Water Neutrality

ARCHITECTURAL PLANTS, PULBOROUGH

REPORT STATUS: 2.0



Document Control Sheet

Document Control Sheet

Client	Architectural Plants
Development	Stane Street, Pulborough, West Sussex, RH20 1DJ
Report Title	Water Neutrality
Reason for Issue	For Planning Application

Quality Management:

Report No	1932-12-RP-001-02	
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About Sadler Energy and Environmental Services Ltd.

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry from the concept and planning stage through to the completion of the project.

Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for energy efficiency, quality, and practical on-site applications.

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1. Executive Summary

This report sets out a detailed Water Neutrality Assessment for Architectural Plants, Pulborough. The applicant proposes to increase event permissions from 10 to 30 annually, while continuing to operate the existing nursery facilities. The analysis uses the BREEAM Wat 01 Calculator alongside actual event attendee data from 2024 events and projections for 2025 events. Staffing numbers have also been incorporated. This provides a transparent breakdown of water demand by category: nursery visitors, nursery staff, event visitors, and event staff.

The nursery has been confirmed to operate six days per week (Monday–Saturday, 9am–5pm) and on three bank holidays (Easter, May and August). This equates to 315 operational days per year. The water demand calculations have been updated accordingly.

The modelling confirms that even with the tripling of annual events, overall water consumption falls due to the specification of efficient sanitaryware and flow restrictors. The scheme achieves water neutrality, demonstrating compliance with Natural England's requirements for developments within the Sussex North Water Supply Zone.

2. Background

Water Neutrality was coined to indicate the need to reduce the overall water consumption and demand on our natural water resource. The refined definition of water neutrality is "for every new development, the predicted increase in total water demand in the region due to the development should be offset by reducing demand in the existing community" (Environment Agency, 2009).

Reducing the water consumption on a new development is critical to achieving a sustainable design and protecting the natural water features in the area.

Building Regulations Part G has an optional requirement for maximum water usage limit of 110 litres per day on any new builds. Although this is only adopted by developers wishing to meet certain environmental targets.

Natural England provides an interim approach for demonstrating water neutrality which involves:

Reduce Water Use
Minimising water use through a water budget, strict water targets. Where fitted, incorporate: • Low water usage toilets • Low flow taps with flow restrictors • Smaller sized baths • Reduced flow showers
Rainwater
Incorporate rainwater harvesting i.e. rainwater butts Rainwater harvesting (RwH) is the capture of water falling on buildings, roads or pathways that would normally be drained via a surface water sewer, infiltrate into the ground or evaporate. In the UK, this water cannot currently be used as a drinking water supply as there are strict guidelines on potable water, but it can be used in other systems within domestic or commercial premises.
Recycle
Incorporate grey water recycling Greywater refers to water that has been "used" in the home in appliances such as washing machines, showers and hand basins. Greywater recycling (GwR) is the treatment and re-use of this water in other systems such as for toilet flushing. By their nature, GwR systems require more treatment and are more complex than RwH systems, and there are limited examples of their use in the UK.

Water Offsetting
Development that cannot prove water neutrality should await completion of the Strategic Water Strategy which is anticipated to include mitigation measures.

Achieving total neutrality is almost impossible, there will always be a demand on the water supply from a new development. This has been considered by the final point on the list, which is the most difficult to comply with. Like the way that nutrient neutrality is approached, the applicant can apply for credits to offset the water demand from the development.

The Environment Agency study on water neutrality in the Thames Gateway (2007), indicated that it was technically feasible to achieve a state of water neutrality by offsetting a new development's demands for water in existing households, public buildings, and business properties.

To achieve a neutral water demand for their development, the developer must investigate ways of offering water consumption reduction in existing buildings in the borough. For example, this could be through retrofitting of low water usage sanitaryware into existing schools or care homes

3. Introduction

The application site at Stane Street, Pulborough, seeks consent to increase from 10 to 30 weddings/events per year. The nursery continues to operate for retail and café use. The site lies within the Sussex North Water Supply Zone, where Natural England requires planning applications to demonstrate no net increase in water demand.

