HILSON MORAN

BREEAM 2014 Pre-assessments
Greenwood Place/ Highgate Road

DATE OF ISSUE: 26 SEPTEMBER 2016
REVISION NUMBER: 01
HM REFERENCE: 20186/S/BRE01/01

PROJECT:

Highgate Road and AA Self Storage
19 – 37 Highgate Road
19 Greenwood Place
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CLIENT:

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Contents

1. Executive Summary

Hilson Moran has been commissioned by Fortnum Developments to undertake BREEAM New Construction 2014 Pre-Assessments for the Office and Storage spaces in the Greenwood Place proposed development. Two BREEAM NC Pre-assessments have been completed, one for each area, as there are both commercial office space and AA Self storage facilities within this proposed development.

This report forms the basis of a strategy for both the Greenwood Place assessments to achieve an Excellent BREEAM rating under the SD5076 BREEAM 2014 New Construction scheme V 4.0.

Hilson Moran Sustainability met with the architect and QS on 2nd of December at Squire & Partner's office to undertake the BREEAM Pre-Assessment review workshop. Following this workshop the targeted score for the Greenwood Place office development is targeting an excellent with a definite score of 61.05% and a potential score 76.04% and achieves an Excellent BREEAM rating.

The Storage area is targeting 59.74% -above the threshold for 'Very Good', however, one of the mandatory credit scores; Ene1, cannot be achieved so an excellent will not be achievable,.

Hilson Moran recommends that additional credits are targeted where possible, to ensure that the development has a 4-6% margin above the minimum required to achieve the targeted ratings.

It is the design team's responsibility to ensure that the evidence is provided for all relevant BREEAM credits to meet the BRE's credit criteria, in the format they require for the assessor to submit for quality assurance (QA) prior to issue of certification.

Current Predicted BREEAM 2014 New Construction: Offices

	Targeted	Priority 1	Priority 2
Expected BREEAM Score	61.05	76.04	100.01
Expected BREEAM Rating	Very Good	Excellent	Outstanding

Current Predicted BREEAM 2014 New Construction: Storage

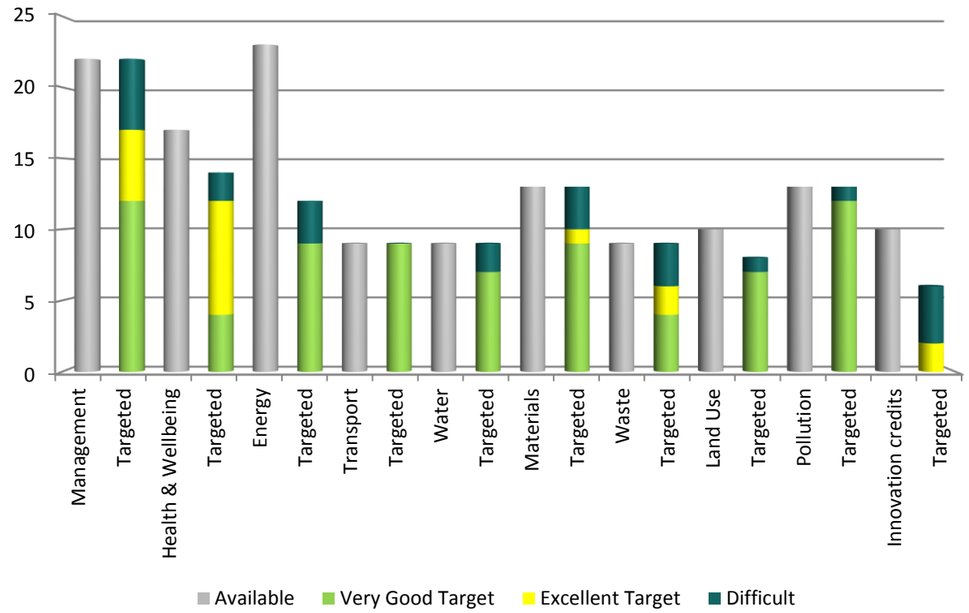
	Targeted	Priority 1	Priority 2
Expected BREEAM Score	59.74%	74.46%	94.18%
Expected BREEAM Rating	Very Good	Very Good	Very Good

