WATER NEUTRALITY STATEMENT FOR LOT 2, 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 three three-bedroom dwellings at Lot 2, 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 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 224.77 Litres/Day/property (674.31 total for the proposed development).

The proposed, combined development's water consumption is lower than the historic consumption of 1000 Litres/day.

There is also scope for rainwater harvesting to be used instead of an outside tap offsetting additional outside water usage. The rainwater harvesting design has 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 three three-bedroom residential units with space for parking of five vehicles. The external walls will be rendered with an insulated corrugated metal roof.

Each unit is approximately 143m^2 with a combined area of 430m^2 over the whole site.

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

During the proposed development there will be a temporary static three-bed caravan on site. Following completion of the development the caravan will be removed therefore will not be contributing to mains water consumption on site post-development.

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 three Class C3 dwelling houses.

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 site is located at Delspride, Kent Street, Cowfold, Horsham, in West Sussex, RH13 8BB.

The existing site consists of a chicken house last used as-such in late 2020. The chicken shed is understood to have a mains feed into the shed that was used for feed on site.

2 Baseline Calculations

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

Information provided by the Client on the 13 September 2023, by email, states the previous owner housed 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, provided Declarations of their mains water consumption on site and these are presented in Annex B, provided by the Client as evidence of previous mains water consumption.

The declarations state that 1000 litres/day was used in the chicken house in Lot 2 Delspride. 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 three three-bedroom residential properties.

Based on the extrapolated 2011 census data for Horsham District[1], the water consumption of a three bedroom property would be based on 2.47 occupants using 135 Litres/day[2].

Single dwelling = 333.45 Litres/day, therefore three residential properties = 1000.35 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, 2 and 3

Plot	***Fixture***	***Number***	***Water Consumption***	***Units***
Plot 1	Toilet	4	3.75	Effective Flush (Litres)
	Shower	3	6	Litres/Minute
	Bath	1	140	Litres
	Shower over Bath	0	0	0
	Wash-hand basin taps	8	5	Litres/Minute

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

[2] 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*	*Number*	*Water Consumption*	*Units*
	Dishwasher	1	0.92	Litres/Place Setting
	Washing Machine	1	5	Litres/kg
	Kitchen Taps	1	6	Litres/Minute
	Outside Tap	1	5	Litres/Person/Day
Plot 2	Toilet	4	3.75	Effective Flush (Litres)
	Shower	3	6	Litres/Minute
	Bath	1	140	Litres
	Shower over Bath	0	0	0
	Wash-hand basin taps	8	5	Litres/Minute
	Dishwasher	1	0.92	Litres/Place Setting
	Washing Machine	1	5	Litres/kg
	Kitchen Taps	1	6	Litres/Minute
	Outside Tap	1	5	Litres/Person/Day
Plot 3	Toilet	4	3.75	Effective Flush (Litres)
	Shower	3	6	Litres/Minute
	Bath	1	140	Litres
	Shower over Bath	0	0	0
	Wash-hand basin taps	8	5	Litres/Minute
	Dishwasher	1	0.92	Litres/Place Setting
	Washing Machine	1	5	Litres/kg
	Kitchen Taps	1	6	Litres/Minute
	Outside Tap	1	5	Litres/Person/Day

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	91	2.47	224.77
Plot 2	91	2.47	224.77
Plot 3	91	2.47	224.77
		Total L/Day	674.31

Annex D also presents the Part G calculation for the mains water consumption used by the temporary static caravan on site during the development.

The static caravan will have the following fixtures and fittings:

Table 3 Fixtures & Fittings Temporary Static Caravan

Fixtures & Fittings	***Number***
WC	1
Wash-hand Basin Taps	2
Bath	0
Shower	1
Dishwasher	0
Washing machine	1
Kitchen Tap	1

Assuming Base Performance Levels under BREEAM as a conservative measure the mains consumption is calculated at 360.37 Litres/Day.

2.2 Water Consumption Summary

Table 4 presents the findings of this Water Neutrality Statement:

Table 4 Calculated Water Consumption Data

Timescale	***Former Water Consumption (Litres/Day)***	***Proposed Water Consumption (Litres/Day)***	***Water Neutrality Achieved***
Daily (Litres/day)	1000	674	**YES**

During the development there will be 360.37 Litres/Day used by the temporary static caravan. This is acceptable as it is less than the former consumption and will cease on completion of the new developments.

