



RIDGE

**ROYAL BUILDINGS,
MANCHESTER
ENVIRONMENTAL STANDARDS
STATEMENT**
27/06/2023

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1. INTRODUCTION

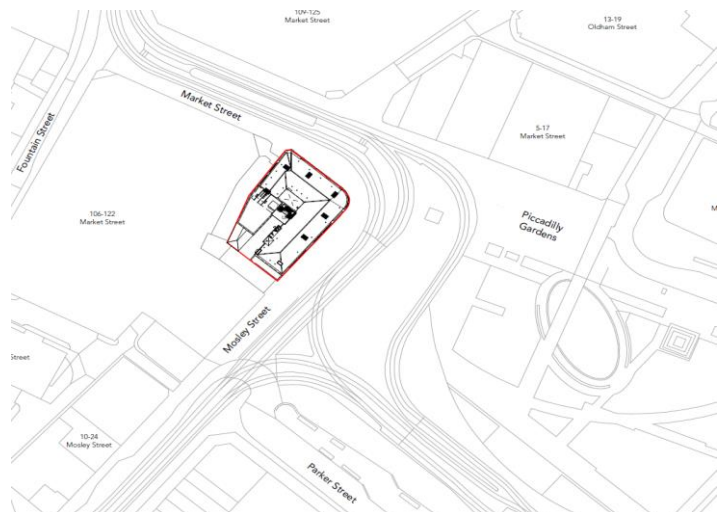
Ridge & Partners LLP have been appointed by Criterion Capital to complete an Environmental Standards Statement for the proposed change of use scheme (office to hotel accommodation) for the upper floors of the Royal Buildings which fronts onto Piccadilly Gardens, Manchester.

This Environmental Standards Statement has been produced to support the full planning application for the development by demonstrating that careful consideration has been given to the context of the site, local planning policy and the 2021 Building Regulations in the development of the proposed energy and sustainability strategy. The primary objective of this report is to contribute to the development of a low carbon and sustainable strategy for the site which will be carried through to detailed design, construction, and operation.

2. DEVELOPMENT PROPOSALS

2.1. Site Overview & Development proposals

The site location is shown below.



The proposed redevelopment will see a change of use from office to hotel accommodation. The hotel has reception and bedrooms only with no restaurant or bar facilities. There are no existing or proposed external works or soft landscaping. The areas associated with the works will be refitted and reserviced with upgrades to the thermal envelope including roof insulation, secondary glazing, and external walls to improve the aesthetics and energy performance.

The proposal involves redeveloping the 1st, 2nd, 3rd, and 4th floors of the existing building into a hotel. The building is an existing 5 storey building with a basement and has a pitched roof construction. The ground floor is currently commercial use. The building is fronted by public open space/ tram lines to the east and north, with adjacent buildings to the south and west.

The redevelopment is proposed as a Zedwell Hotel, which is one of the brands Criterion operate. The hotel brand is based on nature-inspired décor with calming colours and natural or recycled materials. There are three

room types proposed. These include, standard rooms, family rooms and accessible rooms. The standard rooms are well designed compact areas which provide the user with everything they need for a night's accommodation. Family rooms provide larger rooms with a double bed and bunk beds, with an en-suite shower room. Finally, the accessible rooms are located to the rear of the building, with a 5% allowance to ensure the minimum requirements for the approved Doc M document. The hotel will have minimal front of house areas, with no food or beverage provision given the city centre location. The targeted demographic for the hotel is Midweek Business, and Transient/ Weekend Leisure.

3. POLICY CONTEXT

3.1. National Planning Policy Framework

A revised National Planning Policy Framework (NPPF) was updated and published in July 2021 which sets out the government's planning policies for England and how they are expected to be applied. This framework replaces that published in February 2019. This framework confirms in section 2. Achieving Sustainable Development that:

'the purpose of the planning system is to contribute to the achievement of sustainable development.'

