

# RIDGE

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PROPERTY & CONSTRUCTION CONSULTANTS



**SALMON – PLOT 4 WAREHOUSE DEVELOPMENT,  
HARTS FARM WAY  
BREEAM PRE ASSESSMENT  
REPORT**

6<sup>th</sup> March 2018

Prepared for

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Prepared by

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|              |                |
|--------------|----------------|
| Project Name | Harts Farm Way |
| Project No.  | 5004378        |

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1. INTRODUCTION

1.1 General

Ridge and Partners LLP have been appointed to provide BREEAM pre-assessment services for the new proposed Plot 4 Warehouse Development on Harts Farm Way, Havant.

The aim of this appointment is to provide guidance to the project design team and demonstrate the project’s commitment to the issues of sustainable building design, construction and operation.

This report has been written by a qualified Building Research Establishment Environmental Assessment Method (BREEAM) assessor and accredited professional (AP) to provide guidance and information on the following:

- An overview of the BREEAM process
- The mandatory credits that are required to achieve each BREEAM rating
- Early stage actions to be considered
- The requirements for specialist consultants

The author of this report is Abby Bartlett, Principal Sustainability Consultant (BRE Reg. RIPA – AB41).

1.2 Project description

The proposal is to build five industrial warehouses with associated office areas over two phases. Phase 1 will constitute four units totalling 3160m² of employment space covering B2 and B8 usage. Phase 2 will be of the same construction as Phase 1 with a floor area of 822m². The development will be located off Harts Farm Way in Havant. It is intended that the proposed development is assessed under BREEAM New Construction 2014 with a target certification rating of “Very Good”.

1.3 BREEAM New Construction Classification

1.3.1. Project Details

|                  |   |                                   |
|------------------|---|-----------------------------------|
| Project          | : | Plot 4 Warehouse Development      |
| Project type     | : | BREEAM UK New Construction (2014) |
| Building type    | : | Industrial                        |
| Building subtype | : | Warehouse storage / distribution  |

1.3.2. Project Team

| DISCIPLINE                        | COMPANY                    |
|-----------------------------------|----------------------------|
| Architects                        | McCurdy Russell Architects |
| Quantity Surveyors                | Ridge and Partners LLP     |
| Mechanical & Electrical Engineers | Ridge and Partners LLP     |
| Structural Engineers              | Ridge and Partners LLP     |
| Traffic & Transport               | Ridge and Partners LLP     |
| BREEAM Assessor                   | Ridge and Partners LLP     |

2. BREEAM PROCESS

2.1 Overview

BREEAM is a performance based assessment method and certification scheme for new buildings. The primary aim of the BREEAM process is to mitigate the life cycle impacts of new buildings on the environment in a robust and cost effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and procurement process. This enables the client, through the BREEAM Assessor and the BRE Global certification process, to measure, evaluate and reflect the performance of their building against best practice in an independent and robust manner. This performance is quantified by a number of individual measures and associated criteria stretching across a range of environmental issues which is ultimately expressed as a single certified BREEAM rating.

The potential BREEAM ratings for a building are as shown below:

| Rating       | Percentage Score | Equivalent performance                        |
|--------------|------------------|-----------------------------------------------|
| Outstanding  | >85              | Less than 1% of UK new non-domestic buildings |
| Excellent    | >70              | Top 10% of UK new non-domestic buildings      |
| Very Good    | >55              | Top 25% of UK new non-domestic buildings      |
| Good         | >45              | Top 50% of UK new non-domestic buildings      |
| Pass         | >30              | Top 75% of UK new non-domestic buildings      |
| Unclassified | <30              | Failed to meet minimum BREEAM criteria        |

Table 1 – BREEAM Rating Benchmarks

In order to achieve a BREEAM rating for a building, the client must appoint an independent person, accredited by the BRE, to act as an assessor. A list of all accredited assessors is available on the Green Book Live ([www.greenbooklive.com](http://www.greenbooklive.com)).

The assessor’s role will typically include the following;

- Provision of a Pre-assessment Report with input from the design team which will summarise the anticipated approach for achieving the targeted rating
- Register the project with the Building Research Establishment (BRE) who administers the scheme
- Assess evidence provided by the client and design team to validate targeted BREEAM criteria
- Collate a Design Stage Assessment Report for submission to BRE, feeding back to the team any QA issues that arise
- Issue Interim Certificate and report on completion of QA
- Assess evidence provided by the construction team to validate targeted BREEAM criteria
- Visit the completed site and collate photographic and other evidence to show that the building has been built to incorporate those features that were agreed as part of the design stage assessment
- Collate a Post Construction Assessment Report for submission to BRE, feeding back to the team any QA issues that arise
- Issue Final Certificate and report on completion of QA

Once the final certificate has been issued, the details of the building’s final BREEAM score will also be listed on GreenBook Live ([www.greenbooklive.com](http://www.greenbooklive.com)) which is publically available.

It should be noted that where appointed as a BREEAM assessor Ridge will endeavour to guide the design team throughout the assessment process regarding the evidence requirements to ensure that the evidence provided is in a format that is acceptable by BRE. Please be aware that Ridge are bound by our licence with BRE to assess each item of evidence against the specified criteria; for a successful assessment it is essential that the design team manage themselves to provide any and all evidence requested in a timely manner to validate the targeted credits.

Design teams should be aware that typically it takes approximately 6 weeks for the BRE to consider the evidence provided in assessment reports as part of their QA process, therefore there is frequently a substantial delay between submitting a report and achieving the certification, particularly if any QA issues are identified. There is an option to undertake fast track QA for an additional fee.

2.2 Assessment Timeline

Figure 1 below provides a comparison of the RIBA outline plan of work with the BREEAM assessment stages.

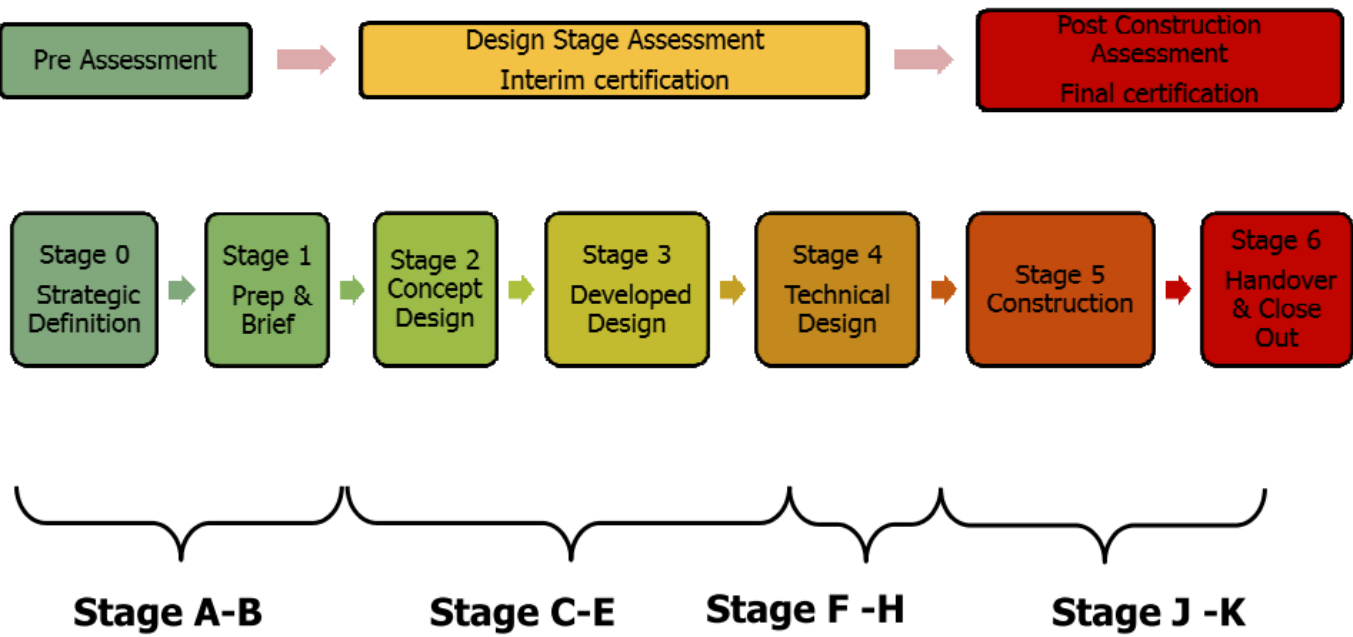


Figure 1 – BREEAM assessment and certification stages and the RIBA Outline plan of works

2.3 Scoring

The BREEAM assessment is made up of a total of 9 separate categories, each containing a variety of different environmental issues. Although some of the issues are mandatory for specific scores, as summarised in the next section, the majority are tradable i.e. the team can choose to target them or not depending on their suitability and achievability for the assessed building.

Each of the nine categories carries an associated weighting which is applied to credits achieved in that category to calculate the total score for the assessed building. The weightings vary depending on the type of building being assessed and whether certain elements are included or excluded from the scheme e.g. if a lift or escalator are not part of the proposals then Ene 06 – Energy Efficient Transportation Systems will be filtered out of the assessment and the weightings updated accordingly, similarly shell and core developments will have certain criteria filtered out as they are beyond the scope of the development.

As a summary the fully fitted scheme weightings are typically as follows:

| ENVIRONMENTAL CATEGORY  | WEIGHTING |
|-------------------------|-----------|
| Management              | 12%       |
| Health & Wellbeing      | 15%       |
| Energy                  | 15%       |
| Transport               | 9%        |
| Water                   | 7%        |
| Materials               | 13.5%     |
| Waste                   | 8.5%      |
| Land Use & Ecology      | 10%       |
| Pollution               | 10%       |
| Innovation (additional) | 10%       |

Therefore when design teams are considering tradable credits it is important to remember that the loss of a single credit in the energy or health and wellbeing category would have a much larger impact on the overall score than the loss of a water or waste credit.

2.4 Mandatory Requirements

Whilst most BREEAM credits are tradable and can be targeted in various configurations to achieve the required overall score, there are minimum requirements set to achieve certain BREEAM ratings. For example to achieve a BREEAM “Very Good” rating the following credits must be achieved, in addition to achieving a score of >55% overall. Table 2 below highlights the mandatory requirements to achieve a “Very Good” rating in green:

| BREEAM issue                                         | Pass             | Good             | Very Good                              | Excellent                              | Outstanding                            |
|------------------------------------------------------|------------------|------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| Man 03: Responsible construction practices           | None             | None             | None                                   | One credit (Considerate construction)  | Two credits (Considerate construction) |
| Man 04: Commissioning and handover                   | None             | None             | None                                   | Criterion 10 (Building User Guide)     | Criterion 10 (Building User Guide)     |
| Man 5: Aftercare                                     | None             | None             | None                                   | One credit (Seasonal commissioning)    | One credit (Seasonal commissioning)    |
| Ene 01: Reduction of energy use and carbon emissions | None             | None             | None                                   | Five credits                           | Eight credits                          |
| Ene 02: Energy monitoring                            | None             | None             | One credit (First sub-metering credit) | One credit (First sub-metering credit) | One credit (First sub-metering credit) |
| Wat 01: Water consumption                            | None             | One credit       | One credit                             | One credit                             | Two credits                            |
| Wat 02: Water monitoring                             | None             | Criterion 1 only | Criterion 1 only                       | Criterion 1 only                       | Criterion 1 only                       |
| Mat 03: Responsible sourcing of materials            | Criterion 1 only | Criterion 1 only | Criterion 1 only                       | Criterion 1 only                       | Criterion 1 only                       |
| Wst 01: Construction waste management                | None             | None             | None                                   | None                                   | One credit                             |
| Wst 03: Operational waste                            | None             | None             | None                                   | One credit                             | One credit                             |
| LE 03: Minimising impact on existing site ecology    | None             | None             | One credit                             | One credit                             | One credit                             |

Table 2 – BREEAM New Construction 2014 Minimum Standards

2.5 Evidence

Throughout a BREEAM assessment the appointed BREEAM Assessor will require evidence to validate the achievement of the various targeted criteria. There are a few issues where specific items are required and where this is the case these will be listed in the BREEAM technical manual, for example Ene 01 requires a copy of the Building Regulations Output Document from approved software. However, for the majority of issues the evidence requirements have been left as deliberately flexible to minimise the amount of documentation that must be produced to satisfy the BREEAM requirement only.

As part of the assessment process it is up to the project team to provide documentation that they believe confirms compliance with the specific criteria however generally speaking the following documents could be considered for submission as evidence;

- Meeting minutes and agendas
- Drawings
- Specifications
- Letters / email correspondence
- Project programmes
- Certificates
- Specialist reports – where necessary the author may need to confirm that they meet the BREEAM requirements of suitably qualified, this is outlined in more detail in a later section
- Specialist software outputs
- Confirmation of intent from client / developer if detailed information is not available due to the stage of the project

In all instances it is important that there is a robust audit trail for the documentation provided i.e. it should be clear who it has come from and when, there should also be an obvious indication of the project it is referring to. If relevant the documentation should also be signed (for example if it is an official BRE checklist or a letter of confirmation from a member of the team).

3. EARLY STAGE ACTIONS

It is recommended that the client and design team review all available credits as early as possible in the project, as they can become difficult or indeed impossible to achieve if considered later in the design stages of the development as it is generally easier to incorporate changes into the design before it has developed too far.

