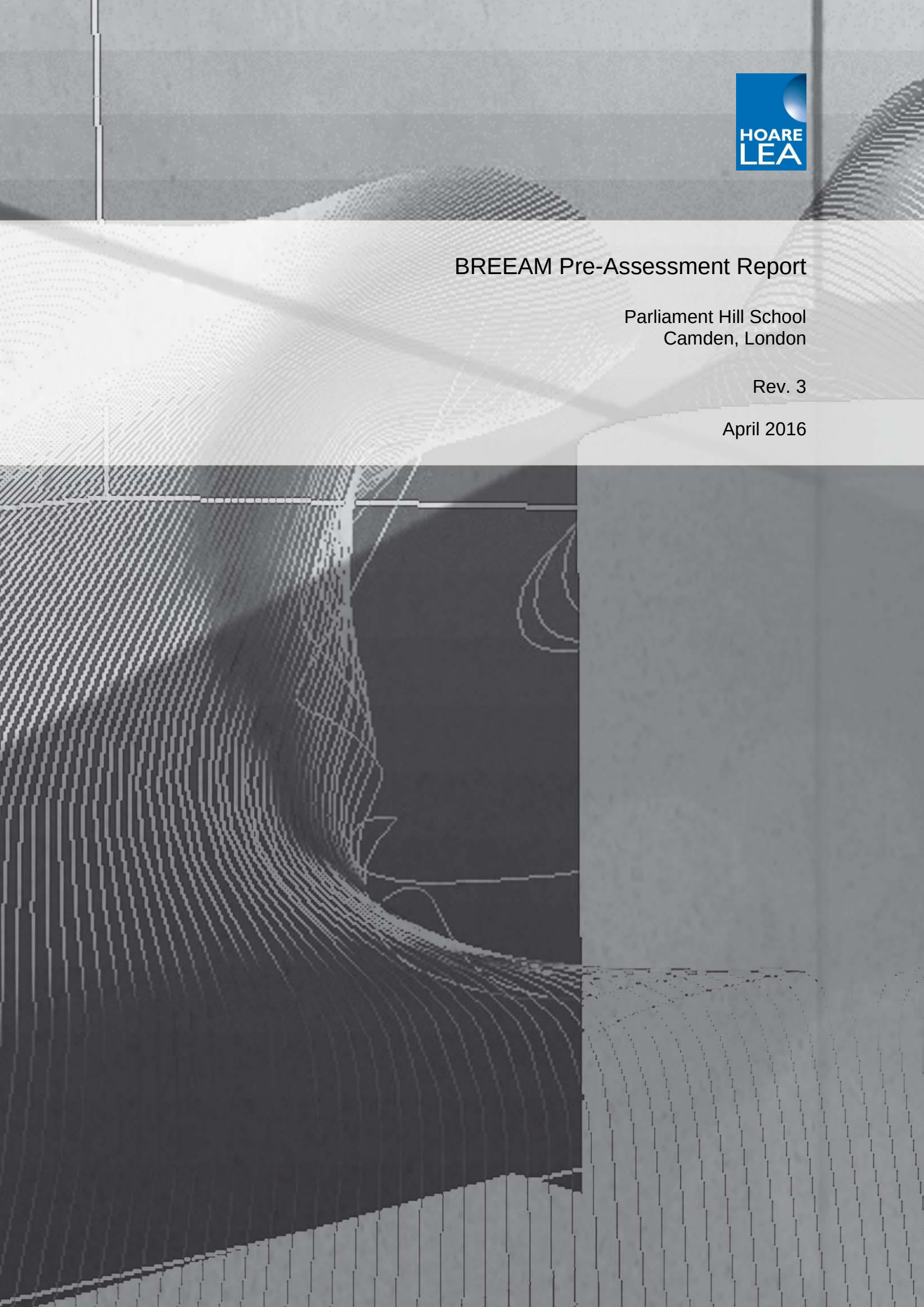

BREEAM Pre-Assessment Report

Parliament Hill School
Camden, London

Rev. 3

April 2016

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Audit Sheet

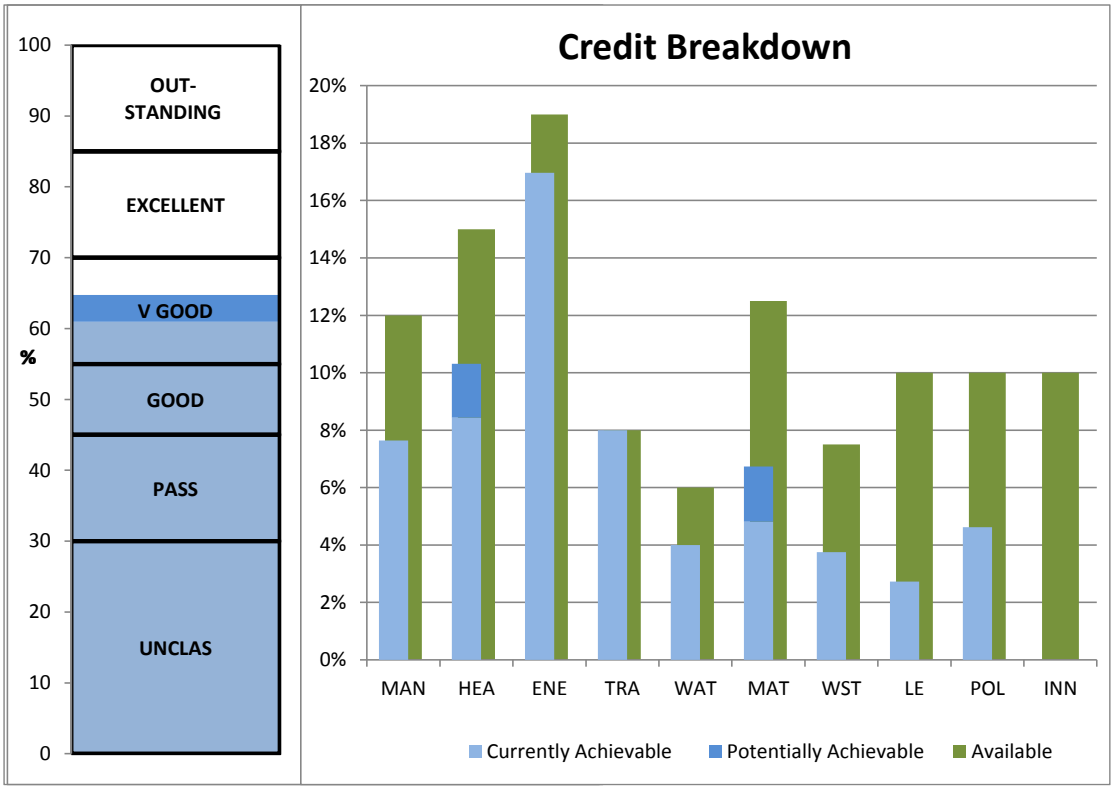
Revision	Description	Date	Prepared by	Reviewed by
Draft	For Comment	24/06/2014	PK	MC, TC
1	Planning Issue	08/08/2014	PK	TC
2	Update following design progression	30/06/2015	JP	PK
3	Issue for planning MMA submission	29/04/2016	JP	PK

CONTENTS

1.0 Executive Summary

The Parliament Hill School scheme is a new build extension to the school in Camden, North London. It has three stories and includes classrooms, laboratories and communal spaces. This assessment also includes the separate dining hall building to the west of the main school extension.

A BREEAM *Very Good* rating is targeted for this project. The scheme has been registered under the 2011 BREEAM New Construction assessment methodology (registration number BREEAM-0052-3498).



The scoring matrix is shown above and general conclusions from the body of the report are listed below.

- A baseline score of 60.94% exceeds the **Very Good** rating by 5.94%. It is estimated that 4 further credits, equivalent of 3.80% are potentially achievable (but not currently assumed) which would uplift the overall score to 64.74%.
- For the design stage assessment, the design team should target sufficient 'risk' credits to fall within a 5-10% buffer above the desired rating threshold. Therefore, for a desired rating of Very Good, a score of 60-65% should be maintained.
- The current score of 60.94% falls within this boundary, therefore no additional credits need to be targeted, however as the design and post construction stages progress this margin may reduce, therefore the list of additional opportunity credits may be required to ensure that the desired BREEAM rating is maintained at post-construction stage.
- There are many mandatory (section 4) and early-action (section 5) credits that require the client and design team's attention in order to achieve the desired rating beyond solely achieving the required percentage score.

The body of this report details the assumptions made during this pre-assessment review. Full details of each credit targeted are attached in Appendix 2.

2.0 BREEAM Background

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings, with over 115,000 buildings certified and nearly 700,000 registered. 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. Credits are awarded in ten categories according to performance. These credits are then added together to produce a single overall score on a scale of Pass, Good, Very Good, Excellent and Outstanding. The operation of BREEAM is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders.

