



WATER DESIGN ENGINEERS

————— Pioneering —————

NUTRIENT NEUTRALITY ASSESSMENT & MITIGATION STRATEGY

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Contents

1	Introduction	4
1.1	Purpose	4
1.2	Scope & Limitations	4
2	Site Location.....	4
2.1	Local Authorities.....	4
2.2	Designated Sites	4
3	Check for Exemption from Nutrient Neutrality	5
4	Total Nutrient Load from Wastewater	6
5	Total Nutrient Load from Land Use.....	7
5.1	Current Land Use (TN).....	7
5.2	Proposed (Future) Land Use (TN).....	8
6	Net Change in Total Nitrogen Load.....	9
6.1	Net Change in Total Nitrogen Load.....	9
7	Mitigation Measures.....	10
7.1	Off-Site Options.....	10
7.2	Upgrading of Existing Septic Tank.....	10
8	Conclusion & Recommendations.....	13

APPENDICES

APPENDIX A – GRAF one2clean plus PTP Brochure & PIA Certificate

APPENDIX B – "Nutrient Budget Assessment – Summary Sheet"

APPENDIX C – "Solent Marine Sites Nutrient Budget Calculator"

APPENDIX E - Conversion Calculation Septic Tank to PTP

1 Introduction

The client, MFI & Co Investments Ltd, has requested a nutrient neutrality assessment for the existing property at 12 Station Road, Tidworth, Wiltshire, SP9 7NZ. The property comprises an existing ground-floor shop, an existing ground-floor rear store and an existing first-floor three-bedroom flat. No conversion, subdivision, additional dwelling or additional overnight accommodation is proposed.

1.1 Purpose

The purpose of this revised main text is to screen the stated no-conversion scenario against the nutrient neutrality requirements applying to the River Avon Special Area of Conservation (SAC). For Tidworth, the relevant nutrient is phosphorus rather than the Solent total nitrogen metric used in the original Bridge Street assessment.

1.2 Scope & Limitations

This assessment is based on the client's confirmation that there are no conversions and on the supplied Stratfords Commercial particulars dated 24 February 2025. Those particulars identify an existing 117.9 m² shop, 116.5 m² rear store, 86.9 m² three-bedroom flat, and mains water and sewerage.

This is revised draft text and has not been reviewed or signed by the engineers named on the original cover. Wiltshire Council remains the competent authority under the Habitats Regulations.

2 Site Location

The site is located at 12 Station Road, Tidworth, Wiltshire, SP9 7NZ.

2.1 Local Authorities

The Local Planning Authority and Lead Local Flood Authority are Wiltshire Council.

2.2 Designated Sites

Tidworth lies within the upper Hampshire Avon system and the River Avon SAC phosphorus nutrient neutrality catchment.

3 Check for Exemption from Nutrient Neutrality

The first step is to establish whether the stated proposal is qualifying development that could add phosphorus to the River Avon SAC through additional wastewater, land-use change or another intensified nutrient pathway.

Qualifying development test

- New dwellings or residential units: 0
- Additional overnight accommodation: 0
- Additional resident population: 0
- Conversion or subdivision of the existing flat: none
- Conversion of the rear store: none
- Change in land cover or drainage strategy: none stated

Screening outcome

NOT QUALIFYING ON THE STATED FACTS

Retention or refurbishment of the existing uses without conversion does not create the additional population, wastewater or nutrient input that the River Avon phosphorus calculation is intended to assess.

Accordingly, a positive phosphorus budget is not triggered for the stated no-conversion scenario. This conclusion must be revisited if the planning application description or drawings show a different scope.

4 Total Nutrient Load from Wastewater

The existing three-bedroom flat forms part of the baseline. It is not counted as a new dwelling because no additional unit or sleeping accommodation is proposed.

Step 1 - Additional population

0 new dwellings x 2.4 persons per dwelling = 0 persons

Step 2 - Additional wastewater

0 persons x 120 litres per person per day = 0 litres/day

Step 3 - Additional phosphorus from wastewater

Because the additional wastewater flow is zero, the receiving wastewater treatment works concentration does not affect the result.

0 litres/day x any applicable TP concentration = 0 mg TP/day

0 mg TP/day x 365.25 / 1,000,000 = 0.00 kg TP/year

TOTAL ADDITIONAL PHOSPHORUS FROM WASTEWATER

0.00 kg TP/year

The supplied particulars state that the property has mains water and sewerage. No new private treatment plant or septic tank is assessed.

5 Total Nutrient Load from Land Use

The land-use stage considers the difference between the existing and proposed land cover within the development area. Only a change caused by the proposal contributes to the net nutrient budget.

5.1 Current Land Use (TP)

The existing developed site contains the shop, rear store and first-floor flat. No undeveloped or agricultural land is identified as being altered by the stated scope.

- Existing shop retained
- Existing rear store retained
- Existing three-bedroom flat retained
- Existing hardstanding and building footprint retained

An absolute existing land-use load is not required to determine the net change where the future land cover is identical. The existing value is treated as the baseline against which the future value is compared.

CURRENT LAND-USE BASELINE

Existing developed commercial/residential property - retained without change

5.2 Proposed (Future) Land Use (TP)

The future land use is the same as the current land use because no conversion, new building, subdivision or change in external land cover is proposed.

Step 1 - Identify future land cover

- Shop use: unchanged
- Rear store use: unchanged
- Existing residential flat: unchanged
- Site footprint and external land cover: unchanged

Step 2 - Compare current and future loads

Future land-use TP load - current land-use TP load = 0.00 kg TP/year

Any absolute baseline load cancels because the same land cover occurs before and after the stated works.

NET PHOSPHORUS CHANGE FROM LAND USE

0.00 kg TP/year

6 Net Change in Total Phosphorus Load

The final screening balance combines the additional wastewater phosphorus load with the net change in land-use phosphorus load.

6.1 Net Change in Total Phosphorus Load

Step 1 - Additional wastewater load

0.00 kg TP/year

Step 2 - Net land-use change

0.00 kg TP/year

Step 3 - Total phosphorus budget

$0.00 + 0.00 = 0.00$ kg TP/year

Step 4 - Precautionary buffer

$20\% \times \text{zero positive change} = 0.00$ kg TP/year

TOTAL PHOSPHORUS REQUIRING MITIGATION

0.00 kg TP/year

This zero-change result is a consequence of the confirmed scope. It must not be applied to any later conversion or additional residential proposal.

7 Mitigation Measures

Nutrient mitigation is required only where qualifying development creates a positive nutrient budget that must be counterbalanced to avoid an adverse effect on the River Avon SAC.

MITIGATION REQUIREMENT

No phosphorus mitigation is required for the stated no-conversion scenario because the calculated additional load is 0.00 kg TP/year.

