



Water Neutrality Statement

Unit 2
Southdowns Enterprise Park
Shoreham Road
Henfield
West Sussex

Revision:

Date of issue:
July 2023

1.0 Introduction

On 14th September 2021, Natural England identified and issued a Position Statement noting that the Sussex North Water Resource Zone (WRZ) is in an area of serious water stress, as defined by the Environment Agency. The Position Statement requires developments within the region to demonstrate that they will not increase the water demand and demonstrate how they will achieve water neutrality. This impacts Applications in Horsham District, the majority of Crawley District, the Northern region of Chichester District, and areas within the South Downs National Park.

In response to the Position Statement, it is necessary for Planning Applications to provide evidence within three key categories:

1. Reduction of water usage;
2. Reuse of water on site;
3. Offsetting of residual water demand.

This Statement is to support the Minor Material Amendments application to the previously approved Building 2, as approved under application reference DC/20/0049, dated 26.10.2020, and will demonstrate how the development will respond to the water neutrality requirements.

Following the recent High Court decision in *CG Fry v Sos and Somerset Council*, Horsham District Council now require that schemes can demonstrate Water Neutrality when discharging conditions or making non-material amendments applications as these both are deemed to form a 'consent' under the Habitat Regulations.

The previously approved application has been enacted, with all pre-commencement and pre-occupation conditions approved by Horsham District Council. The basis of this calculation is to demonstrate a betterment in water usage over the extant permission.

There are currently no guidelines regarding the water usage of buildings other than dwellings, therefore a considered approach is crucial when determining the performance of the individual fittings within a building and is necessary to achieve a reduction in water usage.

The calculation of the water usage for the Building is to be calculated using the 2014 Wat 01 BREEAM calculator, which is seen as the approved method of calculation for non-residential developments.

As the consented scheme comprises of both B8 storage & distribution and B1c light industrial uses, the Industrial Calculation sheet of the BREEAM Calculator has been used to calculate the B8 use. With the Office Calculator being used to calculate the B1c use – although the calculator does not allow for the sub-division of the use classes, so a B1 use – *offices & workshop businesses* has been used to compare the extant and proposed water usage.

2.0 Baseline & Proposed Water Usage

2.01: Baseline Water Usage of Extant Scheme: In order to determine a baseline, the existing water usage must be calculated. However, without a full water usage audit to determine the specific fittings etc, as the building has not been constructed, a BREEAM Calculation has been undertaken.

The extant scheme comprised of 1no. building divided into 4no. units. Two of the units are consented for B8 use, with the other two as B1c. The B8 units have an overall Gross Internal Area (GIA) of 607.3m², with a further 327.8m² to the B1c units.

Based on the BREEAM Calculator both the B1c use and B8 use have a water usage of 36.89l/p/d.

The BREEAM Calculator states a default occupancy of 24 for the B1c use and 10 for B8 use, giving an overall occupancy of 34 people. Therefore, the baseline water usage for the property is determined by multiplying 36.89 l/p/d by the occupancy of 34.

BREEAM Calculations included in Appendix A.

Extant Baseline Water Usage – 36.89 x 34 = 1,254.26 l/d

2.02: Proposed Scheme Introduction: The calculation of the water usage for the proposed scheme uses the same BREEAM Water Usage calculation methodology to provide a like for like comparison.

The proposed scheme now divides the building into 3 units, with no change in overall GIA of the proposed building, and is divided as follows:

- Unit 1 – B8 Use – 418.2m²
- Unit 2 – B8 Use – 228.7m²
- Unit 3 – B1c Use – 384.4m²

The proposed scheme leads to a deintensification of development compared to the extant scheme due to the reduction in the number of units within the building, and that the overall provision of B8 use within the building has increased compared to the extant permission.

Unlike the baseline extant scheme, there are known occupants for 2 of 3 units, with Unit 1 being occupied by Screwfix, who have confirmed a maximum daily occupancy of 4 members of staff. Unit 3 is to be occupied by the applicant, Coles Automotive, who have confirmed that a maximum of 10 members of staff would be present on site. The BREEAM '*default occupancy*' number for Unit 2 is 5 based on the units individual GIA.

The known occupancy numbers fall below the '*default occupancy*' numbers generated within the BREEAM Calculator and therefore the proposed daily Water Usage is therefore going to be lower than the extant scheme before utilising water saving strategies. However, in order to demonstrate a betterment over the extant scheme the '*default occupancy*' numbers are to be used within the following calculations.