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

Objectives of BREEAM:

- To provide market recognition to low environmental impact buildings
- To ensure best environmental practice is incorporated in buildings
- To set criteria and standards surpassing those required by regulations and challenges the market to provide innovative solutions that minimise the environmental impact of buildings
- To raise the awareness of owners, occupants, designers and operators of the benefits of buildings with a reduced impact on the environment
- To allow organisations to demonstrate progress towards corporate environmental objectives

This BREEAM scheme covers ten categories of sustainability. Each category is detailed in this Scheme Document and consists of a number of issues (summarised in table 1). Each issue seeks to mitigate the impact of a new or refurbished building on the environment by defining a performance target and assessment criteria that must be met to confirm the target has been achieved.

Management • Commissioning • Construction site impacts • Security	**Waste** • Construction waste • Recycled aggregates • Recycling facilities
Health and Wellbeing • Daylight • Occupant thermal comfort • Acoustics • Indoor air and water quality • Lighting	**Pollution** • Refrigerant use and leakage • Flood risk • NO_x emissions • Watercourse pollution • External light and noise pollution
Energy • CO_2 emissions • Low or zero carbon technologies • Energy sub metering • Energy efficient building systems	**Land Use and Ecology** • Site selection • Protection of ecological features • Mitigation/enhancement of ecological value
Transport • Public transport network connectivity • Pedestrian and Cyclist facilities • Access to amenities • Travel plans and information	**Materials** • Embodied life cycle impact of materials • Materials re-use • Responsible sourcing • Robustness
Water • Water consumption • Leak detection • Water re-use and recycling	**Innovation** • Exemplary performance levels • Use of BREEAM Accredited Professionals • New technologies and building processes

Table 1: BREEAM Sections

The performance targets go beyond the minimum standard needed to satisfy Building Regulation or other legislation. The targets represent good or best practice in the field of sustainable design and procurement.