Conditions applying to this conclusion

- The existing shop remains a shop.
- The existing rear store remains a store.
- The existing three-bedroom flat is not subdivided or extended to create another unit.
- No additional sleeping accommodation is created.
- No high-water-use commercial process or additional trade effluent is introduced.
- No change to land cover or surface-water drainage is proposed.

If any of these conditions changes, the current Natural England River Avon SAC calculator should be completed using a confirmed receiving wastewater treatment works and the actual proposed land-use areas.

7.1 Off-Site Options

Off-site phosphorus mitigation is not required because the assessed nutrient budget is zero. No nutrient credits, wetlands, land-use offset or other off-site measure is proposed or relied upon in reaching the conclusion.

Circumstances requiring off-site mitigation

If a future application creates new overnight accommodation or another positive phosphorus load, the applicant would need to calculate that load and secure suitable mitigation in perpetuity. Depending on availability and the competent authority's requirements, this could include Wiltshire Council-led credits, an accredited third-party scheme or a bespoke measure.

Current assessment

OFF-SITE MITIGATION

Not applicable - no positive phosphorus budget

The absence of a mitigation requirement does not remove the need for Wiltshire Council to review the submitted application description and evidence.

7.2 Upgrading of Existing Septic Tank

The supplied property particulars state that mains water and sewerage are available. No existing septic tank or package treatment plant has been identified as serving the assessed property.

Accordingly, replacement of a septic tank with a package treatment plant is not relevant to the stated no-conversion scenario and is not relied upon as mitigation.

SEPTIC TANK / PACKAGE TREATMENT PLANT MITIGATION

Not applicable

Evidence used for this revision

- Stratfords Commercial property particulars 4608C, dated 24 February 2025
- Natural England River Avon SAC nutrient neutrality calculator, updated 27 May 2025
- Wiltshire Council revised nutrient neutrality strategy
- Client confirmation: no conversions

No drainage survey, sewer record, planning history, architectural proposal drawings or site inspection was supplied. This draft does not establish lawful use or replace professional planning, ecology or drainage advice.

8 Conclusion & Recommendations

The corrected Tidworth assessment concerns the River Avon SAC phosphorus catchment. The property already contains a shop, rear store and three-bedroom flat. On the confirmed basis that no conversion or additional accommodation is proposed, the development-generated population, wastewater flow and land-use change are all zero.

CONCLUSION

Additional phosphorus load: 0.00 kg TP/year. Phosphorus mitigation is not triggered for the stated no-conversion scenario.

Recommended application wording

The application retains the existing shop, rear store and first-floor three-bedroom flat. It does not create an additional dwelling, additional overnight accommodation or an intensified wastewater-generating use. No land-cover or drainage change is proposed. Accordingly, the proposal does not generate an additional phosphorus load to the River Avon SAC catchment.

Important appendix status

The remaining non-map appendices are retained at the client's request to preserve the original PDF structure. They relate to the former Bridge Street/Andover nitrogen assessment and are not relied upon for this Tidworth no-conversion screening conclusion. They should not be submitted as current Tidworth technical evidence without professional review and replacement.

Recommendation

Ensure the planning description and drawings expressly show no conversion, subdivision or new residential unit. Obtain review by the appointed planning or ecology professional before using this revised draft as submission evidence.

APPENDIX A

GRAF one2clean plus PTP Brochure & PIA Certificate

one2clean / one2clean plus Multi-Tank System Installation instructions

one2clean

Item no.

106854 Installation kit 7 PE

106855 Installation kit 10 PE

106856 Installation kit 14 PE

106857 Installation kit 18 PE

one2clean plus

Item no.

106425 / 106421 Installation kit 7 PE

106426 / 106422 Installation kit 10 PE

106427 / 106423 Installation kit 14 PE

106428 / 106424 Installation kit 18 PE



The points described in these instructions must be observed in all cases. Failure to do so shall invalidate the warranty. For any additional items purchased through GRAF, you will receive separate installation instructions in the transport packaging.

The components must be checked for any damage before the system is transferred to the pit.

You will receive separate instructions for operation and maintenance of the system.

Contents

1.	SCOPE OF SUPPLY	14
2.	PLEASE NOTE:	15
2.1	Safety	15
2.2	Ventilation	15
3.	INSTALLATION AND OPERATING PRINCIPLE	16
4.	FITTING THE INSTALLATION KIT	17
4.1	Drilling the tank shells	17
4.2	Assembly of first tank	17
4.3	Assembly of second tank	19
5.	INSTALLING THE CONTROL UNIT INDOORS	22
6.	INSTALLING THE CONTROL UNIT IN AN EXTERNAL CONTROL CABINET	23
7.	TECHNICAL DATA	24

1. Scope of supply

1. Scope of supply

		
Lifter	Sampling unit	2 pipe aerators for 7 and 10 PE, 4 pipe aerators for 14 and 18 PE
		
Pipes	Excess sludge lifter	Accessories
		
Control unit (one2clean plus control without illustration)		

The following items are not included in the shipment:

- Hoses to supply air from the switch cabinet to the septic tanks. Air hoses (2 x 13 mm, 2 x 19 mm) are needed.

The hoses can be ordered by the reel:

20-metre PVC hose, black, 13 x 3 mm	934017
20-metre PVC hose, blue, 19 x 3 mm	934020
20-metre PVC hose, transparent, 13 x 3 mm	934011

- Core drill Ø 124 mm. This can be purchased from Otto Graf GmbH using article number 202003.
- Carat S septic tank and covers must be ordered separately.

2. Please note:

2. Please note:

2.1 Safety

All work should be undertaken in compliance with national accident prevention regulations. A second person is required for safety reasons, particularly when inspecting tanks.

In addition, the applicable national regulations and standards must be respected during installation, assembly, maintenance, repairs etc.

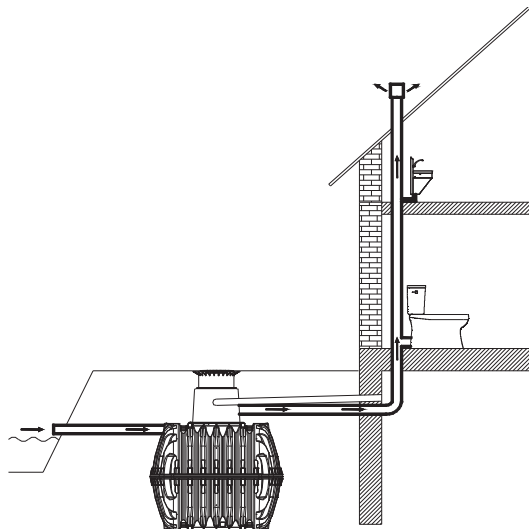
The entire system must always be switched off and secured against unauthorised resetting during any work on the system or system components.

