WATER NEUTRALITY STATEMENT FOR LOT 1, DELSPRIDE, KENT STREET, COWFOLD, WEST SUSSEX, RH13 8BB

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Executive Summary

H2Ogeo has provided this Water Neutrality Statement to accompany the planning application to convert a chicken shed into two three bedroom dwellings at Lot 1, Delspride, Cowfold in West Sussex.

The Water Neutrality Statement demonstrates that the proposed development does not increase the rate of water abstraction for drinking water supplies above existing levels.

Water supply to the previous chicken shed, up until late 2020 and the time of the original application, was 1000 Litres/day.

Each new proposed dwelling would consist of three bedrooms and therefore, based on the extrapolated 2011 census data for Horsham District, the water consumption for each three bedroom property would be 333 Litres/day.

By using the Part G Building Regs Calculator and Level 3 BREEAM Fixtures the consumption would equate to 317 Litres/Day/property (655 total for the proposed development). The proposed, combined development's water consumption is lower than the historic consumption of 1000 Litres/day.

In addition:

- All the fittings in the proposed conversion will be new and utilise sprinkler taps for all wash-hand basins;
- Dual flush systems for the toilets and sprinkler taps in the kitchen; and
- It is proposed to fit the building with a new smart water meter.

There is also scope for rainwater harvesting to be used in the garden area offsetting additional water usage. Rainwater harvesting could be used to facilitate outdoor water use and toilet flushing with a 35 day drought capacity built in.

Based on the findings of this Water Neutrality Statement the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

1 Introduction & Background

Natural England cannot, with certainty, conclude that the Sussex North Water Supply Zone, that includes supplies from a groundwater abstraction, is not having an adverse effect on the integrity of:

- Arun Valley Special Area Conservation (SAC);
- Arun Valley Special Protection Area (SPA); and
- Arun Valley Ramsar Site.

As it cannot be concluded that the existing abstraction within Sussex North Water Supply Zone is not having an impact on the Arun Valley site, Natural England have advised that developments within this zone must not add to this impact.

Horsham District Council have requested a Water Neutrality Statement is provided to accompany planning applications to demonstrate that the proposed development does not increase the rate of water abstraction for drinking water supplies above existing levels.

1.1 Proposed Development

The proposed development comprises converting the existing chicken house into two three-bedroom residential units with associated garden space.

It is understood that the outer structure of the existing building will be retained, a Sika render applied to the walls and floors with new walls and floors constructed inside[1].

The proposed development is shown in the drawings presented in Annex A.

1.2 Scope of Work

The scope of work for H2Ogeo is to provide a Water Neutrality Statement to support the application for a conversion of the redundant chicken shed to a Class C3 dwelling house.

This Water Neutrality Statement will aim to demonstrate that the proposed development will not *contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.*

1.3 Existing Site

The existing site consists of a chicken house last used as-such in late 2020.

The shed has a lean-to along the southern edge and associated wire racking inside and is built with half block walls and the remainder finished in timber. The entire site is covered with hardstanding, comprising concrete slabs.

The chicken shed is understood to have a mains feed into the shed that was used for feed on site and the site area is approximately 0.07 hectares.

[1] Land Science, Phase 1 Geo-Environmental Investigation, March 2022

2 Baseline Calculations

This section outlines the baseline water consumption rate for the existing use at the time of the application.

The previous owner has stated that the **whole** farm site hosted up to 11,500 chickens across three chicken sheds and each chicken shed used 1000 litres of mains water each day equating to 365m^3/year for each shed up until late 2020 – pre-pandemic.

In the absence of water bills for the site the previous operators of the chicken house, under assessment, have provided Declarations of their mains water consumption on site and these are presented in Annex B.

The declarations state that 1000 litres/day was used in the chicken house in question. The operations on site have been provided by the operators and are summarised below:

- The chickens were nipple fed via three full length rails incorporating nipples every 4cm;
- As they were free-range they were allowed outside but no external water was permissible and this exercise increased water consumption considerably within the shed;
- In the rear exercise, lean-to shed there were shower arrangements to freshen the chickens and to keep the area cool; and
- The main shed incorporated a shower, wash basin and sink for operatives to keep clean that was in daily use.

2.1 Proposal Demand

The proposed development will consist of two three-bedroom residential properties.

Based on the extrapolated 2011 census data for Horsham District[2], the water consumption of a three bedroom property would be based on 2.47 occupants using 135 Litres/day[3].

