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This Drainage Statement is submitted on behalf of the applicants as part of the application for full planning permission for a new detached dwelling to the land south-west of Ashdown Farm, High Street, Codford, Nr. Warminster, Wiltshire.

The previous application for a single two storey dwelling was approved under application PL/2021/10103. The drainage statement below and small threshold submission was accepted to comply with the nutrient neutrality requirements and this application does not alter the parameters of that approval.

SECTION ONE

U1a Foul Water Disposal and U2 Surface Water Disposal

The topography and site area allows for surface drainage to be taken to soakaways, subject to the final design, with the foul waste dealt with via a treatment plant. The site is outside all flood zones identified on the Environment Agency maps.

The treatment plant proposed is a Klargester BA tank suitable for a population of 6 people which is accepted by the Environment Agency binding rules and has a daily flow rate of 1.2m3. The Certificate of Performance is included in the appendix and show this system meets all regulatory standards.

Wiltshire Council is expecting national guidance from Natural England on small scale thresholds and nutrient neutrality principles, in the appendix is a flow diagram used by Wiltshire Council for small scale thresholds. This guidance will set out the thresholds for insignificant levels of phosphorus discharges to ground from Septic Tanks or Package Treatment Plants.

Small discharges to ground i.e. less than 2m3/day that are within the surface or groundwater catchment of a designated site will present a low risk that the phosphorus will have a significant effect on the designated site where certain conditions are met as outlined in the Flow Diagram for Small Scale threshold.

It is noted that if the development drains to the mains network; or it drains from a Septic Tank or Package Treatment Plant with a surface water discharge; or it drains to ground with a discharge of greater than 2m3/day, then provided the applicant submits these details to Wiltshire Council, no further steps need be taken but mitigation is required. However, if the development will result in a

discharge of less than 2m3/day to ground from a Septic Tank or Package Treatment Plant, then the small scale thresholds may apply and no further information is requested. If all the small scale thresholds apply, then no mitigation is needed.

In Section Two of this document is an independent assessment from Southwest Environmental Limited, which concludes the proposal meets the small scale threshold for neutrality rules and therefore complies with CP 50.

Flood Risk

The Environment Agency map below shows the Site is not considered to be at risk of flooding and is Flood Zone 1, which PPS25 defines as a 'low probability' zone assessed as having a less than 1 in 1000 (0.1%) annual probability of flooding in any year. PPS25 advises that all uses of land are appropriate in this zone and as such the proposal meets the aim of the policy.



Ecological impact

This development falls within the catchment of the River Avon SAC and has potential to cause adverse effects alone or in combination with other developments through discharge of phosphorus in wastewater. The Council has agreed through a Memorandum of Understanding with Natural England and others that measures will be put in place to ensure all developments permitted between March 2018 and March 2026 are phosphorus neutral in perpetuity. To this end it is

currently implementing a phosphorous mitigation strategy to offset all planned residential development, both sewer and non-sewer, permitted during this period.

Following the cabinets resolution on 5th January 2021, which secured a funding mechanism and strategic approach to mitigation, the Council has favourably concluded a generic appropriate assessment under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. This was endorsed by Natural England on 7 January 2021. As this application falls within the scope of the mitigation strategy and generic appropriate assessment, it is concluded that it will not lead to adverse impacts alone and in-combination with other plans and projects on the River Avon SAC.

Exemption to policy site is accepted by Codford Parish Council for this development and accordingly this should then result in this application be considered favourable to CP 2 and therefore comply with the Generic appropriate assessment of developments in Wiltshire occurring in the River Avon SAC catchment January 2021. However, as the site is outside the Village Boundary an assessment has been completed to avoid any delays to the planning decision. The assessment below confirms the site does not require any mitigation due to the negative net nitrogen and phosphorus output.

The methodology for the assessment is;

Stage 1: Calculate the development's Total Output that would be discharged (via Wastewater Treatment Works) into catchments.

Step 1: *Calculate additional population*
To calculate the additional population from the new development, Natural England recommends that the average national occupancy rate of 2.4 per dwelling is used.

Step 2: *Confirm water use*
It is recommended that the maximum water use rate of 110 litres per person per day is used in the calculation.

Step 3: *Confirm WwTW and permit level (Wastewater Treatment Works)*
The treatment plant has a discharge of 2 mg/l.