3.0 Pre-assessment scoring

Figure 1 and table 1 (together with further details in Appendix 2) summarise the assessment of the Parliament Hill School scheme based upon discussions with the project team and main contractor, relating to the opportunity to achieve each credit.

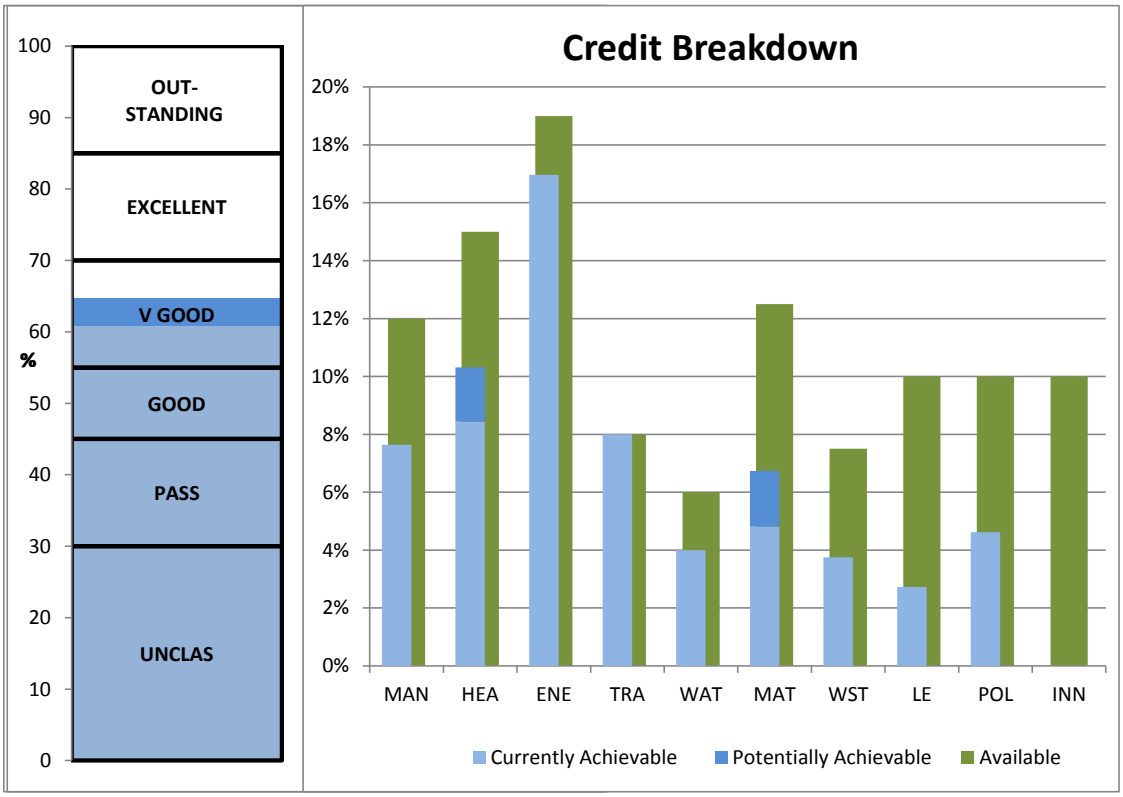


Figure 1: Initial scoring breakdown

Issue Category	Number of Credits Achieved (a)	Number of Credits Available (b)	Number of Opprtunity Credits Potential	Issue Weightin g (c)	Weighted Score Achieved (a/b) x c	Potential Opportunity Credits; Additional weighted Score
Management	14	22	0	12%	7.64	0.00
Health & Wellbeing	9	16	2	15%	8.44	1.88
Energy	25	28	0	19%	16.96	0.00
Transport	7	7	0	8%	8.00	0.00
Water	6	9	0	6%	4.00	0.00
Materials	5	13	2	12.5%	4.81	1.92
Waste	3	6	0	7.5%	3.75	0.00
Land use & Ecology	3	11	0	10%	2.73	0.00
Pollution	6	13	0	10%	4.62	0.00
Innovation	0	10	0	10%	0.00	0.00
Total					***60.94***	***3.80***
				Total Potential Score		**64.74%**

Table 2: Initial scoring breakdown

Table 1 indicates that a baseline score of 60.94% (**Very Good** rating) is achievable, with a maximum potential score of 64.74% if further credits are feasible.