We therefore conclude that the proposed scheme would not create a significant effect on water usage and not exceed the expected level of usage when compared to the extant schemes baseline usage. This is explored further below.

For the avoidance of doubt, the extant scheme has been **implemented**, therefore, the development of Building 2 as per DC/20/0049 could be undertaken if this application were to be refused without the need for further applications.

However, the applicant acknowledges that the issues raised by Water Neutrality are important, and in light of the recent High Court judgement the proposals are to include water saving measures to reduce the impact of the scheme within the Sussex North Water Resource Zone. The measures are set out below.

2.03: Proposed Water Usage: Using the same flow rates for the fixtures and fittings, but amending the respective GIA's the proposed water usage for both the B1c and B8 uses remains at 36.89 l/p/d.

The BREEAM Calculator's adjusted '*default occupancy*' numbers now state an occupancy of 32 for the B1c use and 12 for the B8 use, therefore resulting in a total of 44 occupants.

Therefore, the proposed water usage for the property is determined by multiplying 36.89 l/p/d by the occupancy of 44.

Proposed Water Usage = 1,623.16 l/d

It is worth noting though that with the known occupancy figures there is a decrease in water usage compared to the baseline usage, as set out below:

Unit 1 – 4 occupants – 147.56 l/d

Unit 2 – 5 occupants* – 184.45 l/d

Unit 3 – 10 occupants – 368.9 l/d

Total: 700.91 l/d

*occupancy based on BREEAM calculator '*default occupancy*'

2.04: Residual Water Usage: As stated above, in order to provide a comparable calculation, the residual water usage has been calculated using the '*default occupancy*' numbers. The water usage for the proposed scheme has increased due to the changes in the proposed floor areas for the B1c and B8 uses, therefore there is an increase in the overall water usage between the extant and proposed scheme of 368.9 l/d.

Total Water to be offset/ saved = 368.9 l/d

3.0 Water Saving Measures & Reuse of Water on Site

3.01: Water Saving and Reuse Measures: The following sections will demonstrate that through the specification of specific sanitaryware and rainwater reuse when applied to the baseline water usage the water usage for the proposed development can be drastically reduced, therefore providing a betterment over the extant planning scheme.

3.02: Water Reduction Measures: Through the specification of aerated taps and dual flush toilets it is possible to reduce the water usage to 26.36 l/p/d. BREEAM Calculations included in Appendix B.

Therefore, based on the 'default occupancy' number of 44 for the whole building, the water usage is calculated by $44 \times 26.36 \text{ l/p/d} = 1,159.84 \text{ l/d}$.

The specification of water efficient fittings creates a saving of 463.32 l/d, which exceeds the required saving/ offset of 368.9 l/d as set out above.

Proposed Usage Saving = 463.32 l/d

Proposed Total Water Usage with reductions measures = 1,159.84 l/d

The above calculation demonstrates that the proposed scheme has a lower water usage than the extant permission, therefore the current proposal is deemed to be Water Neutral in relation to the extant, fall back, permission.

3.03 : Water Reuse: There are three methods of water reuse that can be utilised within a scheme,

- a) **Rainwater Harvesting:** capturing rainwater from the buildings roof and using it for uses as basic as watering landscaped areas through to use within a building for non-potable uses, such as toilet flushes.
- b) **Greywater Recycling:** captures and recycles used water from showers, baths and basins, which requires a separate drainage system to separate foul water from toilets to allow the grey water to be treated and recycled for non-potable uses within the building.
- c) **Blackwater Recycling:** captures and recycles contaminated wastewater, including from toilets, and greywater, and includes wastewater from industrial processes. The wastewater requires extensive treatment prior to being recycled and reused for non-potable purposes.

This scheme proposes the inclusion of a Rainwater Harvesting system to provide non-potable water for flushing the toilets and grounds keeping purposes. Based on the calculations below, provided by Kingspan Klargestar, a 30,000ltr Below Ground Rainwater Harvesting Tank (RWHT) is required, which is to be located below the driveway as indicated on the drawings.

The following calculation has been provided by Kingspan Klargestar:

Roof Area: 1,021m²

Drainage Coefficient: 0.8

Filter efficiency: 0.9

Annual Rainfall: 800mm

$1021 \times 0.8 \times 0.9 \times 800 \times 0.05 = 29,405$ (30,000 Litre Closest Next Tank Size)

Based on the BRE Wat 1 Calculator, a total of 18 l/p/d yield would be obtained from the RWHT. Therefore a total of $(18 \times 44 =)$ 792 l/d can be saved through the use of a RWHT.