Offices	Credits Available	Targeted	Priority 1	Priority 2	Unachievable
MANAGEMENT	18	11	4	3	0
HEALTH & WELLBEING	11	3	5	3	0
ENERGY	21	16	1	3	1
TRANSPORT	9	8	1	0	0
WATER	9	5	2	2	0
MATERIALS	13	8	2	3	0
WASTE	9	5	1	3	0
LAND USE AND ECOLOGY	10	7	0	1	2
POLLUTION	13	6	0	1	7
EXEMPLAR PERFORMANCE	10	0	1	7	4
Total	123	65	17	28	15
Final Weighted Score		61.05%	76.04%	100.01%	110.00%
Predicted BREEAM Rating		Very Good	Excellent	Outstanding	Outstanding

Storage	Credits Available	Targeted	Priority 1	Priority 2	Unachievable
MANAGEMENT	22	12	5	5	0
HEALTH & WELLBEING	17	4	8	2	2
ENERGY	23	9	0	3	11
TRANSPORT	9	9	0	0	0
WATER	9	7	0	2	0
MATERIALS	13	9	1	3	0
WASTE	9	4	2	3	0
LAND USE AND ECOLOGY	10	7	0	1	2
POLLUTION	13	12	0	1	0
INNOVATION	10	0	2	4	11
Total	135	73	18	24	26
Final Weighted Score		59.74%	74.46%	94.18%	110.00%
Predicted BREEAM Rating		Very Good	Very Good	Very Good	

Note: 22 innovation credits are available in total, however only a maximum of 10 can be awarded.

Offices credit distribution



Storage credit distribution

2. Introduction

2.1. Background

Hilson Moran has been commissioned by **Fortnum Developments** to provide sustainability consultancy and advice to the project team responsible for the construction of the **Greenwood Place/Highgate Road** development.

As part of this role Hilson Moran has prepared a strategy to enable both the offices and storage areas to target an 'Excellent' rating based on the 2014 New Construction Scheme.

The development comprises two multi-storey blocks B1 & B2. The storage unit occupies the ground and both basement levels, and the offices floors two & three. The remaining levels are populated by dwellings.

2.2. Purpose

This document is intended to inform, and provide the basis for, detailed discussions regarding the current design proposals and the credits to be targeted to achieve the desired BREEAM rating for the building. All information contained within this document is based on the finalised BREEAM 2014 New Constriction scheme released on the 27th May 2014.

This document is not intended to provide detailed guidance to achieve particular credits. Hilson Moran can provide copies of the relevant BREEAM Scheme manual and provide design advice on request for specific credits. It is the responsibility of the design team to provide the assessor with the appropriate evidence to demonstrate compliance with the credit criteria.

2.3. BREEAM 2014

The BREEAM UK New Construction 2014 scheme can be used to assess the environmental life cycle impacts of new non-domestic buildings at the design and construction stages. 'New Construction' is defined as development that results in a new standalone structure, or new extension to an existing structure, which will come into operation or use for the first time upon completion of the works.

This BREEAM UK New Construction 2014 scheme version is applicable to new non-domestic buildings in the United Kingdom only.

The usage types for the buildings are very different and hence are assessed against different criteria within the BREEAM 2014 New Construction scheme:

Offices: New Construction, Commercial, Offices, General office buildings

Storage: New Construction, Commercial, Industrial, industrial unit-warehouse storage

Buildings that are not fully fitted-out, are referred to as shell only (generally no services installed as part of base build) or shell and core (generally with services installed as part of the base build) buildings under BREEAM 2014, and can be assessed using the BREEAM UK New Construction scheme. Full Cat A projects, where areas of the development are not fully-fitted, must demonstrate performance of the building and compliance with BREEAM criteria based on the developer's scope of works. However to allow for comparable buildings where CAT A works are undertaken (ceilings, HVAC, floors etc), for the purpose of BREEAM, issues not included within the chosen option (shell only or shell and core) will be excluded from the assessment, even where they are within the developer's scope of works.

A shell and core building project is defined as one where the developer's scope of works is the design and construction of the base building only, leaving a range of construction and fit out works to be completed before the building is able to be occupied. This may include some or all of the following elements: the structure, building envelope, core building systems including building servicing strategy and installations (such as HVAC) or plant support for installation of such systems and where present, fit-out of common areas. Upon completion, the whole building or space within the building is sold or let to be fitted out as appropriate for occupation. The new owner(s) or tenant(s) will fit-out the building's accommodation in accordance with their corporate and operational needs which could include designing and installing fit out works to BREEAM Non-domestic Refurbishment 2014 standards.