The BRE recognise this within the BREEAM New Construction 2014 methodology and as such there are various time bound issues that can be targeted which are summarised in Table 3 below;

| RIBA Stage | Credit Reference                                 | Notes                                                                                                                                                                                                                           |
|------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stage 01   | Man 01 Sustainability Consultant                 | Sustainability Champion to be appointed by Stage1                                                                                                                                                                               |
|            | Ene 07 Energy Efficient Lab Systems              | Client engagement to be sought at this stage to determine occupant requirements and define lab performance criteria where applicable                                                                                            |
|            | Mat 06 Material Efficiency                       | Material efficiency opportunities identified and measures implemented                                                                                                                                                           |
|            | Le 04 Enhancing Site Ecology                     | Suitably Qualified Ecologist (SQE) appointed to advise on early stage site layout and development density to maximise ecological enhancements                                                                                   |
|            | Le 05 Long Term Impact on Biodiversity           | SQE to consider additional measures – if measure 4 is applicable then SQE to seek local biodiversity expertise to help identify species of local biodiversity importance on site and ensure proposals support local priorities. |
| Stage 02   | Man 01 Project brief and design                  | Project delivery stakeholder consultation                                                                                                                                                                                       |
|            |                                                  | Third party stakeholder consultation                                                                                                                                                                                            |
|            |                                                  | BREEAM target to be formally defined with Sustainability Champion                                                                                                                                                               |
|            | Man 02 Life cycle cost and service life planning | An initial Elemental life cycle cost (LCC) report                                                                                                                                                                               |
|            | Hea 06 Safety and Security                       | Security Needs Assessment by SQSS                                                                                                                                                                                               |
|            | Ene 04 Low carbon design                         | Develop a passive design analysis and report                                                                                                                                                                                    |

|          |                                                |                                                                                                                                                                         |
|----------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                | Complete a free cooling feasibility analysis and report                                                                                                                 |
|          |                                                | Complete a Low and Zero Carbon technologies feasibility study and report                                                                                                |
|          | Mat 06 Material Efficiency                     | Material efficiency opportunities identified and measures implemented                                                                                                   |
|          | Wst 05 Adaption to climate change              | Conduct a climate change adaptation strategy appraisal for structural and fabric resilience                                                                             |
|          | Wst 06 Functional adaptability                 | Conduct a building specific functional adaptation strategy appraisal                                                                                                    |
| Stage 03 | Le 04 Enhancing Site Ecology                   | SQE to provide an ecology report with appropriate recommendations for enhancing site ecology. Report should be based on survey carried out at appropriate time of year. |
|          | Mat 05 Designing for Durability and Resilience | Although not specifically time bound to achieve the aim of this issue it should be considered around now.                                                               |
|          | Mat 06 Material Efficiency                     | Material efficiency opportunities identified and measures implemented                                                                                                   |
|          | Hea 05 Acoustic Performance                    | Not specifically time bound but to achieve requirements of this issue acoustician should be appointed early enough to provide advice regarding site layout and zoning   |
|          | Tra 05 Travel Plan                             | Not stated as a specific time bound element but should be developed as part of feasibility and design stages                                                            |
|          |                                                |                                                                                                                                                                         |

Table 3 – Early RIBA stages summary

It is recommended that the above listed RIBA Stages are adhered to as these represent the optimal time to consider the relevant criteria however for some of the issues there is a degree of flexibility providing the intent of the issue can still be achieved. For example CN3.5 in the BREEAM manual confirms that for Hea 06 if the suitably qualified security specialist is consulted later than RIBA Stage 2 then the credit can still be achieved providing they confirm their late appointment has not restricted the scope or implementation of their recommendations. However this is not the case for all of the above issues so it is important to discuss any concerns with meeting target dates with the appointed assessor as soon as possible so if necessary the targets for the project can be updated.

## 4. REQUIREMENTS FOR SPECIALIST CONSULTANTS

There are various BREEAM credits which require suitably qualified consultants to consider and report on specific elements of the project. This section identifies the specialist consultants that may be appointed and provides a summary of the current BREEAM related requirements with regards to the definition of “suitably qualified”:

### 4.1 Sustainability Champion / BREEAM Accredited Professional

The appointment of a Sustainability Champion (previously known as a BREEAM Accredited Professional) is not mandatory for BREEAM assessments, but will facilitate the assessment process. The BREEAM assessment methodology focuses very much on the importance of early involvement of the relevant specialists, as such there are additional credits available for the appointment of a BREEAM Sustainability Champion within BREEAM issues Man 01 and Man 03. It should be noted that although this is often provided as an optional extra service by BREEAM assessors, this is something that other appropriate professionals can offer, such as architects or engineers, if they have the relevant qualification.

Currently only members of the BREEAM Accredited Professional (AP) membership scheme are deemed to be suitably qualified for the purpose of this issue. This qualification indicates that the individual has been trained and qualified by BRE as a specialist in built environment sustainability, environmental design and assessment. This membership is subject to ongoing CPD in key relevant areas.

The appointment of a BREEAM Sustainability Champion can be recognised within the assessment as follows:

**Man 01** - related to the design stage BREEAM Assessment. A BREEAM credit is available for the appointment of a BREEAM Sustainability Champion to facilitate the setting and achievement of BREEAM performance targets for the project. To achieve this criteria the BREEAM Sustainability Champion should be appointed during the Preparation and Brief stage (RIBA Stage 1 or equivalent). A further credit is also available under Man 01 if the BREEAM Sustainability Champion is appointed to monitor progress against agreed BREEAM performance targets throughout the design process.

**Man 03** - related to the post construction stage BREEAM Assessment. A credit is available where a BREEAM Sustainability Champion is appointed to ensure ongoing compliance with relevant sustainability performance criteria, to confirm this they will need to visit site regularly at key stages to carry out spot checks and have the relevant authority to do so.

### 4.2 Acoustician

A suitably qualified acoustician can be used to provide evidence for both Hea 05 Acoustic Performance (related to internal acoustics) and Pol 05 Reduction of Noise Pollution (related to the proposed buildings impact on nearby areas with specific reference to proposed external building services installations).

To meet the requirements of suitably qualified the acoustician should meet all of the following criteria:

- Hold a degree, PhD or equivalent qualification in a relevant subject i.e. acoustics or sound testing
- Have at least 3 years work experience that is relevant to the project and this should be within the last 5 years. The experience should clearly demonstrate a practical understanding of factors affecting acoustics in construction and the built environment including acting in an advisory capacity to provide recommendations for suitable acoustic performance levels and mitigation measures
- Hold a recognised acoustic qualification and membership of an appropriate professional body e.g. the Institute of Acoustics

### 4.3 Energy Specialist

The use of a building energy specialist is applicable to several issues in BREEAM however the requirements do vary from issue to issue therefore for simplicity they are summarised for the various issues below.

**Hea 04 Thermal Comfort** – a thermal model of the proposed building should be built to allow full dynamic thermal analysis to be undertaken which should meet specific parameters and inform the buildings temperature control strategy. There are no specific requirements regarding qualifications or experience for the individual who undertakes this modelling exercise but the use of specific software will mean that only certain individuals will be able to offer this service.

**Ene 01 – Reduction of energy use and carbon emissions** – although not specifically stated in the manual, the definition of suitably qualified energy assessor is still provided, therefore the required model should be produced by a licensed energy assessor who has access to the relevant software via an accredited energy assessment scheme provider. For England accredited energy assessors are listed at [www.ndepcregister.com](http://www.ndepcregister.com) for non-domestic properties.

**Ene 04 – Low Carbon Design** – This issue requires an energy specialist to review the low and zero carbon technologies applicable to the assessed building. For the purpose of this issue an energy specialist is defined as someone who has acquired substantial expertise or a recognised qualification for undertaking assessments, designs and installations of low or zero carbon solutions in the commercial building sector however they must not be professionally connected to a single LZC technology or manufacturer.

### 4.4 Thermographic Survey & Airtightness Testing Specialist

There is a credit available under Man 04 for the use of a suitably qualified professional to undertake a thermographic survey and air tightness test of the assessed building in line with appropriate standards. To be suitably qualified they should meet the following:

- Air tightness tests should be undertaken by professionals with membership of the Air Tightness Testing and Measurement Association (ATTMA) attained at organisational level and maintaining UKAS accreditation (ISO 17025)
- Thermographic surveys should be undertaken by a professional holding a valid Level 2 certificate in thermography as defined by the UKTA website

### 4.5 Security Consultant

There is a single credit available for Hea 06 if a suitably qualified security specialist (SQSS) undertakes a Security Needs Assessment of the assessed building / site. To meet the definition of “suitably qualified” this should be undertaken by someone who meets with one of the following:

- Crime Prevention Design Advisor (CPDA)
- Architectural Liaison Officer (ALO)
- Counter Terrorism Security Advisor (CTSA)
- A specialist registered with a BREEAM recognised third party accreditation scheme for security specialists
- A practising security consultant that meets the following requirements:
  - o Minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to the type and scale of the project being undertaken

- Hold a suitable qualification relevant to security
- Maintain (full) membership to a relevant professional body or accreditation scheme that meets the following:
  - Has a professional code of conduct to which members must adhere
  - Ongoing membership is subject to peer review

#### 4.6 Ecologist

There are three issues under the land use and ecology category where the use of a suitably qualified ecologist (SQE) can assist with the achievement of credits; indeed for two of the issues, Le 04 and Le 05, it is only possible to achieve credits by appointing a SQE.

To meet the definition of SQE the ecologist completing the survey and report for the site must meet the following criteria:

- Hold a degree or equivalent qualification in ecology or a related subject, acceptable subjects (depending on their ecological content) would be Ecology, Biological Sciences, Zoology, Botany, Countryside Management, Environmental Science, Marine and Freshwater Management, Earth Sciences, Agriculture, Forestry, Geography and Landscape Management
- Be a practising ecologist with at least 3 years relevant experience (within the last 5 years). This experience should demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment and should include acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures.
- Should be covered by a professional code of conduct and be subject to peer review. Full members of the following organisations would meet this criteria:
  - Chartered Institution of Water and Environmental Management (CIWEM)
  - Chartered Institute of Ecology and Environmental Management (CIEEM)
  - Institute of Environmental Management and Assessment (IEMA)
  - Landscape Institute (LI)
  - The Institution of Environmental Sciences (IES)

If the ecology report is undertaken by an ecologist who does not meet the above criteria then a Suitably Qualified Ecologist can verify them. In order for this to comply the SQE must confirm as a minimum that they have reviewed the report and have found it to:

- Represent sound industry practice
- Report and recommend correctly, truthfully and objectively
- Be appropriate given the local site conditions and scope of works proposed
- Avoid invalid, biased and exaggerated statements

#### 4.7 Civil Engineer

BREEAM issue Pol 03 criteria 7-15 consider the surface water run-off from the site, to achieve maximum credits here it is necessary for an appropriate consultant to be appointed to undertake the necessary calculations. The BREEAM Manual recognises that the qualifications here will to an extent depend on the complexity of the site, however generally it is necessary for the engineer to be able to demonstrate that they have the following:

- An appropriate qualification
- Relevant experience i.e. designing SUDs and flood prevention measures and completing peak rate of run off calculations
- If complex flooding calculations and prevention measures are required this must be a specialist hydrological engineer

#### 4.8 Contaminated Land Specialist

BREEAM issue Le 01 offers a credit for developing on land that is deemed to be significantly contaminated and therefore requires remediation in order for the development to take place. The details of this must be confirmed by a suitably qualified contaminated land specialist who is required to meet the following criteria;

- Hold a degree or equivalent qualification in chemistry, environmental science / management, earth sciences, civil engineering or a related subject
- Have a minimum of 3 years relevant experience (within the last 5 years) in site investigation, risk assessment and appraisal – such experience must clearly demonstrate a practical knowledge of site investigation methodologies and understanding of remediation techniques and national legislation on the subject, as well as acting in an advisory capacity to provide recommendations for remediation

#### 4.9 Other Consultants

This report has outlined the BREEAM requirements relating to qualifications where they are clearly stated within the BREEAM manual. There are other areas where a specialist could be used to assist with the production of the required evidence but no specific requirements regarding qualifications are stated within the BREEAM manual including;

