
BREEAM 2011 New Construction

Non-Domestic Buildings

Pre-assessment Analysis

Village Bakery, Wrexham Industrial Estate.

December 13

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Introduction

Ashmount Consulting Engineers Ltd have been appointed as registered BREEAM assessors to undertake a BREEAM assessment, including an outline pre assessment of the likely score for the new offices for Village Bakery at Wrexham Industrial Estate.

The BREEAM Pre-Assessment analysis is the initial stage of the BREEAM assessment and is based on the proposed development drawings and design details currently available. Following planning approval the required Design and Post Construction assessments will be completed.

Under BREEAM 2011 everything that the development integrates in its design achieves **Credits** under the 8 Categories. These can be listed as:

1. Management (Man)
2. Health & Wellbeing (Hea)
3. Energy (Ene)
4. Transport (Tra)
5. Water (Wat)
6. Materials (Mat)
7. Waste (Was)
8. Land Use & Ecology (LE)
9. Pollution (Pol)
10. Innovation (Inn)

Each category has a different weighting for its credits. Therefore gaining or losing a credit in a category can mean more or less than 1 overall percentage point.

This report works on **percentage points** and fractions of percentage points, rather than whole credits. This helps to clarify the true category value with respect to the overall BREEAM assessment.

The Report indicates the score that is available for each category and the score that is indicated to be gained.

The scores required to meet the various levels of the BREEAM domestic refurbishment assessment are as follows:

- **Pass – 30% Points**
- **Good – 45% Points**
- **Very Good – 55% Points**
- **Excellent – 70% Points**
- **Outstanding - 85% Points**

To meet BREEAM '**Excellent**' level the building must score at least 70%. With the assumptions made so far, the building can achieve **71.17%**. Aiming for this score will mean that the project has a little flexibility as it progresses through the design stage. However, we can make amendments to the credit selection further along in the process as required.

Minimum Requirements for BREEAM Very Good

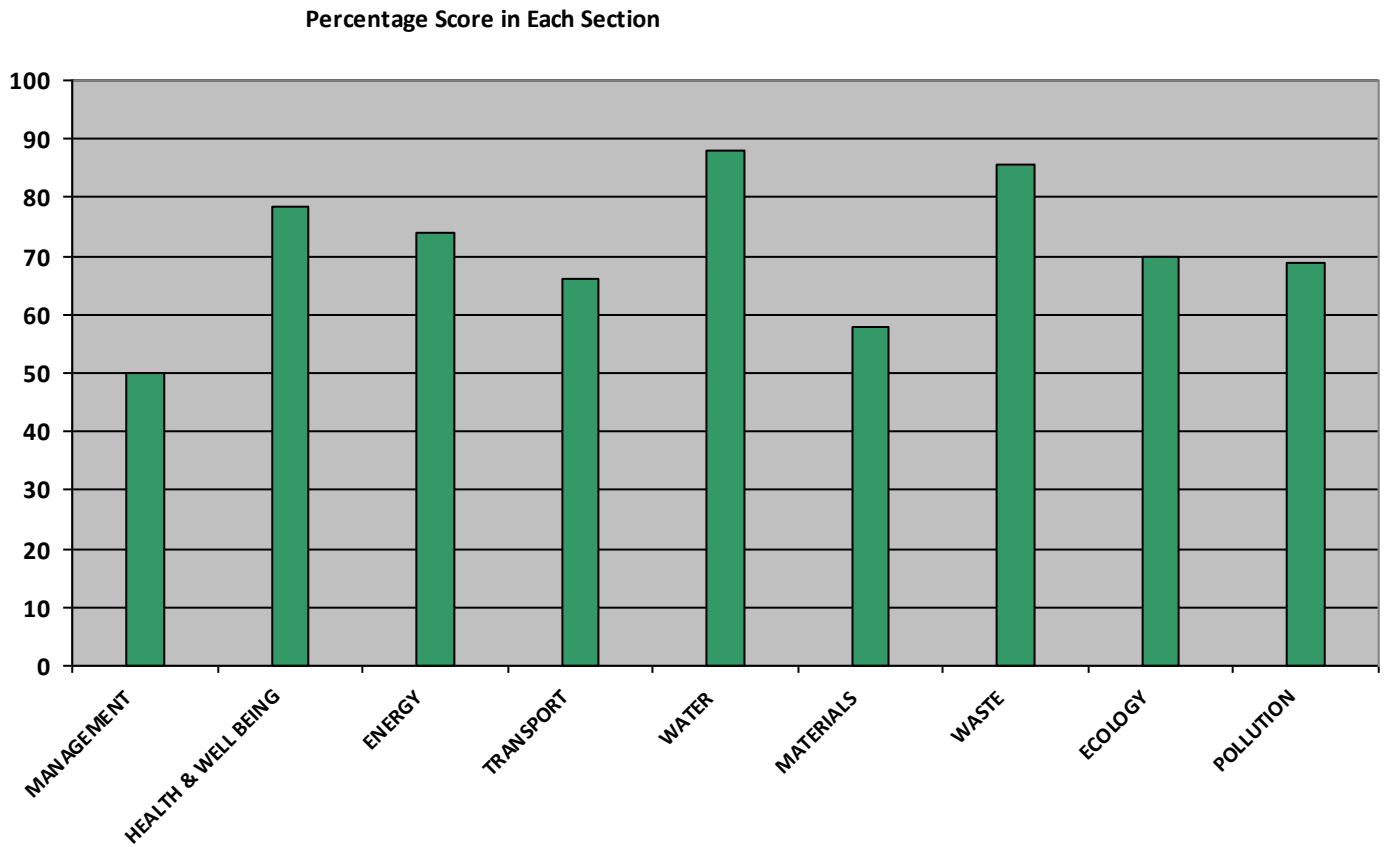
In addition to achieving the 70% overall score, there are minimum standards that must be met in order to achieve the BREEAM 'Excellent' score:

- **Man 01** Sustainable Procurement – **1 credit**
- **Man 02** Responsible Construction – **1 credit**
- **Man 04** stakeholder participation – **1 credit (Building User Info)**
- **Hea 01** Visual Comfort – **Criterion 1 only.**
- **Hea 04** Water Quality – **Criterion 1 only.**
- **Ene 01** Reduction of CO2 – **6 credits**
- **Ene 02** Energy Monitoring – **1 credit**
- **Ene 04** LZC Technologies – **1 credit**
- **Wat 01** Water Consumption – **1 credit**
- **Wat 02** Water Monitoring – **Criterion 1 only.**
- **Mat 03** Responsible Sourcing – **Criterion 3 only.**
- **Wst 03** Operational Waste – **1 credit**
- **LE 03** Mitigating Ecological Impact– **1 credit**

Development Summary

The current Pre-assessment shows a score of 70.17% overall (Excellent).

The percentage score in each section is illustrated below.



Credit Assessment

1 - Management (Man)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Man 01 Sustainable Procurement	Two credits assumed for compliant commissioning of building services in accordance with BREEAM Criteria. One credit assumed for recording energy & water consumption after completion for a 12 month period. 3 Credits assumed. One innovation credit assumed for recording energy & water consumption 3 years after completion.	8 Credits (4.44%)	3 Credits (1.64%)
Man 02 Responsible Construction Practices	Assuming a score between 32 and 35.5 under the Considerate Constructors Scheme. 2 Credits assumed. An Additional Innovation credit is available for a score of 36 or more.	2 Credits (1.09%)	2 Credits (1.09%)
Man03 Construction Site Impacts	Assuming Energy and Water consumption will be monitored from site activities in accordance with the BREEAM criteria. The principal contractor must operate a compliant Environmental Management System and adopt best practice pollution prevention policies & procedures. Timber must be sourced in accordance with the Government's Timber Procurement Policy. 4 Credits assumed. One additional credit is available where the transport of construction materials and waste to/from site be measured/monitored	5 Credits (2.73%)	4 Credits (2.18%)
Man04 Stakeholder Participation	Assuming credits for Inclusive & Accessible design & Building User Information. A design & access statement & a building user guide needs to be produced in accordance with the BREEAM criteria. 2 Credits assumed. Further credits available where robust consultation has taken place in accordance with BREEAM Criteria and a post occupancy evaluation assessment is undertaken and the information disseminated.	4 Credits (2.18%)	2 Credits (1.09%)