Single dwelling = 333 Litres/day, therefore two residential properties = 666 Litres/day.

A summary of water fixtures and fittings is presented in Table 1 for the proposed developments.

It is important to note that all fixtures on site will meet and/or exceed Performance Level 3 of the BREEAM accreditation scheme presented in Annex C.

Table 1 Fixtures Plot 1 and 2

Plot	***Fixture***	***Kitchen***	***Utility Room***	***Master Bedroom En-suite***	***Family Bathroom***	***Total***
Plot 1	Toilet			1	1	2
	Shower			1		1
	Bath			1		1
	Shower over Bath				1	1

[2] https://www.horsham.gov.uk/planning/water-neutrality-in-horsham-district/water-neutrality-and-planning-applications

[3] Based on work carried out for Horsham District Council's Local Plan using water company data to calculate that existing water consumption rates averaging at **135 l/p/d**.

Plot	Fixture	Kitchen	Utility Room	Master Bedroom En-suite	Family Bathroom	Total
	Wash-hand basin taps			1	1	2
	Dishwasher	1				1
	Washing Machine		1			1
	Kitchen Taps	1				1
	Outside Tap	1				1
Plot 2	Toilet			1	1	2
	Shower			1		1
	Bath			1		1
	Shower over Bath				1	1
	Wash-hand basin taps			1	1	2
	Dishwasher	1				1
	Washing Machine		1			1
	Kitchen Taps	1				1
	Outside Tap	1				1

Additionally to the two properties, it is understood that there is a small yard facility proposed that will have the following welfare facilities:

- one sink;
- one WC;
- one wash hand basin;
- one shower; and
- one outside tap.

To assess the potential mains consumption a calculator from Part G of the Building Regs has been completed and the results presented in Table 2 and Annex D.

Table 2 Mains Consumption

Proposed Development	Part G Litres/Person/Day	Population/Multiplier	Total Litres/Day
Plot 1	128.2	2.47	317
Plot 2	128.2	2.47	317
Yard Welfare Facilities	86.9	0.25	22
		Total L/Day	655

2.2 Water Consumption Summary

Table 4 presents the findings of this Water Neutrality Statement:

Table 3 Extrapolated Water Consumption Data

Timescale	*Former Water Consumption*	*Estimated Water Consumption*	*Calculated Water Consumption (Litres/Day)*
Daily (Litres/day)	1000	666	655

Overall there will be a reduction of 345 Litres/Day compared to the use as a Chicken Shed.

The proposed 345 Litres/day reduction in mains water consumption equates to an annual reduction of 125m^3/year.

2.3 Additional Water Reduction Measures

For this development the proposed water consumption is lower than the baseline consumption as a chicken shed.

In addition, to provide confidence and certainty to the Local Planning Authority, all proposed fixtures and fittings will be modern water-saving fixtures, at least Performance Level 3 of the BREEAM fixtures, for example:

- All the fittings in the proposed conversions will be new and utilise sprinkler taps for all wash-hand basins;
- Dual flush systems for the toilets and sprinkler taps in the kitchen; and
- It is proposed to fit the buildings with a new smart water meter to monitor consumption.

2.4 Offsetting measures

There is the potential for offsetting some of the proposed mains water consumption using rainwater harvesting. Rainwater harvesting could offset the outside water consumption and toilet flushing.

Rainwater harvesting calculations are presented in Annex E.

The Standard Average Annual Rainfall (SAAR) for this area is 794mm/year and roof space is 280m^2.

Rainwater harvesting from the roof space could yield as much as 178m^3/year, with storage of 4000 litres allowing for 21 days of drought, rainwater could be used for outdoor use and flushing toilets at both developments.

3 Conclusion

The water consumption for the chicken Shed pre-pandemic, was 1000 Litres/day.

The proposed development will use 655 Litres/Day once converted to two three bedroom residences, a saving of 345 Litres/Day.

Additional savings are likely to be made through the water reduction measures outlined above and the potential for off-setting water consumption through rainwater harvesting.

