

29 George Street, Richmond

BREEAM Domestic
Refurbishment

9 One Bedroom Residential Units

Pre-Assessment

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Executive Summary

This BREEAM Domestic Refurbishment Pre-Assessment for 9 one bedroom residential units at 29 George Street, Richmond has been prepared by the AECOM Sustainable Buildings Team in conjunction with BREEAM Domestic Refurbishment SD5077 – 2014 version 2.0.

The AECOM team of BREEAM Assessors have worked with design teams through the design, planning, shell and fit out process for numerous sites. This understanding of the way BREEAM schemes work has been applied to this site to ensure a realistic and pragmatic approach has been taken and a robust report produced.

In accordance with best possible practice, BREEAM Domestic Refurbishment is being embedded into the proposals to ensure that all environmental opportunities can be identified, reviewed and accommodated as appropriate for the 9 one bedroom residential units.

The purpose of this Pre-Assessment is to give an indication of the BREEAM Domestic Refurbishment credits that are predicted and the standards that the 9 residential units are likely to achieve based on the use of the BREEAM Domestic Refurbishment strategy agreed with the Project Manager (PM) on behalf of Tesco Stores Ltd.

This approach has enabled a prediction that all dwellings have the ability to target a BREEAM Domestic Refurbishment 'Excellent' rating. The specific credits targeted to meet this 'Excellent' rating may alter as the development advances through the detailed design stage.

A summary of the individual BREEAM Domestic Refurbishment credit details are contained within this Pre-Assessment.

1 Introduction

1.1 The Development

The proposed development is located at 29 George Street, Richmond in the London Borough of Richmond upon Thames. The four storey building is located within the Central Richmond Conservation Area and next to listed buildings.

The ground floor of 29 George Street is occupied by a Tesco Metro store. The first floor contains a sub-let space which is used as a betting shop and the remainder of the 1st floor is used by Tesco as offices. The second floor is linked to the Tesco offices by a staircase and is utilised as ancillary space. The 3rd floor is a void shell which is not in use.

The proposals seek to convert the 2nd and 3rd floors into 9 x one bed residential units, with five flats on the second floor and four flats on the third floor. The accommodation schedule is contained in Table 1.1.

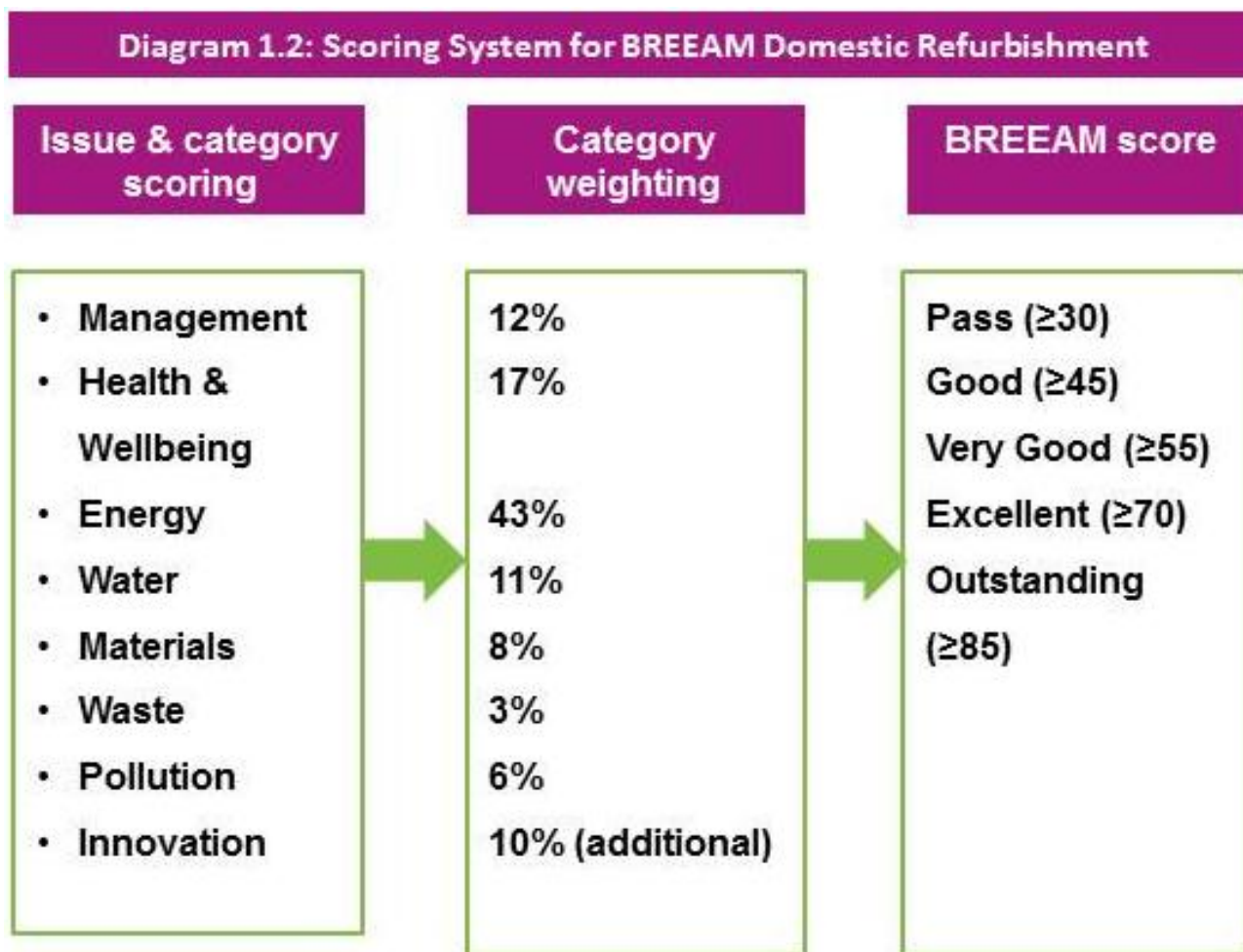
Table 1.1: Proposed accommodation schedule for 29 George Street