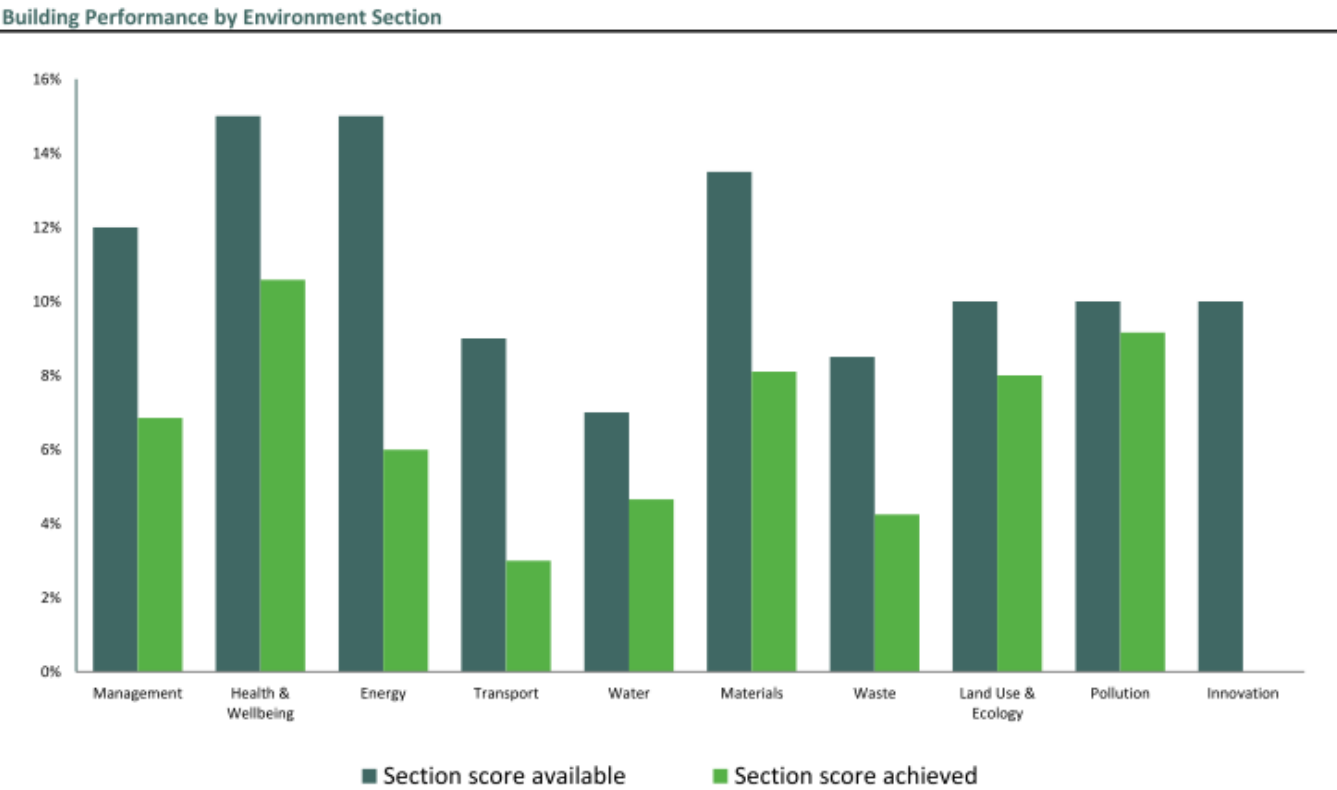
- Man 01 – Third party consultation
- Man 02 – Cost consultant
- Man 04 – Specialist commissioning manager
- Man 05 – Post Occupancy Evaluation
- Transport category – Transport consultants
- Ene 06 – Lift consultant (sometimes offered by manufacturers)

5. BREEAM PRE ASSESSMENT

Abby Bartlett, licensed BREEAM assessor, has used available information to produce a pre-assessment to reach a targeted score of Very Good. Based on preliminary information the BRE Pre-Assessment Tool has been completed and a copy is available in Appendix A. Following the reasonable assumptions for the project a score of 60.60% is currently anticipated for the new development, which exceeds the requirement of 55% for BREEAM ‘Very Good’ and provides a sensible safety margin to make allowances for changes during the evolution of the project.

The graph and table below summarise the currently assumed credits, indicating the percentage of credits achieved for each of the nine categories, therefore highlighting where additional credits could be considered. Please refer to the BRE pre-assessment tool in Appendix A for the reasoning as to why these are not currently assumed.

Figure 2 - Building Performance by Environment Section (taken from BRE Pre-Assessment Tool)



|                    | No. credits available | No. credits Achieved | % credits achieved | Section Weighting | Section Score |
|--------------------|-----------------------|----------------------|--------------------|-------------------|---------------|
| Management         | 21                    | 12                   | 57.14%             | 12.00%            | 6.85%         |
| Health & Wellbeing | 17                    | 12                   | 70.59%             | 15.00%            | 10.58%        |
| Energy             | 20                    | 8                    | 40.00%             | 15.00%            | 6.00%         |
| Transport          | 9                     | 3                    | 33.33%             | 9.00%             | 3.00%         |
| Water              | 9                     | 6                    | 66.67%             | 7.00%             | 4.66%         |
| Materials          | 10                    | 6                    | 60.00%             | 13.50%            | 8.10%         |
| Waste              | 8                     | 4                    | 50.00%             | 8.50%             | 4.25%         |
| Land Use & Ecology | 10                    | 8                    | 80.00%             | 10.00%            | 8.00%         |
| Pollution          | 12                    | 11                   | 91.67%             | 10.00%            | 9.16%         |
| Innovation         | 10                    | 0                    | 0.00%              | 10.00%            | 0.00%         |

Table 4 – Summary of Assumed Credits & Section Scores (taken from BRE Pre-Assessment Tool)

6. CONCLUSION

This report aims to provide preliminary guidance to the design team throughout the early RIBA stages with regards to the BREEAM assessment methodology and process and as a part of this has identified the following:

- An overview of the BREEAM process
- The mandatory credits that are required to achieve a “Very Good” BREEAM rating
- Early stage actions to be considered
- The requirements for specialist consultants

It should be noted that there are specific consultants and technical services required at different RIBA stages. The appointment of any of these services should be considered as early as practical to enable the project to achieve the required ratings as well as full design team engagement.

This report does not constitute a formal BREEAM assessment however it does indicate a route to achieving BREEAM Very Good should the assumptions summarised in Appendix A be supported with robust documentary evidence from the design team.



**APPENDIX A – BREEAM PRE ASSESSMENT**

BREEAM UK New Construction 2014 Assessment Report

BREEAM® UK

General information

|                              |                                                |
|------------------------------|------------------------------------------------|
| BRE Assessment reference no. | Initial Pre Assessment based on desktop review |
| Client name                  | Salmon Property                                |
| Building end user/occupier   | tbc                                            |
| Assessor name                | Abby Bartlett                                  |
| Assessors role               | Assessor                                       |
| Assessor organisation        | Ridge & Partners LLP                           |

Building details

|                                                                                         |                                               |
|-----------------------------------------------------------------------------------------|-----------------------------------------------|
| Building name                                                                           | Warehouse Development                         |
| Building address                                                                        | Harts Farm Way                                |
|                                                                                         | Havant                                        |
|                                                                                         |                                               |
|                                                                                         |                                               |
| County                                                                                  | Hampshire                                     |
| Post code                                                                               |                                               |
| Country                                                                                 | England                                       |
| Building type (main description)                                                        | Industrial                                    |
| Building type (sub-group)                                                               | Industrial - Warehouse storage / distribution |
| Building floor area (GIA) m <sup>2</sup>                                                | tbc                                           |
| Building floor area (NIFA) m <sup>2</sup>                                               | tbc                                           |
| BREEAM scheme                                                                           | New Construction                              |
| BREEAM version                                                                          | 2014 (SD5076)                                 |
| BREEAM UK 2014 technical manual issue number                                            | SD5076 Issue 5.0                              |
| Project type                                                                            | New Construction (Fully fitted)               |
| Assessment stage                                                                        | Design (interim)                              |
| Location type                                                                           | Small/medium urban (>10,000 population)       |
| Climatic zone                                                                           | Temperate                                     |
| Building services - heating system type                                                 | Other type of heating system                  |
| Building services - cooling system type                                                 | Other type of cooling                         |
| Building services - domestic hot water system type                                      | Other                                         |
| Building service - controls                                                             | Other                                         |
| If applicable, does this industrial building have a heated or cooled operational area?  | Yes                                           |
| Does water heating contribute less than 10% of the buildings total energy consumption?  | Yes                                           |
| Commercial/industrial refrigeration and storage systems                                 | No                                            |
| Building user transportation systems (lifts and/or escalators)                          | No                                            |
| Laboratory function/area and size category                                              | No laboratory                                 |
| Laboratory containment level                                                            | No laboratory                                 |
| Fume cupboard(s) and/or other containment devices                                       | No                                            |
| Unregulated water uses present? (e.g. vehicle wash system, irrigation)                  | Yes                                           |
| If applicable, will this healthcare building house inpatients?                          | Option not applicable to building type        |
| If applicable, does this industrial building have an office area?                       | Yes                                           |
| If applicable, does this building contain areas requiring SAP assessment?               | Option not applicable to building type        |
| If SAP used, what proportion of the building's total floor area (GIA) does it apply to? | Option not applicable to building type        |

Project team details

|                                |  |
|--------------------------------|--|
| Developer                      |  |
| Principal contractor           |  |
| Architect                      |  |
| Project management             |  |
| Building services              |  |
| BREEAM Accredited Professional |  |
| Other project team member 1    |  |
| Other project team member 2    |  |
| Other project team member 3    |  |
| Other project team member 4    |  |

BREEAM assessor declaration of assessment accuracy and quality

I, Abby Bartlett, a qualified BREEAM assessor working on behalf of Ridge & Partners LLP confirm that the content of this report is to the best of my knowledge a true and accurate reflection of the performance of the above named building, as measured against the assessment criteria and reporting requirements of the BREEAM Scheme Document (SD5076). Furthermore, I confirm that this assessment and the information on which it is based has been checked and verified in accordance with BRE Global Ltd's UKAS accredited BREEAM operating procedures for BREEAM assessments and assessors, as described in the technical scheme document (SD5076) and associated BREEAM operational documents.

BREEAM Assessor Signature:

Date

Disclaimer

This report is made on behalf of Ridge & Partners LLP. By receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

Disclaimer

Conflict of Interest - Where an assessor is employed by the same company as a project/design team member(s) (e.g. energy assessor, suitably qualified ecologist or client representative etc) they must identify and manage any potential conflicts of interest and inform BRE Global Ltd as soon as they become aware of such a conflict. Where possible this should be made clear to BREEAM upon registration of the assessment.

BRE Global do prohibit an assessor from verifying compliance with scheme criteria where they themselves have been directly involved in achieving or implementing a compliant solution, i.e. an assessor cannot assess their own work, for example they cannot be the architect on a project and the assessor. A current exception to this rule is where the assessor is also acting as an accredited Sustainability Champion or BREEAM Accredited Professional on the project.

Where there is a conflict of interest or potential for one, BRE Global Ltd will escalate the assessment report to a more detailed level of quality assurance checking. This will be done to reduce the risk to assessors and clients in the event that a certification outcome is challenged. Additional levels of monitoring may result in additional charges (FS036) being made to the licensed organisation that employs the assessor.

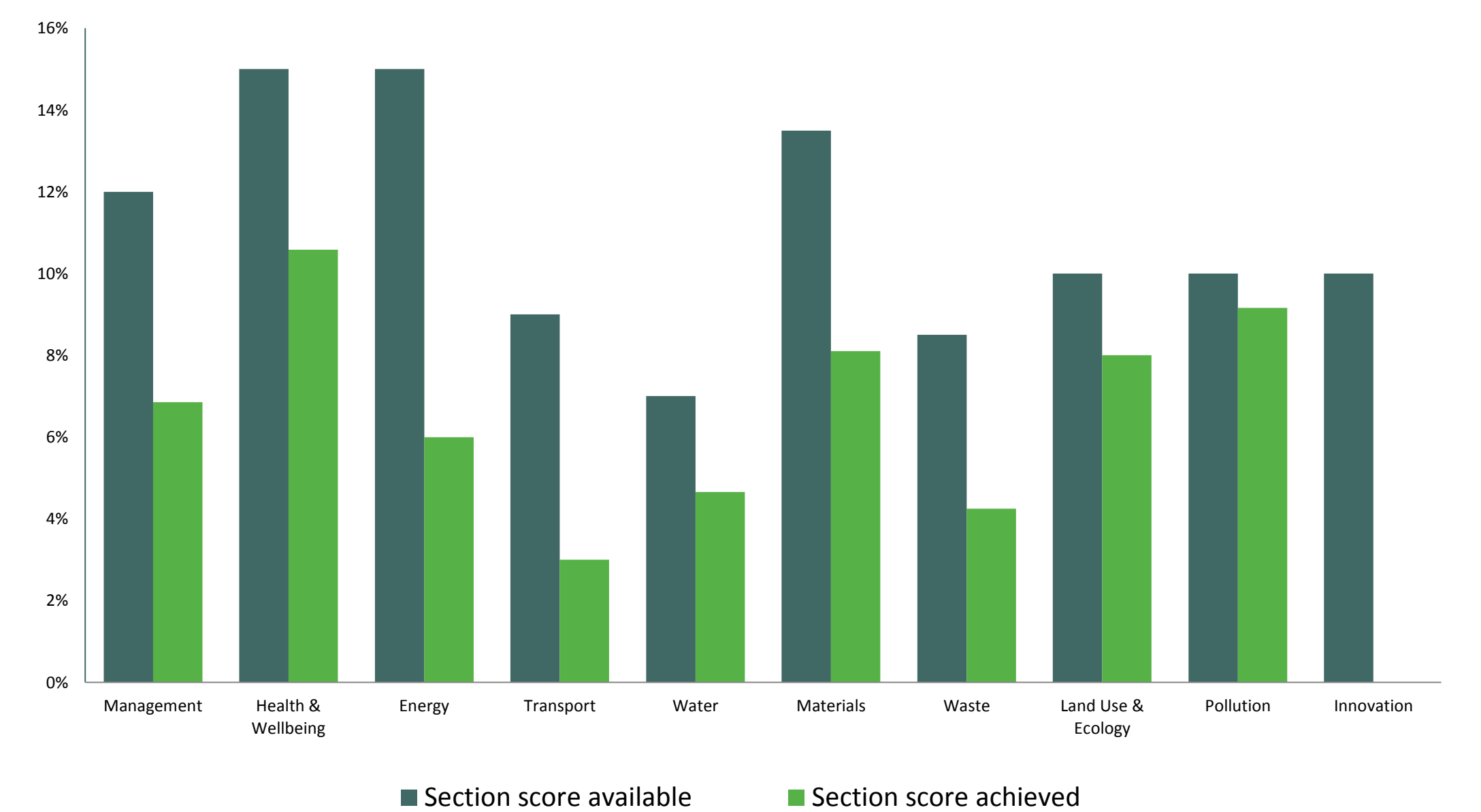
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Overall Building Performance

|                               |                       |
|-------------------------------|-----------------------|
| Building name                 | Warehouse Development |
| BREEAM rating                 | Very Good             |
| Total Score                   | 60.60%                |
| Min. standards level achieved | Excellent level       |

