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Preliminary Assessment
BREEAM 2014 Refurbishment & Fit Out
176 Prince of Wales Road

Document information

Prepared for:
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c/o Tamares Real Estate Investments (UK)

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Assessment information

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Executive Summary
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Introduction

Eight Associates have been appointed, as registered BREEAM assessors, to carry out an assessment of the proposed refurbishment at 176 Prince of Wales Road, Location. This project will be assessed under BREEAM Refurbishment and Fit Out 2014 (Non-Domestic Buildings).

This summary is a pre-assessment of the development; it outlines the anticipated score following the information provided by the design team at a meeting held in November 2016 and subsequent discussions.

The report also includes a breakdown of the targeted credits and justification as to those credits that could not be achieved.

Planning requirements

The London Borough of Camden and Greater London Authority require all major developments (including refurbishments and/or fit-outs) of this size to achieve a BREEAM Excellent rating overall.

Score summary

The site reviewed currently achieves a score of 71.9%, which equates to an EXCELLENT rating (55% required as a minimum).

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BREEAM Introduction
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The BREEAM Standard

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

Building projects are assessed at design and post-construction stages using a system of environmental issues grouped within the following categories:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use & Ecology
- Pollution
- Innovation

The assessment of the building results in a final report and issuing of a BRE Global BREEAM certificate detailing the performance of the assessed building against the environmental issues covered by the standard. The building's performance is expressed as a BREEAM rating of PASS, GOOD, VERY GOOD, EXCELLENT or OUTSTANDING.

BREEAM is developed, operated and maintained by BRE Global Ltd and the operation and direction of the method is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders. Further information about BREEAM, including copies of the BREEAM standards, can be found at www.breeam.org.

Aims of BREEAM

- To mitigate the impacts of buildings on the environment
- To enable buildings to be recognised according to their environmental benefits
- To provide a credible, environmental label for buildings
- To stimulate demand for sustainable buildings

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Process of the assessment

BREEAM Refurbishment and Fit-out 2014 is a performance based assessment method and certification scheme for existing building refurbishment and fit-out projects. The primary aim of BREEAM Refurbishment and Fit-out 2014 is to promote the delivery of sustainable refurbishment and fit-out, in order to mitigate the life cycle impacts of existing buildings on the environment in a robust and cost effective manner.

The scheme intends to measure, evaluate, and reflect the performance of refurbishment or fit-out projects against best practice in an independent and robust manner.

All BREEAM assessments take place over two phases:

a. **Design Stage Assessment:** This is based on the final design for the development and the intentions of the design team.
b. **Post Construction Review:** This is based on the completed development and requires the BREEAM assessor to carry out a site inspection.

Following completion of the Design Stage Assessment the BRE will issue an interim certificate; final certification is awarded following the completion of the Post Construction Review.

For projects with a short or programme it is also possible to complete a Post Construction Assessment (PCA), whereby the design and post-construction stages are combined; interim certificates are unavailable for Post Construction Assessments.

BREEAM Refurbishment and Fit-Out provides a modular framework for projects. The scheme is split into the following parts, which are selected according to the scope of works. Each part defines a set of individual measures and associated criteria against which a project is assessed.

- Part 1: Fabric and Structure.
- Part 2: Core Services.
- Part 3: Local Services.
- Part 4: Interior Design.

This approach provides the scheme's users with a flexible means of measuring the environmental performance of their building and comparing it with other buildings across the property market, backed with the assurance that independent third party certification of the assessment process provides.

A project can choose which parts they wish to gain certification against and the certificate will clearly highlight the parts that the project have been assessed under.

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Ratings

The assessment process results in a rating on a scale of PASS, GOOD, VERY GOOD, EXCELLENT and OUTSTANDING. The rating bands for each are as follows:

Rating	%
Pass (P)	30%
Good (G)	45%
Very Good (VG)	55%
Excellent (E)	70%
Outstanding (O)	85%

Mandatory credits

Some credits within the above categories are mandatory to achieve certain ratings:

BREEAM Issue	P	G	VG	E	O
Man 03: Responsible Construction Practices	-	-	-	1 credit	2 credits
Man 04: Commissioning and Handover	-	-	-	Criterion 9[1]	Criterion 9[1]
Man 05: Aftercare	-	-	-	1 credit[2]	1 credit[2]
Ene 01: Reduction of CO_2 emissions	-	-	-	6 credits	10 credits
Ene 02: Energy Monitoring	-	-	1 credit[3]	1 credit[3]	1 credit[3]
Wat 01: Water Consumption	-	1 credit[4]	1 credit[4]	1 credit[4]	2 credits[4]
Wat 02: Water Monitoring	-	Criterion 1[5]	Criterion 1[5]	Criterion 1[5]	Criterion 1[5]
Mat 03: Responsible Sourcing	Criterion 1[6]	Criterion 1[6]	Criterion 1[6]	Criterion 1[6]	Criterion 1[6]
Wst 01: Construction Waste Management	-	-	-	-	1 credit
Wst 03: Operational Waste	-	-	-	1 credit	1 credit

[1] Building User Guide
[2] Seasonal commissioning (only applicable to assessment parts 2 and 3)
[3] Only applicable to assessment parts 2, 3 and 4)
[4] Where applicable (if water consuming equipment or plant is included)
[5] Mains water meter specified (only applicable to assessment part 2)
[6] All timber and timber-based products to comply the UK Government's definition of 'legally harvested and traded'

Please note that full details for each credit follow later in this document.