The figure of 2 mg/l as an acceptable level of nitrogen in river and ground water is based on a review of available scientific literature and research.

Step 4: *Calculate Total Nitrogen (TN) in Kg per annum that would exit the WwTW after treatment derived from the proposed development.*

The TN load is calculated by multiplying the water use of the proposed development by the appropriate concentration of TN after treatment at the WwTW. This concentration is determined by the TN permit, or average figure, with a deduction of 2 mg/l. It has been determined that 2mg/l is an acceptable level of nitrogen in river and groundwater.

Stage 2: Calculate existing (pre-development) nitrogen from the current land use of the development site (e.g. livestock grazing).

To calculate the existing nitrogen losses from the current land use within the redline boundary of the scheme. Using the Natural England document the site has been assessed as grade 4 agricultural land mainly suited to grass, poultry and pig use. The assessment will therefore use the average nitrate-nitrogen loss for the poultry and pig type in the catchment area (kg/ha/yr)**.**

While the site has been used for commercial storage, Wiltshire Council have previously refused to accept this use and therefore for the benefit of this assessment agricultural use must be applied.

Stage 3: Calculate nitrogen for the future land uses proposed for the development site (e.g. urban land, open space, allotments).

The next stage is for the calculation to include the nitrogen inputs from the new land use, e.g. urban development, open space or green infrastructure, nature reserve etc. within the redline boundary. This is separate to the nitrogen within the wastewater generated by the development.

Urban development; The nitrogen load from the new urban development results from sewer overflows and from drainage that picks up nitrogen sources on the urban land. Urban development includes the built form, gardens, road verges and small areas of open space within the urban fabric.

These nitrogen sources include atmospheric deposition, pet waste, fertilisation of lawns and gardens and inputs to surface water sewers. The nitrogen leaching from urban land equates to 14.3 kg/ha/yr.

The application does not include any Open Space and Green Infrastructure or Community food growing provision.

Stage 4: Calculate the change in total nitrogen as a result of the development: (Stage 1 – Stage 2 +/- Stage 3).

The final stage is to calculate the net change in the TN load to the catchment resulting from the proposed development. The calculation includes a 20% precautionary buffer as stipulated for schemes considered outside the saved housing site allocation policies (Appendix D, Wiltshire Core Strategy) and or Core Policy 2 (Delivery Strategy) of the Wiltshire Core Strategy.

Stage 1: Calculate the development's Total Output that would be discharged (via Wastewater Treatment Works) into catchments.

Step	Measurement	Value	Unit	Explanation
Development proposal	Development types that would increase the population served by a wastewater system	1	Residential dwellings	
Step 1	Additional population	2.4	Persons	Uses an average household size of 2.4 x 1 dwg (greenfield site).
Step 2	Wastewater volume generated by development	264	Litres/day	2.4 persons (step 1) x 110 litres.
Step 3	Receiving WwTW environmental TN permit limit. Assume discharge to be at 90% of consent limit.	8.1	mg/l TN	90% of the consent limit = 8.1 mg/l TN.
Step 4	Deduct acceptable TN loading in waste water (@ 2 mg/l TN)	6.1	mg/l TN	8.1 (step 3) – 2 mg/l TN
Step 5	TN discharged after WwTW treatment	1610	mg/TN/day	264 (step 2) x 6.1 (step 4) =1,610
Step 6	Convert mg/TN to kg/TN per day	0.0016	Kg/TN/day	Divide by 1,000,000
Step 7	Convert kg/TN per day to kg/TN per year	0.58	Kg/TN/yr	0.0016 x 365 days
Wastewater TN load		0.58	**kg/TN/yr**	

Stage 2: Calculate existing (pre-development) nitrogen from the current land use of the development site (e.g. livestock grazing).

Step	Measurement	Value	Unit	Explanation
Step 1	Total area of existing agricultural land	0.40	Hectares	This is the area of agricultural land that will be lost due to development
Step 2	Identify farm type and confirm nitrate loss.	70.0	Kg/ha/yr	The developable area covers two farm types therefore an average has been used.
Step 3	Multiply area by nitrate loss	28	Kg/TN/yr	0.4 ha x 70 kg/N/yr
N load from current land use		28	Kg/TN/yr	

Stage 3: Calculate nitrogen for the future land uses proposed for the development site (e.g. urban land, open space, allotments).