Floor	Residential Unit	Gross Internal Floor Area (m ²)
2	2.01	55.6
2	2.02	50.0
2	2.03	50.0
2	2.04	50.0
2	2.05	55.0
3	3.01	56.7
3	3.02	51.0
3	3.03	51.0
3	3.04	56.7

1.2 BREEAM Domestic Refurbishment Assessment Process

BREEAM Domestic Refurbishment is a performance-based assessment method and certification scheme for domestic buildings undergoing refurbishment, which aims to improve the environmental performance of existing dwellings in a robust and cost-effective manner. Each dwelling is assessed in eight key areas within which there are credit requirements. Credits are predicted where a commitment to compliance with BREEAM Domestic Refurbishment requirements is demonstrated. These credits are multiplied by an environmental weighting factor to provide an overall score which

relates to the prediction of a BREEAM level. Diagram 1.2 illustrates the scoring system for BREEAM Domestic Refurbishment.



The BREEAM Domestic Refurbishment methodology has a number of mandatory credits for each rating. These are shown in Table 1.2.

Table 1.2: Minimum BREEAM Domestic Refurbishment standards by rating level

BREEAM Issue	Minimum standards by rating level				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02 Energy efficiency rating post-refurbishment	0.5 Credits	1 Credit	2 Credits	2.5 Credits	3.5 Credits
Wat 01 Internal water use	-	-	1 Credit	2 Credits	3 Credits
Hea 05 Ventilation	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
Hea 06 Safety	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
Pol 03 Flooding	-	-	-	2 Credits	2 Credits
Mat 01 Environmental impact of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only

The current statuses of these mandatory credits for the 9 one bedroom residential units are set out within the Pre-Assessment in Section 2.

2 BREEAM Domestic Refurbishment Pre-Assessment

The BREEAM Domestic Refurbishment Pre-Assessment, contained in this section, is organised into the environmental categories as set out in Diagram 1.2.

The left hand columns of the table show the credit Identification Code (ID) and issue, a summary of the credit's aims and the number of credits available in this credit issue. The third column contains the aim of the credit whilst the next column shows the total credits available. The right hand columns show the number of credits being targeted for each of the 9 residential units and the specific details.

A weighted sub-total is provided at the end of each subject area based on the weightings detailed in Diagram 1.2.