Historic water bills cannot be used to evidence baseline demand, as they include irrigation of plant stock, unrelated to the planning scope. Instead, this report isolates the operational uses relevant to the nursery and events.

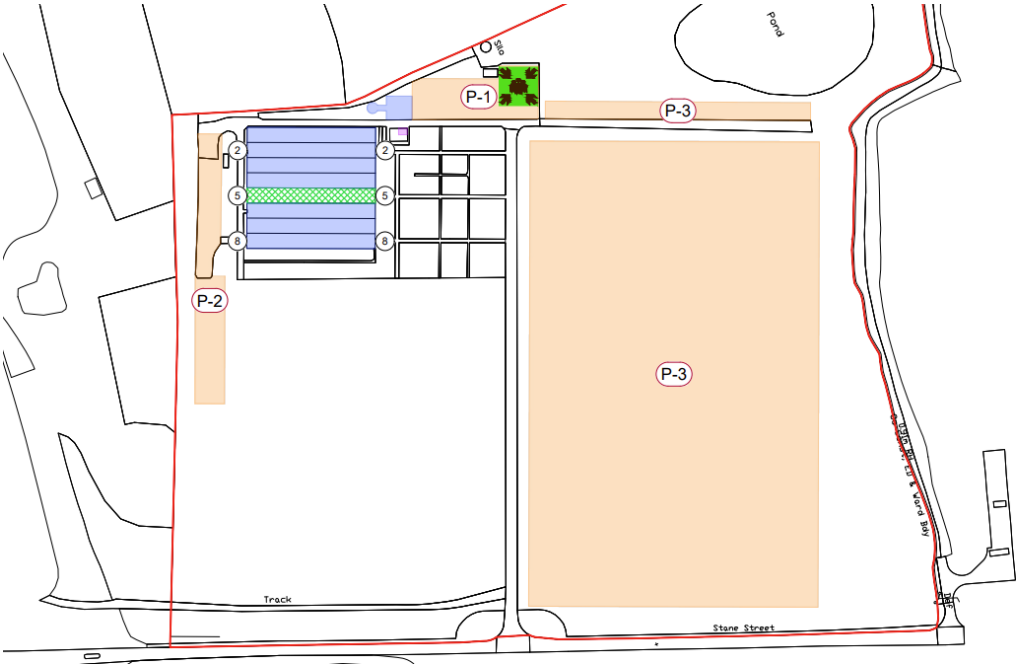

Image 1: Site Plan



Image 2: Events Image

4. Methodology

Two 'Events' datasets have been used:

- **2024 events**: Actual data from 10 events held, totalling 922 attendees.
- **2025 events**: Projected future events (up to 30 annually) based on the same modelling assumptions.

Event staffing is included at 8 staff per event, totalling 80 staff-days for 10 events in 2024 and proportionally adjusted for 2025. Demand is modelled using BREEAM Wat 01 with the proposed sanitaryware specification.

Nursery (Shop/Café): Nursery (Shop/Café): Calculations are based on staff and visitor assumptions consistent with BREEAM Wat 01, applied over 315 operational days per year. Approximate daily visitor and staff numbers are embedded in the calculator. The proposed specification of fittings, including:

- Wash hand basin taps restricted to 3 l/min
- Showers restricted to 8 l/min
- Toilets: ECO 4.5L flush
- Dishwasher: ≤ 7 L per rack
- Kitchen tap: 10 l/min

These values have been embedded in the BREEAM Wat 01 tool to model proposed demand.

4.1 Occupancy Breakdown

Events (2024 Actuals)

Category	Total (10 events)	Average per event
Event Visitors	842	84.2
Event Staff	80	8
TOTAL	**922**	-

Events (2025 Projection – 30 permitted)

Category	Total (30 events)	Average per event
Event Visitors	2,274	75.8
Event Staff	208	8
TOTAL	**2,482**	-

Nursery

Category	Existing (315 days)	Proposed (305 days)
Nursery Visitors	11,340	10,980
Nursery Staff	1,575	1,525

Note: Full staff and attendees' numbers are in Appendix E.