4.0 Mandatory Credits

The final classification of a project is based not only on the overall percentage scored but also achieving numerous mandatory credits and completing reports/surveys for some credits before key project milestones. For example, the Parliament Hill scheme cannot achieve a Very Good rating without achieving the credits in the last column below, regardless of the percentage score achieved. The table and list below details these requirements;

BREEAM issue	***VERY GOOD***
MAN 01: Sustainable procurement	One credit
MAN 02: Responsible construction practices	None
MAN 04: Stakeholder participation	None
HEA 01: Visual comfort	Criterion 1 only
HEA 04: Water quality	Criterion 1 only
ENE 01: Reduction of CO_2 emissions	None
ENE 02: Energy monitoring	One credit
ENE 04: Low or zero carbon technologies	None
WAT 01: Water consumption	One credit
WAT 02: Water monitoring	Criterion 1 only
MAT 03: Responsible Sourcing	Criterion 3 only
WST 03: Operational waste	None
LE 03: Mitigating ecological impact	One credit

Table 3: List of mandatory criteria to achieve Very Good BREEAM ratings

Currently, the Parliament Hill scheme is targeting all mandatory credits to achieve a Very good rating.

5.0 Early-action credits

All credits within BREEAM require early consideration in order to incorporate their requirements into the building design with the greatest ease, and at the lowest cost. There are however some credits that require specific actions, reports and/or surveys to be carried out at an early design stage in order to be achieved. The credits that specifically affect this project are listed in table 4 on the next page.

In some cases, the BREEAM guidance specifically states a design stage (B or C) that the above credits must be completed by, however the intent of these deadlines are to ensure that the conclusions/recommendations of the actions described can be incorporated into the building and development's design, i.e. their effectiveness is not hindered by being commissioned too late in the design process.

The actions in table 4 should be carried out as soon as possible to comply with BREEAM criteria, and to ensure their conclusions can be incorporated into the Parliament Hill scheme.

Issue	Description
MAN 1: Sustainable Procurement	- Minutes of meetings at briefing stage between client, building occupier, and design team are recorded to identify roles and responsibilities. - BREEAM AP to produce a report setting targets and identifying strategy
MAN 4: Stakeholder Participation	A consultation plan must be prepared and includes a timescale and methods of consultation for all stakeholders. There is a specific list of topics that must be covered under BREEAM compliance requirements
MAN 4: Stakeholder Participation	An access statement is developed in line with the CABE publication *Design & Access Statements; How to write, read and use them*, based on the principles of inclusive design.
HEA 5: Acoustic Performance	An acoustician is appointed to report on external sources, the site layout and zoning of the building for good acoustics, acoustic requirements for users with special hearing and communication needs and acoustic treatment of different zones and facades.
HEA 6: Safety and Security	The design team must consult with the suitably qualified security consultant occurred during or prior to the concept design stage (RIBA stage C) or equivalent.
ENE 4: LZC technologies	A feasibility study must be carried out by an energy specialist to establish the most appropriate local (on-site or near-site) low or zero carbon (LZC) energy source for the building/development.
TRA 5: Travel Plan	A site-specific transport survey must be carried out and a travel plan created which considers all types of travel relevant to the building type and users.
POL 3: Surface water run-off	A site specific Flood Risk Assessment must be carried out.
LE 1-3: Ecological Value	An Ecologist must be appointed at RIBA Stage C or the equivalent early design stage to report on pre-commencement ecological value, and make recommendations for protection and enhancement measures.
POL 5: Noise Attenuation	An acoustician must be appointed to carry out a pre-construction noise impact assessment in compliance with BS 7445:1991.
ALL	The chosen contractor is either partially or fully responsible for a large percentage of the credits within BREEAM. The rating achieved is therefore heavily dependent on their understanding and acceptance of the various credit requirements. It is recommended to include specific BREEAM clauses in the main contract documentation (not simply state the BREEAM rating targeted).

Table 4: List of credits that require early action by the design team

6.0 Strategy Breakdown

The following sub-sections review the BREEAM credit categories, and give an overview of the design team's assumptions when preparing the pre-assessment.

6.1 Management

Currently 14 of 22 credits have been targeted. The following list highlights some of the main assumptions, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The contractor shall achieve between 35 and 39 out of 50 in the Considerate Contractors Scheme with a minimum score of 7 in each of the five sections.
- The contractor shall prepare a building user's guide and carry out training with the building users at handover stage.
- The contractor shall appoint a commissioning manager and also a specialist commissioning manager where required for HVAC and BMS systems.
- The contractor shall commit to carrying out additional seasonal commissioning in the following three seasonal periods over the first 12 months of occupation, in addition to providing aftercare support to the building users throughout this period.
- The contractor shall monitor, record and report on energy and water consumption data resulting from all construction processes.
- The contractor operates an Environmental Management System covering their main operations, certified to ISO14001/EMAS or equivalent standard, and structured in accordance with BS8555.
- The design team shall carry out a consultation process with the building's stakeholders and future users. There is a specific list of topics that must be discussed in order to be BREEAM-compliant, therefore co-ordination with the BREEAM assessor is recommended.

There have been no additional opportunity credits identified at this stage.

6.2 Health and Wellbeing

Currently 9 of 16 credits have been targeted. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The design team shall confirm that all internal is in accordance with SLL Code for Lighting 2012 & Lighting Guide 7, and external lighting is in accordance with BS 5489-1:2013 and A2:2008.
- The design team shall specify finishes with Volatile Organic Compound (VOC) emissions compliant with BREEAM standards.
- The design team shall carry out thermal modelling in accordance with CIBSE AM11.
- Safe access routes shall be installed for vehicle, cyclist and pedestrian traffic. These shall be separate from each other in line with NCN-compliance criteria.