Building Performance by Environment Section



| Environmental Section |  | No. credits available | No. credits Achieved | % credits achieved | Section Weighting | Section Score |
|-----------------------|--|-----------------------|----------------------|--------------------|-------------------|---------------|
| Management            |  | 21                    | 12                   | 57.14%             | 12.00%            | 6.85%         |
| Health & Wellbeing    |  | 17                    | 12                   | 70.59%             | 15.00%            | 10.58%        |
| Energy                |  | 20                    | 8                    | 40.00%             | 15.00%            | 6.00%         |
| Transport             |  | 9                     | 3                    | 33.33%             | 9.00%             | 3.00%         |
| Water                 |  | 9                     | 6                    | 66.67%             | 7.00%             | 4.66%         |
| Materials             |  | 10                    | 6                    | 60.00%             | 13.50%            | 8.10%         |
| Waste                 |  | 8                     | 4                    | 50.00%             | 8.50%             | 4.25%         |
| Land Use & Ecology    |  | 10                    | 8                    | 80.00%             | 10.00%            | 8.00%         |
| Pollution             |  | 12                    | 11                   | 91.67%             | 10.00%            | 9.16%         |
| Innovation            |  | 10                    | 0                    | 0.00%              | 10.00%            | 0.00%         |

Building Performance by Key Environmental Performance Indicator

|                                                                           |                  |             |           |                                           |         |                         |
|---------------------------------------------------------------------------|------------------|-------------|-----------|-------------------------------------------|---------|-------------------------|
| Energy (consumption/production)                                           | Life cycle stage | Measurement | Intensity | Units                                     | Total   | Units                   |
| Building operation <sup>[1]</sup>                                         | Use              | Modelled    | 80.00     | kWh/m <sup>2</sup> /yr                    | #VALUE! | kWh/yr                  |
| Energy production <sup>[2]</sup>                                          | Use              | Modelled    | INA       | kWh/m <sup>2</sup> /yr                    | INA     | kWh/yr                  |
| Construction process <sup>[3]</sup>                                       | INA              | INA         | INA       | INA                                       | INA     | INA                     |
| Transport <sup>[4]</sup>                                                  | INA              | INA         | INA       | INA                                       | INA     | INA                     |
| Greenhouse Gas Emissions                                                  |                  |             |           |                                           |         |                         |
| Building operation <sup>[1]</sup>                                         | Use              | Modelled    | INA       | kgCO <sub>2</sub> eq/m <sup>2</sup> /yr   | INA     | kgCO <sub>2</sub> eq/yr |
| Embodied <sup>[5]</sup>                                                   | Cradle-to-grave  | Measured    | INA       | kgCO <sub>2</sub> eq/m <sup>2</sup>       | INA     | kgCO <sub>2</sub> eq    |
| Proportion of applicable main building elements that data reported covers |                  |             |           |                                           |         | INA                     |
| Construction process <sup>[3]</sup>                                       | INA              | INA         | INA       | INA                                       | INA     | INA                     |
| Transport <sup>[4]</sup>                                                  | INA              | INA         | INA       | INA                                       | INA     | INA                     |
| Direct GHG emissions - Refrigerants <sup>[6]</sup>                        | Use              | Modelled    | 0.00      | KgCO <sub>2</sub> eq/kW <sub>coolth</sub> | 0       | KgCO <sub>2</sub> eq    |
| Emissions to outdoor air, soil and water                                  |                  |             |           |                                           |         |                         |
| Nitrogen Oxides (NO <sub>x</sub> ) <sup>[7]</sup>                         | Use              | Measured    | 180.00    | mg/kWh                                    | INA     | kg/yr                   |
| Use of freshwater resource                                                |                  |             |           |                                           |         |                         |
| Building operation <sup>[8]</sup>                                         | Use              | Modelled    | INA       | m3/person/yr                              | INA     | m3/yr                   |
| Construction process <sup>[9]</sup>                                       | INA              | INA         | INA       | INA                                       | INA     | INA                     |
| Construction waste and recovery                                           |                  |             |           |                                           |         |                         |
| Construction waste <sup>[10]</sup>                                        | Construction     | Target      | 5.00      | m3/100m2                                  | #VALUE! | m3                      |
| Construction waste diverted from landfill <sup>[10]</sup>                 | Construction     | Target      | INA       | %                                         | INA     | m3                      |
| Demolition waste diverted from landfill <sup>[11]</sup>                   | Construction     | Target      | INA       | %                                         | INA     | INA                     |
| Demolition waste to disposal <sup>[11]</sup>                              | Construction     | Target      | INA       | %                                         | INA     | INA                     |
| Material for re-use <sup>[12]</sup>                                       | Construction     | Target      | INA       | m3/100m2                                  | INA     | m3                      |
| Material for recycling <sup>[12]</sup>                                    | Construction     | Target      | INA       | m3/100m2                                  | INA     | m3                      |
| Material for energy recovery <sup>[12]</sup>                              | Construction     | Target      | INA       | m3/100m2                                  | INA     | m3                      |
| Hazardous waste to disposal <sup>[12]</sup>                               | Construction     | Target      | INA       | m3/100m2                                  | INA     | m3                      |
| Sourcing of materials                                                     |                  |             |           |                                           |         |                         |
| Materials responsibly sourced <sup>[13]</sup>                             | Construction     | Measured    | 18.00%    | %                                         | -       | -                       |
| Thermal comfort                                                           |                  |             |           |                                           |         |                         |
| Predicted Mean Vote (PMV)                                                 | Use              | Modelled    | INA       | Index                                     | -       | -                       |
| Predicted Percentage Dissatisfied (PPD)                                   | Use              | Modelled    | INA       | %                                         | -       | -                       |
| Indoor Air Quality                                                        |                  |             |           |                                           |         |                         |
| Formaldehyde concentration level <sup>[14]</sup>                          | INA              | INA         | -         | INA                                       | INA     | INA                     |
| Total volatile organic compound concentration <sup>[14]</sup>             | INA              | INA         | INA       | INA                                       | INA     | INA                     |

Notes

- 1Modelled using approved software compliant with the UK's National Calculation Method which in turn is compliant with Article 3 of The Energy Performance of Buildings Directive (EPBD) 2002/91/EC. Modelling includes building energy consumption resulting from the specification of a 'controlled', 'fixed building service' (as defined in the relevant Approved Document or Guidance produced for each UK territory).
- 2The reported impact includes technologies that produce energy (on-site and/or near-site) as defined by Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.
- 3The reported impact includes energy consumption from construction plant, equipment and site accommodation. This KPI is not assessed/reported at the design stage of assessment/certification.
- 4The reported impact covers transport of the construction materials that make-up the main building elements and ground works and landscaping materials (from the factory gate to the site) and construction waste (from the construction gate to waste disposal processing / recovery centre gate). Main building elements are defined in the BREEAM 2014 New Construction Technical Guide (SD5076). This KPI is not assessed/reported at the design stage of assessment/certification.
- 5The reported impact covers the construction materials that make-up the main building elements (over a 60 year study period). Main building elements are defined in the BREEAM UK New Construction2014 Technical Guide (SD5076). The data is quantified using BRE's Environmental Profiles Methodology. The Environmental Profiles Methodology has been peer reviewed to comply with BS ISO 14040 and represents the Product Category Rules for BRE Global's environmental labelling scheme (EPD - ISO 14025, Type III) for construction products and elements.
- 6The reported impact is for a 10 year study period. The calculation of the Direct Effect Life Cycle CO<sub>2</sub>eq emissions used by BREEAM is based on the Total Equivalent Warming Impact (TEWI) calculation method for new stationary refrigeration and air conditioning systems, as described in Annex B of BS EN 378-1:2008.
- 7The reported impact covers emissions from either one or a combination of space heating, cooling and hot water heating (refer to Pol02 Assessment Issue for scope of emissions)
- 8The reported impact includes net water consumption from the micro-components utilised by building occupants for sanitary purposes. The impact accounts for water recycling/rainwater collection, where used for permissible non-potable water demands (For further detail refer to BREEAM UK New Construction 2014 Technical Guide (SD5076)).
- 9The reported impact is net water consumption i.e. accounts for any water recycling/rainwater collection used to off-set a potable site demand. This KPI is not assessed/reported at the design stage of assessment/certification.
- 10The reported impact covers non-hazardous waste from new construction materials, it therefore excludes hazardous and demolition and excavation waste. Where assessed and reported at the design stage of assessment this KPI is based on a target as reported in a compliant Resource Management Plan.

- 11 The reported impact covers non-hazardous waste from site demolition. Where assessed and reported at the design stage at the design stage of assessment this KPI is based on the target demolition waste diverted from landfill, as reported in a compliant Site Waste Management Plan. If no demolition taking place on site this KPI is not applicable.
- 12 Where assessed and reported at the design stage of assessment this KPI is based on a target as reported in a compliant Site Waste Management Plan.
- 13 The reported impact covers the proportion of the key building elements present and assessed by BREEAM that are responsibly sourced. Responsibly sourced and key building elements are defined in the BREEAM UK New Construction 2014 Technical Guide (SD5076).
- 14 The total volatile organic compound (TVOC) concentration is measured post construction (but pre-occupancy) over 8 hours. Formaldehyde concentration level is measured post construction (but pre-occupancy) averaged over 30 minutes. Both KPI's are measured in accordance with European and/or ISO standards (refer to the BREEAM New Construction Technical Manual for relevant standard numbers). At the design stage of assessment no data is available for this KPI as they are both measured once the building has been constructed (but pre-occupancy) for the purpose of post construction assessment.

"INA" = Indicator Not Assessed. This will be the case where either the data required for the KPI is not gathered/measured by the building's project team or not assessed/quantified in BREEAM for a particular building type or assessment stage e.g. energy consumption for construction process at the design stage of assessment.

"-" = KPI not applicable to building being assessed.

## BREEAM UK New Construction 2014 Assessment Report: Assessment Issue Scoring



|                                  |                       |
|----------------------------------|-----------------------|
| Building name                    | Warehouse Development |
| Building score (%)               | 60.60%                |
| Building rating                  | Very Good             |
| Minimum standards level achieved | Excellent level       |

## MANAGEMENT

## Man 01 Project brief and design

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 2.29% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                               | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------|------------|-------------------|------------------|
| Stakeholder consultation (project delivery)   | No         | 1                 | 0                |
| Stakeholder consultation (third party)        | No         | 1                 | 0                |
| Sustainability champion (design)              | No         | 1                 | 0                |
| Sustainability champion (monitoring progress) | No         | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | 0     |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

None of the consultation credits are currently assumed as these require very specific early discussions to take place and be documented, over and above what is usually carried out. The design team should review the criteria and confirm if this could be achieved, please note there are two separate consultation requirements; the first is for consultation within the early design team and the second is for consultation with relevant third party stakeholders. Both of these need to be undertaken prior to the completion of RIBA Stage 2.

The Sustainability Champion role is not mandatory for the BREEAM Assessment but will facilitate the process. This should be considered at the earliest stage and would allow the award of 2 additional credits but these are not currently assumed (Ridge can provide this service for an additional fee).

## Man 02 Life cycle cost and service life planning

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 2.29% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                          |                                 | Compliant? | Credits available | Credits achieved |
|----------------------------------------------|---------------------------------|------------|-------------------|------------------|
|                                              | Elemental life cycle cost (LCC) | No         | 2                 | 0                |
|                                              | Component level LCC plan        | No         | 1                 | 0                |
|                                              | Capital cost reporting          | Yes        | 1                 | 1                |
|                                              | Capital cost of the project     |            | £/m <sup>2</sup>  |                  |
| Total BREEAM credits achieved                |                                 |            | 1                 |                  |
| Total contribution to overall building score |                                 |            | 0.57%             |                  |
| Total BREEAM innovation credits achieved     |                                 |            | 0                 |                  |
| Minimum standard(s) level                    |                                 | N/A        |                   |                  |

Assessor comments/notes:

A Life Cycle Cost analysis is not currently assumed however it is assumed that the predicted capial cost of the project will be reported, the client may have some sensitivites around providing this information so this criteria should be carefully considered.