Credit ID	Credit Issue	Aim of Credit	Credits		Details specific to the proposed 9 flats
			Credits Available	Credits Targeted	
Management					
Man1	Home Users Guide	To recognise and encourage the provision of guidance for the home owner or tenant so they can understand how to operate their home efficiently and effectively.	3	3	The Project Manager (PM) has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31 and 05.01.16 09:17) that the provision of a BREEAM compliant Home User Guide to all dwellings will form part of the principal contractor's scope of works. It is anticipated that this Home User Guide will contain information on the following: - energy efficiency; - water use; - transport facilities; - materials and waste; - emergency information; - local amenities; - links and references; - the procedures for obtaining a copy of the guide in alternative formats, including foreign languages, Braille, large print, audio cassette or CD; and - the contact details of the person or organisation responsible for producing the guide. 3 credits are targeted.
Man2	Responsible Construction Practices	To recognise and encourage refurbishment projects which are managed in an environmentally and social considerate and accountable manner.	2	2	The principal contractor's scope of works, as confirmed by the PM on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) will include a requirement to register with the Considerate Contractors Scheme and to achieve a total score of 40 or more with 7 points in each section. 2 credits are targeted.
Man3	Construction Site Impacts	To recognise and encourage refurbishment sites managed in an environmentally sound manner in terms of resources use, energy consumption and pollution.	1	1	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include a requirement to conduct at least two of the following actions: - monitor, report and set targets for CO2 production of energy use arising from site activities; - monitor, report and set targets for water consumption arising from site activities; - main contractor to have an environmental materials policy; - main contractor operates an Environmental Management System; and - 80% of timber to be reclaimed, reused or responsibly sourced. 1 credit is targeted.
Man4	Security	To encourage domestic refurbishment projects where people feel safe and secure; where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.	2	0	The architects have confirmed (email 09.06.15 18:43) that the intention is for all window frames and glass to be retained as changing them would have an impact on the character and appearance of the building of Townscape Merit within the Central Richmond Conservation Area (email 03.09.2015 09:03). This credit is not targeted.
Man5	Protection and enhancement of ecological features	To protect existing ecological features from substantial damage during refurbishment and enhance the ecological value of a site.	1	1	The proposed site is part of an existing building, which comprises a Tesco Metro store on the ground floor with associated space on the first floor and a sub-let unit on the first floor, which is currently used as a betting shop and is outside the scope of the development proposals. The architects have confirmed (email 03.06.15 10:36) that no new areas of hardstanding are being introduced as part of the proposals. It is therefore assumed that the site of the 9 residential units is of low ecological value. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the appointment of a suitably qualified ecologist will form part of the principal contractor's scope of works, and that the ecologist will be required to undertake surveys of the existing site's ecology prior to commencement of refurbishment works on site to determine the presence of ecological features and also make recommendations for suitable enhancements to be implemented such as bird boxes and bird feeders, which the architect has confirmed could be implemented within the development (email 22.07.15 10:09). 1 credit is targeted at this stage of design.
Man6	Project Management	To ensure delivery of a functional and sustainable refurbishment, designed and built in accordance with performance expectations.	2	2	The project is currently at pre-planning stage. A conference call was held on 13th May 2015 to assign individual and shared responsibilities to the design team, including the advice and guidance of the BREEAM Accredited Professional (AP) Gill Smith. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include the project manager assigning individual roles and responsibilities at the key refurbishment, commissioning and handover and occupation phases and that a handover meeting will take place with the future building manager/tenant to provide information about how the building operates and to answer questions. The PM has also confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include undertaking two of the following to determine project success: - A site inspection within 3 months of occupation; - Conduct post-occupancy interviews with building occupants or a survey via phone or posted information within three months of occupation; and/or - Longer term after care, such as a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation. 2 credits are targeted.
Sub Total		1 Man credit is worth approx. (1.09%)	11	9	
Weighted sub total			12.00	9.82	