5. Water Consumption Analysis

5.1 Existing (Baseline)

Existing	Water Consumption l/p/p/d	Staff l/d	Visitors l/d	Active Days in a year	Annual Consumption l/yr.
10 Permitted Events	5.77	46.16	485.83	10	5319.94
Nursery	5.89	29.45	212.04	305	73,654.45
Total Annual Consumption	-			315	**78,974.39**







5.2 Proposed (With Efficiency Upgrades)

Existing	Water Consumption l/p/d	Staff l/d	Visitors l/d	Active Days in a year	Annual Consumption l/yr.
30 Events	4.13	33.04	347.75	30	11,423.58
Nursery	4.2	21	151.2	285	48,560.40
Total Annual Consumption	-			315	**59,983.98**

The developer proposed the following specification:

- Wash hand basin taps restricted to 3 l/m
- Shower use restricted to 8 l/m
- Toilets are proposed to be an ECO 4.5l flush toilet
- Dishwasher is proposed to be a maximum of 7 l/rack.
- Kitchen tap proposed 10 l/m.

5.3 Comparative Analysis

- Existing Demand: 78,974.39 l/p/yr
- Proposed Demand: 59,983.98 l/p/yr
- Net Saving: 18,990.41 l/p/yr

Despite the increase from 10 to 30 events per year, the use of efficient fittings and careful management results in a net reduction in annual water demand compared to the existing consented scheme.

6. Addressing Planning Concerns

In 2024, the site operated with permission for 10 events, and this assessment proposes to extend this to 30 events annually. The occupancy figures for both scenarios have been provided directly by the developer, including staff numbers for the nursery (5 typically), staff numbers for events (8 per event), and projected visitor numbers. This ensures that the calculations reflect realistic operational conditions rather than relying on assumptions alone.

- Occupancy and Attendees: The baseline of 10 events in 2024 has been modelled against the proposed 30 events, with all visitor and staff numbers explicitly incorporated. This allows a clear comparison of existing and proposed scenarios.
- Nursery and Events: The nursery has been assessed separately from the events, using the staff and visitor figures provided, to make the scope of the planning application transparent.
- Baseline vs Proposed: Detailed tables are provided in Section 5 to demonstrate the existing and proposed demand by category, showing how sanitaryware efficiencies offset the increased number of events.
- Evidence Base: The calculations rely on the BREEAM Wat 01 methodology, which provides a recognised, industry-standard framework for water use modelling. Water bills have not been used as they capture irrigation demand, which is not relevant to this assessment.

6.1 Compliance with Planning Requirements

This assessment demonstrates:

- Compliance with Natural England's position statement on water neutrality.
- A net reduction in demand even with expanded operations.
- Robust modelling of both staff and visitor water usage.
- Assurance that the development will not increase pressure on the Sussex North Water Supply Zone

7. Conclusion

This finalised assessment confirms that the proposed increase from 10 to 30 events annually, combined with ongoing nursery operations, results in a substantial reduction in water demand compared to the existing baseline. The calculations demonstrate a saving of 18,990.41 litres per person per year, achieved through the installation of efficient sanitaryware and careful management of water use.

The report has been revised from earlier versions to incorporate the actual numbers of staff and visitors provided by the developer for both the nursery and the events. This ensures that the modelling reflects real operational conditions rather than default assumptions. Event staffing has been corrected to 8 per event, and nursery staffing has been clarified at 5, with visitor numbers explicitly set out. These adjustments provide a more accurate, transparent, and defensible assessment of water demand.