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Score Breakdown
BREEAM 2014 Refurbishment & Fit Out
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Rating summary

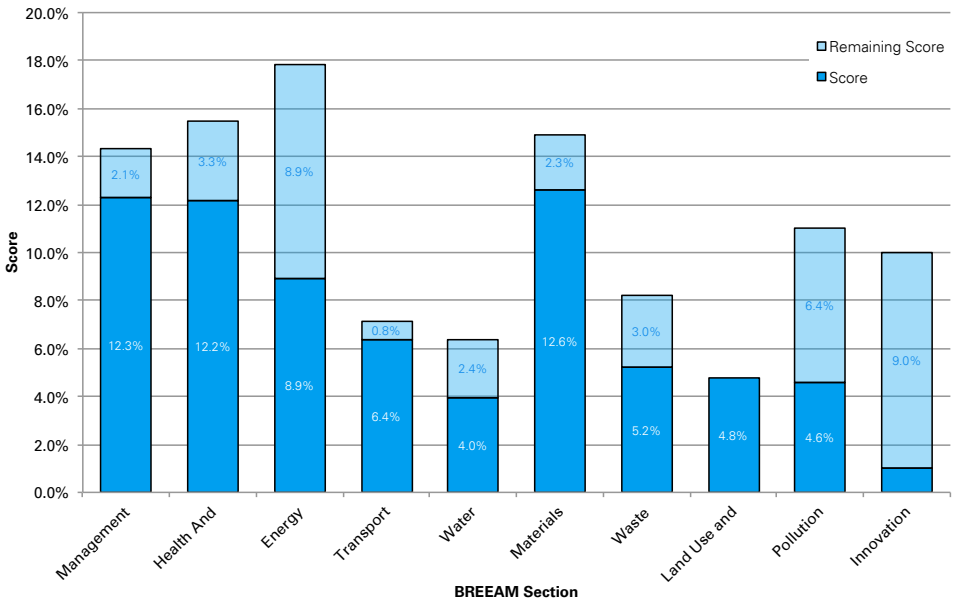
The following summary represents the scheme's preliminary score based on the assumptions in the following pages. Please contact the assessor if a score sheet is required.

Unclassified	<30%
Pass	≥30% - <45%
Good	≥45% - <55%
Very Good	≥55 %- <70%
Excellent	≥70% - <85%
Outstanding	≥85%

Credit Issue	Targeted Credits	Available Credits	% Achieved	Weighting	Score
Management	18	21	85.7%	14.31%	12.3%
Health And Wellbeing	15	19	78.9%	15.45%	12.2%
Energy	13	26	50.0%	17.85%	8.9%
Transport	8	9	88.9%	7.15%	6.4%
Water	5	8	62.5%	6.36%	4.0%
Materials	11	13	84.6%	14.91%	12.6%
Waste	7	11	63.6%	8.20%	5.2%
Land Use and Ecology	2	2	100.0%	4.77%	4.8%
Pollution	5	12	41.7%	11.01%	4.6%
Innovation	1	10	10.0%	10.00%	1.0%
				Total	**71.9%**
					EXCELLENT

Graphical breakdown of credits awarded

The graph below shows the target score for each BREEAM section (in dark blue) and remaining score available (light blue).



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Score Breakdown
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Scoresheet

Credit issue	Sub-issue (if applicable)	Credits available	Credits targeted	Justification
Man 01: Project brief and design	Stakeholder consultation (project delivery)	1	1	Maximum credits targeted.
	Stakeholder consultation (third party)	1	1	
	Sustainability Champion (design)	1	1	
	Sustainability Champion (monitoring progress)	1	1	
Man 02: Life cycle cost and service life planning	Elemental life cycle cost	2	0	See page 14 for justification.
	Component life cycle cost plan	1	0	See page 15 for justification.
	Capital cost reporting	1	1	Maximum credits targeted.
Man 03: Construction site impacts	Environmental management	1	1	
	Sustainability champion (construction)	1	1	
	Considerate construction	2	2	
	Monitoring site impacts	2	2	
Man 04: Commissioning and handover	Commissioning schedule and responsibilities	1	1	
	Commissioning of building services	1	1	
	Testing and inspecting building fabric	1	1	
	Handover	1	1	
Man 05: Aftercare	Aftercare support	1	1	
	Seasonal commissioning	1	1	
	Post occupancy evaluation	1	1	
Hea 01: Visual comfort	Glare control	1	1	
	Daylighting	3	0	See page 19 for justification.
	View out	2	2	Maximum credits targeted.
	Internal and external lighting levels, zoning and controls	1	1	