Total Rainwater Harvesting Saving = 792 l/d

Proposed Total Water Usage with RWHT = 367.48 l/d

3.05: Water Reduction Measures Conclusion: based on the above calculations it has been demonstrated that through the specification of water efficient fittings it is has been demonstrated that a saving of 452.79l/d can be made.

A further saving can be made to the scheme through the inclusion of a rainwater harvesting tank of 774 l/d of non-potable water use for toilet flushing within the building and grounds maintenance.

Therefore, the calculated water usage for the proposed development is:

Total baseline use: - 1,623.16 l/d

Water saving measures (fittings specification) - 463.32 l/d

Rainwater harvesting tank: - 792 l/d

Total Water Usage Saving = 1,255.32 l/d

Total Water Usage = 367.84 l/d

The above calculations have demonstrated that the proposed reduction and reuse measures have saved a total of 1,255.32 l/d of water, well in excess of the 368.9 l/d offset requirement as detailed above.

4.0 Offsetting Residual Water Demand

4.01: Offsetting Methods: The Waterwise Practical Guidance note to assist with achieving water neutrality advises that the final step to achieving water neutrality is offsetting any of the development's residual demand by improvements to the local community, within the same Water Resource Zone (WRZ). Such offsetting schemes that can be utilised are:

1. Funding water efficiency audits and retrofits for existing homes or businesses, such as (but not limited to) through Water Companies;
2. Financial donations to a housing association to retrofit their homes;
3. Fixing leaks, over and above planned work by Water Companies;
4. Retrofitting water reduction schemes, such as in local school buildings to improve water efficiency;
5. Retrofitting water reuse schemes, such as in public buildings or schools;
6. The installation of smart meters above what was already planned by Water Companies.

4.02: Offsetting Conclusion: Although this scheme does not require any offsetting measures the applicant is keen to install a Water Meter within the development as well as the implementation of awareness campaigns and promotion of water-saving behaviours within the businesses operating within the building.

5.0 Conclusion

The current proposed scheme being considered within this application provides 3no. units within the same GIA as the extant scheme (ref: DC/20/0049), therefore decreasing the intensity of the site, although the redistribution of Use Classes/ floor area has led to an overall increase in water usage.

For the avoidance of doubt, the extant scheme **would be implemented** by the applicant, if this application were to be refused, as the extant permission has been enacted by the original applicant.

The applicant acknowledges that the issues raised by Water Neutrality are important, and to address the required water usage offset value the proposals are to include water saving measures to reduce the impact of the scheme within the Sussex North Water Resource Zone.

As demonstrated above, the specification of water efficient fixtures and fittings creates a 463.32 l/d, reduction in water use from a baseline assessment of the proposals using the same flow rates as of the extant permission calculations.

The use of a rainwater harvesting tank has been proven to provide additional savings in non-potable water use of 792 l/d.

Therefore, through this WNS, and the applicants' desires to improve the water efficiency of the proposals, it has been proven that a saving of **1,255.32 l/d** a day can be made from the baseline water usage figures of the proposed scheme and should therefore be seen as a positive approach to reducing water usage.

As detailed above, the figures used to calculate the water usage are based on the '*default occupancy*' numbers generated automatically within the BREEAM Calculator based on GIA, so when the known occupancies are taken into account the proposed water savings of 1,255.32 exceed the calculated 700.91 l/d, therefore making the scheme Water Neutral in practice.

A summary of the extant scheme and proposed scheme water usages is set out below, along with the water usage savings made through enhanced fittings & fixtures specification and installation of a rainwater harvesting tank.

Extant Proposals:	1,254.26 l/d
Current Proposals:	1,623.16 l/d
Water Saving Measures to proposed scheme:	1,255.32 l/d
Overall Proposed Water Usage after water saving measures:	367.84 l/d

Based on the calculations within this Water Neutrality Statement it has been demonstrated that the proposed development is deemed as water neutral, as the proposed building would not cause a significant effect on water usage and not exceed the expected level of usage when compared to the extant schemes baseline usage.

Appendix A

BRE Wat 1 Calculations – Extant Scheme

Building details

Building name

BRE assessment reference no.