Step	Measurement	Value	Unit	Explanation
Step 1	New urban area	0.40	Hectares	Area of development that will change from agricultural land to urban land use
Step 2	Nitrogen Load from future urban area	5.72	Kg/N/yr	0.4 ha x 14.3 Kg/N/yr
Step 3	New SANG / open space			N/ A
Step 4	Nitrogen load from SANG / open space			N/A
Step 5	Combine Nitrogen load from future land uses	5.72	Kg/N/yr	
N load from future land uses		5.72	Kg/N/yr	

Stage 4: Calculate the change in total nitrogen as a result of the development: (Stage 1 – Stage 2 +/- Stage 3).

Step	Measurement	Value	Unit	Explanation
Step 1	Identify Nitrogen load from wastewater (stage 1)	0.58	Kg/TN/yr	
Step 2	Calculate the net change in Nitrogen from land use change - subtract existing land uses Nitrogen load (stage 2) from future land uses Nitrogen load (stage 3)	-22.28	Kg/TN/yr	5.72 (stage 3)– 28 (stage 2) = -22.28 Kg/TN/yr
Step 3	Determine Nitrogen Budget – the TN wastewater load for the proposed development plus the change in N load from land use change (the latter figure may be positive i.e. the change in land use will generate more nitrogen, or negative i.e. the change in land use will generate less N)	-21.7	Kg/TN/yr	0.58 (step 1) – 22.28 (step 2) =-21.7 Kg/TN/yr
Step 4	Where TN budget is positive add 20% precautionary buffer	-17.36	Kg/TN /yr	
TN needing neutralising		-17.36	**Kg/TN /yr**	

In conclusion, the proposed dwelling is not have a detrimental impact on the River Avon SAC and complies with the wording and intent of the polices. Therefore, all planning policy considerations, subject to the appropriate off site contributions can be controlled by planning condition or the approval of appropriate details, accordingly full planning permission should be granted.

SECTION TWO – SMALL SCALE THRESHOLD

Proposed New Dwelling
Land West of North Lodge
High Street
Codford

51.160989 -2.057551

Small Scale Threshold Checklist

S21-692/SSTC
September 2021

Prepared by :

Southwest Environmental Limited
10 Park Street
Bristol
BS1 5HX

On behalf of :

Mr and Mrs Piper
Flat 2, The Barn
Church Farm Dowlands Equestrian Centre
Tytherington
Wiltshire
BA12 7AB

1.0 Introduction

Southwest Environmental Limited have been commissioned by Mr and Mrs Piper to assess the proposed development at Land to West of North Lodge, in line with the Wilshire Council Small Scale Threshold Checklist.

2.0 The Site

The land slopes gently from west to east. Fall is around 2.5m from one side of the site to the other, when viewed in long axis. The proposal would see 1no. additional residential dwelling. There is a road cutting to the south of site (A36) and High Street runs along northern boundary.

Site plans are presented in **Appendix 1**.

3.0 Background

Recent CJEU Dutch Nitrogen case law relating to impacts of nutrient laden water impacting on sensitive ecological sites, has highlighted a requirement to mitigate against effluent out flows from proposed developments.

Any new housing, including single dwellings, will result in an increase in phosphates contained within water discharge. As the designated site is in 'unfavourable' condition any increase, including from single dwellings, is seen as significant, either alone or in combination with other developments.

Sensitive areas considered in this report is the River Avon Special Area of Conservation.

4.0 Scope

This assessment runs through the various stages of the Wilshire Council Checklist, as presented in **Appendix 2**.

5.0 Checklist

The potential impacts from the project are now reviewed based on Wilshire Checklist.

5.1 Stage 1

Does your development drain to the mains network or a cess pit?

No, the development will not drains to mains sewer or cess pit.

5.2 Stage 2

Does the package treatment plant or septic tank discharge to a watercourse?

No, it is proposed to use a Soak-Away.

5.3 Stage 3

The package treatment plant or septic tank drains to the ground. Is the discharge quantity less than 2m3/day?

No. The average person in the UK uses 141 litres of water a day[1]. Based on a notional occupancy of 5 persons. We might expect a daily foul flow of 705 l/day. This converts to 0.7m^3 / day. Well under the 2m^3 threshold.

5.4 Stage 4

Is the drainage field is more than 50m from the designated site boundary (or sensitive feature)?

Yes. River Avon Special Area of Conservation is many miles from the application site.