Health & Wellbeing

Hea1	Daylighting	To improve the quality of life in homes through the provision of good daylighting and reduce the need for energy to light the home.	2	2	AECOM have undertaken sample daylight calculations based on the architect's drawings (Proposed Second Floor Plan drawing 3341 102 Rev G; Proposed Third Floor Plan drawing 3341 103 Rev E) and the results show that the kitchen/living/dining room area meets the required minimum daylight factor of 2% in kitchens and 1.5% in living rooms, dining rooms and studies (located in the bedroom). The results also show that 80% of the working plane in these areas receive direct light from the sky. 2 credits are targeted.
Hea2	Sound Insulation	To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints.	4	3	The architect has advised that appropriate treatment can be provided to the existing floors and walls to enhance their acoustic performance (emails 09.06.15 16:21; 22.07.15 10:09). In addition, it has been confirmed by the architect that any new internal walls will be created using acoustically rated plasterboard wall systems (email 03.06.15 10:36). The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include a requirement to conduct pre-completion testing and to ensure that airborne sound insulation values are at least 5dB higher than Part E (43dB for walls, floors and stairs) and that impact sound insulation values are at least 5dB lower than Part E (64dB for floors and stairs). 3 credits are targeted.
Hea3	Volatile Organic Compounds (VOCs)	To recognise and encourage a healthy internal environment through the specification of internal finishes and fittings with low emissions of volatile organic compounds (VOCs).	1	0	This credit is not targeted.
Hea4	Inclusive Design	Adopting an inclusive design approach to optimise the accessibility of the home and its future adaptability to cope with changing needs of a household, such as old age, frailty, a short or long term disability or a debilitating illness.	2	0	As the detailed design of the dwellings progresses and the existing constraints of the building are fully understood, a review of the inclusive design principles will be undertaken. This credit is not targeted.
Hea5	Ventilation	To recognise and encourage a healthy internal environment through the provision of appropriate ventilation levels to provide fresh air and avoid problems associated with the build up of pollutants and humidity levels without excessive heat loss.	2	2	The architect has confirmed (emails 09.06.15 16:21 and 18.06.15 15:09) that the design of the dwellings will enable the requirements of Section 5 of Building Regulations Approved Document Part F - Ventilation 2010 to be met. This is a mandatory requirement of BREEAM 'Excellent'. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include building in accordance with Section 5 of Building Regulations Approved Document Part F – Ventilation 2010. 2 credits are targeted.
Hea6	Safety	To reduce the risks to life, health and property resulting from fire and exposure to carbon monoxide.	1	1	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the provision of a fire detection and carbon monoxide detector alarm system to all 9 residential units will form part of the principal contractor's scope of works, as will ensuring that the smoke alarms and carbon monoxide alarms are derived from the dwelling's main electricity supply. This is a mandatory requirement of BREEAM 'Excellent'. 1 credit is targeted.
Sub Total		1 Hea credit is worth approx. (1.42%)	12	8	
Weighted sub total			17.01	11.34	

Energy

Ene1	Improvement in Energy Efficiency Rating	To recognise and encourage a reduction in CO2 emissions through the improved energy efficiency of the dwelling and its services as a result of the refurbishment.	6	4	Design Stage SAPs have been run against the base case on the nine apartments and the results have been entered into the BREEAM UK Domestic Refurbishment 2014 Energy Calculator and group averaged. 4 credits are targeted.
Ene2	Energy Efficiency Rating post refurbishment	To encourage high levels of Energy Efficiency in the refurbished dwellings, thus reducing CO2 emissions, running costs and fuel poverty.	4	3	Design Stage SAPs have been run on the nine apartments and the results have been entered into the BREEAM UK Domestic Refurbishment 2014 Energy Calculator and group averaged. The results enable 3 credits to be targeted and therefore satisfy the mandatory credits required for 'Excellent' rating.
Ene3	Primary Energy Demand	To encourage a reduction in the absolute total regulated energy demand of a dwelling as a result of refurbishment, thus saving CO2 emissions, running costs and reducing fuel poverty.	7	5	Design Stage SAPs have been run on the nine apartments and the results have been entered into the BREEAM UK Domestic Refurbishment 2014 Energy Calculator and group averaged. The results enable 5 credits to be targeted at this stage of design.
Ene4	Renewable Technologies	To encourage local energy generation from renewable sources to supply a significant proportion of the dwelling's energy demand and to encourage homes to reduce the total energy demand, prior to the specification of renewable technologies.	2	0	The dwellings have applied a best practice approach to reduce energy demand via fabric and services improvements as apposed to mitigating for the associated carbon emissions. Please see the Energy Statement that accompanies the planning application for details. These credits are not targeted.