Building type	Description of building type	Default occupancy	Default annual days/operation	Default daily hours of operation
Office	TCP Classification B1: Offices and workshop business (including those with a basic (category 1) laboratory area)	24.0104	253	10

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m ²)
Office - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and reception areas. Exclude meeting rooms, visitor waiting or circulation areas.	Yes	40
Office - Small workshop / laboratory space	Small scale workshop or category 1 laboratory area	Yes	287.8
Office - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumption on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	No	
Office - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	No	

Water consumption - building microcomponent

WC component - all activity areas	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
WC - male (no urinals installed)	Effective flush volume (Litres)	6.00	4.00	1.00	12.00
WC - female	Effective flush volume (Litres)	6.00	4.00	1.00	12.00

Urinal component - all activity areas	units	Specification	No. of cisterns	Flushing frequency (flushes/hour)	Consumption (L/person/day)

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Taps - components (personal hygiene) - all activity areas					
Wash hand basin taps	Flow rate (litres/min)	10.00	4.00	0.25	6.77
Shower use	Flow rate (litres/min)	0.00	0.030	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchen/le					
Kitchen taps - kitchen/le	Flow rate (litres/min)	10.00	1.00	0.67	4.54
Dishwasher	Litres/cycle	0.00	0.04	1.00	0.00
Tap components (cleaning and food preparation) - staff canteen food preparation area					

Total Microcomponent consumption (L/person/day)

36.89

Non potable water yield - greywater system

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of Practice

System not specified

Greywater source (building components)	Greywater collected	Proportion of components collected from (%)	Greywater yield (L/person/day)
Greywater source (other components)	Typical greywater yield (litres)	Frequency of yield (days)	Greywater yield (litres/day)

Total Greywater yield (L/person/day)

0.00

Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS8515:2009 Rainwater Harvesting Systems - Code of practice	System not specified
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How has the storage capacity for the proposed system been calculated?	
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Rainwater yield if intermediate:

Collection area (m ²)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield co-efficient (%)	Annual rainwater yield (Litres)	Rainwater yield (L/person/day)

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non Potable Water Demand - Building Components

			Greywater and/or rainwater yield (L/person/day)
Total			
Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)
Total			Demand met by yield (L/person/day)
Other permissible components			
			Maximum permissible demand (L/day)
			Demand met by yield (L/person/day)
Total			
			Greywater and/or rainwater demand met by yield (L/person/day)
Total			

Water consumption calculation results

	Litres/person/day	m ³ /person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	87.58	22.16
Microcomponent water consumption - modelled performance (excludes fixed uses)	35.31	8.93
Modelled water demand met via greywater and rainwater sources	0.00	0.00
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met:	System not specified	
Net modelled water consumption (excludes fixed uses)	35.31	8.93
Percentage improvement	59.69%	
Total Wat 01 BREEAM credits achieved	5 credits	
Total Wat 01 BREEAM Innovation credits achieved	Exemplary level not achieved	
Key performance indicator - use of freshwater resource (includes fixed uses)	36.89	9.33

Building name	
BRE assessment reference no.	

Main building acCvity areas	DescripCion of acCvity area	acCvity area present in building?	Net Floor Area (m ²)
Industrial - process area	Main process based operaCional/manufacturing/workshop area	No	
Industrial - Laboratory area	Large or small category 1 laboratory area.	No	
Industrial - Warehouse storage	Permanently or intermILently occupied warehouse storage areas.	Yes	567.3
Industrial - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and recepCion areas. Exclude meeCng rooms, visitor waitng or circulaCion areas.	Yes	40
Industrial - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumpCion on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	No	
Industrial - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	No	

WC component - all acCvity areas	units	SpecificaÇon	Usage/person/day	Usage factor	ConsumpÇon (L/person/day)
WC - male (no urinals installed)	EffectÇve flush volume (Litres)	6.00	4.00	1.00	12.00
WC - female	EffectÇve flush volume (Litres)	6.00	4.00	1.00	12.00

	Units	SpecificaÇon	Usage/person/day	Usage factor	ConsumpÇon (L/person/day)
Taps components (personal hygiene) - all acÇvity areas					
Wash hand basin taps	Flow rate (litres/min)	10.00	4.00	0.25	6.77
Shower use	Flow rate (litres/min)	0.00	0.030	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchen/e					
Kitchen taps - kitchen/e	Flow rate (litres/min)	10.00	1.00	0.67	4.54
Dishwasher	Litres/cycle	0.00	0.04	1.00	0.00
Tap components (cleaning and food preparaÇon) - staff canteen food preparaÇon area					

	Microcomponent consumption (L/person/day)
Total	36.89

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of PracÇce	System not specified
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	Greywater yield (L/person/day)
Total	0.00

Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS8515:2009 Rainwater Harvesting Systems - Code of practice	System not specified
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How has the storage capacity for the proposed system been calculated?