## Man 03 Responsible construction practices

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 6 | Available contribution to overall score | 3.43% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | Yes   |

| Assessment Criteria                                                           | Compliant? | Credits available | Credits achieved |
|-------------------------------------------------------------------------------|------------|-------------------|------------------|
| Is all site timber used in the project 'legally harvested and traded timber'? | Yes        |                   |                  |
| Environmental Management                                                      | Yes        | 1                 | 1                |
| Construction stage sustainability champion                                    | Yes        | 1                 | 1                |
| Considerate construction                                                      | 2          | 2                 | 2                |
| Monitoring of construction site impact (criterion 8)                          | Yes        |                   |                  |
| Utility consumption (water and energy)                                        | Yes        | 1                 | 1                |
| Transport of construction materials and waste                                 | Yes        | 1                 | 1                |
| Exemplary level criteria - considerate construction                           | No         | 1                 | 0                |

## Key Performance Indicators: Construction site energy use

|                                                              |  |                                           |
|--------------------------------------------------------------|--|-------------------------------------------|
| Energy consumption (total) - site processes                  |  | Information not available at design stage |
| Energy consumption (intensity) - site processes              |  | Information not available at design stage |
| Distance (total) - materials transport to site               |  | Information not available at design stage |
| Distance (total) -waste transport from site                  |  | Information not available at design stage |
| Energy consumption (total) - materials transport to site     |  | Information not available at design stage |
| Energy consumption (total) - waste transport from site       |  | Information not available at design stage |
| Energy consumption (intensity) - materials transport to site |  | Information not available at design stage |
| Energy consumption (intensity) - waste transport from site   |  | Information not available at design stage |

## Key Performance Indicators: Construction site greenhouse gas emissions

|                                                                    |  |                                           |
|--------------------------------------------------------------------|--|-------------------------------------------|
| Process greenhouse gas emissions (total) - site processes          |  | Information not available at design stage |
| Greenhouse gas emissions (intensity) - site processes              |  | Information not available at design stage |
| Greenhouse gas emissions (total) - materials transport to site     |  | Information not available at design stage |
| Greenhouse gas emissions (total) - waste transport from site       |  | Information not available at design stage |
| Greenhouse gas emissions (intensity) - materials transport to site |  | Information not available at design stage |
| Greenhouse gas emissions (intensity) - waste transport from site   |  | Information not available at design stage |

## Key Performance Indicators: Construction site use of freshwater resources

|                                                         |  |                                           |
|---------------------------------------------------------|--|-------------------------------------------|
| Use of freshwater resource (total) - site processes     |  | Information not available at design stage |
| Use of freshwater resource (intensity) - site processes |  | Information not available at design stage |

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 6                 |
| Total contribution to overall building score | 3.43%             |
| Total BREEAM innovation credits achieved     | 0                 |
| Minimum standard(s) level                    | Outstanding level |

Assessor comments/notes:

Assumed that all timber will be legally sourced (pre-requisite for this issue).

These items are mostly related to the appointed contractor - to meet this requirement at design stage specific information can be included as clauses within the contractor's formal appointment documentation. The use of a construction stage Sustainability Champion is currently assumed.

There is an additional credit available in the Contractor can demonstrate a score of >40 for the Considerate Constructors Scheme, this is not currently assumed but could be considered.

To prove this criteria many of these items could be included as specific clauses in the prelims.

**Man 04 Commissioning and handover**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 2.29% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | Yes   |

## Assessment Criteria

|                                                                                   | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------------------------------------|------------|-------------------|------------------|
| Commissioning and testing schedule and responsibilities                           | Yes        | 1                 | 1                |
| Commissioning building services                                                   | Yes        | 1                 | 1                |
| Testing and inspecting building fabric                                            | No         | 1                 | 0                |
| Handover - Has a Building User Guide been developed prior to handover?            | Yes        | 1                 | 1                |
| Handover - Has a training schedule been prepared for building occupiers/managers? | Yes        |                   |                  |

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 3                 |
| Total contribution to overall building score | 1.71%             |
| Total BREEAM innovation credits achieved     | N/A               |
| Minimum standard(s) level                    | Outstanding level |

## Assessor comments/notes:

For buildings with complex systems (e.g. comfort cooling, BMS etc) a specialist commissioning manager will be required and they will need to be appointed during design stage in order for this to comply (2nd credit) - for this to be meaningful it should be considered no later than Stage 4.

For the purpose of this pre-assessment it has been assumed that the commissioning criteria will be achieved and a Building User Guide will be compiled together with a training schedule - note the Building User Guide is a mandatory requirement for BREEAM Very Good.

It is not currently assumed that the fabric will be commissioned but if the design team think this is a realistic aspiration for the project it could be targeted. For example if a strict internal environment is required for the manufacturing processes then this might be something that will be undertaken anyway? Team agreed this is unlikely for warehouse spaces therefore not currently targeted.

**Man 05 Aftercare**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 1.71% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | Yes   |

## Assessment Criteria

|                           | Compliant? | Credits available | Credits achieved |
|---------------------------|------------|-------------------|------------------|
| Aftercare support         | Yes        | 1                 | 1                |
| Seasonal commissioning    | Yes        | 1                 | 1                |
| Post occupancy evaluation | No         | 1                 | 0                |
| Exemplary level criteria  | No         | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 1.14% |

|                                          |                   |
|------------------------------------------|-------------------|
| Total BREEAM innovation credits achieved | 0                 |
| Minimum standard(s) level                | Outstanding level |

Assessor comments/notes:

Seasonal commissioning has been assumed, together with appropriate aftercare support. A Post Occupancy Evaluation is not currently assumed as this is considered unlikely to be very practical for this type of development as it should be undertaken 1 year after initial occupation by an independent party (as per Man 01) and the results must be disseminated in order to comply. An innovation credit is available if the relevant infrastructure and resources are put in place to collate relevant data about the building quarterly for the first three years of occupation - this has not been assumed for the purpose of this pre-assessment.

## HEALTH &amp; WELLBEING

## Hea 01 Visual Comfort

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 3.53% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                            | Compliant? | Credits available | Credits achieved |
|------------------------------------------------------------|------------|-------------------|------------------|
| Glare control                                              | Yes        | 1                 | 1                |
| Daylighting (building type dependant)                      | 0          | 1                 | 0                |
| View out                                                   | No         | 1                 | 0                |
| Internal and external lighting levels, zoning and controls | Yes        | 1                 | 1                |
| Exemplary level daylighting                                | No         | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 1.76% |
| Total BREEAM innovation credits achieved     | 0     |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

Compliance with the glare control should be achievable where blinds will be installed in occupied spaces and has therefore been assumed.

Given the nature of the proposed development it is considered unlikely that the daylighting and view out criteria will be achieved therefore these have not been assumed currently.

Compliance with the internal and external lighting criteria is assumed; please note there are specific requirements regarding internal lighting controls and zoning that need to be incorporated in order to prove this criteria.

## Hea 02 Indoor Air Quality

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 5 | Available contribution to overall score | 4.41% |
| No. of BREEAM innovation credits available | 2 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                  | Compliant? | Credits available | Credits achieved |
|--------------------------------------------------|------------|-------------------|------------------|
| Indoor air quality (IAQ) plan                    | Yes        | 1                 | 1                |
| Ventilation                                      | No         | 1                 | 0                |
| VOCs (products)                                  | Yes        | 1                 | 1                |
| VOCs (post-construction)                         | No         | 1                 | 0                |
| Adaptability - potential for natural ventilation | Yes        | 1                 | 1                |
| Exemplary level VOCs (products)                  |            | 2                 | 0                |

Key Performance Indicators: Indoor air quality

|                                                      |  |                                           |
|------------------------------------------------------|--|-------------------------------------------|
| Concentration levels of formaldehyde                 |  | Information not available at design stage |
| Total volatile organic compound (TVOC) concentration |  | Information not available at design stage |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 3     |
| Total contribution to overall building score | 2.65% |
| Total BREEAM innovation credits achieved     | 0     |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

Assumed that an air quality plan will be undertaken covering all of the required points, the credit available for minimisation of concentration and recirculation of pollutants is not assumed as this requires air intakes to be 20m away from external sources of pollution e.g. car parks which is unlikely to be achievable for this scheme. It has also been assumed that the buildings will have potential for natural ventilation which will be proven in line with BREEAM criteria, please note that this only applies to office areas therefore it is assumed that there will openable windows in this location which will have sufficient openings to allow this criteria to be met.

It is also assumed that the architectural specification will list the VOC testing and emission levels to be achieved for the scheme but post completion testing is not currently assumed.

Hea 03 Safe containment in laboratories

Assessment issue not applicable

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

| Assessment Criteria                                  | Compliant? | Credits available | Credits achieved |
|------------------------------------------------------|------------|-------------------|------------------|
| Objective risk assessment of laboratory facilities   |            |                   |                  |
| Laboratory containment devices and containment areas |            |                   |                  |
| Containment level 2 and 3 labs                       |            |                   |                  |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

Hea 04 Thermal comfort

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 2.65% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                                    | Compliant? | Credits available | Credits achieved |
|--------------------------------------------------------|------------|-------------------|------------------|
| Thermal modelling                                      | Yes        | 1                 | 1                |
| Adaptability - for a projected climate change scenario | Yes        | 1                 | 1                |
| Thermal zoning and control                             | Yes        | 1                 | 1                |

|                                         |                 |                                  |
|-----------------------------------------|-----------------|----------------------------------|
| Key Performance Indicators              | Thermal comfort | For a projected climate scenario |
| Predicted Mean Vote (PMV)               |                 |                                  |
| Predicted Percentage Dissatisfied (PPD) |                 |                                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 3     |
| Total contribution to overall building score | 2.65% |

|                                          |     |
|------------------------------------------|-----|
| Total BREEAM innovation credits achieved | N/A |
| Minimum standard(s) level                | N/A |

Assessor comments/notes:

Assumed that a thermal model of the design will be carried out which will inform the development of thermal zoning and control strategy.

The credit available for adaptation for a projected climate change scenario is also assumed, note this requires the design team to demonstrate how the thermal comfort criteria is met for the future climate change environment or how the building is designed to be easily adapted in the future, using passive design measures to meet the requirements.

#### Hea 05 Acoustic Performance

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 2.65% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                                     | Credits | Credits available | Credits achieved |
|---------------------------------------------------------|---------|-------------------|------------------|
| Acoustic performance standards and testing requirements | 3       | 3                 | 3                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 3     |
| Total contribution to overall building score | 2.65% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

#### Assessor comments/notes:

Assumed that a suitably qualified acoustician will be appointed to consider the scheme and then either bespoke performance requirements or the requirements of the BREEAM Manual will be met in order to achieve the 3 available credits as part of a BREEAM Very Good strategy. Confirmation of the achievability of these credits will only be possible when a suitably qualified acoustician is consulted.

#### Hea 06 Safety and Security

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 1.76% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria           | Compliant? | Credits available | Credits achieved |
|-------------------------------|------------|-------------------|------------------|
| Safe external access          | No         | 1                 | 0                |
| Security of site and building | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 0.88% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

#### Assessor comments/notes:

It is not assumed that the safe access criteria will not be met as this is particularly onerous for sites with large number of deliveries and also requires provision of cycle paths within the site.

It is assumed however that a compliant Security Needs Assessment will be undertaken at Stage 2 which will involve a visual audit of the site and surroundings etc (this is different to previous BREEAM criteria so will need to be carefully considered to confirm achievability) the design team will then need to incorporate the specialist's recommendations into the design of the scheme in order for the credit to be achieved.

## ENERGY

### Ene 01 Reduction of energy use and carbon emissions

|                                            |    |                                         |       |
|--------------------------------------------|----|-----------------------------------------|-------|
| No. of BREEAM credits available            | 12 | Available contribution to overall score | 9.00% |
| No. of BREEAM innovation credits available | 5  | Minimum standards applicable            | Yes   |

#### Ene 01 Calculator

|                                                 |         |                                               |                       |
|-------------------------------------------------|---------|-----------------------------------------------|-----------------------|
| Country of the UK where the building is located | England | Confirm building regulation and version used: | England Part L2A 2013 |
|-------------------------------------------------|---------|-----------------------------------------------|-----------------------|

#### New Construction (Fully fitted)

|                     |     |    |
|---------------------|-----|----|
| Building floor area | tbc | m2 |
|---------------------|-----|----|

|                                                                         |        |             |
|-------------------------------------------------------------------------|--------|-------------|
| Notional building heating and cooling energy demand                     | 110.00 | MJ/m2 yr    |
| Actual building heating and cooling energy demand                       | 105.00 | MJ/m2 yr    |
| Notional building primary energy consumption                            | 110.00 | kWh/m2 yr   |
| Actual building primary energy consumption                              | 80.00  | kWh/m2 yr   |
| Target emission rate (TER)                                              |        | kgCO2/m2 yr |
| Building emission rate (BER)                                            |        | kgCO2/m2 yr |
| Building emission rate improvement over TER                             |        |             |
| Heating & cooling demand energy performance ratio (EPR <sub>DEM</sub> ) | 0.097  |             |
| Primary consumption energy performance ratio (EPR <sub>PC</sub> )       | 0.320  |             |
| CO <sub>2</sub> Energy performance ratio (EPR <sub>CO2</sub> )          | 0.000  |             |
| Overall building energy performance ratio (EPR <sub>NC</sub> )          | 0.416  |             |

|                                                                                                                                                                                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Where specified, please confirm the energy production from onsite or near site energy generation technologies                                                                      |  |
| Equivalent % of the building's 'regulated' energy consumption generated by carbon neutral sources and used to meet energy demand from 'unregulated' building systems or processes? |  |
| Is the building designed to be 'carbon negative' ?                                                                                                                                 |  |
| If the building is defined as 'carbon negative' what is the total (modelled) renewable/carbon neutral energy generated and exported?                                               |  |

|                                              |                 |
|----------------------------------------------|-----------------|
| Total BREEAM credits achieved                | 5               |
| Total contribution to overall building score | 3.75%           |
| Total BREEAM innovation credits achieved     | 0               |
| Minimum standard(s) level                    | Excellent level |

Assessor comments/notes:

As part of a BREEAM Very Good strategy at least 5 credits are currently targeted, this will need to be confirmed by the design team as is dependent on the building's servicing strategy. This issue considers a multitude of factors to quantify the improvement of the actual building over a notional building of the same type and size. The buildings heating and cooling demand, primary energy consumption and CO2 emissions all feed into this calculation.

Please note the figures above are not indicative of specific targets and have only been used to derive the correct number of targeted credits for this issue.