Man 05 Life cycle cost and service life planning	A feasibility stage Life Cycle Cost (LCC) analysis must be commissioned and completed – 1 Credit. A strategic and system level LCC must be commissioned and completed. – 1 Credit. A technical design LCC must be commissioned and completed. – 1 credit. Credits not sought.	3 Credits (1.64%)	0 Credits (0%)
Total Points in this section:		22 Credits (12%)	11 Credits (6%)

2 - Health & Wellbeing (Hea)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Hea 01 Visual Comfort	- All fluorescent lamps must be fitted with high frequency ballasts. - All relevant building areas to be designed to achieve the appropriate daylight factors. - Adequate glare control and view out for building users should be provided. - Internal/external lighting must be specified in accordance with the relevant CIBSE Guides/British Standards. 3 Credits assumed.	3 Credits (3.21%)	3 Credits (3.21%)
Hea 02 Indoor Air Quality	An air quality plan must be produced and the building designed to minimise sources of internal air pollution. 1 credit assumed.	4 Credits (4.28%)	1 Credit (1.07%)
Hea 03 Thermal Comfort	Thermal modelling of the design must be carried out to inform the development of a thermal zoning and control strategy. 2 Credits assumed.	2 Credits (2.14%)	2 Credits (2.14%)
Hea 04 Water Quality	All water systems must be designed to comply with the relevant HSE Approved Code of Practice and Guidance. A wholesome supply of accessible, clean and fresh drinking water must be supplied for building users. Credit assumed.	1 Credit (1.07%)	1 Credit (1.07%)
Hea 05 Acoustic Performance	A suitably qualified acoustician be appointed to provide appropriate design advice. Performance standards as outlined in the BREEAM Technical manual are met. Pre completion testing must be carried out and remedial works if required to achieve the required levels. 2 Credits assumed.	2 Credits (2.14%)	2 Credits (2.14%)

Hea 06 Safety and Security	The project team have accounted for security considerations in the new building design and site layout through consultation with a suitably qualified security consultant. Consultation with the suitably qualified security consultant occurred during or prior to the concept design stage (RIBA stage C) or equivalent. The final design embodies the recommendations/solutions of the suitably qualified security consultant and is built to conform to either : a. The principles and guidance of Secured by Design (SbD)60 and/or Safer Parking (SP) Scheme61. Or where SbD/SP is of less relevance to the building type/operation: b. A site specific security risk and threat assessment and subsequent security strategy and recommendations for security measures (as developed/recommended by the suitably qualified security consultant). The external layout is designed for pedestrian and cyclist safety in accordance with BREEAM criteria. 2 Credits assumed.	2 Credits (2.14%)	2 Credits (2.14%)
Total Points in this section:		14 Credits (15%)	11 Credits (11.79%)

3 - Energy (Ene)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Ene01 Reduction of CO2 Emissions	Requires a performance improvement progressively better than the Target Emission Rate (TER) required for Building Regulations approval. This will be calculated as part of the L2A compliancy. 10 credits assumed.	15 Credits (10.5%)	10 Credits (7%)
Ene 02 Energy Monitoring	1 Credit where the following major energy consuming systems (where present) are monitored using either a Building Energy Management System (BEMS) or separate accessible energy sub-meters with a pulsed output to enable future connection to a BEMS: a. Space Heating b. Domestic Hot Water c. Humidification d. Cooling e. Fans (major) f. Lighting g. Small Power (lighting and small power can be on the same sub-meter where supplies are taken at each floor/department). h. Other major energy-consuming items where appropriate (see Compliance notes). The end energy consuming use must be identifiable to the building user through labelling or data outputs. Credit assumed (Mandatory) An accessible BEMS or accessible sub-meters are provided covering the energy supply to all tenanted, or in the case of single occupancy buildings, relevant function areas or departments within the building/unit. Credit assumed.	2 Credits (1.41%)	2 Credits (1.41%)
Ene 03 External Lighting	All external light fittings and controls must be specified in accordance with the BREEAM criteria. Credit assumed.	1 Credit (0.7%)	1 Credit (0.7%)