In projects where areas of the development are not fully-fitted, performance of the building and compliance with BREEAM is verified based on the developer's scope of works only. This performance is measured using two standard project type options (shell only or shell and core) that in turn define appropriate assessment criteria applicable to that project type. Whilst some projects will differ to some extent from the scope of these standard options, for the purpose of BREEAM, issues not included within the chosen option will be excluded from the assessment, even where they are within the Developer's scope of works. This approach is necessary to ensure clarity, consistency and comparability within the property market.

The BREEAM 2014 Scheme has removed the criteria for a Green Lease Agreement and Green Building Guide under shell only and shell and core assessments with the exception of Ene 01. Ene 01 has the option for a contractually agreed Green Fit-out Agreement to allow the required energy rating for Excellent to be achieved. Without it the minimum standards in the Part L 2013 design guide must be used, thus making achieving the minimum energy standards for Excellent difficult.

In this development, the offices will be assessed as 'Shell & Core', and the Storage unit on a 'Fully fitted' basis.

2.4. Recent Workshops

Hilson Moran Sustainability met with the project team on the 02/12/15 at Squire & Partner's offices in Kings Cross to review the current design and to set out a strategy to achieve the BREEAM 2014 New Construction targeted rating.

The workshop was attended by:

Name	Company	Job Role
Kathleen Halquist	Squire & Partners	Architect
Allan Graham	Beadmans	Quantity Surveyor
Paul Cushing	Hilson Moran	BREEAM Assessor

Table 1

Note: Key design team meetings and an early stage workshop with the architects have been attended by the BREEAM AP.

2.5. Specific works incurring further costs required in targeting 'Excellent'

In order to achieve the 'Excellent' rating, a number of additional services are required in addition to those currently commissioned. The contractor will also be required to provide a high level of service which could incur a cost. Detailed BREEAM requirements will need to be written into the contractor's prelims.

1. Hea 1.1 Glare control — Blinds required to all spaces where screens are used.
2. Hea 1.2 Daylighting — Daylight calculations required for all occupied commercial spaces. (Scope of existing calculations TBC)
3. Hea 1.4 External lighting — Detailed specs. and drawings
4. Hea 5.2 Internal noise — BREEAM update to planning report.
5. Ene 1 Energy performance — Conditioning to storage areas.
6. Ene 2.1 Sub-meters — Specs & Drawings.
7. Ene 2.2 Sub-meters — Specs & Drawings.
8. Ene 3.1 External lighting — Specs & Drawings.
9. Ene 4.3 LZC Feasibility study — Feasibility study
10. Ene 6.6 VT Energy consumption — Transport demand assessment.
11. Ene 6.2 VT Efficient features — Efficient lift strategy.
12. Tra 5 Travel Plan — BREEAM compliant travel plan.
13. Wat 3.1 Leak detection — Spec and leak detection hardware.
14. Wat 3.2 Flow control — Spec and WC area flow control valves.
15. Wst 2 Recycled aggregates — Cost increase due to using recycled aggregates.
16. Wst 6 Functional adaptability — Functional adaptability strategy.
17. Pol 4 Night light pollution — Lighting spec.
18. Pol 5 Noise attenuation — BREEAM update to planning report

2.6. Storage area heating & cooling

Thermal modelling has shown that without any form of conditioning, the storage area will only achieve 1 credit in Ene 1 Energy performance. This credit has a minimum requirement to achieve 'Excellent' of five credits.

The thermal model can be re-run to determine the most cost effective heating solution available in order to meet the minimum credit requirement.

2.7. BREEAM 2014 New Construction Minimum Standards

Table 3.2: BREEAM 2014 New Construction Minimum Standards (note some credits are not applicable to the Shell and Core scheme)