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Scoresheet (continued)

Credit issue	Sub-issue (if applicable)	Credits available	Credits targeted	Justification
Hea 02: Indoor air quality	Indoor air quality plan	1	1	Maximum credits targeted.
	Ventilation	1	1	
	VOC emission levels	1	1	
	VOC testing	1	1	
	Adaptability – potential for natural ventilation	1	0	See page 20 for justification.
Hea 04: Thermal comfort	Thermal comfort modelling	1	1	Maximum credits targeted.
	Adaptability – thermal model for climate change scenario	1	1	
	Thermal zoning and controls	1	1	
Hea 05: Acoustic performance		3	3	
Hea 06: Safety and security		1	1	
Ene 01: Reduction of CO_2 and emissions		15	4	See page 22 for justification.
Ene 02: Energy monitoring	Sub-metering of major energy consuming systems	1	1	Maximum credits targeted.
	Sub-metering of high energy load areas	1	1	
Ene 03: External lighting		1	1	
Ene 04: Low carbon design	Passive design analysis	1	0	See page 23 for justification.
	Free cooling	1	0	
	LZC specification and installation	1	1	Maximum credits targeted.
Ene 05: Energy efficient cold storage		Credit issue not applicable to building type.		
Ene 06: Energy efficient transportation	Energy consumption	1	1	Maximum credits targeted.
	Energy efficient features	2	2	
Ene 07: Energy efficient laboratory systems		Credit issue not applicable to building type.		

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Scoresheet (continued)

Credit issue	Sub-issue (if applicable)	Credits available	Credits targeted	Justification
Ene 08: Energy efficient equipment		2	2	Maximum credits targeted.
Ene 09: Drying space		Credit issue not applicable to building type.		
Tra 01: Public transport accessibility		5	5	Maximum credits targeted.
Tra 02: Proximity to amenities		1	1	
Tra 03: Cyclist facilities	Cycle storage	1	0	See page 24 for justification.
	Cyclist facilities	1	1	Maximum credits targeted.
Tra 04: Maximum car parking capacity		2	2	
Tra 05: Travel plan		1	1	
Wat 01: Water consumption		5	2	See page 25 for justification.
Wat 02: Water monitoring		1	1	Maximum credits targeted.
Wat 03: Water leak detection and prevention	Leak detection	1	1	
	Flow control	1	1	
Mat 01: Life cycle impact of materials		6	6	
Mat 02: Hard landscaping and boundary protection		Credit issue not applicable to building type.		
Mat 03: Responsible sourcing of materials	Sustainable Procurement plan	1	1	Maximum credits targeted.
	Responsible sourcing	3	1	See page 26 for justification.
Mat 04: Insulation		1	1	Maximum credits targeted.
Mat 05: Designing for durability and resilience		1	1	
Mat 06: Material efficiency		1	1	
Wst 01: Construction site waste management	Pre-refurbishment waste audit	1	1	
	Reuse and direct recycling of materials	2	0	See page 27 for justification.
	Resource efficiency	3	2	
	Waste diverted from landfill	1	1	Maximum credits targeted.
Wst 02: Recycled aggregates		1	0	See page 27 for justification.
Wst 03: Operational waste		1	1	Maximum credits targeted.

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Scoresheet (continued)

Credit issue	Sub-issue (if applicable)	Credits available	Credits targeted	Justification
Wst 04: Speculative finishes		Credit issue not applicable to building type.		
Wst 05: Adaptation to climate change		1	1	Maximum credits targeted.
Wst 06: Functional adaptability		1	1	
LE 01: Site selection		Credit issue not applicable to building type.		
LE 02: Protection and enhancement of ecological features		1	1	Maximum credits targeted.
LE 03: Minimising impact on existing site ecology		Credit issue not applicable to building type.		
LE 04: Enhancing site ecology		1	1	Maximum credits targeted.
LE 05: Long term impact on biodiversity		Credit issue not applicable to building type.		
Pol 01: Impact of refrigerants	Impact of refrigerants	2	1	See page 30 for justification.
	Leak detection system	1	0	
Pol 02: NOx emissions		3	0	
Pol 03: Flood management	Flood risk	2	2	Maximum credits targeted.
	Surface water run-off	2	1	See page 30 for justification.
	Minimising watercourse pollution	1	0	
Pol 04: Reduction of night time light pollution		1	1	Maximum credits targeted.
Pol 05: Noise attenuation		1	1	