Ene5	Energy Labelled White Goods	To encourage the provision or purchase of energy efficient white goods, thus reducing the CO2 emissions from appliance use in the dwelling.	2	1	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that where no white goods are provided to the dwellings then a copy of the EU energy efficiency labelling leaflet will be provided as part of the principal contractor's scope of works. If white goods are to be specified, then the PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will require the specification of fridge/freezers with an A+ rating to be installed. 1 credit is targeted.
Ene6	Drying Space	To provide a reduced energy means of drying clothes and so encourage reductions in energy demands.	1	1	Each dwelling will be provided with an over the bath drying line, which is securely fixed and has a drying line of at least 4m. To ensure that the bathroom containing the drying line is adequately ventilated then it must comply with the minimum extract rates as specified within Building Regulations Approved Document F - Ventilation. It was confirmed by the PM on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include the above requirement. 1 credit is targeted.
Ene7	Lighting	To provide a reduced energy means of drying clothes and so encourage reductions in energy demands.	2	2	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include a requirement for all external space and security lighting to the dwellings and communal areas to be energy efficient. Internal lighting will also be provided via low energy lamps, such as LED, to ensure that a maximum wattage across the total floor area of the dwelling is 9 watts per metre sq. This shall form part of the principal contractor's scope of works as confirmed by the PM on behalf of Tesco. 2 credits are targeted.
Ene8	Display Energy Devices	To encourage the provision of accessible equipment to display energy consumption data to dwelling occupants, thereby encouraging them to reduce energy use.	2	0	These credits are not targeted.
Ene9	Cycle Storage	To encourage occupants to cycle by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys.	2	0	The architect's Proposed Site Plan (drawing 3341 110 Rev D) shows residential cycle spaces will be provided and located adjacent to the Tesco staff parking bays. Due to the constrained nature of this existing operational site, the access route for residents to the cycle store exceeds the minimum distance that BREEAM specifies and with it 0 credits are targeted.
Ene10	Home Office	To reduce the need to commute to work by ensuring residents have the necessary space and services to be able to work from home.	1	1	The architects have confirmed (emails 09.06.15 16:21; 18.07.15 15:09) that the designs will allow for the provision of a home office (wall length of 1.8m to allow a desk, chair and filing cabinet or bookshelf to be installed) to the master bedroom of all flats. The architects drawings (Proposed Second Floor Plan drawing 3341 102 Rev G and Proposed Third Floor Plan drawing 3341 103 Rev E) show that master bedrooms have a window with a width or height greater than 450mm. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include the installation of two double power sockets and a telephone point within the designated home office location. 1 credit is targeted.
Sub total		1 Ene credit is worth approx. (1.48%)	29	17	
Weighted sub total			42.98	25.19	

Water					
Wat1	Internal Water Consumption	To minimise the consumption of potable water in sanitary applications by encouraging the use of low water use fittings and water recycling systems.	3	2.5	<p>The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include the provision of bathrooms, ensuites and kitchen fittings which are specified to meet an internal water use of under 107 litres per person per day, which meets the mandatory requirement for BREEAM 'Excellent' of between 107 and 118 litres per person per day.</p> <p>An example specification for targeting 107 litres per person per day is provided below: WC: 6/4 Basin Tap: 4 litres/minute Bath: 175 litres to overflow Shower: 8 litres/minute Kitchen Sink Tap: 6 litres/minute Washing Machine (if being provided): 8.17 litres/kg Dishwasher (if being provided): 1.25 litres/place setting</p> <p>2.5 credits are targeted.</p>
Wat2	External Water Consumption	To encourage the recycling of rainwater and reduce the amount of mains potable water used for external water uses.	1	1	<p>The architect's drawings (Proposed Second Floor Plan drawing 3341 102 Rev G and Proposed Third Floor Plan drawing 3341 103 Rev E) show that the flats are not provided with individual or communal garden space or balconies, and therefore there will be a minimal demand for external water use.</p> <p>1 credit is targeted by default.</p>
Wat3	Water Meters	To encourage the provision of equipment to measure water consumption of dwelling occupants, thereby encouraging them to reduce water use.	1	1	This credit is not targeted.
Sub total		1 Wat credit is worth approx. (2.2%)	5	4.5	
Weighted sub total			11.00	9.90	