Overall, in the new proposed development there will be a reduction of 325 Litres/Day compared to the former use as a Chicken Shed.

The proposed 325 Litres/day reduction in mains water consumption equates to an annual reduction of 119m^3/year.

2.3 Water Consumption Mitigation

The proposed mains water consumption will be less than the previous use as a chicken shed on site. To reduce the mains water consumption on site it is proposed to install fixtures and fittings that meet Performance Level 3 as a minimum specification under BREEAM NC 2018 guidelines.

2.4 Offsetting measures

There is the potential for offsetting some of the proposed mains water consumption, for example outside taps through rainwater harvesting.

Rainwater harvesting calculations are presented in Annex E.

The Standard Average Annual Rainfall (SAAR) for this area is 794mm/year and roof space is 143.26m^2/unit.

Rainwater harvesting from the roof space could yield as much as 91m^3/year, with storage of 400 litres per unit allowing for 35 days of drought, rainwater will be used for outdoor use. This reduces the daily mains water consumption in the calculation by 5 Litres/Person/Day.

3 Conclusion

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

The proposed development will use 674.31 Litres/Day once converted to three three-bedroom residences, a saving of 325 Litres/Day.

Additional savings will 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

CORNERSTONE MANOR

n

1. Parking - minimum five cars
2. 3 nos. single storey dwelling houses - each 143.26m²
3. Bins and bikes
4. 3 nos. gardens.
5. Paddock

Pond
Pond
Pond
Pond
Tank
Site
Edged in Red
1
2
3
4
5
ETL
Drain
Path (um)
Adjoining land in the same owenership
Edged in blue