The outcome demonstrates that, despite a tripling of permitted events, overall water use decreases. This confirms compliance with Natural England's water neutrality requirements and provides assurance that the development will not place additional pressure on the Sussex North Water Supply Zone or adversely affect the Arun Valley SAC, SPA, or Ramsar sites.

APPENDIX A – 10 Annual Permitted Events

BREEAM 2014 Wat 01 Water consumption: Water efficiency calculator for new non domestic retail buildings

BREEAM UK

Building details

Building name	Architectual Plants
BRE assessment reference no.	

Building type	Description of building type	Default annual days/operation	Default daily hours of operation
Retail - Shopping centre/complex	TCP Classification A1 - A2: mixture of shops, professional services.	362	9
	Does the retail development contain sanitary facilities for use by visiting customers?		Yes
		Default daily occupancy visiting customers	5926
		Default daily occupancy staff	3

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
Retail - sales areas for display of bulky items	A retail sales/display area trading predominantly in bulky items, e.g. furniture, floor coverings, cycles, prams, large domestic appliances or other bulky goods, or trading on a wholesale self-selection basis.	No	
Retail - sales areas for display of non bulky items and/or customer service area.	A general sales/display areas in department stores, supermarkets, shops and/or customer service waiting and/or collection areas e.g. in banks, post office, bookmakers etc.	Yes	15.9
Retail - concourse/shopping mall	The central (shared) area within a shopping centre used for access by shoppers (typically a covered area containing one or more of benches, cafes, escalators etc.)	Yes	4103.97
Retail - Staff office area and staffroom	Staff office space and staffroom, often located in 'back of house' areas.	No	
Retail - Staff canteen dining area	Seated areas in a staff canteen that accompany a food preparation areas where food and drink is consumed by staff on the premises.	Yes	50
Retail - Goods-in and storage area	Internal areas for receiving and storing goods.	No	
Retail - Workshop	A workshop / vehicle servicing area within a car showroom or general workshop in other type of retail development.	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	0.80	1.00	1.68
WC - female	Effective flush volume (litres)	6.00	0.80	1.00	3.13

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		Usage/person/day	Usage factor	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	0.80	0.25	0.81
Shower use	Flow rate (litres/min)	11.00	0.000	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	0.00
Tap components (cleaning) - staff kitchenette					
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	12.00	-	60.00	0.12
Dishwasher	Litres/rack	10.00	-	0.248	0.02
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.02
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.05

	Microcomponent Consumption (L/person/day)
Total	5.84

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	No

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)

	Greywater yield (L/person/day)
Total	

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	No
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)	6.65	2.41
Microcomponent water consumption - modelled performance (excludes fixed uses)	5.77	2.09
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)	5.77	2.09

APPENDIX B – Existing Nursery

BREEAM 2014 Wat 01 Water consumption: Water efficiency calculator for new non domestic retail buildings BREEAM UK

Building details

Building name	Architectual Plants
BRE assessment reference no.	

Building type	Description of building type	Default annual days/operation	Default daily hours of operation
Retail - Shop / retail unit(s) / retail warehouse	TCP Classification A1 Shops: shop/retail unit(s)/retail warehouse(s).	362	8.5
	Does the retail development contain sanitary facilities for use by visiting customers?		Yes
		Default daily occupancy visiting customers	5609
		Default daily occupancy staff	12

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
Retail - sales areas for display of bulky items	A retail sales/display area trading predominantly in bulky items, e.g. furniture, floor coverings, cycles, prams, large domestic appliances or other bulky goods, or trading on a wholesale self-selection basis.	No	
Retail - sales areas for display of non bulky items and/or customer service area.	A general sales/display areas in department stores, supermarkets, shops and/or customer service waiting and/or collection areas e.g. in banks, post office, bookmakers etc.	Yes	15.9
Retail - concourse/shopping mall	The central (shared) area within a shopping centre used for access by shoppers (typically a covered area containing one or more of benches, cafes, escalators etc.)	Yes	3884.73
Retail - Staff office area and staffroom	Staff office space and staffroom, often located in 'back of house' areas.	No	
Retail - Staff canteen dining area	Seated areas in a staff canteen that accompany a food preparation areas where food and drink is consumed by staff on the premises.	Yes	219.24
Retail - Goods-in and storage area	Internal areas for receiving and storing goods.	No	
Retail - Workshop	A workshop / vehicle servicing area within a car showroom or general workshop in other type of retail development.	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	0.81	1.00	1.70
WC - female	Effective flush volume (Litres)	6.00	0.81	1.00	3.14