The tank cover must always be kept closed, except during work inside the tank, otherwise the risk of accidents is high. Only original GRAF covers, or covers approved by GRAF in writing, are to be used.

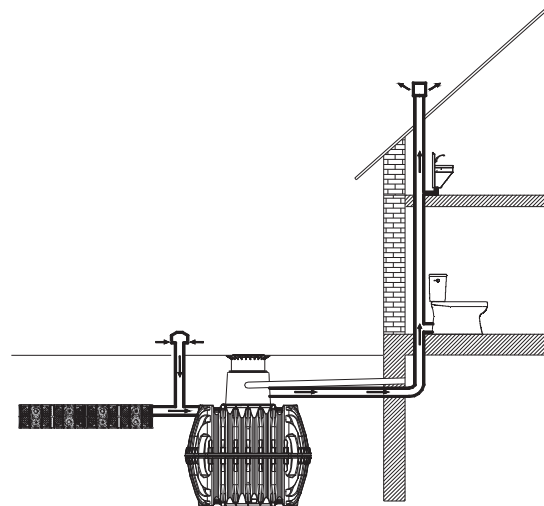
GRAF provides an extensive range of accessories, which are all coordinated and can be combined to form complete systems. The use of accessories that have not been approved by GRAF results in the exclusion of the warranty/guarantee.

2.2 Ventilation

All tanks must be ventilated. Additional ventilation ducts or openings are to be arranged if required. If this occurs, the ventilation ducts should be arranged so that natural ventilation is possible (chimney effect).



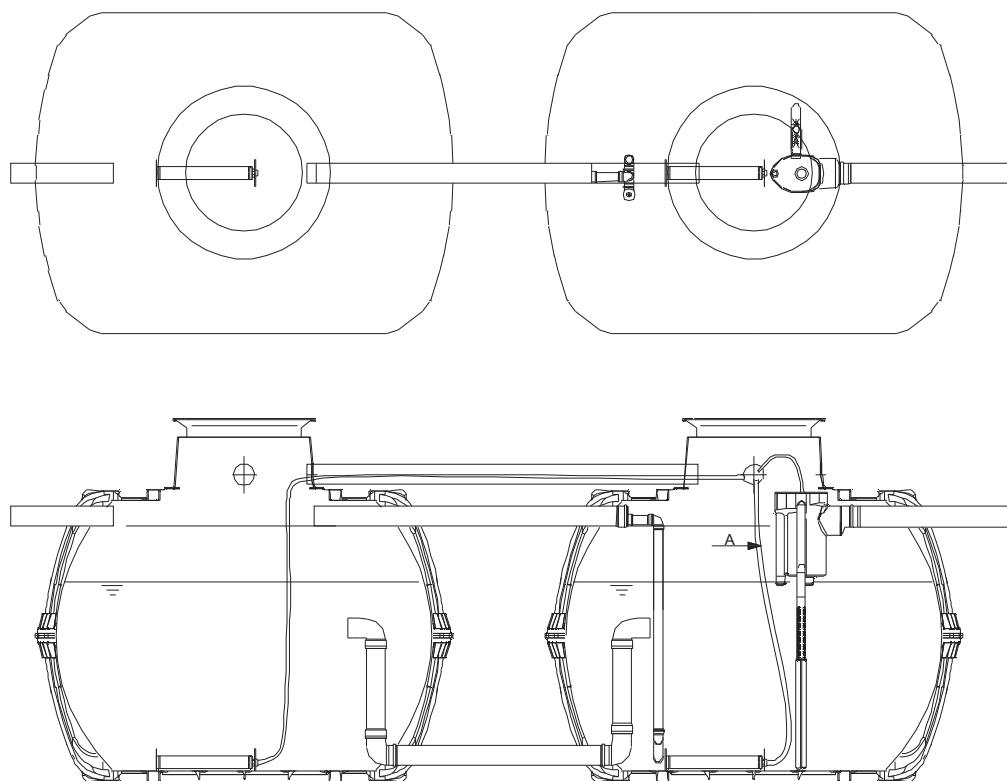
Ventilation with unobstructed outflow



Ventilation in the case of infiltration or with obstructed outflow

3. Installation and operating principle

3. Installation and operating principle



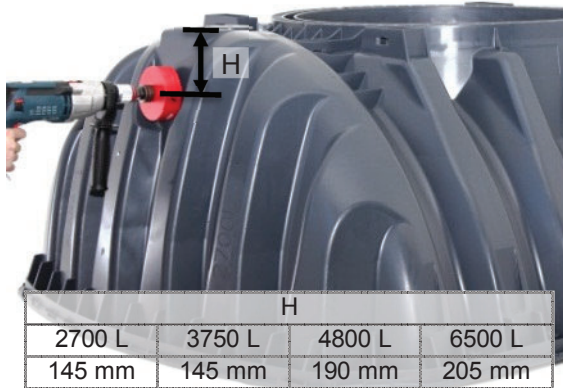
The system is a fully biological small wastewater treatment system and functions on the principle of the retention process with extended aeration. The system consists of an aerobic stage split into two tanks. The two tanks are connected in the lower area so that the water level is always the same in both tanks. This process therefore subjects all the domestic wastewater directly to aerobic wastewater treatment. Blowing in compressed air aerates the entire system and the sludge aerated by this biologically cleans the wastewater.

4. Fitting the installation kit

4. Fitting the installation kit

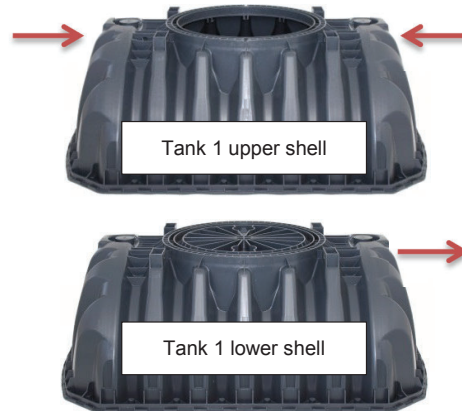
4.1 Drilling the tank shells

1.



Drill holes for the inlet, outlet and connecting lines on the shells using a DN 100 core drill (diameter 124 mm).

2.



On the first tank, the holes for the inlet and outlet lines are drilled as shown above. The arrows indicate the direction in which the pipe is fed through.

3.



On the second tank, the holes for the inlet and outlet lines are drilled as shown above. The arrows indicate the direction in which the pipe is fed through.

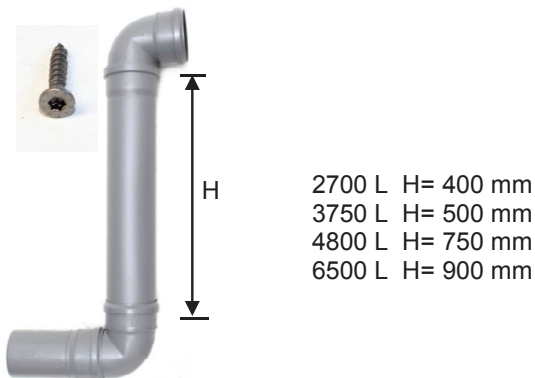
4.