- The average daylight factors and glare control measures for the BREEAM criteria shall be met in all relevant occupied areas.
- Chilled, mains-fed drinking water shall be provided for occupants. Drinking fountains do not satisfy these criteria.
- An acoustician shall report at early design stage on the internal and external noise considerations and treatments required for the building in order to achieve compliance with BS8233:1999. Furthermore a programme of pre-completion acoustic testing is confirmed to validate the measures implemented.
- All fume cupboards shall be designed to Building Bulletin 88; *Fume cupboards in schools*.
- The project team shall consult with a security consultant at early design stage and achieve compliance with the Secure by Design principles or equivalent.

There are 2 additional opportunity credits available for this section. Dependent on the daylighting calculations, the scheme may achieve an additional credit. Furthermore, a third credit could be achieved for the acoustic performance of the building, by exceeding the minimum requirements of BB93. These have not been included at this stage but remain achievable as discussed in section 7.

6.3 Energy

Currently 25 of 28 credits have been targeted. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The current design achieves 14 credits for the reduction of CO_2 emissions under the Part L 2010 targets.
- The scheme will incorporate metering of all major energy consuming systems and accessible sub-meters covering the energy supply to all relevant function areas or departments.
- The external lighting scheme shall be controlled by a time switch.
- The design team shall produce a Low & Zero Carbon (LZC) feasibility study at early design stages to guide the energy strategy of the building.
- The design team shall carry out an analysis of transportation demand and usage patterns to inform the lift requirement. The most energy efficient lift specification reviewed is then specified and must include 3 energy-saving features.

There have been no additional opportunity credits identified at this stage.

6.4 Transport

Currently all 7 of 7 credits have been targeted. There are a number of credits within this section that are beyond the control of the design team, i.e. local transport and amenities, but the site is not expected to performs poorly in these areas. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The design team shall provide 1 cycle storage space per 10 building staff & students, 1 shower per 10 cycle storage spaces, and at least 1 locker within changing rooms for every cycle storage space. All numbers are always rounded up.
- However, contrary to the above, the number of each of these provisions can reduced by half if the building's public transport accessibility scores highly in TRA01.
- The design team or client shall produce/update a travel plan for the building that takes into consideration the findings of a site-specific transport survey.

As all credits have been targeted, no additional credits have been identified as potentially achievable in this category.

6.5 Water

Currently 6 of 9 credits have been targeted. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The design team shall specify best practice water fittings with low flow rates in order to achieve 3 credits in the WAT01 credit.
- Minor leak prevention systems shall be installed on water pipework into toilet blocks in the form of solenoid values controlled by PIR sensors or similar.

There have been no additional opportunity credits identified at this stage.

6.6 Materials

Currently 5 of 13 credits have been targeted. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

NOTE: The evidence requirements of the materials category of BREEAM are the most extensive, especially at post-construction stage. It is recommended that the contractor ensures that all suppliers provide their relevant ISO, BES6001 and BS-EN standards relating to sustainable manufacturing together with their quotations to aid the documentation collation.

- The design team shall specify construction build-ups that achieve good practice embodied carbon values in line with the Green Guide rating system. The materials specified for the main building elements should achieve 3 credits in the MAT01 BREEAM spreadsheet calculator, and 1 credit for insulation in MAT04.
- The contractor shall procure materials from suppliers with good practice responsible sourcing accreditations (BES6001 standards or equivalent), in order to achieve credits in MAT03.

- The contractor shall confirm that all timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.

- The architect shall identify all internal and external areas that are vulnerable to damage from pedestrian or vehicular traffic, and specify suitable durability measures in these areas such as bollards/raised kerbs externally and kick-plates on doors internally.

There is 1 additional credits available should the design team specify materials that exceed the Green Guide ratings assumed, and if the contractor procures materials from suppliers with best practice responsible sourcing credentials. These credits have not been included at this stage but remain achievable as discussed in section 7.

6.7 Waste

Currently 3 of 6 credits have been targeted. Many of these requirements fall under the responsibility of the contractor. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The contractor shall operate a Site Waste Management Plan (SWMP) which contains targets for waste generation and diversion from landfill in order to achieve at least three credits in this category.

- The design team shall provide adequate recyclable waste storage space in accordance with BREEAM sizing criteria (4m^2 for every 1000m^2 of floor area), segregated from general waste storage areas. Extra space must be allocated if catering facilities are present.

There have been no additional opportunity credits identified at this stage.

6.8 Land Use and Ecology

Currently 3 of the 11 credits in this section have been targeted, most of which relate to the change in ecological value of the site. The current land is not expected to be classed as 'contaminated' but has been 'previously developed' under BREEAM definitions.

It is assumed that the design team will be able to use the BREEAM calculation tools to confirm that there has been no change to ecological value. This is sufficient to award 4 credits, however any additional credits require an ecologist's confirmation.

In the case of Parliament Hill School, the site cannot be classed as 'low ecological value', therefore this single credit for LE02 has not been assumed at this stage. The credits to for an ecologist to report on measures to improve the ecological value of the site (and then create a 5-year habitat management plan), have not been targeted at this stage.

