



Stonehouse Farm

# Water Neutrality Statement

February 2025

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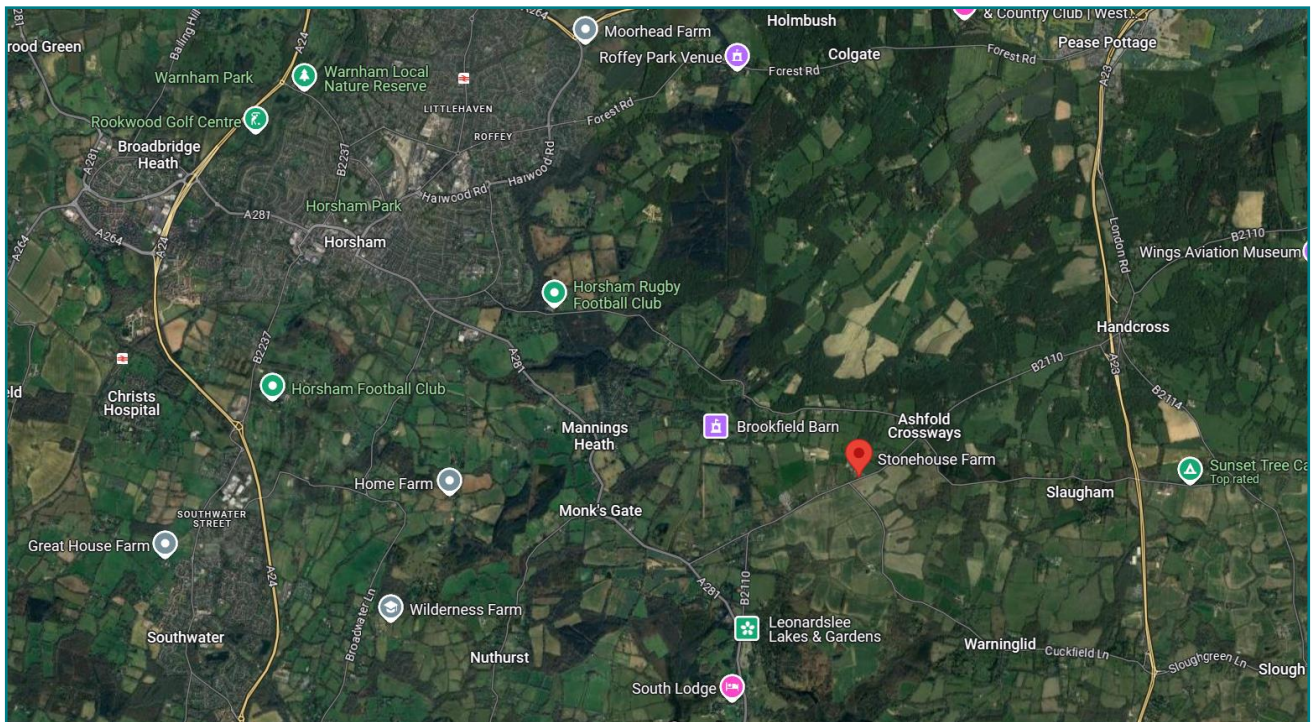
# 1 Introduction