Deburr hole. Insert DN 100 edge seal. The feed-through direction can be seen in the previous diagram.

4.2 Assembly of first tank

5.



Assemble the lower overflow baffle between the tanks. The socket connections must be secured using Spax screws.

6.



Insert overflow baffle in lower shell.

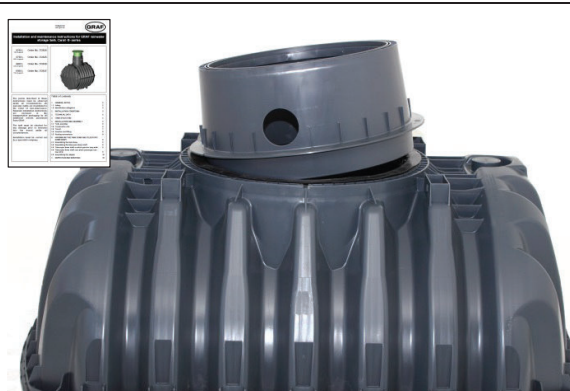
4. Fitting the installation kit

7.



Assemble the Carat S tank as described in the installation instructions (seal, centring pins, clips, position upper shell)

8.



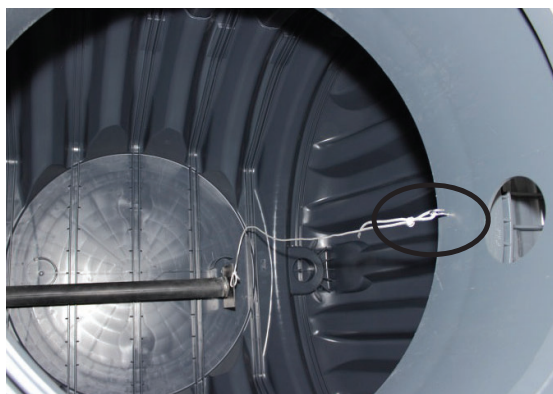
Fit the tank dome as described in the installation instructions (seal!).

9.



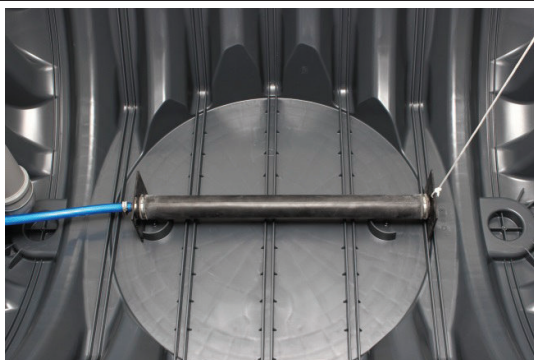
A cord must be attached to the pipe aerator (6mm hole). The air hose (19mm) is connected on the opposite side.

10.



To attach the cord, a hook is fitted inside the tank dome. The hole for the hook should be pre-drilled with a 4mm bit.

11.



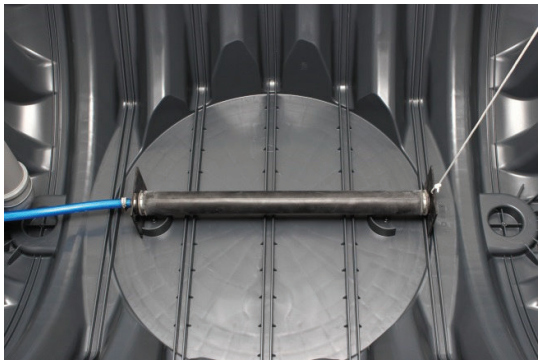
The pipe aerator(s) are positioned on the tank base. To attach the cord, the hook is fastened to the telescopic dome shaft.



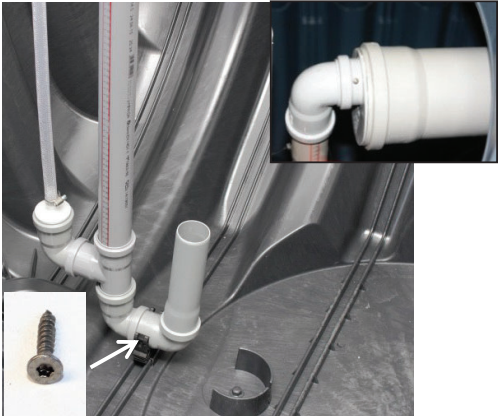
In systems with four pipe aerators, the hoses are joined in pairs with a Y-piece.

4. Fitting the installation kit

4.3 Assembly of second tank

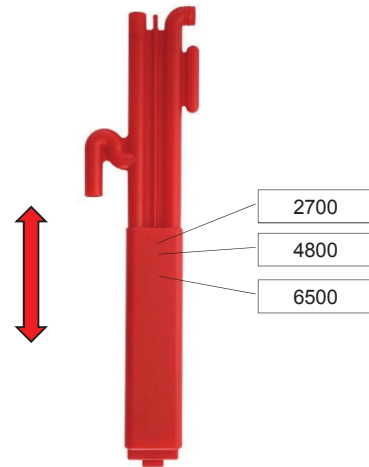
13.	 Install overflow baffle as in first tank.	 Fit the retaining clips centrally on the last base rib.	14.
15.	 Assemble the Carat RS tank as described in the installation instructions (seal, centring pins, clips, position upper shell).	 Fit pipe aerator(s) as for the first tank. To attach the cord, the hook is fastened to the telescopic dome shaft.	16.
17.	 Slide sludge return pipe from inside through the hole for the sludge return.	 Insert sludge return into tank.	18.

4. Fitting the installation kit

19.	 Push sludge return into retaining clip and additionally secure with Spax screw. At the top of the tank, push the sludge return into the sludge return pipe.	20.
21.	 Depending on tank size, the lifter shoe has to be turned. The tank size stated on the foot section must match that on the lifter.	22.
23.	 Assemble lifter and sampling unit by pressing lifter's outlet into sampling unit's hole.	24.



Slide drain pipe through outlet hole from inside.



Depending on tank size, the lifter length must be adapted by moving the lifter shoe. The approximate position is stated on the lifter. The exact height should be determined in the tank.