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Assessment Details
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Parts assessed

Part 1: ✓
Part 2: ✓
Part 3: ✓
Part 4: ✓

Part 1: Fabric and Structure (included in assessment)
A Part 1 assessment may be appropriate where a refurbishment project includes one or more of the following alterations to the building fabric:

- Building façade
- Roof
- Windows

Part 2: Core Services (included in assessment)
A Part 2 assessment may be appropriate where **at least two** of the following are being installed or upgraded to a level that requires compliance with the Building Regulations Compliance Guide:

- Central air handling unit
- Heating boiler
- More than 50% of heat distribution chiller plant
- More than 50% of chiller distribution
- Water services (sanitary fittings in core)
- Building management system
- Community heating system (e.g. CCHP)
- Low and zero carbon technologies.

Part 3: Local Services (included in assessment)
A Part 3 assessment may be appropriate where **at least two** of the following fixed local building services are being installed or upgraded (e.g. a replacement or new installation of local heating/cooling units):

- Replacement of more than 50% of light fittings, system and controls
- Upgrade of zone controls
- Local ventilation
- Local heating units (including sources not connected to core services)
- Local cooling units (including sources not connected to core services)
- Point of use water heaters.

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Assessment Details
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Parts assessed (continued)

Part 4: Interior Design (included in assessment)
A Part 4 assessment may be appropriate where the refurbishment or fit-out works involve changes to the layout and/or redecoration of the refurbishment or fit-out area. Including **two or more** of the following:

- Wall coverings
- Floor coverings
- Ceiling covering or systems
- Partitions
- Raised floor system
- Furniture and fittings

And **at least one** of the following:

- Sanitary fittings
- Equipment (e.g. office equipment, display lighting, freezers)
- Local electrical installations (e.g. sub-metering)

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Assessment Details
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Project specific details

Technical manual number:	SD216 Issue 1.0
Project type:	Refurbishment of an existing building
Sector	Other
Building type:	Non-residential institutions (art gallery)
Historic building?	Yes
Commercial and/or industrial scale refrigeration or storage specified?	No
New building user transportation systems?	Yes
Laboratories present?	No
Systems that significantly contribute towards unregulated energy demands?	Yes
Sanitary fittings within scope?	Yes
Office areas included?	Yes
Unregulated water demand?	No
Landscaping included?	No
Local cooling included?	Yes
Local heating or hot water included?	Yes
Externally mounted plant specified?	No
Speculative office refurbishment?	No
External lighting included?	Yes
Simple building?	No

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Management
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Man 01 – Project brief and design

Stakeholder consultation 4 of 4

The design team have met to identify roles and responsibilities, as well as contributions for each key phase of the project. As a contractor is yet to be appointed a suitably experienced individual will provide input in terms of formulating sustainable design solutions, commenting/inputting on the practicality and buildability of design solutions and their impact on programming, costs, etc.

Prior to completion of the Concept Design Stage, all relevant third party stakeholders (e.g. local residents/businesses, heritage groups and end building user) will be consulted by the design team and it will be demonstrated that the outcomes of the consultation exercise have influenced the initial project brief and concept design. *Two of two credits targeted.*

Sustainability champion

The design team has confirmed that a BREEAM Accredited Professional (AP) will be involved to monitor and report progress against the established BREEAM targets by attending key project team meetings during all stages of the design and construction. *Two of two credits targeted.*

In total, four of four credits are targeted.

Man 02 – Life cycle cost and service life planning

Elemental life cycle cost (LCC) 1 of 4

The design team have confirmed that an elemental life cycle cost analysis will not be carried out at RIBA Stage 2, in accordance with PD 156865:2008. To achieve these credits the life cycle cost plan needs to appraise a range of options for:

a) The building's basic structure and envelope over life expectancy of the refurbished building;
b) The servicing strategy over a 15-year period;
c) The fit-out strategy over a 10-year period.

As a historic building there are limited options available, particularly in terms of the building's envelope and fit-out. Elemental LCC analysis is therefore deemed to be of limited value to the project.
Zero of two credits assumed.

Credit issue continues of following page.

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Man 02 – Life cycle cost and service life planning (continued)

Component level LCC plan

The design team have confirmed that a component level LCC plan is not currently scheduled to take place during RIBA Stage 4, in accordance with PD 156865:2008. To achieve this credit the component level LCC plan must include all of the following component types:

- Envelope
- Newly specified local and/or core service equipment
- Finishes
- External spaces

At this stage component level LCC analysis is deemed to be of limited value to the project; however, this will be reviewed post-planning.
Zero of one credit assumed.

Capital cost reporting

The design team has confirmed that the capital cost for the building's refurbishment / fit out works (in £k/m^2) will be reported.
One of one credit targeted.

In total, one of four credits is targeted.