**Ene 02 Energy monitoring**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 1.50% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | Yes   |

## Assessment criteria

|                                                    | Compliant? | Credits available | Credits achieved |
|----------------------------------------------------|------------|-------------------|------------------|
| Sub-metering of major energy consuming systems     | Yes        | 1                 | 1                |
| Sub-metering of high energy load and tenancy areas | Yes        | 1                 | 1                |

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 2                 |
| Total contribution to overall building score | 1.50%             |
| Total BREEAM innovation credits achieved     | N/A               |
| Minimum standard(s) level                    | Outstanding level |

## Assessor comments/notes:

The first credit is mandatory for BREEAM Very Good - both credits assumed as part of BREEAM Very Good strategy. It should be noted that the requirements of this issue have changed from previous version of BREEAM e.g. the annual energy consumption of each fuel must be estimated and assigned to various end use categories.

The commonly found functions for industrial buildings are as follows: office areas, operational areas and ancillary areas (e.g. canteens).

**Ene 03 External lighting**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 0.75% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment criteria

|                                 | Compliant? | Credits available | Credits achieved |
|---------------------------------|------------|-------------------|------------------|
| External lighting specification | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 0.75% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

It is assumed that all external lighting will achieve the luminous efficacy required for this issue and will be controlled automatically to prevent operation during daylight hours with presence detection in areas of intermittent pedestrian traffic.

External lighting is also assessed under Hea 01 and Pol 04.

**Ene 04 Low carbon design**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 2.25% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment criteria

|                                  | Compliant? | Credits available | Credits achieved |
|----------------------------------|------------|-------------------|------------------|
| Passive design analysis          | No         | 1                 | 0                |
| Free cooling                     | No         | 1                 | 0                |
| Low and zero carbon technologies | No         | 1                 | 0                |

## KPI - Low and/or zero carbon energy generation

Total on-site and/or near-site LZC energy generation  kWh/yr

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

These credits are not currently assumed but should be considered by the design team; the first is available for carrying out an analysis of the proposed building design / development at RIBA Stage 2 to influence decisions made and identify opportunities for the implementation of passive design solutions - a meaningful reduction in energy consumption must be demonstrated as a result of these.

There's a further credit for using free cooling to reduce the energy consumption further such as night time cooling, ground coupled air cooling, displacement ventilation, ground water cooling, surface water cooling, evaporative cooling, desiccant dehumidification and evaporative cooling using waste heat, absorption cooling using waste heat or alternatively no active cooling or mech vent is required

The third credit is available for undertaking a review of low or zero carbon technologies that could be used to further reduce the energy demand of the building, again a meaningful reduction (circa 5%) must be demonstrated as a result of this technology in order for the credit to be awarded. It is understood that PV may be proposed for the scheme so this credit may be achievable.

**Ene 05 Energy efficient cold storage****Assessment issue not applicable**

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

## Assessment criteria

|                                   | Compliant? | Credits available | Credits achieved |
|-----------------------------------|------------|-------------------|------------------|
| Refrigeration energy consumption  | No         | N/A               | N/A              |
| Indirect greenhouse gas emissions | No         | N/A               | N/A              |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

Ene 06 Energy efficient transportation systems

Assessment issue not applicable

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

| Assessment criteria       | Compliant? | Credits available | Credits achieved |
|---------------------------|------------|-------------------|------------------|
| Energy consumption        |            |                   |                  |
| Energy efficient features |            |                   |                  |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

Ene 07 Energy efficient laboratory systems

Assessment issue not applicable

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

| Assessment criteria                                                             | Compliant? | Credits available | Credits achieved |
|---------------------------------------------------------------------------------|------------|-------------------|------------------|
| Pre-requisite: Criterion 1 of Hea 03 - risk assessment of laboratory facilities |            |                   |                  |
| Design specification                                                            |            |                   |                  |
| Design Specification- Containment Device Criteria                               |            |                   |                  |
| Best Practice Energy Practices in Laboratories (table 27)                       |            |                   |                  |
| Item b) Fan power                                                               |            |                   |                  |
| Item c) Fume cupboard volume flow rates                                         |            |                   |                  |
| Item d) Grouping / isolation of high filtration/ventilation activities          |            |                   |                  |
| Item e) Energy recovery - heat                                                  |            |                   |                  |
| Item f) Energy recovery - cooling                                               |            |                   |                  |
| Item g) Grouping of cooling loads                                               |            |                   |                  |
| Item h) Free cooling                                                            |            |                   |                  |
| Item i) Load responsiveness                                                     |            |                   |                  |

|  |                               |  |
|--|-------------------------------|--|
|  | Item j) Cleanrooms            |  |
|  | Item k) Diversity             |  |
|  | Item l) Room air-change rates |  |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

Ene 08 Energy efficient equipment

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 1.50% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment criteria                     | Present? | Major impact |
|-----------------------------------------|----------|--------------|
| Ref A Small power and plug in equipment |          |              |
| Ref B Swimming pool                     |          |              |
| Ref C Communal laundry                  |          |              |
| Ref D Data centre                       |          |              |
| Ref E IT-intensive operation areas      |          |              |
| Ref F Residential areas                 |          |              |
| Ref G Healthcare                        |          |              |
| Ref H Kitchen and catering facilities   |          |              |

|                                                    | Compliant | Credits available | Credits achieved |
|----------------------------------------------------|-----------|-------------------|------------------|
| Significant majority contributors BREEAM compliant | No        | 2                 | 0                |
| Total BREEAM credits achieved                      | 0         |                   |                  |
| Total contribution to overall building score       | 0.00%     |                   |                  |
| Total BREEAM innovation credits achieved           | N/A       |                   |                  |
| Minimum standard(s) level                          | N/A       |                   |                  |

Assessor comments/notes:

To achieve these credits the design team would have to review the listed items and confirm whether they are likely to be present within the assessed buildings and identify the item that is likely to be responsible for the majority of unregulated energy use. Once this has been identified the manual provides solutions that could be implemented to achieve the credits. Given the nature of this scheme it is not anticipated that the design team will have scope to control the majority of the unregulated energy use systems, such as the specification of plug in equipment, so these credits are not assumed.

Ene 09 Drying space

Assessment issue not applicable

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

| Assessment criteria                                              | Compliant? | Credits available | Credits achieved |
|------------------------------------------------------------------|------------|-------------------|------------------|
| Is there a risk of ligature for residents?                       |            |                   |                  |
| Residential internal/external drying space and fixings provided? |            |                   |                  |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

# TRANSPORT

## Tra 01 Public Transport Accessibility

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 3.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

|                                                                |                              |
|----------------------------------------------------------------|------------------------------|
| Building type category (for purpose of Tra01 issue assessment) | Business (office/industrial) |
|----------------------------------------------------------------|------------------------------|

| Assessment Criteria                          | Compliant | Credits available | Credits achieved |
|----------------------------------------------|-----------|-------------------|------------------|
| Public transport accessibility index         | 0.00      | 3                 | 0                |
| Building dedicated bus service               | No        |                   | 0                |
| Total BREEAM credits achieved                | 0         |                   |                  |
| Total contribution to overall building score | 0.00%     |                   |                  |
| Total BREEAM innovation credits achieved     | N/A       |                   |                  |
| Minimum standard(s) level                    | N/A       |                   |                  |

### Assessor comments/notes:

A desk study conducted to review public transport nodes local to the site found that it is unlikely for these credits to be achieved unless a dedicated bus service is implemented. As a result these credits are not currently assumed.

## Tra 02 Proximity to Amenities

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                                    | Compliant? | Credits available | Credits achieved |
|--------------------------------------------------------|------------|-------------------|------------------|
| Close proximity and accessible to applicable amenities | No         | 1                 | 0                |
| Total BREEAM credits achieved                          | 0          |                   |                  |
| Total contribution to overall building score           | 0.00%      |                   |                  |
| Total BREEAM innovation credits achieved               | N/A        |                   |                  |

|                           |     |
|---------------------------|-----|
| Minimum standard(s) level | N/A |
|---------------------------|-----|

Assessor comments/notes:

As with Tra 01, a desk study confirmed that there are no amenities within 500 meters of the site (amenities included should be an appropriate food outlet, cash point, leisure facility and an outdoor open space). Therefore, this credit is not currently assumed.

**Tra 03 Cyclist facilities**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

|                                                                |                                |
|----------------------------------------------------------------|--------------------------------|
| Building type category (for purpose of Tra03 issue assessment) | Business - (office/Industrial) |
| Number of compliant cycle storage spaces provided              | 5                              |
| Cyclist facilities provided                                    | Lockers only                   |

## Assessment Criteria

|                      | Compliant? | Credits available | Credits achieved |
|----------------------|------------|-------------------|------------------|
| Cycle storage spaces | Yes        | 2                 | 2                |
| Cyclist facilities   | Yes        |                   |                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 2.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

For industrial buildings 1 cycle storage space is required for every 10 occupants. If the anticipated number of occupants are not known then Tra 04 provides default occupancies that can be used to estimate this. Based on the assumption that 10% of each industrial unit will be office space preliminary calculations indicate that a total of circa 80 occupants can be assumed overall for the units which would require 8 cycle spaces for compliance. Further details of this will be considered with the design team as the proposals evolve, these spaces could be provided for individual units or as an overall provision so long as they are compliant with the BREEAM requirements e.g. covered, prominent location etc.

There is a further credit available for providing 2 of the 4 listed cyclists facilities; lockers, showers, changing facilities and drying space. It is currently understood that showers and changing facilities will be provided on site so this criteria is assumed.

**Tra 04 Maximum Car Parking Capacity**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

|                                                          |                                |
|----------------------------------------------------------|--------------------------------|
| Building type category (for purpose of Tra04 issue)      | Business - (office/Industrial) |
| Buildings Accessibility Index (sourced from issue Tra01) | 0                              |

## Assessment Criteria

|                          | Compliant? | Credits available | Credits achieved |
|--------------------------|------------|-------------------|------------------|
| Maximum parking capacity | No         | 2                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

In order to achieve credits here based on an Accessibility Index of <4 (from Tra 01) no more than 1 car parking space per 3 building users can be provided. These credits are not currently assumed as on the current site plan layout there are 53 car parking spaces proposed and an estimated 80 building users.

Tra 05 Travel Plan

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                                            | Compliant? | Credits available | Credits achieved |
|----------------------------------------------------------------|------------|-------------------|------------------|
| Transport plan based on site specific travel survey/assessment | Yes        | 1                 | 1                |
| Total BREEAM credits achieved                                  | 1          |                   |                  |
| Total contribution to overall building score                   | 1.00%      |                   |                  |
| Total BREEAM innovation credits achieved                       | N/A        |                   |                  |
| Minimum standard(s) level                                      | N/A        |                   |                  |

Assessor comments/notes:

As part of a BREEAM Very Good strategy it is assumed that a Travel Plan will be completed for this project to allow the achievement of this criteria. It should be noted that a Transport Assessment will need to be undertaken to inform the Travel Plan. It is understood that this is part of Ridge's appointment

WATER

Wat 01 Water Consumption

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 5 | Available contribution to overall score | 3.89% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | Yes   |

Please select the calculation procedure used

Standard approach

|                                                  |        |              |
|--------------------------------------------------|--------|--------------|
| Standard approach data                           |        |              |
| Water Consumption from building micro-components |        | L/person/day |
| Water demand met via greywater/rainwater sources |        | L/person/day |
| Total net water consumption                      |        | L/person/day |
| Improvement on baseline performance              | 25.00% | %            |

Key Performance Indicator - use of freshwater resource

|                             |  |              |
|-----------------------------|--|--------------|
| Total net Water Consumption |  | m3/person/yr |
| Default building occupancy  |  |              |

Alternative approach data

|                                                   |  |
|---------------------------------------------------|--|
| Overall microcomponent performance level achieved |  |
|                                                   |  |

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 2                 |
| Total contribution to overall building score | 1.56%             |
| Total BREEAM innovation credits achieved     | 0                 |
| Minimum standard(s) level                    | Outstanding level |

Assessor comments/notes:

2 credits are targeted as part of a Very Good strategy, with one being a mandatory requirement for a BREEAM Very Good score. This requires a 25% improvement over the baseline building, although this should be used as a minimum target. It should be noted that this calculation takes into account the efficiency of domestic scale water consuming components must be included in the assessment e.g. WCs, urinals, taps, showers and dishwashers. Typically this can be achieved via the use of flow restrictors and low flow appliances however grey water / rainwater can also help with achievement of these credits.

**Wat 02 Water Monitoring**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 0.78% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | Yes   |

## Assessment Criteria

|                                                                 | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------------------|------------|-------------------|------------------|
| Water meter on the mains water supply to the building(s)        | Yes        | 1                 | 1                |
| Metering/monitoring equipment on supply to plant/building areas | Yes        |                   |                  |
| Pulsed output or other open protocol communication output       | Yes        |                   |                  |
| Existing BMS connection                                         | N/A        |                   |                  |

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 1                 |
| Total contribution to overall building score | 0.78%             |
| Total BREEAM innovation credits achieved     | N/A               |
| Minimum standard(s) level                    | Outstanding level |

## Assessor comments/notes:

It is anticipated that the assessed building will have a BMS and that any building areas that are likely to consume 10% or more of the building's total water demand will be sub-metered and this will be connected to the BMS. It is mandatory for a water meter to be included on the main incoming water supply to the building.

**Wat 03 Water Leak Detection and Prevention**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 1.56% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                    | Compliant? | Credits available | Credits achieved |
|----------------------------------------------------|------------|-------------------|------------------|
| Leak detection on building's mains water supply    | Yes        | 1                 | 1                |
| Flow control device to each sanitary area/facility | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 1.56% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

For the purpose of this pre-assessment it is assumed that flow control devices will be installed to each WC area (such as PIR sensors) and a leak detection system will be installed on the incoming water mains.