Ene 04 Low and Zero Carbon Technology	Assuming a Compliant LZC feasibility study will be undertaken covering only operational stage carbon savings/emissions and a percentage net reduction in operational stage CO2 emissions of 20%. 3 out of 4 Credits assumed. The building utilises any of the free cooling strategies identified in the BREEAM guidance or is naturally ventilated. Credit not assumed.	5 Credits (3.5%)	3 Credits (2.1%)
Ene 05 EE Cold storage	CREDIT NOT APPLICABLE TO DEVELOPMENT		
Ene 06 EE Transportation Systems	A transportation system analysis must be carried out to determine the optimum number and size of lifts and the three energy-efficient features offering the greatest potential energy savings must be part of the system. Both credits assumed.	2 Credits (1.41%)	2 Credits (1.41%)
Ene 07 EE Laboratory Systems	CREDIT NOT APPLICABLE TO DEVELOPMENT		
Ene 08 EE Equipment	The significant majority contributor(s) to 'unregulated' energy use in the building, such as small power, will comply with the BREEAM criteria. Both credits assumed.	2 Credits (1.41%)	2 Credits (1.41%)
Ene 09 Drying Space	CREDIT NOT APPLICABLE TO DEVELOPMENT		
Total Points in this section:		27 Credits (19%)	20 Credits (14.07%)

4 - Transport (Tra)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Tra 01 Public Transport Accessibility	The public transport Accessibility Index (AI) for the unit is calculated and BREEAM credits awarded accordingly. 1 credit assumed.	3 Credits (2.67%)	1 Credit (0.89%)
Tra 02 Proximity to Amenities	Building must have a shop, post box and cash machine with 500m. 0 Credits assumed.	1 Credit (0.89%)	0 Credit (0%)
Tra 03 Cyclist facilities	Provide compliant cycle storage. Credit assumed. Provide compliant changing, shower & locker facilities. Credit assumed.	2 Credits (1.78%)	2 Credits (1.78%)
Tra 04 Maximum Car Parking Capacity	The building's car parking capacity is compared to the maximum car parking capacity permitted, according to the benchmarks in the BREEAM Guidance. 2 credits assumed.	2 Credits (1.78%)	2 Credits (1.78%)
Tra 05 Travel Plan	A travel plan has been developed as part of the feasibility and design stages which considers all types of travel relevant to the building type and users. The travel plan must be structured to meet the needs of the particular site and takes into consideration the findings of a site-specific transport survey and assessment that covers the minimum criteria in the BREEAM guidance. Credit assumed.	1 Credit (0.89%)	1 Credit (0.89%)
Total Points in this section:		9 Credits (8%)	6 Credits (5.33%)

5 - Water (Wat)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Wat 01 Water Consumption	An assessment of the efficiency of the building's domestic water consuming components is undertaken using the BREEAM Wat 01 calculator & the water consumption (litres/person/day) for the assessed building is compared against a notional baseline performance. 4 credits assumed.	5 Credits (3.75%)	4 Credits (2.67%)
Wat 02 Water Monitoring	- There must be a water meter on the mains water supply to the unit. - Every meter (main & subs) must have a pulsed output. - If the site/building has an existing BMS connection, all pulsed meters must be connected. Credit assumed.	1 Credit (0.67%)	1 Credit (0.67%)
Wat 03 Water Leak Detection and Prevention	A mains water leak detection system must be installed on the building's mains water supply and flow control devices must be installed in each sanitary area/facility. 2 credits assumed.	2 Credits (1.33%)	2 Credits (1.33%)
Wat 04 Water Efficient Equipment	If required water, efficient irrigation methods must be installed. Credit assumed.	1 Credit (0.67%)	1 Credit (0.67%)
Total Points in this section:		9 Credits (6%)	8 Credits (5.33%)