SCALE BAR
1:500 @ A1

0m 10m 20m

BLOCK PLAN

ALAN PHILLIPS
architecture
1968

1:500 @ A1 | MAY 2023 | KH

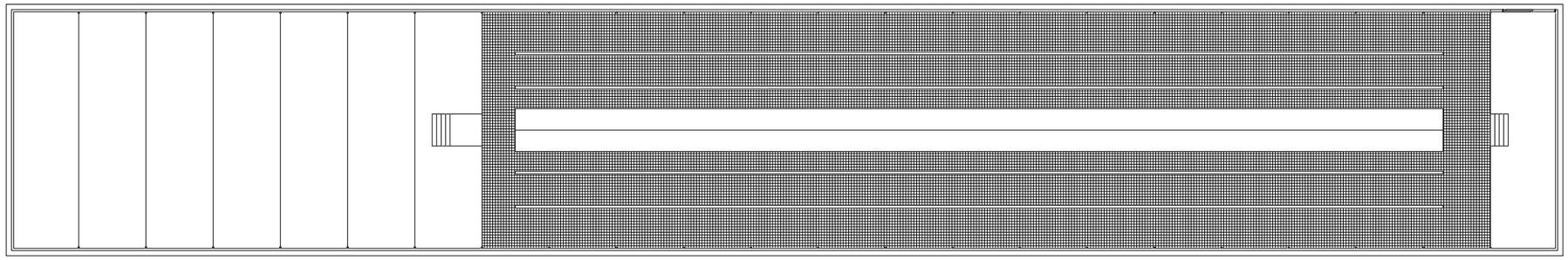
CORNERSTONE

02

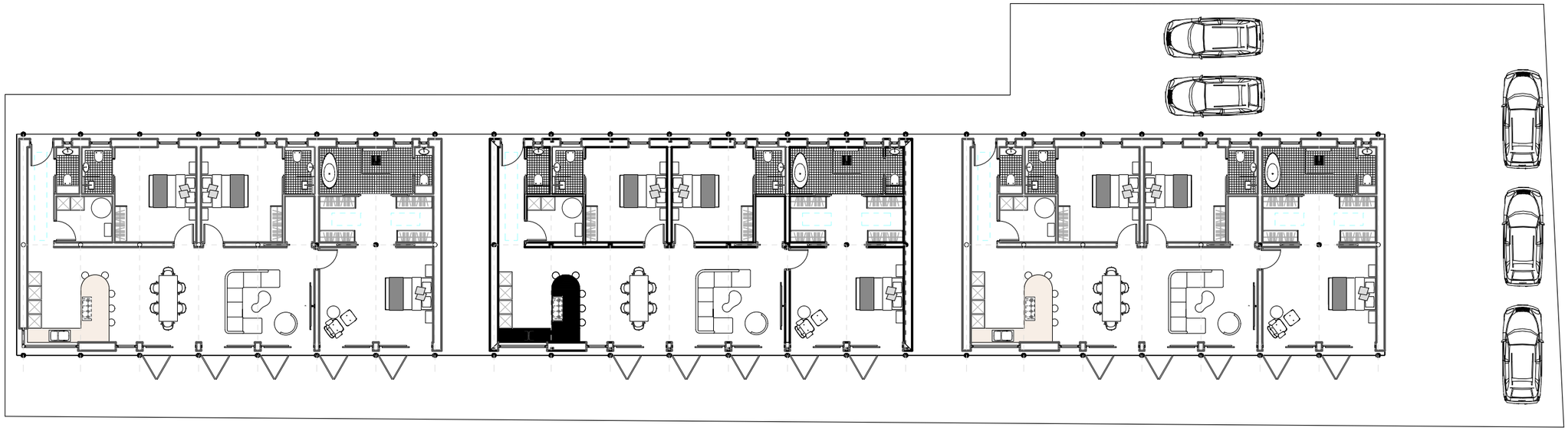
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CORNERSTONE MANOR



Floor plan as **Existing**



Floor plan as **Proposed**

SCALE BAR
1:200 @ A3

0m 5m 10m

Overall area: 143.26X3=429.78m²

ALAN PHILLIPS
architecture

1968

1:200 @ A3	MAY 2023	KH

04

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Annex B – Declarations

Dear Sir/Madam

I, Sandra M. Patterson, 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 S.M.Patterson 25/1/23.

Dear Sir/Madam

I, NATHAN LAKER, 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 25/1/23

Annex C - BREEAM Performance Levels

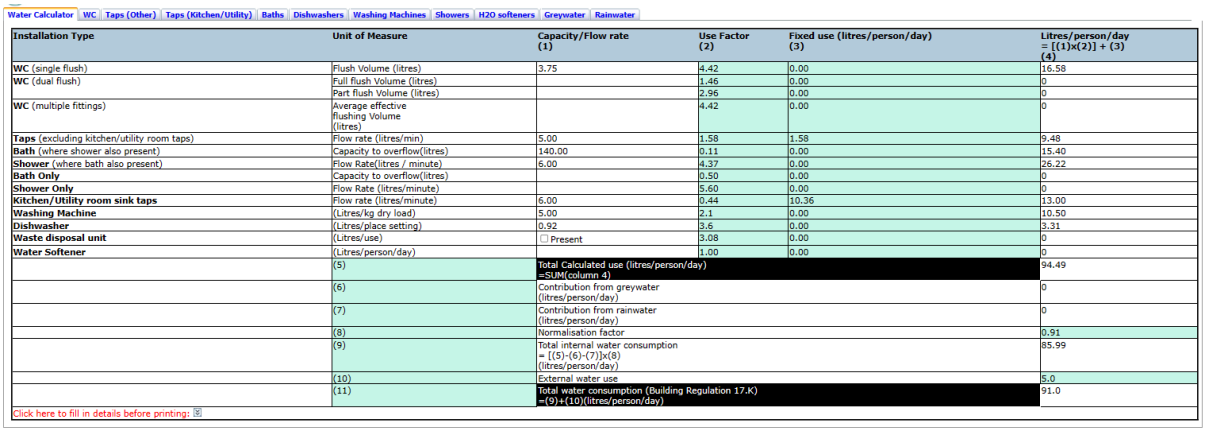
Table 8.3 Water efficient consumption levels by component type

Component	Performance levels (quoted numbers are minimum performance required to achieve the level)						
	Base	1	2	3	4	5	Unit
WC	6	4.5	4	3.75	3.5	3	Effective flush volume (litres) (see Definitions on page 216)
Wash-hand basin taps	10	8	6	5	4	3	litres/min
Showers	12	10	8	6	5	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 and rainwater system	0%	0%	0%	25%	50%	75%	% of WC or urinal flushing demand met using recycled non-potable water
Kitchen tap: kitchenette	10	8	7	6	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