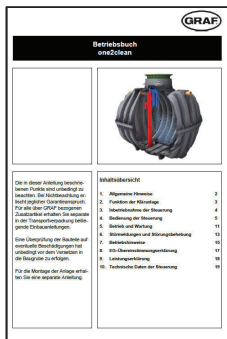
Press lifter into sampling unit (until it engages)

4. Fitting the installation kit

25.	 Insert lifter with sampling unit in tank.	 The lifter is placed from above to hold the dividing wall.	26.
27.	 The sampling unit's outlet connector is placed into the outlet pipe's socket (use lubricant!). The socket connection should be secured with a Spax screw.	 The tank dome is fitted as described in the installation instructions (seal!).	28.
29.	 Secure sampling tank to tank dome with Spax screw.	 Connect air hose (13mm) to lifter for clear water extraction. Connect air hose (13mm) to lifter for sludge return.	30.

5. Installing the control one2clean unit indoors

5. Installing the control one2clean unit indoors

1.	 The control unit should be installed in a dry, dust-free indoor location. To install, drill two 8mm holes in the wall.	 The control unit is secured to the wall with the dowels and screws supplied.	2.
3.	 The compressor is placed on top of the control unit. Use the rubber bracket for the air connection. The compressor's connector is plugged into the socket on the control unit.	 The hose for clear water extraction (1/2") is directly connected to the black hose connector on the control unit. The additional air distributor is connected to the control unit's blue hose connector (3/4").	4.
5.	 The aeration hoses are connected to the two 3/4" hose connectors. The sludge return hose is connected to the 1/2" connection.	 For information about starting up the wastewater treatment system and setting the control unit, refer to the operating logbook.	

Note one2clean plus control unit: The assembly of the one2clean plus control unit is to be carried out in the same way as the one2clean control unit. The one2clean plus control unit is equipped with a third valve for the excess sludge removal. Therefore the air distributor with the valves is not needed.

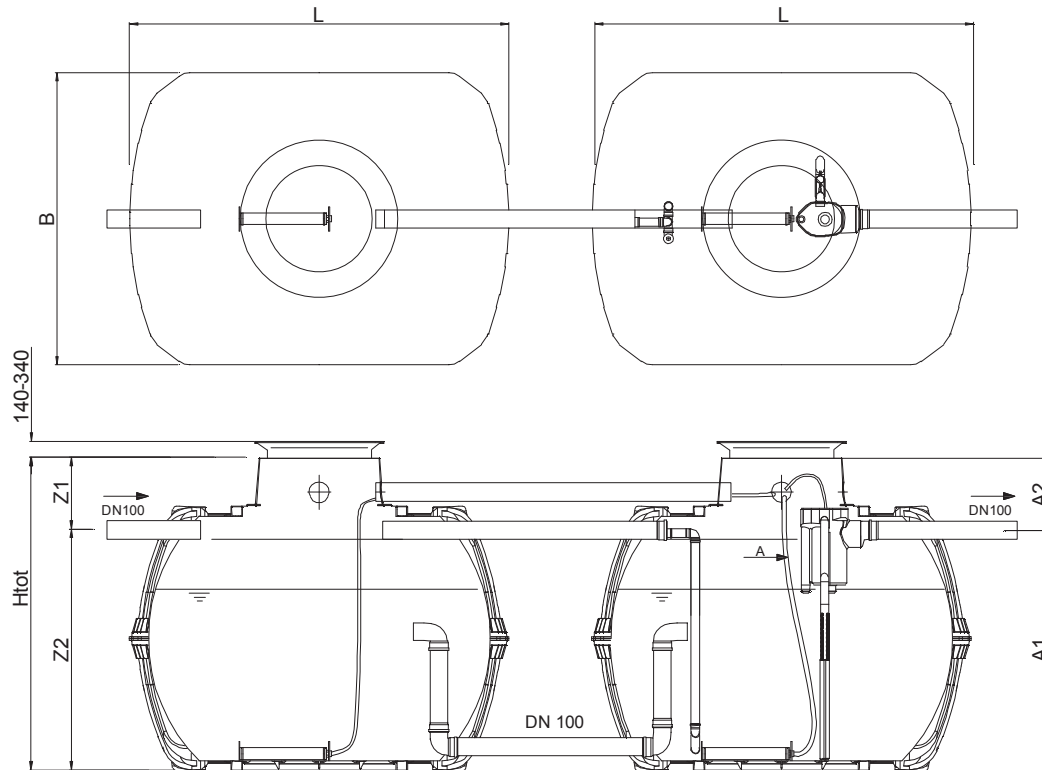
6. Installing the control unit in an external control cabinet

6. Installing the control unit in an external control cabinet

1.  Install the external control cabinet as described in the installation instructions and establish the electrical connection.	2.  Before installing the control unit, a strip of foam rubber must be glued to the back of the control unit.
3.  The control unit is secured with the screws and wing nuts supplied with the cabinet.	4.  The compressor is placed on top of the control unit. Use the rubber bracket for the air connection. For the power connection, the compressor's connector is plugged into the socket on the control unit.
5.  The additional air distributor is fitted as described in 5.4 and 5.5.	 For information about starting up the wastewater treatment system and setting the control unit, refer to the operating logbook.

7. Technical data

7. Technical data



Tanks	2 x 2,700 L	2 x 3,750 L	2 x 4,800 L	2 x 6,500 L
Inhabitants	2-7 PE	8-10 PE	11-14 PE	15-18 PE
Max. daily inflow	1.05 m ³ /d	1.50 m ³ /d	2.10 m ³ /d	2.7 m ³ /d
Length L	2080 mm	2280 mm	2280 mm	2390 mm
Width B	1565 mm	1755 mm	1985 mm	2190 mm
Height H _{tot}	1690 / 2010* mm	1870 / 2200* mm	2100 / 2430* mm	2380 / 2710* mm
Inlet Z1	430 / 750* mm	430 / 750* mm	515 / 835* mm	535 / 855* mm
Inlet Z2	1260 mm	1450 mm	1595 mm	1855 mm
Outlet A1	470 / 800* mm	470 / 800* mm	470 / 800* mm	470 / 800* mm
Outlet A2	1255 mm	1445 mm	1590 mm	1850 mm

* with maxi tank dome



Prüfinstitut für
Abwassertechnik
GmbH

PERFORMANCE RESULTS

Otto Graf GmbH

Carl-Zeiss-Str. 2 - 6, 79331 Teningen, Germany

EN 12566-3

Small wastewater treatment systems for up to 50 PT

Small wastewater treatment system one2clean

SBR plant in one two-zone polypropylene tank

Test report PIA2014-216B14.01.e

Nominal organic daily load*	0.27	kg/d	
Nominal hydraulic daily load	0.75	m³/d	
Material	polypropylene		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	94.2 %	43 mg/l
	BOD ₅	98.0 %	7 mg/l
	SS	96.3 %	14 mg/l
	NH ₄ -N**	98.3 %	0.5 mg/l
	N _{tot} **	87.0 %	7.9 mg/l
	P _{tot}	80.2 %	1.6 mg/l
Electrical consumption	0.63	kWh/d	

*at a test influent of ≥ 300 mg/l BOD₅ (mean)

**determined for temperatures $\geq 12^{\circ}\text{C}$ in the bioreactor

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH

(PIA GmbH)

Hergenrath Weg 30

52074 Aachen, Germany

This document replaces neither the declaration
of performance nor the CE marking.