## 1.1 This Document

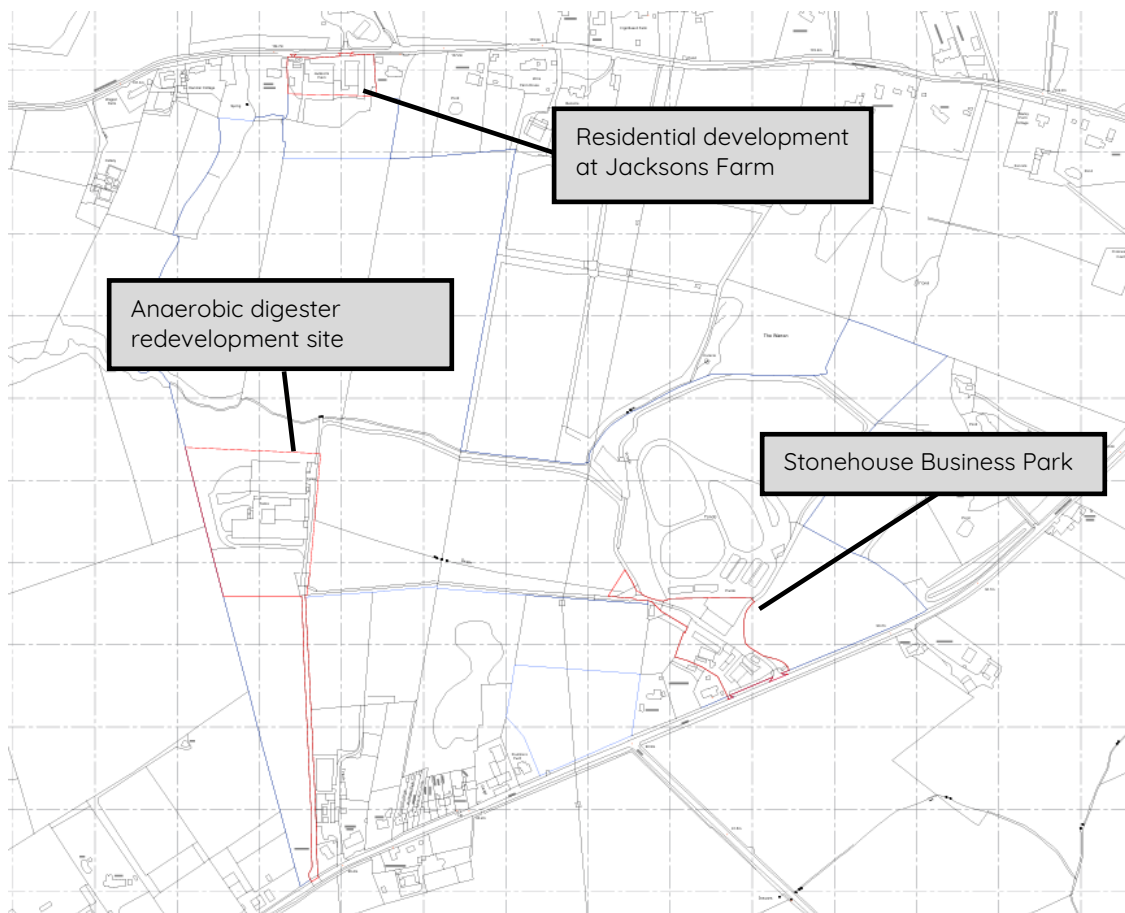
- 1.1.1 This water neutrality statement provides the detail required to demonstrate how the proposals for the redevelopment of the Stonehouse Farm site comply with the requirements of Water Neutrality for development within the Sussex North Water Supply Zone.
- 1.1.2 It has been commissioned by the Applicant (Lake Investments Limited) to demonstrate how the development proposals are aiming to proactively address the issue of sustainable water use, describing how the proposals respond to the requirement for water neutrality in line with Natural England's Position Statement (2021) (see section 1.3).
- 1.1.3 It therefore supports the Full Planning Application submitted by the Applicant to form a comprehensive masterplan including:
- Rationalisation and enhancement of existing commercial facilities (Use Classes E(g) B2 and B8 at Stonehouse Business Park including demolition of two buildings and their replacement with new Class E(g), B2 and B8 facilities. Extension of existing building to form a new office and wardens' accommodation. Existing mobile home removed.
  - Decommissioning of the Anaerobic Digester and re-use of the existing 2no buildings for storage and office uses (Class E (g) and B8) and the diversion of a public footpath.
  - Residential redevelopment of the Jacksons Farm site including the demolition of existing barns to provide 3no. dwellings with access, parking, and landscaping.

## 1.2 The Site

- 1.2.1 Stonehouse Farm is located in Horsham, the wider site currently comprising a 5 bedroom farmhouse, extensive range of agricultural and commercial buildings and fishing lakes, totalling approximately 100 acres.