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		Usage/person/day	Usage factor	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	0.81	0.25	0.82
Shower use	Flow rate (litres/min)	11.00	0.000	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	0.00
Tap components (cleaning) - staff kitchenette					
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	12.00	-	60.00	0.13
Dishwasher	Litres/rack	10.00	-	0.248	0.10
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.10
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.24

	Microcomponent Consumption (L/person/day)
Total	6.24

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	No

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)

	Greywater yield (L/person/day)
Total	

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	No
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)	6.76	2.45
Microcomponent water consumption - modelled performance (excludes fixed uses)	5.89	2.13
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)	5.89	2.13

APPENDIX C – 30 Annual Permitted Events (Proposed)

BREEAM 2014 Wat 01 Water consumption: Water efficiency calculator for new non domestic retail buildings

BREEAM UK

Building details

Building name	Architectual Plants
BRE assessment reference no.	

Building type	Description of building type	Default annual days/operation	Default daily hours of operation
Retail - Shopping centre/complex	TCP Classification A1 - A2: mixture of shops, professional services.	362	9
	Does the retail development contain sanitary facilities for use by visiting customers?		Yes
		Default daily occupancy visiting customers	5926
		Default daily occupancy staff	3

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
Retail - sales areas for display of bulky items	A retail sale/display area trading predominantly in bulky items, e.g. furniture, floor coverings, cycles, prams, large domestic appliances or other bulky goods, or trading on a wholesale self-selection basis.	No	
Retail - sales areas for display of non bulky items and/or customer service area.	A general sales/display areas in department stores, supermarkets, shops and/or customer service waiting and/or collection areas e.g. in banks, post office, bookmakers etc.	Yes	15.9
Retail - concourse/shopping mall	The central (shared) area within a shopping centre used for access by shoppers (typically a covered area containing one or more of benches, cafes, escalators etc.)	Yes	4103.97
Retail - Staff office area and staffroom	Staff office space and staffroom; often located in 'back of house' areas.	No	
Retail - Staff canteen dining area	Seated areas in a staff canteen that accompany a food preparation areas where food and drink is consumed by staff on the premises.	Yes	50
Retail - Goods-in and storage area	Internal areas for receiving and storing goods.	No	
Retail - Workshop	A workshop / vehicle servicing area within a car showroom or general workshop in other type of retail development.	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	0.80	1.00	1.26
WC - female	Effective flush volume (Litres)	4.50	0.80	1.00	2.35

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	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)	3.00	0.80	0.25	0.41
Shower use	Flow rate (litres/min)	8.00	0.000	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	0.00
Tap components (cleaning) - staff kitchenette					
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	10.00	-	60.00	0.10
Dishwasher	Litres/rack	7.00	-	0.248	0.01
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.02
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.05

	Microcomponent Consumption (L/person/day)
Total	4.21

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	No

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)

	Greywater yield (L/person/day)
Total	

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	No
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)	6.65	2.41
Microcomponent water consumption - modelled performance (excludes fixed uses)	4.13	1.50
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)	4.13	1.50

APPENDIX D – Proposed Nursery (With Flow Restrictors)

BREEAM 2014 Wat 01 Water consumption: Water efficiency calculator for new non domestic retail buildings BREEAM UK

Building details

Building name	Architectual Plants
BRE assessment reference no.	