6.9 Pollution

Currently 6 of 13 credits have been targeted in this section. The refrigerant within the mechanical systems is not expected to have a low Global Warming Potential (GWP) such as ammonia or CO_2, however the scheme is expected to score well in most other areas of this category. The following list highlights some of the main assumptions have been made, however reference should be made to the Appendix and BREEAM manual for full details of the compliance criteria for each credit:

- The heating and hot water system shall achieve low NOx emissions in line with the requirements for 1 of the 3 credits in POL02 (e.g. 40 mg/kWh on average). This credit is not easy to achieve a high score in when CHP is specified, as per the Parliament Hill scheme.

- A flood risk assessment shall be carried out, and it is expected to confirm that the site is within an area of low risk of flooding.

- The design team shall demonstrate that the drainage system is ensures that there is no net increase in surface water run-off from the site. Furthermore, SUDs shall be specified to ensure that any additional discharge from a 100 year 6 hour event is attenuated.

- The design team shall ensure that all non-security external lighting is controlled by a programmable time switch to prevent night-time light pollution.

- In addition to credit HEA05, the acoustician's scope of work shall include a pre-construction noise impact assessment in compliance with BS 7445:1991 and reporting on attenuation measures required to avoid disturbance to local sensitive sites.

There have been no additional opportunity credits identified at this stage.

6.10 Innovation

There have been no additional opportunity credits identified at this stage.

7.0 Potential Additional Credits

As outlined in each category in section 6 and in the 'risk' credit column in table 2, there are numerous additional credits, not currently included, that could be targeted. These credits and their description are included in table 3 below.

Issue	Credits	Description
HEA 1	1	This credit may be achieved dependent on the results of the daylighting calculations.
HEA 5	1	Exceed the acoustic requirements of BB93 in specific areas as defined in the BREEAM manual.
MAT 1	1	All major building elements (walls, roofs etc.) achieve best practice embodied carbon values in line with the Green Guide rating system.
MAT 4.2	1	The building fabric and services insulation are procured from suppliers with best practice BES6001 / ISO standards for responsible sourcing.

Table 5: Potential risk credits that could be achieved subject to an additional cost

At the early project stage the design team should target sufficient 'risk' credits to fall within a 5-10% buffer above the desired rating threshold. Therefore, for a desired rating of Very Good, a score of 60-65% should be maintained.

The current score of 60.94% falls within this boundary, therefore no additional credits need to be targeted, however as the design and post construction stages progress this margin may reduce, therefore the list of additional opportunity credits may be required to ensure that the desired BREEAM rating is maintained at post-construction stage.

8.0 Conclusion

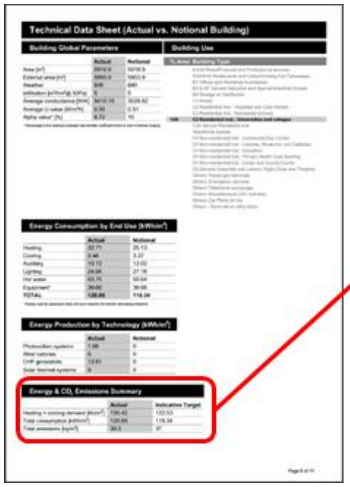
The baseline score of 60.94% exceeds the **Very Good** rating by 5.94%. It is estimated that 4 further credits, the equivalent of 3.80 are potentially achievable (but not currently assumed) which would uplift the overall score to 64.74% which would remain within the **Very Good** BREEAM rating due to minimum standard requirements.

It is advised that at the design stage of the project, the scheme should be achieving at least 5% improvement upon the targeted BREEAM score, preferably, a 10% improvement. This will mitigate any arising issues encountered during the design and construction phase that may hinder the project to achieving the desire rating. The current proposal falls within this margin.

This report reviews the initial pre-assessment exercise outcome and is intended to offer advice as to the strategy by which the design team can ensure the targeted BREEAM rating is achieved. This is a BREEAM 2011 New Construction (SD5073 Version 3.4) assessment. An Interim certification is issued after the Design Stage, however this is superseded by the Final certification which will be awarded after the Post Construction Stage assessment.

9.0 Appendix 1 – Credit ENE01 scoring methodology

Previously under BREEAM 2008, a building's EPC score could be converted directly into points under BREEAM credit ENE01. Under the new BREEAM 2011 New Construction, this calculation procedure has changed and relates to the BRUKL document instead of the EPC. It takes into account three metrics; energy demand, energy consumed and carbon emissions. The performance of the building under these three metrics is compared to the 'notional' building (created by the software when carrying out Part L SBEM calculations). The results are printed on one of the last pages of the BRUKL document shown below.



Energy & CO_2 Emissions Summary

	Actual	Indicative Target
Heating + cooling demand [MJ/m²]	135.42	122.53
Total consumption [kWh/m²]	120.89	118.34
Total emissions [kg/m²]	30.5	37

The ratio of the actual:notional building in each of these three metrics is added together to form the final score, called the EPR_{NC} (Energy Performance Ratio for New Construction).