**Figure 1: Site location**



**Figure 2: Approximate site boundary**



Figure 3: Commercial facilities in detail

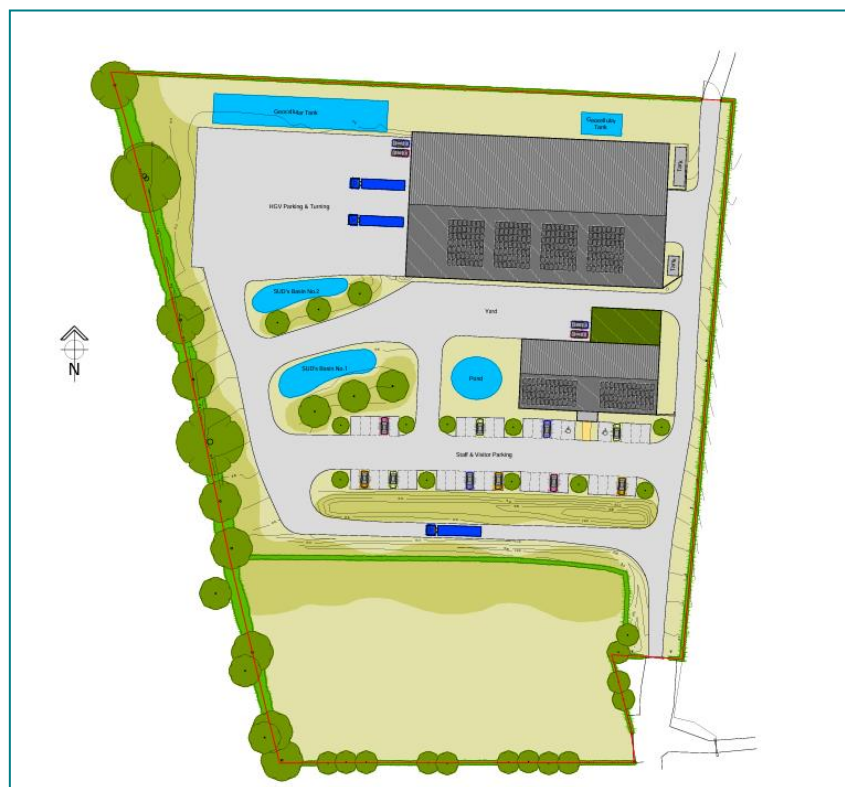


Figure 4: AD plant redevelopment



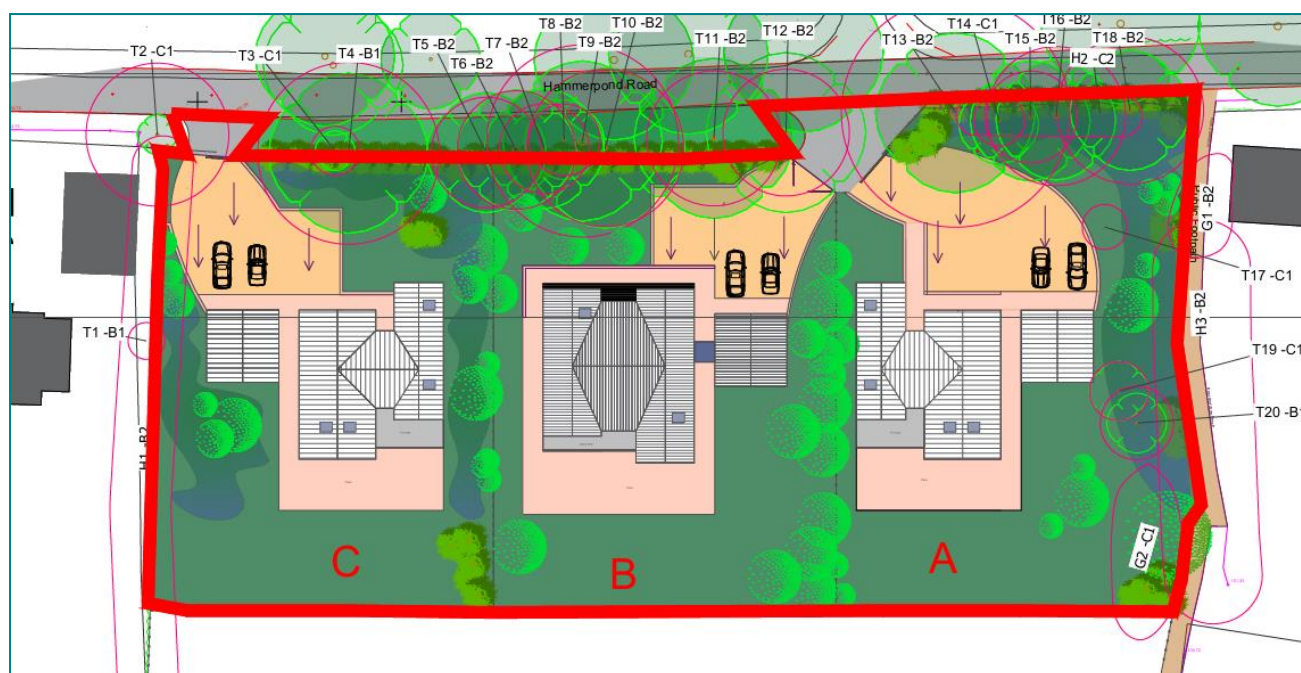


Figure 5: Jacksons Farm redevelopment

### 1.3 The Issue of Water Neutrality

#### Natural England's Position Statement for Applications within the Sussex North Water Supply Zone

- 1.3.1 Natural England's Position Statement has been produced following concerns over the adverse effects of existing groundwater abstraction on the integrity of Arun Valley, specifically Arun Valley Special Conservation Area, Arun Valley Special Protection Area and Arun Valley Ramsar site, and the potential impacts of further development on these areas.
- 1.3.2 To ensure that new developments do not exacerbate this situation, Natural England has advised that all new development proposals within the Sussex North Water Supply Zone (see Appendix A) must demonstrate water neutrality. Natural England define water neutrality as follows:
- 1.3.3 For every new development, total water use in the region after the development must be equal to or less than the total water use in the region before the new development.
- 1.3.4 The local authorities in the area are working with Natural England to secure water neutrality through a water neutrality strategy. In the interim, Natural England have advised the following approach:

**Minimising water use of new builds.**

- Complete a water budget (based on occupancy)
- All new builds to demonstrate that they can achieve strict water targets (e.g., 85L/pp/day\*)

This can be achieved by measures such as:

- Grey water recycling (advantage of being reliable in hot dry weather);
- Rainwater harvesting;
- Water efficient fixings (such as shower aerators) to demonstrably reduce demand-this would need to be suitably certain.