Materials					
Mat1	Environmental Impact of Materials	To encourage the retention and enhancement of existing elements and where new materials are required the use of materials with lower environmental impacts over their life cycle while optimising the thermal performance of key building elements.	25	13	<p>The architect has confirmed (email 03.06.15 10:36) that the external windows, floors, roof and external walls are being retained.</p> <p>New internal and separating walls will be provided, as will new external common entrance doors, escape doors and internal doors (email 03.06.15 10:36). The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include a requirement to ensure that all new materials for elements, such as the internal walls, have a Green Guide rating of A or A+.</p> <p>Based on the information available initial Green Guide calculations have been undertaken that indicate that the 9 residential units have the ability to target 13 credits. As the detailed design advances these calculations will be updated to reflect the material specifications. Completing these calculations is a mandatory requirement for BREEAM 'Excellent'.</p>
Mat2	Responsible Sourcing	To recognise and encourage the reuse of materials and the specification of responsibly sourced materials for use where required in the refurbishment process.	15	10	<p>The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include ensuring that all timber-based products are legally harvested and traded timber. They have also confirmed that the principal contractor will be required to produce a BREEAM compliant Sustainable Procurement Plan, which specifies that all new materials for elements, such as the internal walls, are responsibly sourced and hold certifications such as ISO 14001, FSC, PEFC or BES 6001.</p> <p>Early calculations indicate that up to 10 credits can be targeted.</p>
Mat3	Insulation	To recognise and encourage the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.	8	4	<p>As part of the improvement to the fabric of the building, new insulation will be provided to existing elements and also used within new construction materials and building services (TTG Architects email 11.06.15 12:11; 11.06.15 12:52; 07.01.16 15:10). Any new insulation procured must be selected on the basis of having an embodied index of at least 2/ Green Guide Rating of A/A+. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include for this requirement and will also ensure that at least 80% of the insulation used in the building elements is responsibly sourced.</p> <p>4 credits are targeted at this stage of design.</p>
Sub total		1 Mat credit is worth approx. (0.17%)	48	27	
Weighted sub total			7.99	4.49	

Waste					
Was1	Household Waste	To recognise and encourage the provision of dedicated storage facilities for a dwellings recyclable or compostable waste streams, so that waste is diverted from landfill or incineration.	2	0	Richmond Council have advised the design team that there will be no recycling collection provided to the proposed dwellings (email 25.06.15 13:32). In addition, the Council do not collect food waste recycling from flats (Richmond Council Website, available at: http://www.richmond.gov.uk/home/services/waste_and_recycling/collections_from_flats.htm [Accessed 24.12.15]). 0 credits are targeted.
Was2	Refurbishment Site Waste Management	To recognise and encourage the provision of dedicated storage facilities for a dwellings recyclable or compostable waste streams, so that waste is diverted from landfill or incineration.	3	3	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contactor's scope of works will include producing and adhering to a BREEAM compliant Site Waste Management Plan (SWMP). The PM has also confirmed that the appointed contractor's scope of works will require them to meet the following best practice and exemplary waste benchmarks: - a target resource efficiency benchmark of 17.32msq /8.78 tonnes non-hazardous construction waste generated per £100,000 of project value will be met and exceeded. - amount of waste generated per £100,000 of project value is recorded in the SWMP. - a pre-refurbishment audit will be carried out, which is referenced in the SWMP and covers the following: -- Identification and amounts of the key refurbishment materials; -- Potential applications and any related issues for the reuse and recycling of key refurbishment materials. - Where demolition is included as part of the refurbishment programme, then the audit will also cover demolition materials; and - a target refurbishment and demolition waste diversion benchmark of 80% volume/ 85% tonnes of non hazardous construction waste and 85% volume/ 95% tonnes of non-hazardous demolition waste (where applicable). 3 credits are targeted.
Sub total		1 Was credit is worth approx. (0.6%)	5	3	
Weighted sub total			3.00	1.80	
Pollution					
Pol1	Nitrogen Oxide Emissions	To reduce the emission of nitrogen oxides (NOx) into the atmosphere.	3	3	To reduce NOx emissions it has been confirmed by the PM on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include gas boilers that have dry NOx emissions of less than 40 mg/kWh. 3 credits are targeted.
Pol2	Surface Water Runoff	To encourage domestic refurbishments to have a neutral impact upon site run-off and recognise refurbishments that adopt opportunity measures to reduce and delay the discharge of rainfall to the public sewers and watercourses. This will protect the watercourses and reduce the risk of localised flooding, pollution and other environmental damage.	3	1	The architect has confirmed (email 03.06.15 10:36) that no new hardstanding areas are being introduced and therefore the footprint of the building will remain the same (email 09.06.15 16:21). As such the impermeable area of the development is not increasing and it is anticipated that at least a neutral impact on surface water run-off will be achieved. 1 credit is targeted.
Pol3	Flooding	To reward dwellings located in low flood risk areas and where dwellings are located in medium to high flood risk zones, to recognise where they are refurbished in accordance with a flood resilience/resistance strategy.	2	2	The Environment Agency's 'Flood Map for Planning (Rivers and Sea)' (available at: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=floodmap&layerGroups=default&lang=_e&ep=map&scale=11&x=517895&y=174884 and accessed 05.01.16) indicates that the site is in an area of low flood risk of flooding from rivers and seas. The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the production of a Flood Risk Assessment (FRA), which is in accordance with the good practice guidelines outlined in PPS25 Development and Flood Risk: Practice Guide, will form part of the principal's contactor's scope of works. It is anticipated that this FRA will confirm that the 9 residential units are defined as having a low annual probability of flooding. Carrying out a FRA and achieving 2 credits under this issue is a mandatory requirement of BREEAM 'Excellent'. 2 credits are targeted.
Sub total		1 Pol credit is worth approx. (0.75%)	8	6	
Weighted sub total			6.00	4.50	