BREEAM Credit	Percentage required and number credits required to meet minimum standards					Status
	Pass ≥30 - <45%	Good ≥45 - <55%	Very Good ≥55 - <70%	Excellent ≥70 - <85%	Outstanding ≥85%	
Man 03 - Responsible construction practices	-	-	-	One credit (Considerate construction)	One credit (Considerate construction)	
Man 04 - Commissioning and handover	-	-	-	1 credit Building User Guide	1 credit Building User Guide	
Man 05 - Aftercare (not shell and core)	-	-	-	1 credit Seasonal commissioning	1 credit Seasonal commissioning	
Ene 01 - Reduction in CO_2 Emissions	-	-	-	5 credits	8 credits	
Ene 02 - Energy Monitoring (first credit)	-	-	1 credit	1 credit First sub-metering credit	1 credit First sub-metering credit	
Wat 01 - Water Consumption	-	1 credit	1 credit	1 credit	2 credit	
Wat 02 - Water Monitoring	-	Criterion 1 Mains water meter	Criterion 1 Mains water meter	Criterion 1 Mains water meter	Criterion 1 Mains water meter	
Mat 03 - Responsible Sourcing	Criterion 1 Legally harvested and traded timber	Criterion 1 Legally harvested and traded timber	Criterion 1 Legally harvested and traded timber	Criterion 1 Legally harvested and traded timber	Criterion 1 Legally harvested and traded timber	
Wst 01 - Construction Waste Management	-	-	-	-	1 credit	
Wst 03 - Operational Waste	-	-	-	1 credit	1 credit	
LE 03 - Minimising impact on existing site ecology	-	-	1 credit	1 credit	1 credit	

3. APPENDIX I – GENERAL BREEAM GUIDANCE

BREEAM aims to assess many aspects of a project, from the initial decisions taken by clients and architects, through the detail of engineering design, to the policies and agreements reached by prospective tenants and building owners.

Minimum standards have been set for various credits that must be achieved if certain rating levels are to be achieved. Significant minimum standards need to be met to achieve an 'Excellent' rating. These will be identified throughout the report and will be shown in bold red text. Formal certification cannot be achieved until this assessment is completed and submitted to BREEAM for approval.

BREEAM 2014 allows additional credits outside of the core BREEAM credits to be achieved by demonstrating innovation within the building. This may be by exceeding a current credit requirement, or by developing a new credit and demonstrating that the innovation proposed by the design team will make a positive contribution to one of 20 criteria determined by BREEAM. Innovation credits that are available for exceeding the standard credit requirements will be described in bold blue text.

The BREEAM assessment is carried out by awarding credits for environmental improvement on each of the issues. Each credit awarded must be supported by full evidence in the form of details documented in the design drawings and specification. There are now additional Innovation Credits available as recognition for buildings that either meet exemplary performance standards for an existing BREEAM credit or for a particular building feature, system or process that is exemplary. This is determined by the BRE on a case by case basis. An additional 1% can be awarded for each innovation credit achieved, up to a maximum of 10%.

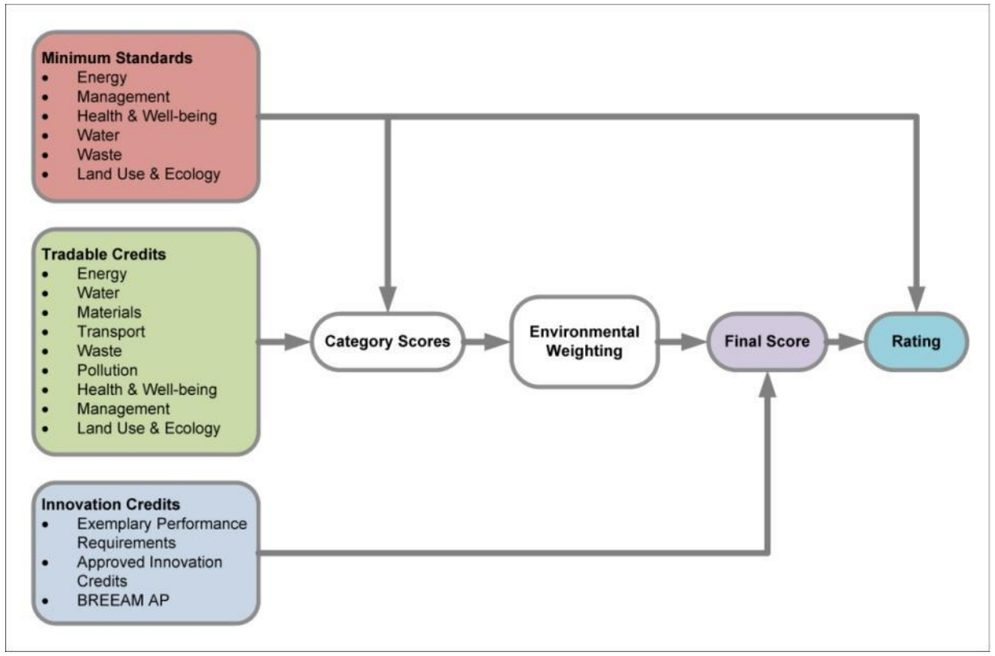
On submission and successful QA of the Design Stage Assessment, an interim BREEAM rating is awarded to the development. The development is then assessed again at Post Construction stage upon successful submissions and QA of this report, the final BREEAM rating is awarded by the BRE.