Rainwater yield if intermediate:

Collection area (m2)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield co-efficient (%)	Annual rainwater yield (Litres)	Rainwater yield (L/person/day)

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non potable water demand - building components

				Greywater and/or rainwater yield (L/person/day)
Total				
Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)	
				Demand met by yield (L/person/day)
Total				
Other permissible components				
			Maximum permissible demand (L/day)	
			Demand met by yield (L/person/day)	
			Total	
			Greywater and/or rainwater demand met by yield (L/person/day)	
			Total	

Water consumption calculation results

	Litres/person/day	m ³ /person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	40.60	10.27
Microcomponent Water consumption - modelled performance (excludes fixed uses)	35.31	8.93
Modelled water demand met via greywater and rainwater sources	0.00	0.00
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met	System not specified	
Net modelled water consumption (excludes fixed uses)	35.31	8.93
Percentage improvement	13.04%	
Total Wat 01 BREEAM credits achieved	1 credit	
Total Wat 01 BREEAM Innovation credits achieved	Exemplary level not achieved	
Key performance indicator - use of freshwater resource (includes fixed uses)	36.89	9.33

Appendix B

BRE Wat 1 Calculations – Proposed Scheme including water saving measures

Building details

Building name BRE assessment reference no.

Building type	Description of building type	Default occupancy	Default annual days/operation	Default daily hours of operation
Office	TCP Classification B1: Offices and workshop business (including those with a basic (category 1) laboratory area)	32.185	253	10

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m ²)
Office - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and reception areas. Exclude meeting rooms, visitor waiting or circulation areas.	Yes	140.6
Office - Small workshop / laboratory space	Small scale workshop or category 1 laboratory area	Yes	243.8
Office - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumption on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	No	
Office - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	No	

Water consumption - building microcomponent

WC component - all activity areas	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
WC - male (no urinals installed)	Effective flush volume (Litres)	4.50	4.00	1.00	9.00
WC - female	Effective flush volume (Litres)	4.50	4.00	1.00	9.00

Urinal component - all activity areas	units	Specification	No. of cisterns	Flushing frequency (flushes/hour)	Consumption (L/person/day)

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Taps components (personal hygiene) - all activity areas					
Wash hand basin taps	Flow rate (litres/min)	6.00	4.00	0.25	4.06
Shower use	Flow rate (litres/min)	0.00	0.030	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchen/le					
Kitchen taps - kitchen/le	Flow rate (litres/min)	6.00	1.00	0.67	2.72
Dishwasher	Litres/cycle	0.00	0.04	1.00	0.00
Tap components (cleaning and food preparation) - staff canteen food preparation area					

Total Microcomponent consumption (L/person/day)

26.36

Non potable water yield - greywater system

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of Practice

System not specified

Greywater source (building components)	Greywater collected	Proportion of components collected from (%)	Greywater yield (L/person/day)
Greywater source (other components)	Typical greywater yield (litres)	Frequency of yield (days)	Greywater yield (litres/day)

Total Greywater yield (L/person/day)

0.00

Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS8515:2009 Rainwater Harvesting Systems - Code of practice	Yes
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How has the storage capacity for the proposed system been calculated?	BS8515 Intermediate approach
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Rainwater yield if intermediate:

Collection area (m2)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield coefficient (%)	Annual rainwater yield (litres)	Rainwater yield (L/person/day)
1021	800	80.00%	90.00%	588096	50.06

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non Potable Water Demand - Building Components

			Greywater and/or rainwater yield (L/person/day)
Total			50.06
Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)
WC flushing	Yes	100%	18.00
			Demand met by yield (L/person/day)
Total			18.00
<i>Other permissible components</i>			
Are there other permissible components present which demand greywater and/or rainwater yield?			No
			Maximum permissible demand (L/day)
			1032
Proportion of maximum permissible demand utilised by other permissible components (%)			Demand met by yield (L/person/day)
Total			0.00
			Greywater and/or rainwater demand met by yield (L/person/day)
Total			18.00