5.5 Stage 5

Please find drainage plan included within **Appendix 1.**

5.5.1 Rule B

The drainage field is more than 40m from any surface water feature e.g. ditch, drain, watercourse?

The nearest water feature included on 1:1250 OS Mapping is 279m to the SW.

5.5.2 Rule C

The drainage field in an area with a slope no greater than 15%?

The ground in the vicinity of the drainage field fall approx. 20cm in 10 meters. This equates to a gradient of 1:50 or 2%.

5.5.3 Rule D

The drainage field is in an area where the high-water table groundwater depth is at least 2m below the surface at all times?

Legacy Borehole BGS ID: 397140, shows ground water levels 5mBGL.

5.7 Stage 6

Applicant to provide supporting evidence for thresholds.

5.7.1 Rule E

The drainage field will not be subject to significant flooding, e.g. it is not in flood zone 2 or 3?

Flood map for planning shows site in Zone 1.

[1] https://waterwise.org.uk/wp-content/uploads/2019/10/WWT-Report-.pdf

5.7.2 Rule F

There are no other known factors which would expedite the transport of phosphorus for example fissured geology, insufficient soil below the drainage pipes, known sewer flooding, conditions in the soil/geology that would cause remobilisation phosphorus, presence of mineshafts.

Legacy Borehole BGS ID: 397140, shows silts over approx. 5.0 meter thickness of “highly weathered” chalk. This is sometimes referred to as putty chalk, and is soft in nature, the structure of the chalk has broken down and no fissuring is possible. The site is in a non coal mining area.

5.7.3 Rule G

To ensure that there is no significant in combination effect, the discharge to ground should be at least 200m from any other discharge to ground.

Records search show no recorded discharges to ground water within 200m of site.

5.7.4 Rule H

The percolation test has been performed of the proposed location of the drainage field with the resulting value lying within the required range under the Building Regulations 2010, which specify an average Vp value of between 12 and 100.

We would consider that given the site geology in with 2.5 meters thickness of silt, with flints to provide good soakage rates. The site is also large, and can accommodate a large soak-away if required. We can see no technical reason as to why soak-away drainage could not be provided on this site, considering the scale of the development and the area available for use as soak-away, whether it be drainage field or drainage mound.

6.0 Conclusions

We would consider Stages 1 to 6 of checklist passed, and Rules A to H met, and thusly the project meets the small scale thresholds nuetraility rules.

7.0 Limitations

For the avoidance of doubt, the parties hereby expressly agree that the Consultant takes no liability for and gives not warranty against actual flood, sewage, nutrient or water damage of The Client’s property, or natural environment in relation to the performance of the service.

This report gives estimates of likely flows and occupancy number, but does not accept liability associated for the use of these figures in the construction of sewers or drains. Options appraisals are given as example only. Responsibility for design / services and resulting levels of performance rests with the client and or developer.