Hilson Moran can make no warranty in respect of BREEAM predictions, as all credits are dependent on supporting evidence being provided to the BREEAM assessor at the time of the formal BREEAM assessment. Until a formal BREEAM assessment takes place, with supporting evidence provided to a certified BREEAM Assessor and the BRE complete their quality assurance process, no building can claim to hold a BREEAM rating.

BREEAM Assessment Process

The BREEAM assessment process awards a number of credits depending upon whether or not sufficient evidence can be provided to demonstrate that the BREEAM requirements have been fulfilled. One of the strengths of the BREEAM Assessment process is that it examines the performance of a development over a wide range of issues (Figure 2.1). These issues are weighted according to their perceived importance, with the credits in some sections being more valuable than others. In order to standardise the BREEAM Assessment process there are a number of issues that are common to all building types. Within these common credits there are a number of mandatory minimum performance requirements that all building types need to achieve in order to secure a particular rating. Please refer to Table 3.2 for details of the minimum performance standards for the BREEAM New Construction 2014 scheme. The remaining credits are tradable and give the design team the flexibility to chose which credits to target in order to achieve a particular rating. The requirements of individual credits vary considerably, both between credits and between schemes.

Figure 2.1 – BREEAM Scoring Process



The BREEAM Assessment process is split into three main stages; Pre-Assessment, Design Stage Assessment and Post Construction Review. The Pre-Assessment stage allows the design team to ascertain the likely BREEAM score and rating a development can achieve and to provide a strategy for the credits to be targeted and to support the later stages of the assessment process. The Design Stage Assessment builds on the Pre-Assessment strategy and is undertaken just before tender and or work begins on site. At this stage the design should be sufficiently detailed to demonstrate that all of the targeted credit requirements have been fulfilled. Following completion of the design stage the assessment can be submitted to the BRE for interim certification.

The Post Construction Review is intended to verify that the commitments made at the design stage have been implemented. The performance of the development in the post construction review will dictate the final score and rating the building achieves. At all times throughout the assessment process the assessor is reliant upon receiving accurate and comprehensive evidence from the design team in a timely manner. When preparing evidence the design team should bear in mind that the QA personnel at the BRE are not necessarily technically minded and have no knowledge of the project. The evidence provided by the design team should clearly show (through annotation, sketches, calculations etc) to a non-technical individual that the credit requirements have been met. Where necessary any confirmation statements should quote relevant credit criteria to demonstrate that the requirements have been met.

BREEAM THRESHOLDS

BREEAM ratings range between 'Pass' and 'Outstanding'. The rating achieved is dependent on the percentage score achieved and achieving the required minimum standards appropriate to each rating level. Percentage thresholds and minimum standards (number of credits to be achieved within the specified minimum standard credits) are given below:

Table 3.1: BREEAM 2014 New Construction Ratings

BREEAM Rating	% Score	BREEAM Rating	% Score
Unclassified	<30	Very Good	≥55
Pass	≥30	Excellent	≥70
Good	≥45	Outstanding	≥85

4. Appendix II: BREEAM PRE ASSESSMENT - OFFICE

Pre-Assessment: BREEAM 2014 New Construction Criteria

Complete credit criteria and requirements are contained within the BREEAM New Construction 2014 manual available online at http://www.breeam.org/BREEAMUK2014SchemeDocument/ .

The credits have been categorised as follows:

Targeted (T) (green column) The suggested target number of credits required in order to target a 'Very Good' rating.

Priority d (P1) (yellow column) The suggested target number of credits in order to achieve an 'Excellent' rating.

Priority 2 (P2) (orange column) credits are those that the design team and assessor considers to be difficult to achieve for various reasons.

Credits in the Unachievable column (U) (light grey column) are inaccessible to this project, either because of its location, the fundamental design of the building, high additional costs, or because some other influence prevents this design from targeting those credits.

5. Appendix II: BREEAM PRE ASSESSMENT - STORAGE

Pre-Assessment: BREEAM 2014 New Construction Criteria

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