Wat 04 Water Efficient Equipment

|                                            |    |                                         |       |
|--------------------------------------------|----|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1  | Available contribution to overall score | 0.78% |
| No. of BREEAM innovation credits available | No | Minimum standards applicable            | No    |

| Assessment Criteria                                                   | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------------------------|------------|-------------------|------------------|
| Has a meaningful reduction in unregulated water demand been achieved? | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 0.78% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

It is assumed that the unregulated water use associated with the new building will be considered and measures will be taken to reduce this by a meaningful amount. Typically for this type of building this could be achieved by specifying planting which does not require irrigation or managing the irrigation in a compliant way i.e manual watering only or the use of rainwater for irrigation or the use of soil moisture sensors with drip fed subsurface irrigation systems. This credit has been assumed as it is understood that soft landscaping will likely be used to enhance the setting of the building, this will need to be reviewed by the landscape architect, mechanical engineer and ecologist at the appropriate stage.

MATERIALS

Mat 01 Life Cycle Impacts

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.70% |
| No. of BREEAM innovation credits available | 3 | Minimum standards applicable            | No    |

| Assessment Criteria                      |   |
|------------------------------------------|---|
| Total Mat01 credits achieved             | 2 |
| Total Mat01 points achieved              |   |
| Number of building elements assessed     |   |
| Exemplary level compliant?               |   |
| Has IMPACT compliant software been used? |   |

| Key Performance Indicator - embodied green house gas emissions by element | Total area of element m <sup>2</sup> | Total impact kgCO <sub>2</sub> eq. | Area of element impact data relevant to m <sup>2</sup> |
|---------------------------------------------------------------------------|--------------------------------------|------------------------------------|--------------------------------------------------------|
| External walls                                                            |                                      |                                    |                                                        |

|  |                          |  |  |  |
|--|--------------------------|--|--|--|
|  | Windows                  |  |  |  |
|  | Roof                     |  |  |  |
|  | Upper floor construction |  |  |  |
|  | Internal wall            |  |  |  |
|  | Floor finishes/coverings |  |  |  |

Key Performance Indicator - embodied green house gas emissions for building (assessed elements only)

|                                                                              |              |                       |  |                                      |
|------------------------------------------------------------------------------|--------------|-----------------------|--|--------------------------------------|
| Total embodied green house gas emissions for building (by assessed elements) | Missing data | kgCO <sub>2</sub> eq. |  | kgCO <sub>2</sub> eq./m <sup>2</sup> |
| Proportion of applicable building elements that data reported covers         |              |                       |  |                                      |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 2.70% |
| Total BREEAM innovation credits achieved     | 0     |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

For industrial buildings only the external walls and roof are assessed under Mat 01. To achieve the targeted credits the Green Guide to Specification will need to be considered and A or A+ rated elements should be considered. At this stage both credits are assumed but the specification should be checked by the project architect to confirm the practicality of achieving these.

Please note that the Green Guide to Specification is an online tool that is free to access (although registration is required) - materials are rated A+ to E; the more materials with higher ratings the more credits will be achieved as calculated by the Mat 01 calculator tool.

**Mat 02 Hard Landscaping and Boundary Protection**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.35% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                   | Compliant? | Credits available | Credits achieved |
|---------------------------------------------------|------------|-------------------|------------------|
| External hard landscaping and boundary protection | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 1.35% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

To achieve this credit at least 80% of all hard landscaping and boundary protection must achieve a Green Guide Rating of A or A+. Note where the building façade forms part of the boundary it is excluded from assessment. This credit is currently assumed but achievability should be reviewed as the design progresses - generally recycled sub base helps achieve better Green Guide Ratings for hard landscaping.

Note: existing boundary protection is automatically assigned an A+ rating if less than 20% subject to minor alterations so only new needs to be formally assessed. Existing natural features such as hedges are awarded A+ rating automatically. Hard landscaping includes parking areas, pathways, roads within car parks but excludes access roads and designated vehicular manouvering areas.

**Mat 03 Responsible Sourcing**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 5.40% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | Yes   |

## Assessment Criteria

|                                                                                | Compliant | Credits available | Credits achieved |
|--------------------------------------------------------------------------------|-----------|-------------------|------------------|
| All timber and timber based products are 'Legally harvested and trader timber' | Yes       |                   |                  |
| Is there a documented sustainable procurement plan                             | Yes       | 1                 | 1                |
| Percentage of available responsible sourcing of materials points achieved      | 18.00%    | 3                 | 1                |

|                                               |                                  |
|-----------------------------------------------|----------------------------------|
| Please confirm the route used to assess Mat03 | Route 1: Lowest RSCS point score |
|-----------------------------------------------|----------------------------------|

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 2                 |
| Total contribution to overall building score | 2.70%             |
| Total BREEAM innovation credits achieved     | 0                 |
| Minimum standard(s) level                    | Outstanding level |

## Assessor comments/notes:

It is mandatory that all timber and timber based products are legally harvested and traded therefore this has been assumed. It is also assumed that a sustainable procurement plan will be compiled for the project (or the Contractor will have one in place) and at least a single RSM credit will be achieved (at least 18% of RSM points achieved).

At design stage this should be written into the contractor requirements for evidence. Please note that it is likely that if a sustainable procurement plan is produced more than 18% of RSM points will be achieved, as part of a BREEAM Very Good strategy 2 of the 4 available credits are currently assumed, further credits here could be targeted but may be harder to prove for the final post construction assessment as this will put the onus on the Contractor to provide adequate documentary evidence of responsible sourcing.

**Mat 04 Insulation**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.35% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                    |      | Credits available | Credits achieved |
|------------------------------------|------|-------------------|------------------|
| Embodied impact - insulation index | 2.55 | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 1.35% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

This issue assesses all insulation included in the external walls, ground floor, roof and building services. The insulation index is calculated taking into account the area, thickness and thermal conductivity of the specified insulation and then this is multiplied by the Green Guide Rating. Achievement of this issue has been assumed as part of a BREEAM Very Good strategy.

Note where insulation is incorporated as a component of an element that is manufactured off site and that element is assessed under Mat 01 then the insulation is automatically assigned an A+ rating for this issue.

**Mat 05 Designing for durability and resilience**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.35% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | N/A   |

## Assessment Criteria

|                                                                    | Compliant? | Credits available | Credits achieved |
|--------------------------------------------------------------------|------------|-------------------|------------------|
| Protecting vulnerable parts of the building from damage            | No         | 1                 | 0                |
| Protecting exposed parts of the building from material degradation | No         |                   |                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

Achievement of this credit requires an early discussion regarding vulnerable areas and those that may be subject to material degradation. To achieve the credit suitable design and specification measures must then be taken to overcome this - the credit is not timebound in nature however is not currently assumed as it can be challenging for design teams to demonstrate particularly the material degradation criteria.

#### Mat 06 Material efficiency

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.35% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

#### Assessment Criteria

|                                                                                | Compliant? | Credits available | Credits achieved |
|--------------------------------------------------------------------------------|------------|-------------------|------------------|
| Material optimisation measures investigated and implemented at relevant stages | No         | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

#### Assessor comments/notes:

This issue requires considerations to be made at 5 RIBA stages; 1 - Preparation and Brief, 2 - Concept Design, 3 - Developed Design, 4 - Technical Design and 5 - Construction.

The evidence requirements, although not overly prescriptive (CN3.1), are not very well understood by project teams so it has not been assumed currently. However if the design team believe that suitable discussions have already taken place for the proposed building at RIBA Stage 1 then it would be worth considering this further as the evidence requirements are very flexible as long as the criteria is proven.

## WASTE

## Wst 01 Construction Waste Management

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 4 | Available contribution to overall score | 4.25% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | Yes   |

## Assessment Criteria

## Compliant?

|                                                                  |     |
|------------------------------------------------------------------|-----|
| Construction resource management plan                            | Yes |
| Demolition taking place on site?                                 | No  |
| Compliant Pre-demolition audit                                   |     |
| Does the excavation waste meet the exemplary level requirements? | No  |

## Key Performance Indicators - Construction Waste

| Measure/units for the data being reported                              | volume |          |
|------------------------------------------------------------------------|--------|----------|
| Non-hazardous construction waste (excluding demolition/excavation)     | 5.00   | m3/100m2 |
| Total non-hazardous construction waste generated                       |        | m3       |
| Non-hazardous non-demolition const. waste diverted from landfill       |        | %        |
| Total non-hazardous non-demolition const. waste diverted from landfill | INA    | m3       |
| Total non-hazardous demolition waste generated                         |        | m3       |
| Non-hazardous demolition waste diverted from landfill                  |        | %        |
| Total non-hazardous demolition waste to disposal                       | INA    | m3       |
| Material for reuse                                                     |        | m3       |
| Material for recycling                                                 |        | m3       |
| Material for energy recovery                                           |        | m3       |
| Hazardous waste to disposal                                            |        | m3       |

Note: If data not available then insert

Note: At the design stage of assessme

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|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 2                 |
| Total contribution to overall building score | 2.13%             |
| Total BREEAM innovation credits achieved     | 0                 |
| Minimum standard(s) level                    | Outstanding level |

## Assessor comments/notes:

To achieve credits for this issue it is anticipated that a Resource Management Plan will be developed to cover the non hazardous waste related to onsite works and dedicated off site manufacture or fabrication (including demolition and excavation waste). It is anticipated that at least 2 credits will be targeted for waste resource efficiency (<7.5m3 per 100m2 GIA) but this target does not include demolition or excavation waste.

It should be noted that to achieve these credits a pre-demolition audit of any existing buildings, structures and hard surfaces within the site boundary must be undertaken to maximise the recovery of material from demolition for subsequent high grade / value applications and avoidance of waste to landfill.

There are further credits available for diversion of resources from landfill, these are not currently assumed but should be considered by the team for achievability.

Wst 02 Recycled Aggregates

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.06% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | No    |

Assessment Criteria

| Assessment Criteria                                                  |                                                              | Standard                                    | Exemplary                                      |                                   |           |
|----------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|------------------------------------------------|-----------------------------------|-----------|
| Total % of high-grade aggregate that is recycled/secondary aggregate |                                                              | Input Required                              | Input Required                                 |                                   |           |
|                                                                      |                                                              | % of aggregate that is recycled / secondary | Total Quantity of Aggregate (Weight or Volume) | Aggregate Included in Calculation |           |
|                                                                      |                                                              |                                             |                                                | Standard                          | Exemplary |
|                                                                      | Structural frame                                             |                                             |                                                | 0                                 | 0         |
|                                                                      | Bitumen/hydraulically bound base, binder and surface courses |                                             |                                                | 0                                 | 0         |
|                                                                      | Building foundations                                         |                                             |                                                | 0                                 | 0         |
|                                                                      | Concrete road surfaces                                       |                                             |                                                | 0                                 | 0         |
|                                                                      | Pipe bedding                                                 |                                             |                                                | 0                                 | 0         |
|                                                                      | Granular fill and capping                                    |                                             |                                                | 0                                 | 0         |
|                                                                      |                                                              |                                             | 0                                              | 0                                 | 0         |
| Total BREEAM credits achieved                                        |                                                              | 0                                           |                                                |                                   |           |
| Total contribution to overall building score                         |                                                              | 0.00%                                       |                                                |                                   |           |
| Total BREEAM innovation credits achieved                             |                                                              | 0                                           |                                                |                                   |           |
| Minimum standard(s) level                                            |                                                              | N/A                                         |                                                |                                   |           |

Assessor comments/notes:

Although it is understood that there will likely be some recycled aggregate use on site this credit requires minimum percentages of recycled aggregates to be used in various elements so can be very challenging to achieve and has not been assumed, but should be considered by the relevant members of the design team.

Wst 03 Operational Waste

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.06% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | Yes   |

Assessment Criteria

| Assessment Criteria                                             | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------------------|------------|-------------------|------------------|
| Segregation and storage of operational recyclable waste volumes | Yes        | 1                 | 1                |
| Static waste compactor(s) or baler(s)                           | Yes        |                   |                  |

|                                                 |     |
|-------------------------------------------------|-----|
| Vessel(s) for composting suitable organic waste | Yes |
|-------------------------------------------------|-----|

|                                              |                   |
|----------------------------------------------|-------------------|
| Total BREEAM credits achieved                | 1                 |
| Total contribution to overall building score | 1.06%             |
| Total BREEAM innovation credits achieved     | N/A               |
| Minimum standard(s) level                    | Outstanding level |

Assessor comments/notes:

To achieve this credit a dedicated and appropriately sized space must be provided on site to deal with both operational recyclable and general waste. If a consistent generation of operational waste will be generated e.g. compostable waste or packaging then it is assumed then facilities must be provided such as a composter or baler.

It is assumed that a dedicated waste storage area will be provided, CN3 confirms that at least 2m2 is required per 1000m2 of net floor area for buildings <5000m2, based on the current proposals a central waste store of at least 8m2 could be provided or alternatively smaller individual waste stores for each unit.