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Man 03 – Construction site impacts

One credit (under Considerate Construction) mandatory for Excellent rating.

Timber (pre-requisite)
All timber is to be legally harvested and traded.
The pre-requisite requirements for this issue will be met.

Environmental management
The design team have confirmed they will appoint a principal contractor who operates an Environmental Management System, certified under ISO14001/ EMAS or an equivalent standard, covering their main operations.
One of one credit targeted.

Sustainability champion (construction)
A sustainability champion will be appointed to monitor the project on site to ensure on-going compliance with the relevant sustainability performance criteria and BREEAM targets during the construction and handover stages.
One of one credit targeted.

Considerate construction
The contractor will be required to register the scheme under the Considerate Constructors Scheme (CCS) and will be committed to achieve at least 35 points, with a minimum of 7 points in each section.
Two of two credits targeted.

Monitoring of construction site impacts (energy and water)
The design team has confirmed the principal contractor will be required to monitor and record energy and water consumption data arising from the use of construction plant, equipment and site accommodation.
One of one credit target.

Monitoring of construction site impacts (transport)
The design team has confirmed that the principal contractor will be required to monitor and record transport data resulting from delivery of the majority of construction materials to site and removal of construction waste from site.
One *of one credit targeted.*

In total, six of six credits are targeted.

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Man 04 – Commissioning and handover

Criterion 9 (production of building user guide) mandatory for Excellent rating

Commissioning 4 of 4

A member of the design team will be appointed to monitor commissioning in line with best practice (CIBSE, BSRIA and Building Regulations), with a specialist commissioning agent appointed for any complex systems.
Two of two credits targeted.

Testing and inspecting of building fabric

The design team has confirmed that the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths will be quality assured through the completion of a thermographic survey and airtightness testing.
One of one credit targeted.

Handover

The production of a non-technical building user guide, in line with the BREEAM requirements, is planned. In addition, a training schedule will be prepared for building occupiers / facilities managers to aid handover.
One of one credit is targeted.

In total, four of four credits are targeted.

Man 05 – Aftercare

Where parts 2 and 3 are assessed one credit (seasonal commissioning) mandatory for Excellent rating.

Aftercare support 3 of 3

There will be resources in place to provide aftercare support to the building occupier including:

- A handover meeting
- On site facilities management training
- Initial aftercare support for at least the first month of occupation
- Longer aftercare support for the first year of occupation, should this be required.

In addition, the design team has confirmed that energy and water consumption data will be collected for at least 12 months after occupation, and aftercare support will be provided to all building occupiers.
One of one credit targeted.

Seasonal commissioning

The design team has committed to undertake seasonal commissioning over the first 12 months of building occupation. In line with BREEAM requirements seasonal commissioning will be carried out under full and part load conditions and during period of extreme occupancy.
One of one credit targeted.

Credit issue continues on following page.

Man 05 – Aftercare (continued)

Post occupancy evaluation (POE)
The client has committed to appointing an independent third party consultant to complete a post occupancy evaluation exercise one year after initial building occupation. In accordance with BREEAM requirements the POE exercise will include the following:

- A review of the design intent and construction process.
- Feedback from a wide range of building users (including facilities management) on the design and environmental conditions of the building covering:
  - Internal environmental conditions (light, noise, temperature, air quality)
  - Control, operation and maintenance
  - Facilities and amenities
  - Access and layout
  - Other relevant issues
- Sustainability performance (energy/water consumption, performance of any sustainable features or technologies, e.g. materials, renewable energy, rainwater harvesting etc.).

Furthermore, the client has confirmed that they will carry out the appropriate dissemination of this information to share good practice and lessons learned and inform changes in user behaviour.
One of one credit assumed.

In total, three of three credits are targeted.

Hea 01 – Visual comfort

Glare control

Blinds will be specified in relevant building areas (where computer screens or projectors are regularly used) to prevent disabling glare.
One of one credit assumed.

Daylighting

The project team are unable to confirm at present whether the building will achieve an average daylight factor of at least 2% across at least 40% of the floor area and a uniformity ratio of 0.3 (this is the minimum required to achieve at least one credit). Good practice' daylighting levels will be provided in office areas.
Zero of three credits assumed.

View out

The architect has confirmed that at least 95% of the floor area space in relevant building areas (office areas where close work will be undertaken) will be within 7m of a wall which has a window or permanent opening that provides an adequate view out.
Two of two credits targeted.

Internal and external lighting levels, zoning and controls

Internal and external lighting will be specified in line with the following BREEAM criteria:

- All fluorescent lighting (if specified) will be fitted with high frequency ballasts.
- Internal lighting has been designed in accordance with the SLL Code for Lighting 2012 (and any other relevant industry standards) to ensure that illuminance levels are appropriate for the tasks undertaken.
- In office areas (where computer screens will be used) the lighting design complies with CIBSE Lighting Guide 7.
- All external lighting has been designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately.