Building type	Description of building type	Default annual days/operation	Default daily hours of operation
Retail - Shop / retail unit(s) / retail warehouse	TCP Classification A1 Shops: shop/retail unit(s)/retail warehouse(s).	362	8.5
	Does the retail development contain sanitary facilities for use by visiting customers?		Yes
		Default daily occupancy visiting customers	5609
		Default daily occupancy staff	12

Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
Retail - sales areas for display of bulky items	A retail sale/display area trading predominantly in bulky items, e.g. furniture, floor coverings, cycles, prams, large domestic appliances or other bulky goods, or trading on a wholesale self-selection basis.	No	
Retail - sales areas for display of non bulky items and/or customer service area.	A general sales/display areas in department stores, supermarkets, shops and/or customer service waiting and/or collection areas e.g. in banks, post office, bookmakers etc.	Yes	15.9
Retail - concourse/shopping mall	The central (shared) area within a shopping centre used for access by shoppers (typically a covered area containing one or more of benches, cafes, escalators etc.)	Yes	3884.73
Retail - Staff office area and staffroom	Staff office space and staffroom; often located in 'back of house' areas.	No	
Retail - Staff canteen dining area	Seated areas in a staff canteen that accompany a food preparation areas where food and drink is consumed by staff on the premises.	Yes	219.24
Retail - Goods-in and storage area	Internal areas for receiving and storing goods.	No	
Retail - Workshop	A workshop / vehicle servicing area within a car showroom or general workshop in other type of retail development.	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	0.81	1.00	1.27
WC - female	Effective flush volume (Litres)	4.50	0.81	1.00	2.36

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		Usage/person/day	Usage factor	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)	3.00	0.81	0.25	0.41
Shower use	Flow rate (litres/min)	8.00	0.000	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	0.00
Tap components (cleaning) - staff kitchenette					
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	10.00	-	60.00	0.11
Dishwasher	Litres/rack	7.00	-	0.248	0.07
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.10
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.24

	Microcomponent Consumption (L/person/day)
Total	4.57

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	No

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)

	Greywater yield (L/person/day)
Total	

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	No
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)	6.76	2.45
Microcomponent water consumption - modelled performance (excludes fixed uses)	4.22	1.53
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)	4.22	1.53

APPENDIX E – Events Attendee 2024 vs Future years based on 30 events

2024

Event:	Event visitor	Nursery staff numbers	Nursery visitors	Event staff numbers
Wedding 1	60	5	36	8
Wedding 2	90	5	36	8
Wedding 3	130	5	36	8
Wedding 4	50	5	36	8
Wedding 5	110	5	36	8
Wedding 6	150	5	36	8
General Event 1	40	5	36	8
General Event 2	50	5	36	8
General Event 3	150	5	36	8
General Event 4	12	5	36	8
Total attendees:	**842**	**50**	**360**	**80**

2025

Event:	Event visitor	Nursery staff numbers	Nursery visitors	Event staff numbers
Wedding 1	120	5	36	8
Wedding 2	60	5	36	8
Wedding 3	60	5	36	8
Wedding 4	60	5	36	8
Wedding 5	60	5	36	8
Wedding 6	90	5	36	8
Wedding 7	90	5	36	8
Wedding 8	90	5	36	8
Wedding 9	90	5	36	8
Wedding 10	90	5	36	8
Wedding 11	90	5	36	8
Wedding 12	150	5	36	8
Wedding 13	150	5	36	8
Wedding 14	150	5	36	8
Wedding 15	150	5	36	8
Wedding 16	150	5	36	8
Wedding 17	150	5	36	8
Wedding 18	60	5	36	8
Wedding 19	60	5	36	8
Wedding 20	60	5	36	8
General Event 1	250	5	36	8
General Event 2	12	5	36	8
General Event 3	12	5	36	8
General Event 4	40	5	36	8
General Event 5	25	5	36	8
General Event 6	25	5	36	8
General Event 7	50	5	36	8
General Event 8				

General Event 9				
General Event 10				
Total attendees:	**2274**	**130**	**936**	**208**



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