carl moore
architectural design

18 Parklands Avenue
Goring-by-Sea
West Sussex
BN12 4NH

phone: 01903 533276
mobile: 07718 522407
e mail: carl@cm-arch.co.uk

WATER NEUTRALITY REPORT

Date: 9th December 2024

address: **HARDS FARM COTTAGES, KERVES LANE, HORSHAM**

job description: **PROPOSED REPLACEMENT CAR BARN WITH ACCOMMODATION ABOVE**

Existing:

The existing timber framed car barn is located to the south of Hards Farm Cottages, adjacent to Kerves Lane. The existing car barn includes 2 open bays and an enclosed garage. The car barn is also used as an external utility / laundry room and includes a butler sink and a washing machine. Therefore, the car barn has a water supply and foul drainage.

Proposed:

The proposal is to remove the existing car barn and replace it with a new timber framed barn with first floor accommodation. The ground floor enclosed garage will include a small utility area to replace the existing and a first-floor shower room and small kitchenette.

The accommodation will be used for as an office and an occasional guest bedroom for family and friends.

New water consumption:

The new appliances (flow rates) that will require a water supply in the new accommodation will be as follows: -

1. WC = 4/2 litre dual flush
2. Basin taps = 10 litres per minute
3. Shower = 7 litres per minute
4. Kitchen sink = 10 litres per minute

Note: The utility is existing and therefore this has not been included.

Water calculations – Part G Building Regs

	Capacity/flow rate	Use Factor	Fixed use	litres/person/day
WC (dual flush)	4.00	4.42	0.00	17.68
Basin taps	10.00	1.58	1.58	17.38
Shower	10.00	5.60	0.00	56.00
Kitchen taps	10.00	0.44	10.36	14.76
TOTAL (max.)				**105 l/person/day**

Occupancy (census data)

One-bedroom annex = 1.32 average occupants

Based on the calculated demand of 89l/p/d x 1.32 people will provide a daily baseline of **139.68 litres per day**

Improvements

The proposal is to use a dual flush w.c and water saving devices fitted to the new appliances to adjust the flow rate.

Water calculations – Part G Building Regs

	Capacity/flow rate	Use Factor	Fixed use	litres/person/day
WC (dual flush)	4.00	1.46	0.00	5.84
	2.60	2.96	0.00	7.70
Basin taps	2.50	1.58	1.58	5.53
Shower	7.00	5.60	0.00	39.20
Kitchen taps	5.00	0.44	10.36	12.56
TOTAL (max.)				**70 l/person/day**

One-bedroom annex = 1.32 average occupants

Based on the calculated demand of 70l/p/d x 1.32 people will provide a daily baseline of **92.4 litres per day. A saving of 47.28 l/p/d**

Water saving measures to main house

Hards Farm Cottage currently has 4 en-suites which include 4No. shower heads and w.c's. If we look to replace 2 shower heads with an Eco Smart shower head.

	Capacity/flow rate	Use Factor	Fixed use	litres/person/day
Shower (x2)	11.00	5.60	0.00	123.2

5 bedroom house = 3.09 average occupants

Based on the 2No. showers at 123.2 l/p/d x 3.09 people will provide a daily baseline of **380.68 litres per day**

2No. shower heads are to be exchanged with Eco Smart shower heads which are regulated to deliver 7 litres per minute.

	Capacity/flow rate	Use Factor	Fixed use	litres/person/day
Shower (x2)	7.00	5.60	0.00	78.4

5 bedroom house = 3.09 average occupants

Based on the 2No. showers at 78.4 l/p/d x 3.09 people will provide a daily baseline of **242.25 litres per day**

By replacing 2No. shower heads at least 138.43 litres of water per person per day will be saved.

Other water saving methods to ensure the new bathroom is water neutral.

- Water butts – 2No. water butts with overflows are to be installed at the rear of the garage.

Conclusion:-

The new shower room and kitchenette will not add to the existing water use of the property once all the measures above have been installed.