One of one credit targeted.

In total, six of seven credits are targeted.

Hea 02 – Indoor air quality

4 of 5

Indoor air quality plan
An Indoor Air Quality Plan will be developed in line with BREEAM requirements.
One of one credit targeted.

Ventilation
Fresh air will be provided into the building in accordance with the relevant criteria and air quality sensors will be provided in any areas of the building that are subject to large and unpredictable or variable occupancy patterns. In addition, air intakes and extracts must be at least 10 metres apart and intakes 20 metres from sources of external pollution.
One of one credit targeted.

VOCs
The design team has confirmed that all key internal finishes (including decorative paints and varnishes, wood panelling, timber structures, flooring, adhesives and wall coverings) will be specified with low VOC levels in line with BREEAM requirements.
One of one credit targeted.

VOC testing post-refurbishment
The design team has confirmed that VOC testing will be carried out post-refurbishment to confirm the formaldehyde concentration levels and total VOC concentration levels. Where these are found to be above the limits stated in the BREEAM guidance measures will be taken to reduce the levels and re-testing will be carried out.
One of one credit targeted

Adaptability – potential for natural ventilation
The existing building layout means that it is unlikely that the openable window area will be equivalent to at least 5% of the gross internal floor area of each room/floor plate and that the whole development will have the potential for natural ventilation in line with BREEAM requirements. It is also not possible to naturally ventilate the building due to its primary function as an art gallery.
Zero of one credit targeted.

In total, four of five credits targeted.

Health & Wellbeing
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Hea 04 – Thermal comfort	Thermal modelling in line with CIBSE AM11 will be undertaken for this refurbishment scheme, which will inform the temperature control strategy and zoning. The thermal model will demonstrate that the thermal comfort criteria within CIBSE Guide A will be met for the projected climate change scenario. *Three of three credits targeted.*	3 of 3
Hea 05 – Acoustic performance	The design team has confirmed that a suitably qualified acoustician will be appointed to define a bespoke set of acoustic performance requirements for all function areas (based on the principles of sound insulation, indoor ambient noise levels and reverberation times). The performance requirements will be confirmed via an appropriate post-construction acoustic testing regime (as specified by the acoustician). *Three of three credits assumed.*	3 of 3
Hea 06 – Safety and security	A suitably qualified security consultant from the local police will be consulted to ensure the principles of Secured by Design are implemented. *One of one credit targeted.*	1 of 1

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Energy
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Ene 01 – Reduction of CO_2 emissions Six credits mandatory for Excellent rating Ten credits mandatory for Outstanding rating	Preliminary energy modelling has been undertaken for the existing and proposed buildings. Based on the building services and fabric specified, at least four of the available fifteen credits under this issue will be achieved. Further credits are not achievable due to the performance of the existing building. As a historic building, 176 Prince of Wales Road is exempt from the mandatory requirements for this issue; an excellent rating is therefore still achievable. *Four of fifteen credits targeted.*	4 of 15
Ene 02 – Energy monitoring One credit is mandatory for Very Good, Excellent and Outstanding ratings.	Accessible, clearly labelled sub-meters will be provided to ensure that the energy consumption of the following systems (where present) can be monitored separately: - Space heating - Domestic hot water heating - Humidification - Cooling - Ventilation - Pumps - Lighting - Small power - Renewable or low carbon systems - Controls - Lifts - Other major energy consuming systems Additional sub-meters will be provided to ensure that each function area within the building will be able to be separately metered (office areas, café, main gallery spaces). *Two of two credits targeted.*	2 of 2
Ene 03 – External lighting	The design team has confirmed that the average luminous efficacy of all external light fittings will be greater than 60 luminaire lumens per circuit Watt. Furthermore, all external light fittings (with the exception of security lighting) will be automatically controlled to avoid daylight operation. *One of one credit targeted.*	1 of 1

Energy
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Ene 04 – Low carbon design	**Passive design analysis and free cooling** Passive design analysis (to establish opportunities for passive design solutions) has not been completed. In addition a free cooling strategy will not be implemented for this scheme. The thermal performance of the existing building, and requirement to retain many of the existing windows, will mean that the scheme is unable to achieve the required 5% reduction in energy demand through the specification of passive design measures. *Zero of two credits assumed.* **Low carbon technologies** A low zero carbon feasibility study has been carried out and a local LZC technology (air source heat pumps) will be specified that results in a meaningful reduction (at least 5%) in energy demand or carbon dioxide emissions. *One of one credit targeted.* *In total, one of three credits is targeted.*	1 of 3
Ene 06 – Energy efficient transportation systems	An analysis of the transport demand and usage patterns for the building will be carried out to determine the optimum number and size of lifts. The energy consumption will be calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators), for one of the following: a) At least two types of system (for each lift type required) b) An arrangement of systems (e.g. hydraulic, traction, machine room-less lift (MRL)) c) A system strategy which is 'fit for purpose'. The transportation system with the lowest energy consumption will be specified. In addition, energy efficient features will be specified for the lifts. This may include low energy lighting, a stand-by mode during off-peak and idle periods, and a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. *Three of three credits targeted.*	3 of 3