Notified Body
No.: 1739



Certified according to
ISO 9001:2008



Deutsche
Akkreditierungsstelle
D-PL-17712-01-00



Elmar Lancé

November 2014



APPENDIX B

Nutrient Budget Assessment – Summary Sheets

**WATER DESIGN ENGINEERS**

Pioneering

Nitrate Budget Assessment

Site:

12 Station Road, Tidworth

Client:

MFI & Co Investments Ltd

Date:

13/08/2026

Rev:

0

1A. TN Load from Existing Wastewater

No. of new dwellings	1
Occupancy per dwelling	2.4
Wastewater per occupant	120 lcd ⁻¹

Total additional population	2.4
Total wastewater production	288.00 l d ⁻¹

1. A. Foul Drainage to: WwTW

WwTW Discharge Permit	27.00 mgTN/l
90% Permit Limit if < 27	27.00 mgTN/l

Total TN Load (1A) kgTN/yr

WITHOUT On-Site Mitigation

Foul drainage to Chilbolton WwTW

N-stripping permit discharge = 27.0 mgTN/l

Surface water drainage either to soakaways (infiltration) or attenuation on site with controlled discharge off site.

1. B. Foul Drainage to Package Treatment Plant (PTP)

PTP Discharge N total* mgTN/lTotal TN Load (1A) kgTN/yr

*following treatment (supported with evidence)

2. Current Land Use

Total area of cont. use ha

Area of agricultural use	0.0000 ha
Area for commercial	0.0050 ha
Area of urban commercial	0.0000 ha
Area of open green space	0.0000 ha
Area of woodland	0.0000 ha
Area of ponds / wetlands	0.0000 ha

Total TN Load (2) kgTN/yr

Cont. use = land use actively contributing to N leaching from site

Commercial leaching rate¹ kgTN/ha/yr

Notes

1 - determined from Stodmarsh Budget Calculator

3. Future Land Use

Total area of cont. use ha

Area of agricultural use	0.0000 ha
Area for commercial	0.0000 ha
Area of urban use ²	0.0050 ha
Area of open green space	0.0000 ha
Area of woodland	0.0000 ha
Area of ponds / wetlands	0.0000 ha

Total TN Load (3) kgTN/yr

Cont. use = land use actively contributing to P leaching from site

Urban Residential leaching rate¹ kgTN/ha/yr

Notes

1 - determined from Stodmarsh Budget Calculator

2 - surface drainage without bioretention SuDS

4. Total Nitrogen Budget

Net change in land use (Δ) kgTN/yr $\Delta = \text{Load (3)} - \text{Load (2)}$

4A. Total Nitrogen Budget - WwTW

TP Budget (4A) 2.87 kgTN/yr
(4A) = (1A) + Δ

Budget is POSITIVE: 20% buffer added, mitigation required

Final TN Budget (4A) kgTN/yr

4B. Total Nitrogen Budget - PTP

TN Budget (4B) 0.86 kgTN/yr
(4B) = (1B) + Δ

Budget is POSITIVE: 20% buffer added, mitigation required

Final TN Budget (4B) kgTN/yr

APPENDIX C

Solent Marine Sites Nutrient Budget Calculator

Natural England Nutrient Neutrality budget calculator for the The Solent Marine Sites

This tool contains six worksheets with nine tables in total, as well as an additional worksheet hidden from the user.

This is the instructions sheet. It contains instructions on how to use the tool and provides an overview of each worksheet. This worksheet contains two tables.

You can move between worksheets using the tabs at the bottom of the page.

If you use screen reading software, you can use 'Ctrl' + 'Page Down' keys to move between the tabs.

If you use a keyboard only, to open any link in this form first select the cell with the link and then press the 'Shift' + 'F10' keys or the 'Fn' + the 'Menu' keys (both have a similar effect to a right click), then press the letter 'O' twice to highlight 'Open Hyperlink' and press 'Enter'.

If you use a keyboard only, any drop-down lists can be accessed by clicking the dropdown arrow or pressing the 'Alt' + 'Down' keys when the cell is selected.

Table of contents

Topic of each table	Link to each worksheet
Worksheet 1 (Nutrients_from_wastewater): Nutrient loading from additional wastewater	Nutrients from wastewater
Worksheet 2 (Nutrients_from_current_land_use): Nutrient loading from current land use	Nutrients from current land use
Worksheet 3 (Nutrients_from_future_land_use): Nutrient loading from future land use	Nutrients from future land use
Worksheet 4 (SuDS): Nutrient loading from future land use after treatment through a sustainable urban drainage system (SuDS)	SuDS
Worksheet 5 (Final_nutrient_budgets): Nutrient budget calculations	Final nutrient budgets

General information about the calculator

This tool provides a step-by-step approach to calculating the nutrient budget for a new residential development.

The nutrient budget for a site is calculated in four key stages with an additional optional stage in which information about the SuDS features or the site can be entered. Each stage is implemented in worksheets 1-5 of this workbook.

Each worksheet is connected through a set of formulas which calculate the nutrient budget. As such, all sheets which represent the four key stages require data inputs in order to calculate the nutrient budget.

The total nutrient budget is calculated automatically by adding the values from the 'Nutrients_from_wastewater' and the outputs from the 'Nutrients_from_future_land_use' minus the 'SuDS' (if applicable), and then subtracting the values from the 'Nutrients_from_current_land_use', then adding a 20% precautionary buffer to the result. This calculation is completed in the 'Final_nutrient_budgets' worksheet.

Before a nutrient budget can be completed using the methodology, certain site-specific details for the development site in question need to be determined.

There is a guidance webpage that accompanies this calculator and provides further information on the user inputs required.

The required details and instructions for completing each stage of the nutrient budget methodology are shown in cell A2 of each worksheet.

This tool uses a set of lookup tables to find relevant values in a hidden spreadsheet titled the 'Value_lookup_tables' worksheet.

It is advisable to retain a blank copy of this workbook and 'Save As' a new copy each time you calculate a budget to minimise the risk of using incorrect data inputs and to ease the calculation of new nutrient budgets.

The values already included in this tool have been chosen based on research to determine suitable inputs to the nutrient budget that meet the HRA tests of beyond reasonable scientific doubt, in perpetuity (practically speaking this is 80-125 years) and in accordance with the precautionary principle.

If editing any values in this tool, you must make sure there is a sufficient evidence base to justify these changes and that the new inputs are selected in accordance with the precautionary principle.

Notes about the nutrients from wastewater worksheet

This sheet contains two tables.

