksheet titled 'Nutrients', from 'future_land_use'.

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

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual phosphorus inputs to SuDS feature(s) (kg T/yr)	Name of SuDS feature(s) - user inputs required	TP removal rate for features - user specified (%) - user inputs required	Annual phosphorus load removed by SuDS (kg T P/yr)	Notes on data
Residential urban land	1.20	100.00	1.98	Permeable pavement	38.00	0.75	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	1.20		1.98			0.75	

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):	0.94
Net land use TP change (kg TP/year):	1.20
TP budget:	2.14
TP budget + 20% buffer:	2.57
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	2.57
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	3.69
Not applicable	
Not applicable	Not applicable



Making Sustainability Happen