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Transport
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Tra 01 – Public transport accessibility	The development is located within central London, in close proximity to a number of underground stations and bus stops. Full credits are assumed. *Five of five credits targeted.*	5 of 5
Tra 02 – Proximity to amenities	The development is located in central London within close proximity to local amenities (including food outlets, cash points and outdoor open spaces). Full credits are assumed. *One of one credit targeted.*	1 of 1
Tra 03 – Cyclist facilities	Cycle storage The design team has confirmed that the proposals include increasing the number of Sheffield bike racks from eight to fourteen. However, these cycle spaces are not BREEAM compliant as they are not 'covered overhead'. The architect has confirmed that a canopy cannot be provided for heritage reasons. The historic facade of the building has no fixtures other than light fittings. The bath stone is rich in materiality and contrasts with the stained glass and capital detailing. Adding a canopy would undermine the appreciation of the listed building. In addition, the canopy would block the external lighting as it provides down and upward lighting. The design team has, however, provided internal cycle storage spaces for staff use. Three cycle racks for long stay are included in the basement, accessed by the new lift. In order to achieve this credit both visitor and staff cycle spaces must be BREEAM compliant. *The available credit is not targeted.* Cyclist facilities The team has confirmed that changing facilities, a Part M compliant shower and toilet will be provided in the basement. This will benefit staff who commute by bike and reduce the need for public and fossil fuelled transport. *One of one credit targeted.* *One of two credits targeted.*	1 of 2
Tra 04 – Maximum car parking capacity	The proposed development does not include any car parking spaces; two credits can therefore be achieved by default. *Two of two credits targeted.*	2 of 2
Tra 05 – Travel plan	A site-specific travel plan will be developed as part of the feasibility and design stages, which will consider all types of travel relevant to the building type and users. *One of one credit targeted.*	1 of 1

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Water
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Wat 01 – Water consumption Where water consuming plant or equipment is specified: one credit mandatory for Very Good and Excellent ratings.	The design team has confirmed that they will aim for a 25% improvement in water consumption (litres/person/day) compared to BREEAM's notional baseline performance. Further credits are not achievable as there is limited space available for the installation of rainwater harvesting. *Two of five credits targeted.*	2 of 5
Wat 02 – Water monitoring Where part 2 is being assessed: criterion 1 (installation of water meter on mains supply) is mandatory for Very Good and Excellent ratings.	The design team has confirmed that a pulsed water meter will be installed on the mains water supply to the building. *One of one credit targeted.*	1 of 1
Wat 03 – Water leak detection and prevention	The design team has confirmed that a major leak detection system will be installed on the mains water supply within the development and between the building and the utilities water meter is installed, in line with BREEAM requirements. Solenoid shut-off valves, linked to presence detectors, will be specified for all WC areas to minimise the risk of water leaks and wastage from sanitary fillings. *Two of two credits targeted.*	2 of 2
Wat 04 – Water Efficient Equipment	The design team has confirmed that there are no unregulated water demands present. *Credit filtered out of assessment.*	N/A

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Materials
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Mat 01 – Life cycle impacts	The design team will utilise a life cycle assessment (LCA) tool to measure and reduce the life cycle impacts of new building materials. *Six of six credits are targeted, in addition to one 'exemplary level' credit.*	6 of 6 +1
Mat 03 – Responsible sourcing of materials Criterion 1 (sourcing of timber) is mandatory for all ratings.	Pre-requisite The design team has confirmed that all timber used on the project will be sourced in accordance with the UK Government's Timber Procurement Policy. *The pre-requisite requirements for this issue will be met.* Sustainable Procurement Plan The appointed principal contractor will be required to source new materials in accordance with a documented Sustainable Procurement Plan. One *of one credit targeted.* Responsible Sourcing of Materials It is confirmed that key building elements will be sourced responsibly (certified under BES 6001 or ISO 14001) in line with BREEAM requirements. Further credits are unachievable at present due to the limited availability of appropriately certified materials within building services. *One of three credits targeted.* *In total, two of four credits are targeted.*	2 of 4
Mat 04 – Insulation	The design team has confirmed that any insulation specified and installed for the external walls, ground floor, roof and building services will be A or A+ rated under the Green Guide to Specification. *One of one credit targeted.*	1 of 1
Mat 05 – Designing for Robustness	Measures will be specified to protect vulnerable internal and external areas of the building from the effects of pedestrian and vehicle movement. *One of one credit assumed.*	1 of 1
Mat 06 – Material efficiency	The design team has confirmed that opportunities will be identified, and appropriate measures investigated and implemented, to optimise the use of materials (and therefore limit waste) through building design, procurement, refurbishment, maintenance and end of life. *One of one credit assumed.*	1 of 1