Based on the findings of this Water Neutrality Statement the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

4 Annexes

Annex A – Planning Drawings

DOUGLAS J P EDWARDS
Chartered Building Surveyors
Principal: Douglas J P Edwards FRICS C.Build E FCABE FIAS employing
Chartered Architects and Surveyors
Blonks Barn, Hooklands Lane, Shipley,
West Sussex RH13 8PY
Telephone No: 01403 740034
Email: info@douglasjpedwards.co.uk

RICS

Project:
LOT 1
DELSPRIDE
KENT STREET
COWFOLD
WEST SUSSEX RH13 8BB

Drawing Title:
PROPOSED FLOOR PLAN

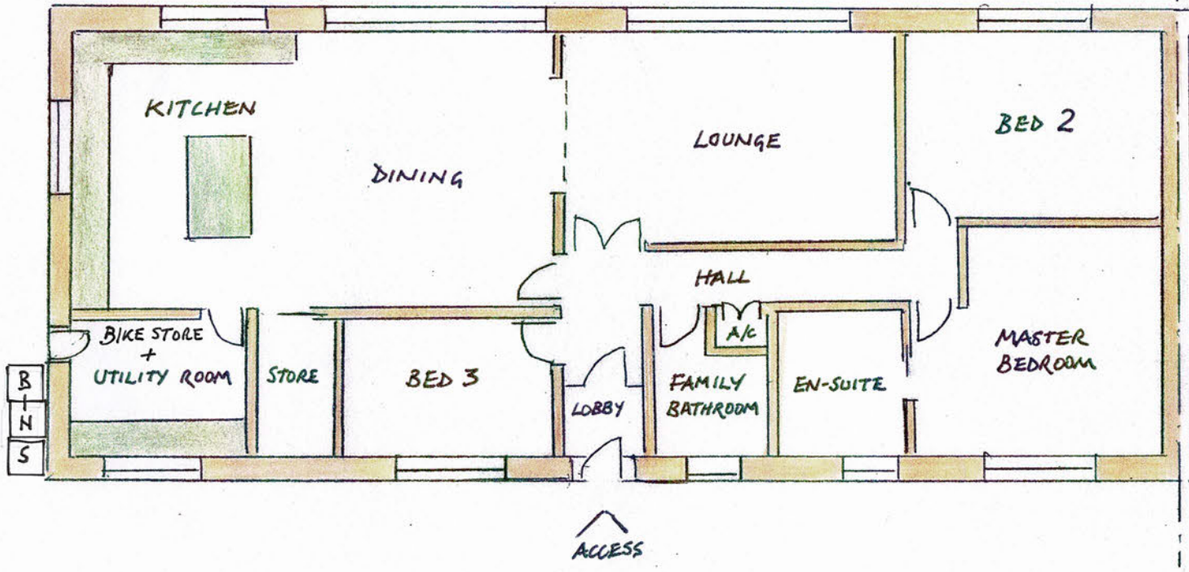
Client:
Mr and Mrs BRYANT

Scale:
1:100 @ A3

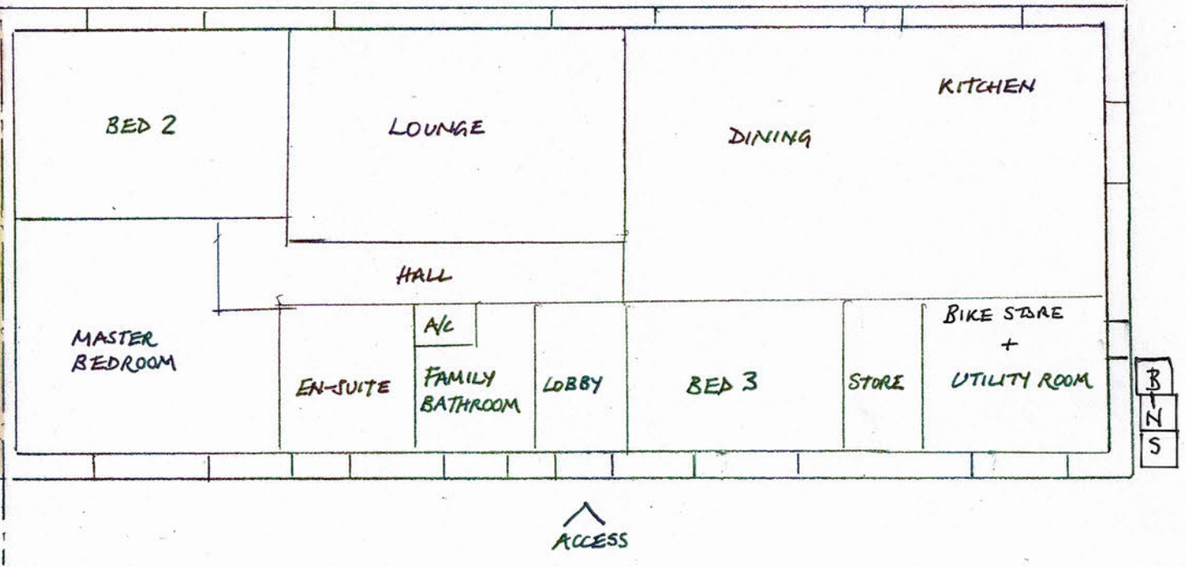
Date:
March 2022

Drawing No.
22-04-04

NB. Rear lean-to to be removed

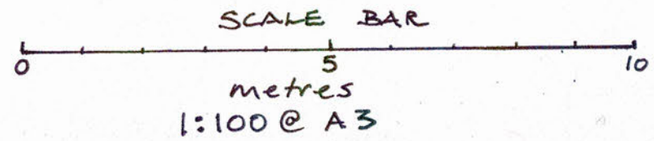


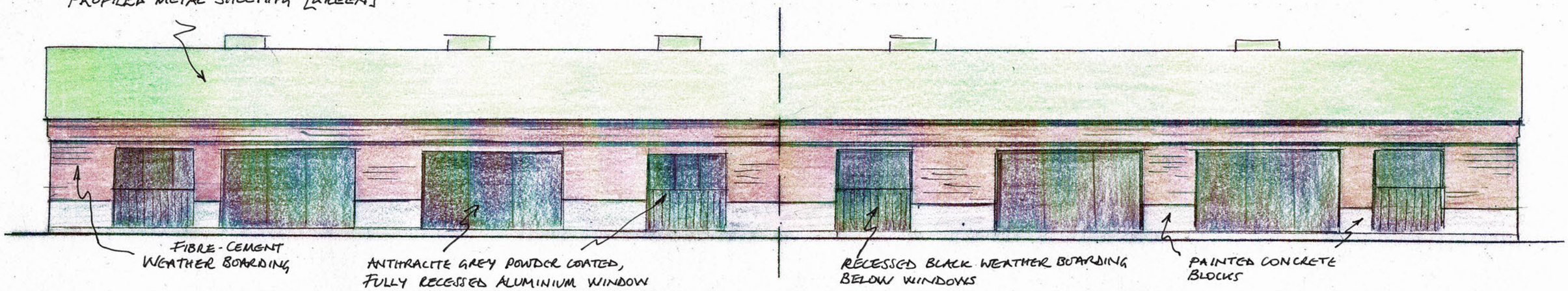
PLOT 1 [suggested layout]



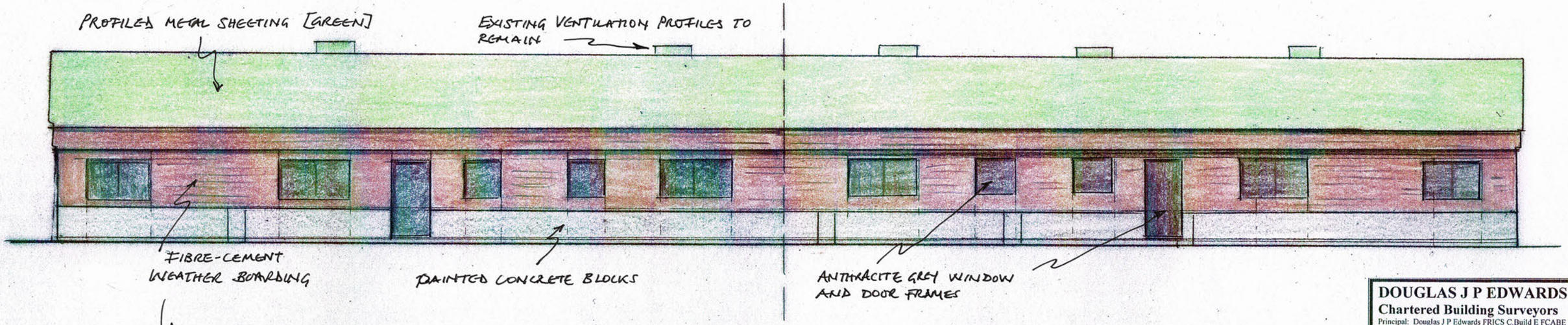
PLOT 2 [same layout, handed]