The first table titled 'Table_3_Water_Infrastructure' under the heading 'Water infrastructure information' allows the user to enter key information about the wastewater generated and water infrastructure on the site. This table contains a mix of user specified values and values that are calculated automatically depending on the user selected inputs.

The date of first occupancy is required because some wastewater treatment works (WwTW) may be due an upgrade in 2025 or 2030 which will change the nutrient concentration permit values. This will be shown through two or three values for the permits and nutrients load from before and after the upgrade.

The amount of wastewater generated as a result of the population needs to be calculated using an average occupancy rate, a per capita water usage figure, and the number of new developments. The default water usage value is preset in the worksheet. The default setting for the average occupancy rate is preset in the worksheet and is the national occupancy rate of 2.4 people per dwelling/unit. Only change this value if there is sufficient evidence that the development will be different to the national average. The number of new developments is not preset and must be a whole number.

If it is uncertain what WwTW the development will drain into, please find this information from your sewerage company before completing the calculator. If it is not feasible to connect to a WwTW and a septic tank or package treatment plant is being used, please select this option. Please be aware that if the total nitrogen (TN) final effluent concentrations (in mg/l) are specified by the manufacturer, please select 'Septic Tank user defined' or 'Package Treatment Plant user defined' and enter the manufacturer specified value in the cell where prompted.

The second table titled 'Table_4_Wastewater_Load' under the heading 'Final calculation of nutrient load from wastewater' contains the calculation of the nutrient load from additional wastewater. This table may present up to three different values for the nutrient load.

If a nutrient permit is changing for the selected WwTW as of 01/01/2025, or 01/04/2030, the second table will be broken down into up to three parts: 'Post-2030 Stage 1 Nutrient Loading', 'Pre-2030 Stage 1 Nutrient Loading', and 'Pre-2025 Stage 1 Nutrient Loading'. If applicable, three nutrient budgets will be calculated for the loading before and after the 2030 and 2025 WwTW permit upgrades, and will be presented in cells B19, B21, or B23 if applicable.

Notes about the nutrients from current land use worksheet

This worksheet contains two tables that are used for calculating the annual nutrient load from existing (pre development) land use on the development site. Environmental information about the current site is required for the first table. The second table requires the user to input the existing type(s) and area(s) of landcover present in order to generate nutrient loads associated with the current landcovers on the site. Only landcovers for the land that is being altered by the development should be entered.

The drop-down list of landcover types contains up to eight agricultural landcover types and eight different non-agricultural landcover types. The full list of landcovers can be found in the associated guidance webpage or in the drop-down list. Please find out what landcover types are within the development before completing this tool. If there is a landcover within the development area that is not in the list please select the most similar landcover type.

The guidance webpage that accompanies this calculator provides further information about the landcover types used in this tool.

Sources of information required for nutrients from current land use worksheet

Description of the information:	Link
The Operational Catchment within which the development is located can be found using the Environment Agency Catchment Data Explorer	Environment Agency Catchment Data Explorer
The drainage associated with the predominant soil type within the development site can be found using the Soilscales Map	Soilscales
The annual average rainfall that the development will receive can be found using the National River Flow Archive for the '42019- Tanners Brook at Millbrook' station	National River Flow Archive
Whether the development is located within a Nitrate Vulnerable Zone (NVZ) can be found using the UK Soil Observatory 'Nitrate Vulnerable Zones - England' map	UK Soil Observatory

Notes about the nutrients from future land use worksheet

This worksheet contains a single table which is used to calculate the annual nutrient load from new (post-development) land use on the development site. The type(s) and area(s) of landcover present on the new development is required to generate nutrient loads associated with the current landcovers on the site.

The type(s) of landcover present on the new development site can be selected from a list of eight different landcover types: greenspace, woodland, shrub, water, residential urban land, commercial/industrial urban land, open urban land and community food growing. Please find out what landcover types will be within the development site before completing this tool. If there is a landcover within the development site that is not in the list please select the most similar landcover type.

The guidance webpage that accompanies this calculator provides further information about the landcover types used in this tool.

Notes about the SuDS worksheet

This worksheet contains one table in which the user can enter key information about the use of SuDS to treat the runoff from the site and reduce the nutrient loading from future land uses.

The table allows the user to enter the SuDS features or SuDS management trains that are proposed to treat the nutrient loading from future land uses. The land covers within the SuDS catchment area and the areas of these landcovers can be entered. Only landcovers entered into the 'Nutrients from future land use' worksheet can be selected. The nutrient loads associated with these landcovers are automatically calculated using the values from the worksheet 'Nutrient loading from future land use'. The user must enter the percentage of flow that will be directed through the SuDS. Any numerical value less than or equal to 100% can be entered for the percentage of flow. Any numerical value less than or equal to 100% can be entered for the removal rates. The user can enter any text for the SuDS feature to allow for variability in the names of the SuDS features / management trains planned. Any numerical value less than or equal to 100% can be entered for the removal rates. However, the user will be required to present all evidence of these removal rates to the competent authority. As such, the most up to date SuDS guidance on SuDS for nutrient removal should be followed.

Notes about the final nutrient budgets

This final stage automatically calculates the results from worksheets 1-5 using the equation described in 'General information about the calculator'.

The value(s) shown represent the nutrient mitigation required in kilograms per year to achieve nutrient neutrality.

If there are two or three values due to changing permits, the calculator will show the total amount of nutrient mitigation that is needed before and after the changing permit date.

Nutrients from wastewater

This sheet contains two tables. The tables are separated by a heading in the 'Headings 2' style, which describes the following table. The first table 'Table_3_Water_Infrastructure' may contain blank cells in rows 11 to 12 and column C. User inputs are required for cells B5 to B10. In addition, user inputs are required in C11 depending on the information entered by the user. The second table 'Table_4_Wastewater_Load' may contain blank cells in rows 20 to 23. No user inputs are required in this table.

You can enter the average occupancy rate of the development in cell B6. The default rate is 2.4, this should not be edited without sufficient evidence.

You can enter the water usage in cell B7. This value should be kept at 120 unless other efficiency measures are used.

You can enter the total number of dwellings/units that will be within the development site as of the project completion date in cell B8.

You can choose whether the catchment of the proposed development can apply deductible acceptable loading from the drop-down list in cell B9.

You can choose the receiving WwTW from the drop-down list in cell B10. The drop-down lists can be accessed by clicking the arrow or pressing the 'Alt' + 'Down' keys when the cell is selected. If the user selects 'Package Treatment Plant user defined' or 'Septic Tank user defined', the user must enter their certified value of TN in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.

Nutrient permits may be changing for the WwTW selected by the user as of 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 cell B11 to B13. If applicable, up to three values for the nutrient loading associated with wastewater will be calculated for the loading will be presented in cell B19, B21, or B23.