Innovation					
Inn	Hea4 - Inclusive Design	Adopting an inclusive design approach to optimise the accessibility of the home and its future adaptability to cope with changing needs of a household, such as old age, frailty, a short or long term disability or a debilitating illness.	1	0	This credit is not targeted.
Inn	Man2 - Responsible Construction Practices	To recognise and encourage refurbishment projects which are managed in an environmentally and social considerate and accountable manner.	1	0	This credit is not targeted.
Inn	Man5 - Protection and Enhancement of Ecological Value	To protect existing ecological features from substantial damage during refurbishment and enhance the ecological value of a site.	1	1	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that a suitably qualified ecologist will be appointed and that the ecologist will undertake surveys of the existing site's ecology prior to commencement of refurbishment works to determine the presence of ecological features. The PM has also confirmed (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the adoption of all general recommendations made by the ecologist, and 30% of additional recommendations, will form part of the principal contractor's scope of works. 1 Innovation credit is targeted.
Inn	Man6 - Project Management	To ensure delivery of a functional and sustainable refurbishment, designed and built in accordance with performance expectations.	2	2	A BREEAM Accredited Professional (AP) has been appointed to undertake this Pre Assessment and the PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that a BREEAM AP will continue to be appointed to oversee the key stages within the project and that it will form part of the principal contractor's scope of works to ensure that thermographic surveying and air tightness testing is carried out at both pre-refurbishment and refurbishment stages and, where an improved air tightness has been set at the design stage, that the testing demonstrates that this has been achieved post - refurbishment. 2 Innovation credits are targeted.
Inn	Ene2 - Energy Efficiency Rating	To encourage high levels of Energy Efficiency in the refurbished dwellings, thus reducing CO2 emissions, running costs and fuel poverty.	2	0	This credit is not targeted.
Inn	Ene8 - Display Energy Devices	To encourage the provision of accessible equipment to display energy consumption data to dwelling occupants, thereby encouraging them to reduce energy use.	1	0	This credit is not targeted.
Inn	Wat1 - Internal Water Use	To minimise the consumption of potable water in sanitary applications by encouraging the use of low water use fittings and water recycling systems.	1	0	This credit is not targeted.
Inn	Mat2 - Responsible Sourcing of Materials	To recognise and encourage the reuse of materials and the specification of responsibly sourced materials for use where required in the refurbishment process.	1	0	This credit is not targeted.
Inn	Was2 - Refurbishment Site Waste Management	To recognise and encourage the provision of dedicated storage facilities for a dwellings recyclable or compostable waste streams, so that waste is diverted from landfill or incineration.	1	1	The PM has confirmed on behalf of Tesco (emails 18.06.15 15:09; 22.12.15 10:31; and 05.01.16 09:17) that the principal contractor's scope of works will include meeting the following best practice and exemplary waste benchmarks: - a target resource efficiency benchmark of 17.32msq /8.78 tonnes non-hazardous construction waste generated per £100,000 of project value will be met and exceeded; and - refurbishment and demolition waste diversion benchmarks: 80% volume/ 85% tonnes of non hazardous construction waste and 85% volume/ 95% tonnes of non-hazardous demolition waste (where applicable). 1 Innovation credit is targeted.
Inn	Pol2 - Surface Water Run-off	To encourage domestic refurbishments to have a neutral impact upon site run-off and recognise refurbishments that adopt opportunity measures to reduce and delay the discharge of rainfall to the public sewers and watercourses. This will protect the watercourses and reduce the risk of localised flooding, pollution and other environmental damage.	1	0	This credit is not targeted.
Sub total					
1 Inn credit is worth 1%			12	4	
Weighted sub total			12.00	4.00	