**In addition, water offsetting is required**

- One way to achieve this is retrofitting of council owned properties/commercial buildings-located within Sussex North. Examples include:
  - Grey water recycling- (for example there are clear opportunities for commercial properties).
  - Rainwater harvesting of commercial settings;
  - Installation of water reduction fittings in Council-owned buildings.

These measures need to be implemented until such time as a more sustainable water supply has been secured.

It will also need to be ensured that measures are not already proposed (for example in Southern Water's Management Plan) to avoid double-counting.

Any mitigation must be suitably certain in order to comply with the Habitats Regulations and Case law.

- 1.3.5 The Horsham District Council website includes a proposed method of dealing with the water neutrality issue and this Statement has been designed to align with this advice.

## 2 Existing Demand

### 2.1 Meter Readings

- 2.1.1 The following table provides a breakdown of the demand as calculated using live meter readings from the existing site. This data will continue to be collected over the period of the application and any conditions put into place in relation to application will be discharged using the most up to date data available at that time.
- 2.1.2 There are three separate meters on the site, each serving a range of different buildings and uses as follows:

Meter Location	Days between readings	m <sup>3</sup>	m <sup>3</sup> /day	Unit
Stonehouse Business Park	160	311.04	1.944	m <sup>3</sup> /day
Anaerobic digester and associated buildings	210	934.92	4.452	m <sup>3</sup> /day
Jacksons farm	288	234.14	0.813	m <sup>3</sup> /day
		<b>total</b>	<b>7.209</b>	<b>(m<sup>3</sup>/day)</b>
(Date/source of meter data: 19th November 2024 / Hunter Group)			<b>2,631</b>	<b>(m<sup>3</sup>/a)</b>

**Table 1: Pre-development water demand (readings)**

- 2.1.3 On this basis, the total annual demand for the existing combined site is calculated to be **2,631,285** litres.