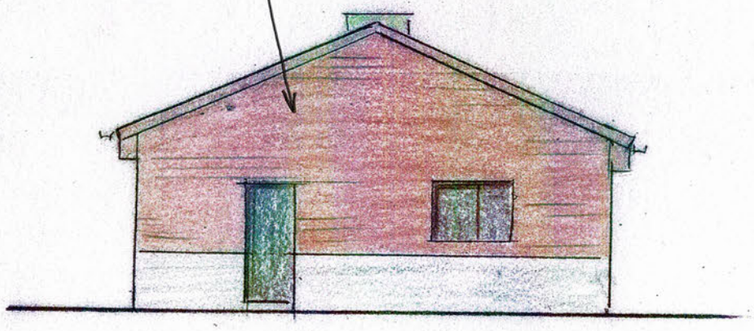




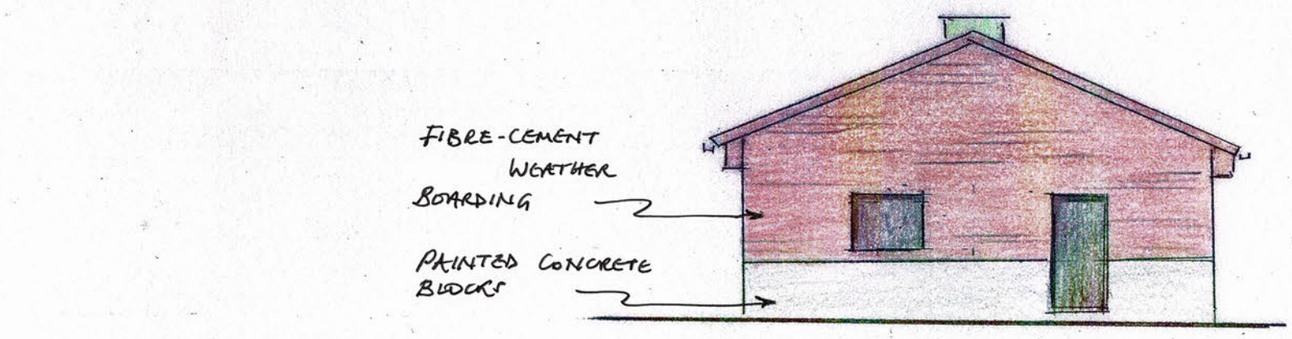
PLOT 2 — PROPOSED SOUTH ELEVATION — PLOT 1



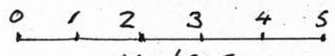
PLOT 1 — PROPOSED NORTH ELEVATION — PLOT 2



PROPOSED WEST ELEVATION
PLOT 2



PROPOSED EAST ELEVATION
PLOT 1



SCALE BAR
1:100 @ A3

DOUGLAS J P EDWARDS
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RICS

Project:
LOT 1
DELSPRIDE
KENT STREET
COWFOLD
WEST SUSSEX RH13 8BB

Drawing Title:
PROPOSED ELEVATIONS

Client:
Mr and Mrs BRYANT

Scale:
1:100 @ A3

Date:
March 2022

Drawing No.
22-04-06

Annex B – Declarations

Dear Sir/Madam

[redacted]o solemnly and sincerely declare that the timber and brickwork chicken house at Delspride Chicken Farm, Kent Street, Cowfold, West Sussex RH13 8BB was used up until late 2020 for the housing of 3,800 chickens for egg production purposes. The daily water consumption in that chicken house equated to 1,000 litres/day.

I make this solemn declaration conscientiously knowing the same to be true and by virtue of the provisions of the Statutory Declarations Act 1835.

Yours truly

Signe[redacted]. 25/1/23.

Dear Sir/Madam

I, [redacted]...., do solemnly and sincerely declare that the timber and brickwork chicken house at Delspride Chicken Farm, Kent Street, Cowfold, West Sussex RH13 8BB was used up until late 2020 for the housing of 3,800 chickens for egg production purposes. The daily water consumption in that chicken house equated to 1,000 litres/day.

I make this solemn declaration conscientiously knowing the same to be true and by virtue of the provisions of the Statutory Declarations Act 1835.

Yours truly

Signed [redacted]..... 25/1/23

Annex C - BREEAM Performance Levels

Table 41 outlines the standards, by component type, used to define the performance levels set in BREEAM. These defined levels of efficiency have been steered by a range of published sources of information (see references[2]) and therefore reflect robust levels of typical, good, best and exemplary practice.