6 - Materials (Mat)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Mat 01 Life Cycle Impacts	Credits are awarded on the basis of the building's quantified environmental life cycle impact through the assessment of the main building elements and calculated using the BREEAM Mat 01 calculator. This point's score is based on the BRE Green Guide rating(s). 3 Credits assumed.	5 Credits (5.2%)	3 Credits (3.13%)
Mat 02 Hard Landscaping and Boundary Protection	Where at least 80% of all external hard landscaping and boundary protection achieves an A or A+ rating, as defined in the Green Guide to Specification. Credit assumed.	1 Credit (1.04%)	1 Credit (1.04%)
Mat 03 Responsible Sourcing	Confirmation that all timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy. (Only Mandatory element assumed) Further credits available for ensuring materials are responsibly sourced and providing evidence form manufacturers.	3 Credits (3.13%)	0 Credit (0%)
Mat 04 Insulation	First Credit - The Green Guide rating for the thermal insulation materials must be determined. The Insulation Index is then calculated using the BREEAM Mat 04 calculator which requires, Area of insulation (m ²), thickness(m) & Thermal Conductivity (W/ m.K). Second Credit – Insulation must be responsibly sourced. Both Credits assumed.	2 Credits (2.08%)	2 Credits (2.08%)
Mat 05 Designing for Robustness	Vulnerable areas of the building need to be identified (both internal and external) and the design must incorporate suitable durability and protection measures in accordance with the BREEAM Criteria. Credit assumed.	1 Credit (1.04%)	1 Credit (1.04%)
Total Points in this section:		12 Credits (12.5%)	7Credits (7.29%)

7 - Waste (Wst)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Wst 01 Construction Waste Management	There is a compliant Site Waste Management Plan (SWMP) & Non-hazardous construction waste (excluding demolition and excavation waste) generated by the building's design and construction meets or exceeds the following resource efficiency benchmarks: 1 credit – 13.3m³ or 11.1 tonne per 100m² 2 credits – 7.5m³ or 6.5 tonne per 100m² 3 credits - 3.4m³ or 3.2 tonne per 100m² - Exemplary level – 1.6m³ or 1.9 tonne per 100m² An additional credit can be awarded where the following percentages of non-hazardous construction waste has been diverted from landfill: 1 credit – 70% volume/80% tonnage - Exemplary level – 85% volume/90% tonnage 4 Credits assumed.	4 Credits (4.28%)	4 Credits (4.28%)
Wst 02 Recycled Aggregates	The total amount of recycled and/or secondary aggregate specified is greater than 25% (by weight or volume) of the total high-grade aggregate specified for the development. To contribute to the total amount, the percentage of high-grade aggregate specified per application (where present) that is recycled and/or secondary aggregate, must meet minimum levels in the BREEAM Criteria. Credit not assumed.	1 Credit (1.07%)	0 Credits (0%)
Wst 03 Operational Waste	There must be dedicated space(s) to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities which is compliant with the BREEAM criteria. Credit assumed.	1 Credit (1.07%) (Mandatory)	1 Credit (1.07%) (Mandatory)
Wst 04 Speculative Floor and Ceiling Finishes	Floor & Ceiling finishes must be determined with the occupant. Credit assumed.	1 Credit (1.07%)	1 Credit (1.07%)
Total Points in this section:		7 Credits (7.5%)	6 Credits (6.43%)