### 2.2 'Permitted' Demand

- 2.2.1 Stonehouse Farm secured permission an anaerobic digestion (AD) plant (application ref. DC/14/0729) and for a robotic dairy facility for 230 dairy cattle (application ref. DC/19/1122), granted in 2020. Those permissions have since been implemented because the new buildings were built, although it has never been operational. On that basis, if these buildings were fully fitted out and became operational, water use on the site could be significantly higher, as follows:



**Dairy** – 230 lactating dairy cows require 100l per day to produce c. 30l of milk – 23,000l per day

**AD Plant** – data provided by AD specialists Biotherm – further details in [ANNEX A](#)

Average slurry production/cow UK	= 50Kg/day unit herd level of 230
Total slurry production per day	= 12650 Kg from 230 head.
8-10% dry solid content maize	= 1265Kg per day
Permitted power production	= 250kW/day

Accepted ratio of slurry:water for AD plant	= 60:40
...therefore total added water per day	= 4,200l

Add daily washdown water requirement	= 500l
Normal daily total	= 4700l

PLUS biannual washdown requirement	= 250,000l
Equivalent daily washdown requirement	= <u>1,400l</u>

**Total daily requirement including AD water consumption, daily cleaning, biannual washing = 6,100l**

- 2.2.2 With this in mind, whilst we have chosen to use the current water meter to demonstrate water demand pre-development, in practice a fully operational site using the existing permissions, and therefore not subject to the existing water neutrality requirements, would be orders of magnitude higher than that currently demonstrable.

### 3 Estimated Future Demand

#### 3.1 Calculation Assumptions and Approach

3.1.1 Using the information currently available – specifically the issued masterplan and accompanying schedule of future accommodation post development – we have calculated the likely future demands from the site.

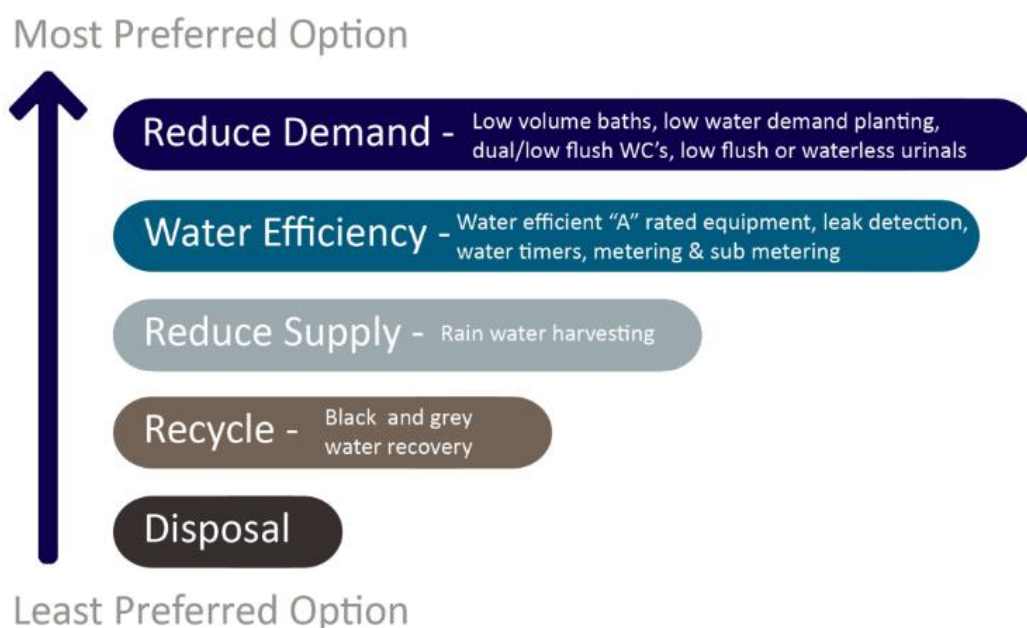
3.1.2 The following points are important to note in developing these calculations:

- Water efficiency improvements to existing buildings will be made, such that office accommodation enables a best practice water efficiency figure of c.28l per employee per day. This will require:
  - (i) Replacement of taps to reduce their flow rates
  - (ii) Replacement of single flush WCs to be dual flush, low flow units (4/2.4l)
- We have assumed a 228-day working year for employees working in existing and future commercial spaces
- For new and refurbished commercial spaces within the Commercial Area, we have assumed a figure of 28l/person per working day
- For the AD site – we have assumed that an employment intensity of 1 person per 10m<sup>2</sup> of dedicated office floor space (i.e. excluding circulation, WCs, etc). Again – best practice water fixtures and fittings are assumed to deliver average water use of 28l per employee per working day. There is a total of just over 1,000m<sup>2</sup> of dedicated office space in these two buildings. This is therefore a worst case scenario.
- For existing / retained commercial spaces, we have assumed an occupancy based on current usage and employment levels provided by the Applicant
- The three new residential dwellings on site at Jacksons Farm will be fitted out with fixtures and fittings and rainwater harvesting systems that also deliver a Part G calculated demand level of 85l per person per day. As per Horsham guidelines we have assumed an occupancy rate of 3.09 people per dwelling for these homes.
- For the live/work unit in the commercial area we have assumed 2 people occupying on a standard residential basis, and that again per Part G demand will be calculated at 85l/person/day
- Rainfall data has been requested from the flood risk consultants, who have confirmed that the rainfall level is 792mm per annum.
- There will be no cattle or other livestock on the site once the redevelopment has taken place.

#### 3.2 Water Demand – New Build Development

3.2.1 The Natural England Position Statement, and therefore Horsham Council, require a domestic water consumption target of 85 litres per person per day (l/p/d) for new residential build development in this location, well below the local average of 135 l/p/d ([www.horsham.gov.uk](http://www.horsham.gov.uk)).

- 3.2.2 In order to do so, the management of water in the development will follow the principles of the Water Hierarchy and will employ a combination of water efficient fixtures, fittings and appliances:



**Figure 6: The Water Hierarchy**

- 3.1.2 The accredited calculation methodology for Part G of the Water Regulations has been used to demonstrate that the specification for water fixtures and fittings currently proposed, shown in Table 2, will achieve the daily water use target.
- 3.1.3 An extract from the Water Calculator is given in Figure 3. The product specification shown is indicative to prove deliverability, and the final product specification to be used on the site to achieve the daily water use target will be fixed at construction stage to achieve the same (or better) overall level of performance:

Measure	Water Use	Example Product
Showers (l/min)	8	Aqualisa CMD100FS Thermostatic Bar shower with 8l/p/m flow regulator
Aerated taps (l/min)	5	ROCA Smooth Body Basin Mixer
Kitchen sink taps (l/min)	6	Reginox Ressini
Bath (l capacity)	130	Renaissance Grove
Low / dual flush WC (l)	4/2.6	Concealed Cistern Grohe 38661000 with 42333000 Adapter
Washing machine (l/kg dry load)	6	Bosch WAN24109GB
Dishwasher (l/place setting)	0.98	Bosch SMV40C40GB

**Table 2: Proposed Water Efficiency Fixtures and Fittings Performance Standards**

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	4	1.46	0.00	5.84
	Part flush Volume (litres)	2.6	2.96	0.00	7.70
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow(litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow Rate(litres / minute)	8.00	4.37	0.00	34.96
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	6.00	2.1	0.00	12.60
Dishwasher	(Litres/place setting)	0.98	3.6	0.00	3.51
Waste disposal unit	(Litres/use)	<input type="checkbox"/> Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
(5)	Total Calculated use (litres/person/day) =SUM(column 4)				101.39
(6)	Contribution from greywater (litres/person/day)				0
(7)	Contribution from rainwater (litres/person/day)				13.54
(8)	Normalisation factor				0.91
(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)				79.94
(10)	External water use				5.0
(11)	Total water consumption (Building Regulation 17.K) = (9)+(10)(litres/person/day)				84.9

Installation Type	Make/Model (mandatory)	Litres/Person/Day
WC (dual flush)	Concealed Cistern Grohe 38661000 with 42333000 Adapter	13.54
Taps	ROCA Smooth Body Basin Mixer	9.48
Baths (shower(s) present)	Renaissance Grove	14.30
Showers (bath(s) present)	Aqualisa CMD100FS Thermostatic Bar shower with 8l/p/m flow regulator	34.96
Kitchen Taps	Reginox Rellini	13.00
Washing Machines	Bosch WAN24109GB	12.60
Dishwasher	Bosch SMV40C40GB	3.51
Contribution from rainwater (litres/person/day)	Flush volume	13.54