Table 41: Water efficient consumption levels by component type

Component		Performance levels (quoted numbers are minimum performance required to achieve the level)						
		Base	1	2	3	4	5	Unit
WC		6	5	4.5	4	3.75	3	Effective flush volume (litres)
Wash hand basin taps		12	9	7.50	4.50	3.75	3	litres/min
Showers		14	10	8	6	4	3.50	litres/min
Baths		200	180	160	140	120	100	litres
Urinal (2 or more urinals)		7.50	6	3	1.50	0.75	0	litres/bowl/hour
Urinal (1 urinal only)		10	8	4	2	1	0	litres/bowl/hour
Greywater or rainwater system	Precipitation zone 1	0%	0%	0%	25%	50%	75%	% of WC or urinal flushing demand met using recycled non-potable water
	Precipitation zone 2	0%	0%	0%	0%	25%	50%	
	Precipitation zone 3	0%	0%	0%	0%	0%	15%	
Kitchen tap: kitchenette		12	10	7.50	5	5	5	litres/min
Kitchen taps: restaurant (pre-rinse nozzles only)		10.30	9	8.30	7.30	6.30	6	litres/min
Domestic sized dishwashers		17	13	13	12	11	10	litres/cycle
Domestic sized washing machines		90	60	50	40	35	30	litres/use
Waste disposal unit		17	17	0	0	0	0	litres/min
Commercial-sized dishwashers		8	7	6	5	4	3	litres/rack
Commercial or industrial sized washing machines		14	12	10	7.50	5	4.50	litres/kg

Please note that specifying components for a building in accordance with the above levels will result, in most cases, in the corresponding number of BREEAM credits being achieved. However, please bear in mind that the component specifications above are akin to thresholds between each level. Therefore caution should be exercised when defining a component specification for a BREEAM-assessed building using exactly the same levels as the threshold levels. It is recommended that, where Wat 01 BREEAM credits are being targeted, the performance of a particular building's component specification is verified using the BREEAM Wat 01 calculator before committing to a particular specification and ordering or installing components. This will provide greater assurance that the component specification achieves the targeted number of BREEAM credits.

Annex D – Part G Calculations

Calculated Water Consumption for Plot 1 and Plot 2

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	1.48	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)	4.50	1.58	1.58	8.69
Bath (where shower also present)	Capacity to overflow(litres)	140.00	0.11	0.00	15.40
Shower (where bath also present)	Flow Rate(litres / minute)	6.00	4.37	0.00	26.22
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)	5.00	0.44	10.36	12.56
Washing Machine	(Litres/kg dry load)	7.50	2.1	0.00	15.75
Dishwasher	(Litres/place setting)	12.00	3.6	0.00	43.20
Waste disposal unit	(Litres/use)	☐ 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)			135.36
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			123.18
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			128.2

Click here to fill in details before printing:

Calculated Water Consumption for the Yard

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	1.48	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)	4.50	1.58	1.58	8.69
Bath (where shower also present)	Capacity to overflow(litres)		0.11	0.00	0
Shower (where bath also present)	Flow Rate(litres / minute)		4.37	0.00	0
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)	6.00	5.60	0.00	33.60
Kitchen/Utility room sink taps	Flow rate (litres/minute)	5.00	0.44	10.36	12.56
Washing Machine	(Litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ 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)			90.05
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			81.94
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			86.9

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Annex E – Rainwater Harvesting Calculations

Input	*Data*	*Unit*
Collectable Roof Area	280	m2
Standard Average Annual Rainfall (SAAR)	0.7940	m
Potential Rainwater Volume	222.32	m3/Year
20% Safety Factor	177.856	m3/Year
Rainwater Consumption On Site		
Population = 2.47 per 3xbedroom development	4.94	Persons
Toilet Flushes/Day (Assumed 4.42 flushes/person Building Regs and 4 Litres/Flush)	87.34	Litres/Day
Outdoor Water Consumption (Assumed 5 Litres/Person/Day)	24.7	Litres/Day
Daily Water Required (Toilet and Outside Water)	112	Litres/Day
Annual Water Required for Toilet and Outside Water	40894	Litres/Year
Drought Protection	35	Days
Water Storage for Drought Protection	3920	Litres