Water infrastructure information

Description of required information	Data entry column	Additional data entry column
Date of first occupancy (dd/mm/yyyy):	1/1/2025	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development Proposal (dwellings/units):	1	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Chilbolton WwTW	
Current wastewater treatment works N permit (mg TN/litre):	27	
Final calculation of nutrient load from wastewater		
Description of values generated	Values generated	
Stage 1 Nutrient Loading		
Additional population (people):	2.4	
Wastewater by development (litres/day):	288	
Annual wastewater TN load (kg TN/yr):	2.56	

Existing land use type(s)	Area (ha)	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Commercial/industrial urban land	0.01	0.04	
Totals:	0.005	0.04	

Nutrients from future land use

This sheet contains one table. The table 'Table_7_Future_Land_Uses' requires user inputs in cells A5 to A21 and B5 to B21. The remaining columns are automatically calculated.

You can choose the future (post-development) land use type(s) of landcover present on the new site from the drop-down list in cells A5-A21. The drop-down lists can be accessed by clicking the arrow or pressing the 'Alt' + 'Down' keys when the cell is selected.

You can enter the area(s) (in hectares) of each land use type in cells B5-B21.

The nutrient load from future land uses is shown in cell C5-C21.

The total nutrient load from future land uses is shown in cell C22.

Future land uses

New land use type(s)	Area (ha)	Annual nitrogen nutrient export (kg TN/yr)
Residential urban land	0.01	0.07
Totals:	0.005	0.07

Nutrients from future land use after SuDS treatment

This sheet contains one table. 'Table_8_SuDS_Features' requires user inputs in cells A4 to C28 and E4 to F28 if the user is including SuDS to remove nutrients from the surface runoff. The remaining columns are automatically calculated.

You can choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the drop-down list in cells A4-A28. Only landcovers entered into the worksheet titled 'Nutrient_from_Future_Land_use' can be entered. The drop-down lists can be accessed by clicking the arrow or pressing the 'Alt' + 'Down' keys when the cell is selected.

You can enter the area(s) (in hectares) of each new land use type within the SuDS catchment area in cells B4-B28.

The percentage of the flow entering the SuDS feature can be entered in Column C4-C28. If all flow is being diverted to the SuDS feature then this value should be set to 100%.

The annual TN load associated with the landcovers in the SuDS catchment area are automatically calculated in cells D4-D28.

The name of the SuDS features used to intercept surface flows can be entered in E4-E28. Any text can be entered into these cells.

The nutrient removal rates associated with the SuDS features can be entered into F4-F28. These values must be identified by the user and must be specific to the SuDS features being implemented.

The annual TN load removed by the SuDS features are automatically calculated in cells G4-G28. These values are subtracted from the nutrient budget.

The 'Notes on data' column (Column H) does not require user inputs. This cell will be blank unless the cumulative area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.

The total nutrient load removed through the SuDS features is shown in cell G29.

[illegible]

	Notes on data
(kg TN/yr)	

removed by SuDS

Annual nitrogen load

specified (%)
features - user
TN removal rate for

Name of SuDS feature(s)

(kg TN/yr)

feature(s)

inputs to SuDS

Annual nitrogen

(%)

Final nutrient budgets

This worksheet contains one table 'Table_9_Final_Nutrient_Budgets'. This table is automatically populated using the outputs from the previous worksheets. It presents calculations that underpin the final annual nutrient budget for the development site. If applicable, up to three values for the nutrient budget may be presented in cells B10, B12, or B14. Some cells may be empty if there are no changing permits.

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	2.56
Net land use TN change (kg TN/year):	0.03
TN budget:	2.59
TN budget + 20% buffer:	3.11
Annual Nutrient Budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	3.11

APPENDIX E

Conversion Calculation Septic Tank to PTP

**WATER DESIGN ENGINEERS**

Pioneering

Nitrate Budget Assessment

Site:	12 Station Road, Tidworth		
Client:	MFI & Co Investments Ltd		
Date:	13/08/2026	Rev:	0

1A. TN Load from Existing Wastewater

Existing Dwelling(s)	1	
Occupancy per dwelling	2.4	
Wastewater per occupant	120	lcd ⁻¹

Total population	2.4	
Total wastewater production	288.00	ld ⁻¹

1A. Foul Drainage to Existing Septic Tank (ST)

Septic Tank Discharge N total*	96.3	mgTN/l
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Total TP Load (1A) + 20% Buffer	12.15	kgTN/yr
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*average efficiency for ST based upon NE evidence

1B. TN Load from Proposed Wastewater

Existing + New Dwelling(s)	1	
Occupancy per dwelling	2.4	
Wastewater per occupant	120	lcd ⁻¹

Total population	2.4	
Total wastewater production	288.00	ld ⁻¹

1. B. Foul Drainage to Package Treatment Plant (PTP)

PTP Discharge N total*	7.90	mgTN/l
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Total TP Load (1A) + 20% Buffer	1.00	kgTN/yr
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*following treatment (supported with evidence)

2. Current Land Use

Total area of cont. use	0.0000	ha
Area for commercial	0.0000	ha
Area of agricultural use	0.0000	ha
Area of urban use	0.0000	ha
Area of open green space	0.0000	ha
Area of woodland	0.0000	ha
Area of ponds / wetlands	0.0000	ha

Total TN Load (2)	0.000	kgTN/yr
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Cont. use = land use actively contributing to N leaching from site

Agricultural leaching rate ¹	0.00	kgTN/ha/yr
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Notes

1 - determined from Solent Nutrient Budget Calculator

3. Future Land Use

Total area of cont. use	0.0000	ha
Area of agricultural use	0.0000	ha
Area for commercial	0.0000	ha
Area of urban use ²	0.0000	ha
Area of open green space	0.0000	ha
Area of woodland	0.0000	ha
Area of ponds / wetlands	0.0000	ha

Total TN Load (3)	0.000	kgTN/yr
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Cont. use = land use actively contributing to N leaching from site

Agricultural leaching rate ¹	0.00	kgTN/ha/yr
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Notes

1 - determined from Solent Nutrient Budget Calculator

2 - surface drainage without bioretention SuDS

4. Total Nitrogen Budget

Net change in wastewater (Δ_{WW})	-11.151	kgTN/yr
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$$\Delta_{WW} = \text{Load (1B)} - \text{Load (1A)}$$

Net change in land use (Δ_{LU})	0.000	kgTN/yr
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$$\Delta_{LU} = \text{Load (3)} - \text{Load (2)}$$

4A. Total Nitrogen Budget

TN Budget (4A)	-11.15	kgTN/yr
$(4A) = \Delta_{WW} + \Delta_{LU}$		

Budget is NEGATIVE - No mitigation required

Final TN Budget (4A)	-11.15	kgTN/yr
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