Wst 04 Speculative Floor and Ceiling Finishes

Assessment issue not applicable

|                                            |     |                                         |     |
|--------------------------------------------|-----|-----------------------------------------|-----|
| No. of BREEAM credits available            | N/A | Available contribution to overall score | N/A |
| No. of BREEAM innovation credits available | N/A | Minimum standards applicable            | N/A |

|                     |            |                   |                  |
|---------------------|------------|-------------------|------------------|
| Assessment Criteria | Compliant? | Credits available | Credits achieved |
|                     |            |                   |                  |

|                                              |     |
|----------------------------------------------|-----|
| Total BREEAM credits achieved                | N/A |
| Total contribution to overall building score | N/A |
| Total BREEAM innovation credits achieved     | N/A |
| Minimum standard(s) level                    | N/A |

Assessor comments/notes:

Wst 05 Adaption to climate change

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.06% |
| No. of BREEAM innovation credits available | 1 | Minimum standards applicable            | N/A   |

|                                                               |            |                   |                  |
|---------------------------------------------------------------|------------|-------------------|------------------|
| Assessment Criteria                                           | Compliant? | Credits available | Credits achieved |
| Adaption to climate change - structural and fabric resilience | No         | 1                 | 0                |
| Exemplary level - responding to adaptation to climate change  |            | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 0     |
| Total contribution to overall building score | 0.00% |
| Total BREEAM innovation credits achieved     | 0     |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

This has not currently been assumed - to achieve the design team would need to conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of RIBA Stage 2. This must cover very specific stages listed in the BREEAM Manual covering hazard identification and risk assessment. Although not currently assumed the achievability of this should be considered by the team as it is likely that many of the items will be discussed as part of the design development anyway. Primarily a structural and architectural issue.

#### Wst 06 Functional adaptability

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 1.06% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | N/A   |

#### Assessment Criteria

|                         | Compliant? | Credits available | Credits achieved |
|-------------------------|------------|-------------------|------------------|
| Functional adaptability | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 1.06% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

#### Assessor comments/notes:

This issue requires a building specific functional adaptation strategy to be undertaken by the client and design team. In order to comply all of the required criteria listed in CN3 would need to be demonstrated as being considered and a formal functional adaptation strategy developed at RIBA Stage 2 with the measures demonstrated as incorporated into the design by RIBA Stage 4. This has been assumed as part of a BREEAM Very Good strategy but will need to be considered further by the design team (primarily Architectural and M&E).

## LAND USE & ECOLOGY

#### LE 01 Site Selection

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

Assessment Criteria

|                                              |                          | Compliant? | Credits available | Credits achieved |
|----------------------------------------------|--------------------------|------------|-------------------|------------------|
|                                              | Previously occupied land | Yes        | 1                 | 1                |
|                                              | Contaminated land        | No         | 1                 | 0                |
| Total BREEAM credits achieved                |                          |            | 1                 |                  |
| Total contribution to overall building score |                          |            | 1.00%             |                  |
| Total BREEAM innovation credits achieved     |                          |            | N/A               |                  |
| Minimum standard(s) level                    |                          |            | N/A               |                  |

Assessor comments/notes:

The site shows areas of hardstanding indicating that it was previously occupied so it is currently assumed that documentation will be provided that confirms that at least 75% of the site can be classed as previously occupied.

It is considered possible that the site is contaminated and a remediation strategy will need to be produced but this has not yet been confirmed therefore this credit is not currently assumed.

## LE 02 Ecological Value of Site and Protection of Ecological Features

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

|                                            |                                |
|--------------------------------------------|--------------------------------|
| Ecological value of the land defined using | A Suitably Qualified Ecologist |
|--------------------------------------------|--------------------------------|

## Assessment Criteria

|                                   | Compliant? | Credits available | Credits achieved |
|-----------------------------------|------------|-------------------|------------------|
| Land of low ecological value      | No         | 1                 | 0                |
| Protection of ecological features | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 1.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

For the purpose of this pre-assessment it has been assumed that a Suitably Qualified Ecologist will be appointed to review the site and advise on all features of ecological value present on the pre-developed site and how they can be protected. To achieve this credit it is assumed that if anything is identified of ecological value then this will be protected. Please note if the ecologist confirms that there is nothing of value within the construction zone then 2 credits can be achieved here.

The design team have confirmed that an ecologist is already appointed and it is understood that the site has limited ecological value therefore for the purpose of this pre-assessment a single credit is currently assumed, it may be possible to achieve both credits depending on the ecologist's findings.

## LE 03 Mitigating Ecological Impact

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | Yes   |

|                                                                  |                                                           |
|------------------------------------------------------------------|-----------------------------------------------------------|
| Data sourced for calculating the change in ecological value from | Suitably Qualified Ecologist site survey of plant species |
|------------------------------------------------------------------|-----------------------------------------------------------|

## Assessment Criteria

|                            |      |                        |
|----------------------------|------|------------------------|
| Change in ecological value | 9.00 | Plant species richness |
|----------------------------|------|------------------------|

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 2.00% |

|                                          |                   |
|------------------------------------------|-------------------|
| Total BREEAM innovation credits achieved | N/A               |
| Minimum standard(s) level                | Outstanding level |

Assessor comments/notes:

For the purpose of this assessment it is assumed that there will be no negative change in the ecological value of the site as a result of the proposed development although this will need to be confirmed by the Suitably Qualified Ecologist based on a comprehensive comparison of existing and proposed areas and their associated plant species richness.

It is a mandatory requirement for BREEAM Very Good that the species richness does not decrease by any more than -9 plant species, however as per Le 04 assumptions below an improvement has been assumed for this site based on proposed landscaping having a higher plant species richness compared to existing site.

**LE 04 Enhancing Site Ecology**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                                                                                          | Compliant? | Credits available      | Credits achieved |
|--------------------------------------------------------------------------------------------------------------------------|------------|------------------------|------------------|
| Suitably Qualified Ecologist appointment (SQE)<br>Ecologist's report and recommendations<br>Increase in ecological value | Yes        | 2                      | 2                |
|                                                                                                                          | Yes        |                        |                  |
|                                                                                                                          | 9          | Plant species richness |                  |
|                                                                                                                          |            |                        |                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 2.00% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

These credits can only be achieved if an ecologist is appointed, but as discussed for Le 02 and 03 above this has been assumed. To achieve a single credit it will be necessary for the ecologist's general recommendations to be implemented and this must result in a small positive change in the ecological value of the site. The ecologist may confirm that the second credit is achievable for an improvement of >6 plant species or an overall ecological enhancement of the site (CN3.5), this is also currently assumed.

**LE 05 Long Term Impact on Biodiversity**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 2.00% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                                                                                                                                     | Compliant? | Credits available | Credits achieved |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|------------------|
| Suitably qualified ecologist (SQE) appointed<br>Landscape and habitat management plan<br>Number of applicable measures<br>Number of applicable measures implemented | Yes        | 2                 | 2                |
|                                                                                                                                                                     | Yes        |                   |                  |
|                                                                                                                                                                     | 2          |                   |                  |
|                                                                                                                                                                     | 2          |                   |                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 2.00% |

|                                          |     |
|------------------------------------------|-----|
| Total BREEAM innovation credits achieved | N/A |
| Minimum standard(s) level                | N/A |

Assessor comments/notes:

For the purpose of this pre-assessment it is assumed that an ecologist will be appointed in line with earlier assumptions for Le 03 and 04. It is assumed the ecologist will confirm that all relevant EU and UK legislation will be complied with relating to the protection and enhancement of site ecology during the design and construction of the building. Also assumed that a landscape and habitat management plan will be produced for the first 5 years of occupation for use by the client and their facilities team. To achieve credits here the ecologist will need to review additional measures 1-6 and confirm which are applicable to the proposed development site. It is assumed that if all are applicable then at least 4 will be complied with to allow both credits to be achieved - note most of these are related to contractor actions during the construction phase.

## POLLUTION

### Pol 01 Impact of Refrigerants

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 3 | Available contribution to overall score | 2.50% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

#### Assessment Criteria

|                                                                              |    | Credits available                       | Credits achieved |
|------------------------------------------------------------------------------|----|-----------------------------------------|------------------|
| Refrigerant containing systems installed in the assessed building?           | No | 3                                       | 3                |
| BS EN 378:2008 and IoR Ammonia Refrigeration Systems CoP (where applicable)? |    |                                         |                  |
| Global Warming Potential of the specified refrigerant(s) 10 or less?         |    |                                         |                  |
| Total Direct Effect Life Cycle CO <sub>2</sub> eq. emissions from the system |    | kgCO <sub>2</sub> eq/kW coolth capacity |                  |
| Cooling/Heating capacity of the system                                       |    | kW                                      |                  |
| BREEAM compliant refrigerant leak detection and containment                  |    | 0                                       | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 3     |
| Total contribution to overall building score | 2.50% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

#### Assessor comments/notes:

Achievement of 3 credits for this issue is currently assumed as it is anticipated that no refrigerant systems will be specified as part of the building services for the assessed building. The mechanical engineer should consider the achievability of this criteria and feedback to the assessor accordingly.

### Pol 02 NO<sub>x</sub> Emissions

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 2 | Available contribution to overall score | 1.67% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

#### Assessment Criteria

|                                                               |       |        |
|---------------------------------------------------------------|-------|--------|
| Nox Emission Levels for Heating and Hot Water in Office areas | 70    | mg/kWh |
| NO <sub>x</sub> emission level - space heating                | 70.00 | mg/kWh |
| NO <sub>x</sub> emission level - cooling                      | 70.00 | mg/kWh |
|                                                               |       |        |
|                                                               |       |        |

|                                                                             |  |     |
|-----------------------------------------------------------------------------|--|-----|
|                                                                             |  |     |
|                                                                             |  |     |
| Does this building meet BREEAM's definition of a highly insulated building? |  | N/A |
| Energy consumption: heating and hot water                                   |  |     |

kWh/m2 yr

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 2     |
| Total contribution to overall building score | 1.67% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

2 credits assumed at this stage as part of a BREEAM Very Good strategy - relevant members of the design team to confirm achievability, the achievement of this criteria will depend on the M&E strategy for the assessed building but for industrial buildings NOx levels must be <70mg/kWh for both office and operational areas.

**Pol 03 Surface Water Run off**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 5 | Available contribution to overall score | 4.17% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                                                       | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------------------------|------------|-------------------|------------------|
| Annual probability of flooding                                        | Low        |                   |                  |
| Flood Risk Assessment                                                 | Yes        | 2                 | 2                |
| Surface water run off – peak rate                                     | Yes        | 1                 | 1                |
| Surface water run off – volume, attenuation and/or limiting discharge | Yes        | 1                 | 1                |
| Minimising watercourse pollution                                      | No         | 1                 | 0                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 4     |
| Total contribution to overall building score | 3.33% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

It is anticipated that the site will be in a low flood risk area however this must be confirmed within a compliant Flood Risk Assessment. If the site is located in a medium to high flood risk area then appropriate measures will be specified to increase the resilience and resistance of the building. For now both of these credits are assumed.

The preliminary drawings indicate that the development will result in an increase in impermeable area therefore it has been assumed that an appropriately qualified consultant will be commissioned to ensure that the peak rate and volume of run off will be dealt with as required by this complex environmental issue. The watercourse pollution credit is not assumed as this is understood to be particularly challenging to achieve but if soakaways are proposed this may be achievable.

**Pol 04 Reduction of Night Time Light Pollution**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 0.83% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

## Assessment Criteria

|                                 | Compliant? | Credits available | Credits achieved |
|---------------------------------|------------|-------------------|------------------|
| External lighting specification | Yes        | 1                 | 1                |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 0.83% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

## Assessor comments/notes:

It is anticipated that the assessed building will have external lighting but that this will be developed in line with the requirements of this issue (specific lighting levels and auto switch off between 23.00 and 7.00 other than safety or security lighting). Please note that specific examples will be required to confirm how the external lighting complies with the ILP Guidance Notes for the Reduction of Obtrusive Light 2011.

**Pol 05 Noise Attenuation**

|                                            |   |                                         |       |
|--------------------------------------------|---|-----------------------------------------|-------|
| No. of BREEAM credits available            | 1 | Available contribution to overall score | 0.83% |
| No. of BREEAM innovation credits available | 0 | Minimum standards applicable            | No    |

| Assessment Criteria                                                    | Compliant | Credits available | Credits achieved |
|------------------------------------------------------------------------|-----------|-------------------|------------------|
| Noise-sensitive areas/buildings within 800m radius of the development  | Yes       | 1                 | 1                |
| Noise impact assessment and, if applicable, noise attenuation measures | Yes       |                   |                  |

|                                              |       |
|----------------------------------------------|-------|
| Total BREEAM credits achieved                | 1     |
| Total contribution to overall building score | 0.83% |
| Total BREEAM innovation credits achieved     | N/A   |
| Minimum standard(s) level                    | N/A   |

Assessor comments/notes:

It has yet to be confirmed whether or not there are any noise sensitive areas within an 800m radius of the site. It has therefore been assumed that if there are a noise impact assessment will be undertaken by an appropriately qualified professional to ensure that the noise arising from fixed installations on the new development will meet the requirements of this issue.

**INNOVATION**

**Inn 01 Innovation**

|                                            |    |                                         |        |
|--------------------------------------------|----|-----------------------------------------|--------|
| No. of BREEAM innovation credits available | 10 | Available contribution to overall score | 10.00% |
|                                            |    | Minimum standards applicable            | No     |

| Assessment Criteria                                 | Compliant? | Credits available | Credits achieved |
|-----------------------------------------------------|------------|-------------------|------------------|
| Man 03 Responsible construction practices           | No         | 1                 | 0                |
| Man 05 Aftercare                                    | No         | 1                 | 0                |
| Hea 01 Visual Comfort                               | No         | 1                 | 0                |
| Hea 02 Indoor Air Quality                           | No         | 2                 | 0                |
| Ene 01 Reduction of energy use and carbon emissions | No         | 5                 | 0                |
| Wat 01 Water Consumption                            | No         | 1                 | 0                |
| Mat01 Life Cycle Impacts                            | No         | 3                 | 0                |
| Mat03 Responsible Sourcing of Materials             | No         | 1                 | 0                |
| Wst01 Construction Waste Management                 | No         | 1                 | 0                |