**Table 3: Indicative Part G Accredited Water Calculator Results**

- 3.1.4 The Water Calculator has been used to size an indicative rainwater harvesting system such that, when combined with the efficiency measures, it reduces mains water use to below the 85 l/p/d target.
- 3.1.5 The following two tables provide a breakdown of the anticipated sizing of the rainwater harvesting to meet the non-potable water uses – specifically the WCs. The two examples are for a new build home at Jacksons Farm, and the Wardens live work unit. In each case, there is sufficient rainfall and scope to accommodate the necessary system, taking account of both hydraulic filter efficiency and yield co-efficient:

Indicative Rainwater Harvesting Calculations - House			Indicative Rainwater Harvesting Calculations - Wardens		
Rainfall in this location	792	mm/a	Rainfall in this location	792	mm/a
Collectable rainfall volume	0.792	m <sup>3</sup> /m <sup>2</sup>	Collectable rainfall volume	0.792	m <sup>3</sup> /m <sup>2</sup>
Collection Area - estimate Jacksons Farm, 5 bed	190	m <sup>2</sup>	Collection Area - estimate Holiday Lodge, 1 bed	32	m <sup>2</sup>
Occupancy assumed as per WN requirements	3.09	people	Occupancy assumed as per WN requirements	1.88	people
Max collectable rainfall volume	150	m <sup>3</sup> /a	Max collectable rainfall volume	25	m <sup>3</sup> /a
Hydraulic filter efficiency	0.9		Hydraulic filter efficiency	0.9	
Yield co-efficient	0.8		Yield co-efficient	0.8	
<b>Actual annual potential collection volume</b>	<b>108.35</b>	<b>m<sup>3</sup>/a</b>	<b>Actual annual potential collection volume</b>	<b>18.25</b>	<b>m<sup>3</sup>/a</b>
<b>Actual annual potential collection volume</b>	<b>108,346</b>	<b>l/a</b>	<b>Actual annual potential collection volume</b>	<b>18,248</b>	<b>l/a</b>
Non-potable demand - WCs only			Non-potable demand - WCs only		
WCs (13.54l/person/day)	15271	l/a	WCs (13.54l/person/day)	9291	l/a
<b>TOTAL</b>	<b>15,271</b>	<b>l/a</b>	<b>TOTAL</b>	<b>9,291</b>	<b>l/a</b>
Tank size estimate (35 days' drought allowance)	1,464	l	Tank size estimate (35 days' drought allowance)	891	l
Tank size estimate (35 days' drought allowance)	1,464	m <sup>3</sup>	Tank size estimate (35 days' drought allowance)	0.891	m <sup>3</sup>

**Table 4: rainwater harvesting calculations (Jacksons site and Wardens)**

### 3.3 Calculation Results

- 3.3.1 The following table provides the full breakdown of post development potable water use on the development. In addition to those uses included **within this application**, we have also included the calculations for further development on the wider Stonehouse Farm site related to potential holiday lodges, which may also come forward separately as part of another application.
- 3.3.2 Furthermore, the Applicant also has other developments in the pipeline which may seek to use the residual water saving generated as a result of these proposals. As can be seen from the table overleaf, there is a further saving of around 456,000 litres per annum which could be used to support development in other locations with the Water Neutrality Zone.
- 3.3.3 The Applicant is therefore seeking agreement to 'reserve' this further saving for future use, and any future applications will refer to this statement to explain the source of the credits available.