The example above shows that whilst the building's CO_2 emissions beat Part L by 17.5% (i.e. 30.5 vs. 37kgCO_2/m²), the building's design demands more energy than the notional building (top row) and the systems consume more energy than the notional building (middle row), therefore the building would score 0 in two out of the three metrics.

The left table below shows how a 17.5% improvement in CO_2 emissions equates to an EPR of 0.1462 (blue box) but the two previous metrics score 0. Therefore the total EPR_{NC} score remains at 0.1462 which equates to only 2 credits (red box) under BREEAM using the conversion table on the right.

Notional building energy demand	122.53	MJ/m2/annum
Actual building energy demand	135.42	MJ/m2/annum
Notional building energy consumption	118.34	kWh/m2/yr
Actual building energy consumption	120.89	kWh/m2/yr
Target Emission Rate (TER)	37.00	kgCO2/m2/yr
Building Emission Rate (BER)	30.50	kgCO2/m2/yr
Building Emission Rate improvement over TER	17.57%	
Demand Energy Performance Ratio (EPR)	0.0000	
Consumption Energy Performance Ratio (EPR)	0.0000	
CO_2 Energy Performance Ratio (EPR)	0.1462	
Overall Building Energy Performance Ratio (EPR_{NC})	0.1462	

Credits	Revised EPRNC
1	0.06
2	0.12
3	0.18
4	0.24
5	0.3
6	0.36
7	0.42
8	0.48
9	0.54
10	0.6
11	0.66
12	0.72
13	0.78
14	0.84
15	0.9

For example to achieve BREEAM Excellent requires two parameters to be met:

1) The third metric (blue box) must achieve 0.22 which is a 25% CO_2 reduction upon Part L

2) The overall EPR_{NC} must be $\geq$0.36 which achieves 6 credits (green box) which means that the building fabric and systems must play their part too, rather than simply flooding the building with PV panels to meet the CO_2 target.

10.0 Appendix 2 – Breakdown of BREEAM Scoring Matrix

This document outlines which credits have been assumed to be achievable at this stage of design, and which credits are deemed potentially achievable, but not currently included (as described in section 7).

BREEAM New Construction 2011 Pre-Assessment - Parliament Hill School, Camden

CREDIT REFERENCE	Credits Available	Achievable Credits	Risk Credits	Pass	Good	Very Good	Excellent	Outstanding	Responsibilities (TBC)	Actions / Comments *(TBC)*
				Mandatory						
Man 1 - Sustainable Procurement	8	4		1	1	1	1	2		
Man 2 - Responsible Construction Practices	2	2					1	2		
Man 3 - Construction Site Impacts	5	4								
Man 4 - Stakeholder Participation	4	4					1	1		
Man 5 - Life cycle cost and Service life planning	3	0								
Hea 1 - Visual Comfort	3	1	1	C1	C1	C1	C1	C1		
Hea 2 - Indoor Air Quality	5	2								
Hea 3 - Thermal Comfort	2	2								
Hea 4 - Water Quality	1	1		C1	C1	C1	C1	C1		
Hea 5 - Acoustic Performance	3	2	1							
Hea 6 - Safety and security	2	1								
Ene 1 - Reduction of CO_2 emissions	15	14					6	10		
Ene 2 - Energy Monitoring	2	2				1	1	1		
Ene 3 - External Lighting	1	1								
Ene 4 - Low or Zero Carbon Technologies	5	5					1	1		
Ene 6 - Energy Efficient Transportation systems	2	2								
Ene 7 - Energy Efficient Laboratory systems	1	1								
Ene 8 - Energy Efficient Equipment	2	0								
Tra 1 - Public Transport Accessibility	3	3								
Tra 2 - Proximity to amenities	1	1								
Tra 3 - Cyclist Facilities	2	2								
Tra 5 - Travel Plan	1	1								
Wat 1 - Water Consumption	5	3			1	1	1	2		
Wat 2 - Water Monitoring	1	1			C1	C1	C1	C1		
Wat 3 - Water leak detection and prevention	2	1								
Wat 4 - Water Efficient equipment	1	1								
Mat 1 - Life cycle impacts	6	3	1							
Mat 2 - Hard Landscaping and Boundary Protection	1	0								
Mat 3 - Responsible Sourcing of Materials	3	0		C3	C3	C3	C3	C3		
Mat 4 - Insulation	2	1	1							
Mat 5 - Designing for Robustness	1	1								
Wst 1 - Construction Waste Management	4	2						1		
Wst 2 - Recycled Aggregates	1	0								
Wst 3 - Operational Waste	1	1					1	1		
LE 1 - Site selection	2	1								
LE 2 - Ecological value of site and protection of ecological features	1	0								
LE 3 - Mitigating Ecological Impact	2	2				1	1	1		
LE 4 - Enhancing Site Ecology	3	0								
LE 5 - Long term impact on Biodiversity	3	0								
Pol 1 - Impact of Refrigerants	3	0								
Pol 2 - NO_x Emissions from Heating Source	3	1								
Pol 3 - Surface water run off	5	3								
Pol 4 - Reduction of Night Time Light Pollution	1	1								
Pol 5 - Noise Attenuation	1	1								
Innovation - MAN1	1	0							As per Credit MAN1	
Innovation - MAN2	1	0							As per Credit MAN2	
Innovation - HEA1	1	0							As per Credit HEA1	
Innovation - ENE1	1	0							As per Credit ENE1	
Innovation - ENE4	1	0							As per Credit ENE4	
Innovation - ENE5	0	0							As per Credit ENE5	
Innovation - WAT1	1	0							As per Credit WAT1	
Innovation - MAT1	1	0							As per Credit MAT1	
Innovation - MAT3	1	0							As per Credit MAT3	
Innovation - WST1	1	0							As per Credit WST1	
Innovation - WST2	1	0							As per Credit WST2	
Innovation - Approved Innovations	0	0							Any innovations approved by BRE Global	