8 - Land Use & Ecology (LE)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
LE 01 Site Selection	75% of the proposed development's footprint is on an area of land which has previously been developed by industrial, commercial or domestic purposes in the last 50 years. Credit assumed.	2 Credits (2%)	1 Credit (1%)
LE 02 Ecological Value of Site and Protection of Ecological Features	Land within the construction zone is defined as 'land of low ecological value' & all existing features of ecological value surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities. In all cases, the principal contractor is required to construct ecological protection prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities). Credit assumed.	1 Credit (1%)	1 Credit (1%)
LE 03 Mitigating Ecological Impact	Where the change in ecological value of the site is equal to or greater than zero i.e. no negative change. Both credits assumed.	2 Credits (2%)	2 Credits (2%)
LE 04 Enhancing Site Ecology	A suitably qualified ecologist must be appointed to report on enhancing and protecting site ecology and the general recommendations implemented. Credits will be achieved if there is an increase in plant species. 3 credits assumed.	3 Credits (3%)	3 Credits (3%)
LE 05 Long Term Impact on Biodiversity	A landscape and habitat management plan must be produced. A Biodiversity Champion must be appointed to monitor/minimise impacts of site activities on biodiversity. Training must be provided on how to protect ecology during the project and record actions to protect biodiversity and monitor their effectiveness during construction. A new ecologically valuable habitat, appropriate to the local area must be created and where flora/fauna habitats exist on site, the contractor must programme site works to minimise disturbance. 0 Credits assumed.	2 Credits (2%)	0 Credits (0%)
Total Points in this section:		10 Credits (10%)	7 Credits (7%)

9 - Pollution (Pol)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Pol 01 Impact of Refrigerants	Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10 . 2 Credits assumed.	3 Credits (2.31%)	2 Credits (1.54%)
Pol 02 NOx Emissions	Where the plant installed to meet the building's delivered heating and cooling demand has, under normal operating conditions, a dry NOx emission level of either 100 mg/kWh, 70 mg/kWh or 40 mg/kWh. 0 Credits assumed.	3 Credits (2.31%)	0 Credits (0%)
Pol 03 Surface Water Run off	2 Credits - Where a site specific Flood Risk Assessment (FRA) confirms that there is a low risk of flooding from all sources. 2 Credits – A report by an appropriate consultant to confirm that the BREEAM surface water run off criteria has been met. 1 further Credit - Minimising water course pollution. 5 Credits assumed.	5 Credits (3.85%)	5 Credits (3.85%)
Pol 04 Reduction of Night Time Light Pollution	External lighting must be designed in accordance with BREEAM requirements. Credit assumed.	1 Credit (0.77%)	1 Credit (0.77%)
Pol 05 Noise Attenuation	The credit can be awarded by default where there are or will be no noise-sensitive areas or buildings within 800m radius of the assessed development. If there is noise sensitive areas or buildings within this radius a noise impact assessment must be carried out. Credit assumed.	1 Credit (0.77%)	1 Credit (0.77%)
Total Points in this section:		13 Credits (10%)	9 Credits (6.92%)

10 - Innovation (Inn)

BREEAM Ref:	Item Details:	Credits / % Available	Credits / % Available
Man 01 Sustainable Procurement	Exemplary performance criteria must be met. Credit sought.	1 Credit (1%)	1 Credit (1%)
Man 02 Responsible Construction Practices	Achieve a score of 36 or more under the Considerate Constructors Scheme. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Hea 01 Visual Comfort	Achieve the Exemplary levels for day-lighting. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Ene 01 Reduction of CO2 Emissions	Exemplary performance criteria must be met. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Ene04 Low and Zero Carbon Technology	Achieve a 30% reduction in CO ₂ emissions. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Ene 05 Energy Efficient Cold Storage	CREDIT NOT APPLICABLE TO DEVELOPMENT		
Wat 01 Water Consumption	Achieve a 65% reduction in water consumption. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Mat 01 Life Cycle Impacts	Where additional points are achieved above the maximum standard BREEAM criteria. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Mat 03 Responsible Sourcing of Materials	Where 70% of the available responsible sourcing points have been achieved. Credit not sought.	1 Credit (1%)	0 Credits (0%)

Wst 01 Construction Waste Management	Exemplary performance levels must be met. Credit not sought.	1 Credit (1%)	0 Credits (0%)
Wst 02 Recycled Aggregates	Where the total amount of recycled and/or secondary aggregate specified is greater than 35% (by weight or volume). Credit not sought.	1 Credit (1%)	0 Credits (0%)
Total Points in this section:		10 Credits (10%)	1 Credit (1%)

TOTAL%	110%	71.17%
BREEAM LEVEL ACHIEVED	*	Excellent