Water consumption calculation results

	Litres/person/day	m ³ /person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	75.65	19.14
Microcomponent water consumption - modelled performance (excludes fixed uses)	24.78	6.27
Modelled water demand met via greywater and rainwater sources	18.00	4.55
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met?	Yes	
Net modelled water consumption (excludes fixed uses)	6.78	1.72
Percentage improvement	91.03%	
Total Wat 01 BREEAM credits achieved	5 credits	
Total Wat 01 BREEAM Innovation credits achieved	1 innovation credit achieved	
Key performance indicator - use of freshwater resource (includes fixed uses)	8.36	2.12

BRE assessment reference no.	
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Building type	Description of building type	Default occupancy	Default annual days/operation	Default daily hours of operation
Industrial - typical business hours of operation	TCP Classification B2 to B8: general and specialist industrial and warehouse and storage units operating 24 hours a day 7 days a week.	12.03672	253	10

Main building acCvity areas	DescripCion of acCvity area	AcCvity area present in building?	Net Floor Area (m ²)
Industrial - process area	Main process based operaCional/manufacturing/workshop area	No	
Industrial - Laboratory area	Large or small category 1 laboratory area.	No	
Industrial - Warehouse storage	Permanently or intermil ently occupied warehouse storage areas.	Yes	589.9
Industrial - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and recepCion areas. Exclude meeCng rooms, visitor waiCng or circulaCion areas.	Yes	57
Industrial - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumpCion on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	No	
Industrial - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	No	

WC component - all acCvity areas	units	SpecificaCon	Usage/person/day	Usage factor	ConsumpCon (l/person/day)
WC - male (no urinals installed)	EffectCve flush volume (Litres)	4.50	4.00	1.00	9.00
WC - female	EffectCve flush volume (Litres)	4.50	4.00	1.00	9.00

Urinal component - all activity areas	units	Specification	No. of cisterns	Flushing frequency (flushes/hour)	Consumption (L/person/day)
	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)

	Units	SpecificaÇon	Usage/person/day	Usage factor	ConsumpÇon (L/person/day)
Taps- components (personal hygiene) - all acÇvity areas					
Wash hand basin taps	Flow rate (litres/min)	6.00	4.00	0.25	4.06
Shower use	Flow rate (litres/min)	0.00	0.030	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchen/e					
Kitchen taps - kitchen/e	Flow rate (litres/min)	6.00	1.00	0.67	2.72
Dishwasher	Litres/cycle	0.00	0.04	1.00	0.00
Tap components (cleaning and food preparaÇon) - staff canteen food preparaÇon area					

	Microcomponent consumption (L/person/day)
Total	26.36

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of PracCce	No
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Greywater source (building components)		Greywater Collected	Proportion of components collected from (%)	Greywater yield (L/person/day)
Greywater source (other components)	Typical greywater yield (litres)	Frequency of yield (days)	Greywater yield (litres/day)	Greywater yield (L/person/day)

Total	Greywater yield (L/person/day)	0.00
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Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS8515:2009 Rainwater Harvesting Systems - Code of practice	Yes
How has the storage capacity for the proposed system been calculated?	BS8515 intermediate approach

Rainwater yield if intermediate:

Collection area (m2)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield coefficient (%)	Annual rainwater yield (Litres)	Rainwater yield (L/person/day)
1021	800	90.00%	80.00%	588096	133.86

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non potable water demand - building components

				Greywater and/or rainwater yield (L/person/day)
Total				133.86
Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)	
WC flushing	Yes	100%	18.00	
				Demand met by yield (L/person/day)
Total				18.00
Other permissible components				
Are there other permissible components present which demand greywater and/or rainwater yield?				No
				Maximum permissible demand (L/day)
				1395
Proportion of maximum permissible demand utilised by other permissible components (%)				Demand met by yield (L/person/day)
Total				0.00
				Greywater and/or rainwater demand met by yield (L/person/day)
Total				18.00

Water consumption calculation results

	Litres/person/day	m ³ /person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	40.60	10.27
Microcomponent Water consumption - modelled performance (excludes fixed uses)	24.78	6.27
Modelled water demand met via greywater and rainwater sources	18.00	4.55
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met	Yes	
Net modelled water consumption (excludes fixed uses)	6.78	1.72
Percentage improvement	83.29%	
Total Wat 01 BREEAM credits achieved	5 credits	
Total Wat 01 BREEAM Innovation credits achieved	1 innovation credit achieved	
Key performance indicator - use of freshwater resource (includes fixed uses)	8.36	2.12