Summary	Total
Credits Targeted	71.05

Rating
Excellent

3 Summary

Table 3a shows a targeted total score of 71.05. Table 3b, also at the end of this Section, shows this score equates to a BREEAM Domestic Refurbishment rating of ‘Excellent’.

Table 3a: Score Summary					
Issue	Credits available	Credits achieved	% credits achieved	Weighted Credit Value	Score (%)
Management	11	9	81.82%	1.09	9.82
Health & Wellbeing	12	8	66.67%	1.42	11.34
Energy	29	17	58.62%	1.48	25.19
Water	5	4.5	90.00%	2.20	9.90
Materials	48	27	56.25%	0.17	4.49
Waste	5	3	60.00%	0.60	1.80
Pollution	8	6	75.00%	0.75	4.50
Innovation	10	4	40.00%	1.00	4.00
Total score					71.05

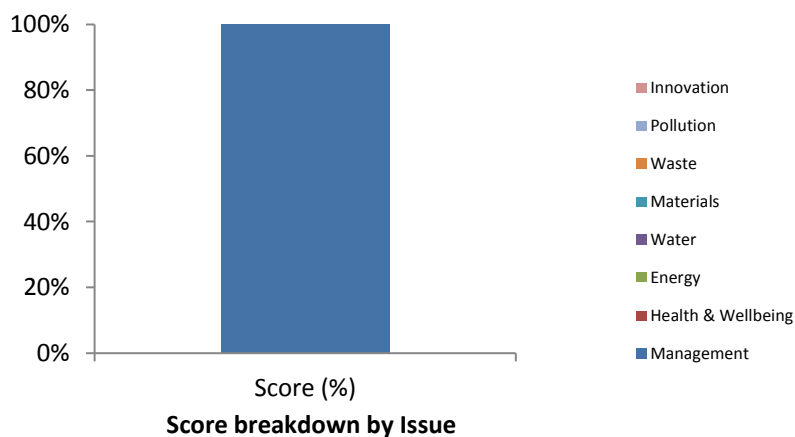
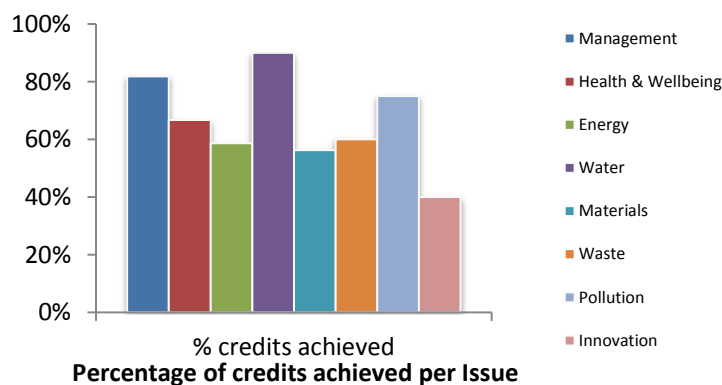


Table 3b: BREEAM Rating Benchmarks	
BREEAM Rating	% Score
OUTSTANDING	≥ 85
EXCELLENT	≥ 70
VERY GOOD	≥ 55
GOOD	≥ 45
PASS	≥ 30
UNCLASSIFIED	< 30

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