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Waste
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Wst 01 – Construction site waste management	**Pre-refurbishment audit** A pre-refurbishment waste audit (in line with BREEAM requirements) will be undertaken. *One of one credit targeted.* **Reuse and direct recycling of materials** At present, it is considered unlikely that a sufficient quantity of waste materials will be able to either be directly reused on- or off-site for this credit to be targeted. However, it is noted that a significant quantity of brick will be reused on-site. This issue will be reviewed in more detail following the appointment of a principal contractor. *Zero of two credits assumed.* **Resource efficiency** A resource management plan will be provided covering the waste arisings from the refurbishment, with the aim of minimising waste and recording and reporting accurate data on waste arisings. The non-hazardous waste relating to construction/refurbishment activities (and dedicated off-site manufacture or fabrication processes) will be no more than 1.2 tonnes per 100m^2 of floor area. The project team have advised that further credits are likely to be unachievable due to the nature of the project; however, this issue will be revisited once a contractor has been appointed. *Two of three credits targeted.* **Waste diverted from landfill** At least 85% (by volume) or 90% (tonnage), of refurbishment waste will be diverted from landfill. Furthermore, at least 90% (by volume) or 95% (by tonnage) of demolition and strip-out waste will be diverted from landfill. *One of one credit targeted.* *In total, four of seven credits targeted.*	4 of 7
Wst 02 – Recycled aggregates	At present recycled aggregates will not total more than 25% of the total aggregates used in the building. The structural engineer has advised that this credit will likely be unachievable for this project. *Zero of one credit targeted.*	0 of 1
Wst 03 – Operational waste One credit mandatory for Excellent rating.	The design team has confirmed that dedicated space will be provided for the segregation and storage of operational recyclable waste volumes generated by the building. The space will be clearly labelled, accessible and of an appropriate capacity. *One of one credit targeted.*	1 of 1

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Waste
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Wst 05 – Adaptation to climate change	The design team has confirmed that a climate change adaptation strategy will be produced to recognise and encourage measures to mitigate the impact of extreme weather conditions arising from climate change over the lifespan of the building. *One of one credit targeted.*	1 of 1
Wst 06 – Functional adaptability	A building–specific functional adaptation strategy will be undertaken including recommendations for measures to be incorporated to facilitate future adaptation *One of one credit assumed.*	1 of 1

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Land Use and Ecology
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LE 02 - Protection of ecological features	There are no existing features of ecological value within and surrounding the refurbishment zone, therefore no ecological features will be damaged during site works. *One of one credit targeted.*	1 of 1
LE 04 – Enhancing site ecology	A suitably qualified ecologist will be appointed by the client to advise on enhancing the ecology of the site. The design team will implement all recommendations made by the ecologist regarding the enhancement of site ecology. *One of one credit targeted.*	1 of 1

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Pollution
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Pol 01 – Impact of refrigerants	**Impact of refrigerants** Refrigerants specified within the scheme will have Direct Effect Life Cycle CO_2 equivalent emissions of less than 1000 $kgCO_{2e}$ per kW of cooling/heating capacity. The mechanical and electrical engineer has advised that the second credit for this sub-issue is not achievable. *One of two credits targeted.* **Leak detection** The design team has advised that it is not practical to install a refrigerant leak detection system in the building. This credit is therefore not achievable. *Zero of one credit targeted.* *One of three credits targeted.*	1 of 3
Pol 02 – NO_x emissions	The credits for NO_x emissions cannot be achieved due to the use of mains grid electricity to power the heating and hot water system. *Zero of three credits assumed.*	0 of 3
Pol 03 – Surface water run-off	**Flood risk** The site is situated in a low flood risk zone and will meet the BREEAM requirements for avoidance of flooding (Checklist 1). *Two of two credits targeted.* **Surface water run-off** There will be no increase in impermeable surfaces as a result of the refurbishment works. The second credit for this sub-issue (for reducing peak rate and volume of run-off by 50%) is not achievable due to a lack of space for on-site rainwater attenuation measures. *One of two credits targeted.* **Minimising watercourse pollution** This credit is not targeted at present; the project will not be able to achieve zero discharge to sewers or watercourses for rainfall depths of up to 5mm due to a lack of space for a sufficient volume of rainwater attenuation. *Zero of one credit targeted.* *In total three of five credits are targeted.*	3 of 5
Pol 04 – Reduction of night time light pollution	All external lighting (including safety and security lighting) will be designed and installed in compliance with ILP Guidance Notes. *One of one credit targeted.*	1 of 1