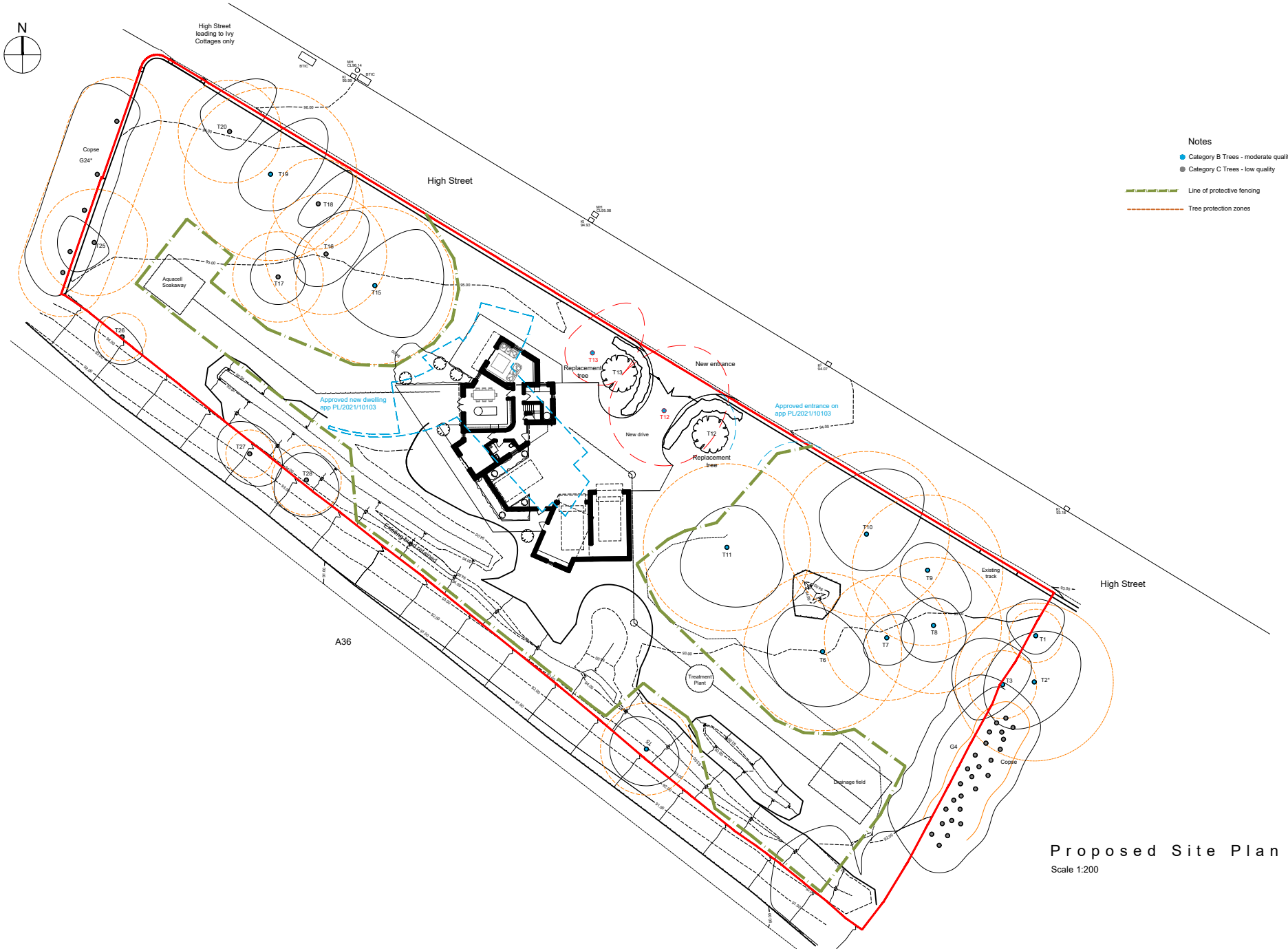
This report is produced for the sole use of the Client, and no responsibility of any kind, whether for negligence or otherwise, can be accepted for any Third Party who may rely upon it.

The conclusions and recommendations given in this report are based on our understanding of the future plans for the site. This report should not be used in the form of opinions with regards financial costings or future values of works or property.

The scope of this report was discussed and agreed with the Client. No responsibility is accepted for conditions not encountered, which are outside of the agreed scope of work.

APPENDIX 1

Plans



Proposed Site Plan

Scale 1:200

Scale 1:200 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0

CDM GENERAL NOTES

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	Date.	Rev.

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Project	Mr. Cooper & Mrs. Millington Land west of North Lodge
Drawing Title	Proposed Site Plan

Date	11.2023	Drawn by	KF
Scale	1:200 at A1	Checked by	JN
		Issuing office	1
Project No.	10389	Drawing No.	P - 01

Prüfinstitut für Abwassertechnik GmbH

PERFORMANCE RESULTS

Kingspan Environmental Limited
College Road North, Aston Clinton, Aylesbury, HP22 5EW, UK

EN 12566-3:2005, Annex B
Small wastewater treatment systems for up to 50 PT

Small wastewater treatment system BioDisc + P
Rotating Biological Contactor (RBC) in a GRP tank

PIA2006-039B17

Nominal organic daily load	0.25 kg BOD_5/d		
Nominal hydraulic daily load	1.00 m^3/d		
Material	Glass reinforced plastic (GRP)		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	91.3 %	39 mg/l
	BOD_5	97.8 %	5 mg/l
	NH_4-N	62.1 %	12 mg/l
	P_{tot}	94.2 %	0.4 mg/l
	SS	95.1 %	13 mg/l
Electrical consumption	1.4 kWh/d		

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
52074 Aachen, Germany

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

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Prüfinstitut für Abwassertechnik GmbH
geprüft - tested - testé

Elmar Lancé June 2016