Source: BREEAM UK New Construction version 1.6 Technical Manual SD5079

Annex D – Part G Calculations

Calculated Water Consumption for Plot 1 to 3



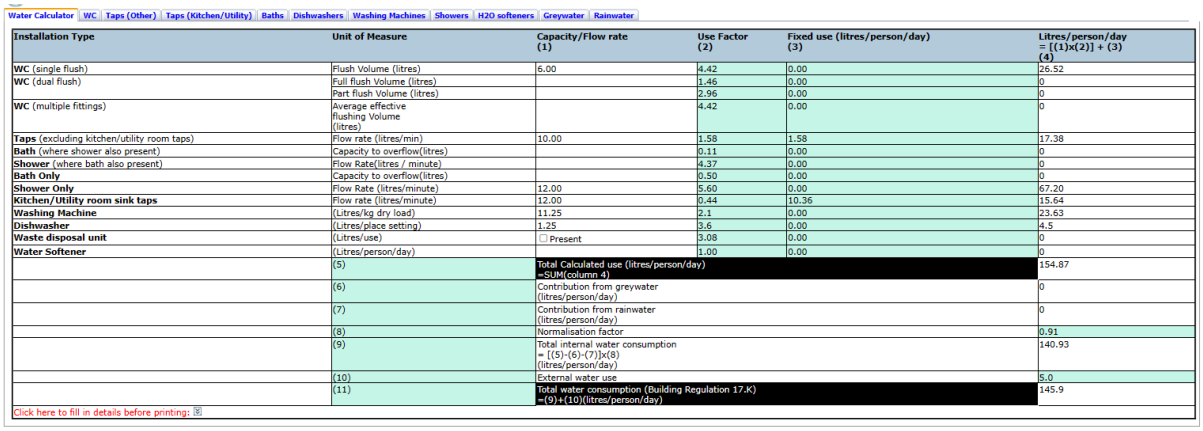
Water Calculator | WC | Taps (Other) | Taps (Kitchen/Utility) | Baths | Dishwashers | Washing Machines | Showers | H2O softeners | Greywater | Rainwater

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)	3.75	4.42	0.00	16.58
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
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)	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)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	5.00	2.1	0.00	10.50
Dishwasher	(Litres/place setting)	0.92	3.6	0.00	3.31
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)			94.49
	(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)			85.99
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			91.0

Click here to fill in details before printing:

91 Litres/Person/Day * 2.47 * 3 = 674.31 Litres/Day

Calculated Water Consumption for the Temporary Static Caravan



Water Calculator | WC | Taps (Other) | Taps (Kitchen/Utility) | Baths | Dishwashers | Washing Machines | Showers | H2O softeners | Greywater | Rainwater

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)	6.00	4.42	0.00	26.52
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	10.00	1.58	1.58	17.38
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)	12.00	5.60	0.00	67.20
Kitchen/Utility room sink taps	Flow rate (litres/minute)	12.00	0.44	10.36	15.64
Washing Machine	(Litres/kg dry load)	11.25	2.1	0.00	23.63
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)			154.87
	(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)			140.93
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			145.9

Click here to fill in details before printing:

145.9 Litres/Person/Day * 2.47 = 360.37 Litres/Day

Annex E – Rainwater Harvesting Calculations

Input	***Data***	***Unit***
Collectable Roof Area	143.26	m2
Standard Average Annual Rainfall (SAAR)	0.794	m
Potential Rainwater Volume	113.748	m3/Year
20% Safety Factor	90.9988	m3/Year
Rainwater Consumption On Site		
Population = 2.47 per 3xbedroom development	2.47	Persons
Outside Tap Use	5	Litres/Day
Outdoor Water Consumption (Assumed 5 Litres/Person/Day)	12.35	Litres/Day
Daily Water Required - Outside Tap	12.35	Litres/Day
Annual Water Required - Outside Tap	4508	Litres/Year
Drought Protection	35	Days
Water Storage for Drought Protection	432.25	Litres