Key:

C# : Only a particular criterion within the credit is mandatory, not the full criteria

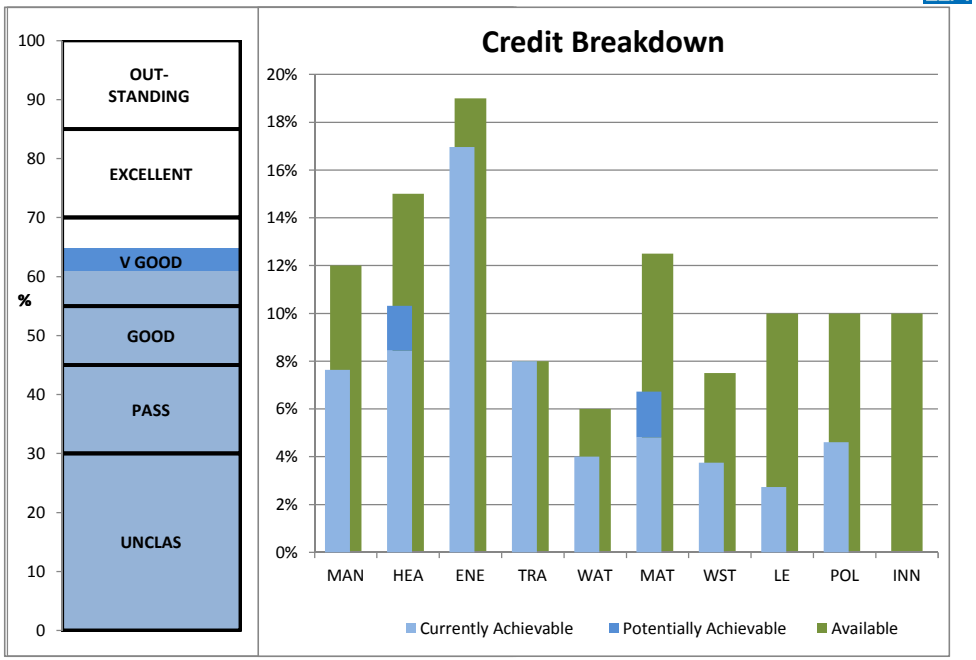
Anticipated BREEAM Score (2011 New Construction)

Issue Category	Number of Credits Achieved (a)	Number of Credits Available (b)	Number of Opprtunity Credits Potential	Issue Weighting (c)	Weighted Score Achieved (a/b) x c	Potential Opportunity Credits; Additional weighted Score
Management	14	22	0	12%	7.64	0.00
Health & Wellbeing	9	16	2	15%	8.44	1.88
Energy	25	28	0	19%	16.96	0.00
Transport	7	7	0	8%	8.00	0.00
Water	6	9	0	6%	4.00	0.00
Materials	5	13	2	12.5%	4.81	1.92
Waste	3	6	0	7.5%	3.75	0.00
Land use & Ecology	3	11	0	10%	2.73	0.00
Pollution	6	13	0	10%	4.62	0.00
Innovation	0	10	0	10%	0.00	0.00
Total					***60.94***	***3.80***

Total Potential Score **64.74%**

BREEAM Rating	**% Score**	
UNCLASSIFIED	<30	PASS
PASS	≥30	PASS
GOOD	≥45	PASS
V GOOD	≥55	PASS
EXCELLENT	≥70	FAIL
OUTSTANDING	≥85	FAIL

Mandatory credits			
0	of	0	PASS
1	of	1	PASS
2	of	2	PASS
4	of	4	PASS
14	of	14	PASS
21	of	22	FAIL



From the table above at design stage, this project currently achieves a Very Good rating.

Notes:

The Anticipated BREEAM Score shown above is based upon the outline information provided by the Design Team. This score should only be used as an indication as to the potential rating that could be achieved by the project. To achieve this score the requirements laid out within the BRE Environmental & Sustainability Standard must be achieved in full and detailed evidence provided to the BREEAM Assessor to demonstrate compliance.

We would advise members of the design team to refer to the BREEAM 2011 New Construction Technical Manual (SD5073: Issue 3.4) throughout the design process to ensure that the required standards are attained and the relevant evidence is produced during the design process. The schedule of evidence required by the Standard is well defined and no latitude is given for assessors to make assumptions on designers intent or specification. If there is insufficient or incorrect evidence then the credit cannot be awarded.

Should you require any assistance then please do not hesitate to contact your BREEAM Assessor Jennifer Pugh (jenniferpugh@hoarelea.com) or Phil Kelly (01865339779 or philkelly@hoarelea.com).