MASTERPLAN AREA	New and Retained Development	Total Floor Area	Assumed Roof Size (m2)	New or Retained	Basis	Daily Demand (l)	Annual Demand (l)	Relevant Notes and Assumptions
COMMERCIAL FACILITIES	Commercial building 1 (workshop&office)	597.9	314	Retained	Estimate	168	38,304	6 people, 28l per day, 228 day working year
	Commercial building 2 (2No. Units @ 151m2 - workshop/office/storage)	311.5	164	Retained	Estimate	168	38,304	6 people (3 in each unit), 28l per day, 228 day working year
	Commercial building 3 (workshop and office)	319.46	168	New	Estimate	223	50,943	12sqm per employee (OFFICE, 17.84sqm) and 47sqm per employee (WORKSHOP, 117.65sqm) as per OffPAT Guidelines Section 3 General Office , 28l/employee/day, 228 day working year
	Commercial building 4 (workshop/office/storage)	233.87	123	Retained	Estimate	168	38,304	6 people, 28l per day, 228 day working year
	"Warden Manager" building (live work unit)	85.69	45	Retained / New	Part G	170	62,050	2 people, 85l per day, 365 days
JACKSONS FARM	Residential plot A	316.5	166	New	Part G	263	95,867	(5 bed 3 bath) 3.09 occupants @ 85lpppd Part G incl RWH
	Residential plot B	373	196	New	Part G	263	95,867	
	Residential plot C	316.5	166	New	Part G	263	95,867	
ANAEROBIC DIGESTER	Main building (North) (warehouse and mezzanine office)	2780.34	1460	Converted	Estimate	1,753	399,644	12sqm per employee (OFFICE, 331.4sqm) and 70sqm per employee (GENERAL WAREHOUSE, 2448.9sqm) as per OffPAT Guidelines Section 3 General Office & General Warehousing, 28l/employee/day, 228 day working year
	Secondary building (South) (office and storage)	1704.13	895	Converted	N/A	1,758	400,734	12sqm per employee (OFFICE, 753.26sqm) as per OffPAT Guidelines Section 3 General Office, 28l/employee/day, 228 day working year
HOLIDAY LODGES (NOT INCLUDED IN THIS APPLICATION)	Lodge 1	54.4	29	New	Part G	170	47,731	40 weeks per annum occupancy, average occupancy 2 people (assumed), 85l pppd incl RWH
	Lodge 2	54.4	29	New	Part G	170	47,731	
	Lodge 3	54.4	29	New	Part G	170	47,731	
	Lodge 4	54.4	29	New	Part G	170	47,731	
	Lodge 5	54.4	29	New	Part G	170	47,731	
	Lodge 6	54.4	29	New	Part G	170	47,731	
	Lodge 7	54.4	29	New	Part G	170	47,731	
	Lodge 8	54.4	29	New	Part G	170	47,731	
	Lodge 9	54.4	29	New	Part G	170	47,731	
	Lodge 10	54.4	29	New	Part G	170	47,731	
	Lodge 11	54.4	29	New	Part G	170	47,731	
	Lodge 12	54.4	29	New	Part G	170	47,731	
	Lodge 13	120	63	New	Part G	340	95,462	40 weeks per annum occupancy, average occupancy 4 people (assumed), 85l pppd incl RWH
	Lodge 14	120	63	New	Part G	340	95,462	
	Lodge 15	120	63	New	Part G	340	95,462	
	TOTAL POST DEVELOPMENT						2,175,039	
	TOTAL PRE DEVELOPMENT						2,631,285	
	DIFFERENCE						456,246	Total Annual Water Saving

**Table 5: Post development water demand**

## 4 Impact and Summary

- 4.1.1 The total post development demand across all three areas of development, including potential Holiday Lodges on the wider Stonehouse site (which are not part of this Application) is **calculated to fall by just over 456,000 litres per annum**.
- 4.1.2 As a result, the proposed development is better than water neutral. The primary reasons for this are:
- the significant reduction in demand expected to be realised on the AD site, when the nature of the operations will change from a more industrial function to a commercial use
  - improvements to existing water fixtures and fittings in the Commercial Area
  - the ability to deliver high levels of water efficiency to 85l/person/day in the residential development
- 4.1.3 There is significant robustness and resilience in the approach which gives us significant confidence that the development as planned will be Water Neutral and must give Natural England confidence in the context of Appropriate Assessment.
- 4.1.4 Furthermore, the Applicant is seeking to agreement with Horsham and Natural England to 'reserve' this overage, for other development within the WNZ that will be coming forward. To give some context for this, 456,000l per annum is sufficient for approximately six new 3 bedroom residential properties.
- 4.1.5 Taken as a whole, therefore, the proposals should be considered as fully compliant with the requirements of water neutrality within the Sussex North Water Supply Zone.



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