This highlights sustainability as a critical issue that runs throughout all of the planning policies. The National Planning Policy Framework (NPPF) defines sustainable development in agreement with the U.N. definition of "meeting the needs of the present without compromising the ability of future generations to meet their own needs". The NPPF outlines how three overarching objectives need to be pursued in mutually supportive ways in order to achieve sustainable development. These objectives are outlined below:

- a. An **economic objective** – to help build a strong, responsive, and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation, and improved productivity; and by identifying and coordinating the provision of infrastructure.
- b. A **social objective** – to support strong, vibrant, and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.
- c. An **environmental objective** – to contribute to protecting and enhancing our natural, built, and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

3.2. Manchester Local Plan

The Manchester Local Plan is the Adopted Development Plan for Manchester City Council. With respect to climate change and sustainability considerations, the following policies are included within the Manchester Local Plan Core Strategy (2012). Relevant extracts follow.

CS Policy DM 1: Development Management

This policy requires all development to have regard to a number of development principles for which more detailed guidance may be given within a supplementary planning document. It also states that *‘Subject to scheme viability, developers will be required to demonstrate that new non-domestic development to achieve a BREEAM Rating of ‘Very Good’ or for domestic development to achieve the Code for Sustainable Homes standard¹.*

Policy EN4: Reducing CO2 Emissions by Enabling Low & Zero Carbon Development

This policy requires development to *‘follow the principle of the Energy Hierarchy, being designed:*

- to reduce the need for energy through design features that provide passive heating, natural lighting and cooling*
- to reduce the need for energy through energy efficient features such as improved insulation and glazing*
- to meet residual energy requirements through the use of low or zero carbon energy generating technologies’*

It also states that:

- ‘Wherever possible new development and retrofit projects, including energy generation plant, must be located, and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.*
- Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.*
- Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.*
- The use of building materials with low embodied carbon in new development & refurbishment schemes.’*

Policy EN6: Target Framework for CO2 reductions from low or zero carbon energy supplies

This policy sets a requirement for non-residential developments of over 1,000 m² to achieve a minimum performance target as shown in the table below unless this can be shown not to be viable.

The policy states that *‘This should be demonstrated through an energy statement, submitted as part of the Design and Access Statement. Such a statement will be expected to set out the projected regulated energy demand and associated CO₂ emissions for all phases of the development’.*

Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible, a 15% increase on Part L 2010
Target 2: Electricity intense buildings	+10% increase on Part L 2010
Target 3: Micro generation area	+15% increase on Part L 2010

Policy EN 8 Adaptation to Climate Change

This policy requires all new development *‘to be adaptable to climate change in terms of the design, layout, siting & function of both buildings & associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, this is not an exhaustive list:*

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rainwater permeability*

- *Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways*
- *The need to control overheating of buildings through passive design*
- *The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.*

Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO2 mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance’.

Policy EN 14 Flood Risk

This policy states that:

- *‘In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).*
- *In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.*
- *All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure.*
- *Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.*
- *The City of Manchester contains many sections of rivers which are culverted or ‘hidden’; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.’*

Policy EN 15 Biodiversity and Geological Conservation

This policy states that ‘the Council will seek to maintain or enhance sites of biodiversity and geological value throughout the City. Particular consideration will be given to:

- *sites with international or national designations for their biodiversity value. Manchester contains one Site of Special Scientific Interest (SSSI) (Cotteril Clough); there is a Special Area of Conservation (SAC) and an SSSI just over the border in Oldham (both on the Rochdale Canal within Oldham).*
- *other sites of biodiversity value, including Sites of Biological Importance (SBIs) and Local Nature Reserves (LNRs); Manchester currently has 35 SBIs (including the Rochdale and Ashton Canals) and 7 LNRs; priority habitats found within Manchester, as listed in the Manchester Biodiversity Strategy, and included in the Greater Manchester Biodiversity Action Plan (GM BAP).*
- *protected and priority species, as listed in the Manchester Biodiversity Strategy and included in the Greater Manchester Biodiversity Action Plan (GM BAP).*
- *sites that are recognised for their geological importance;*
- *the Council’s objective to protect and conserve the City’s existing trees and woodlands and the aim for a net increase in trees across the City.*

Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate, with reference to:

- *the Manchester Biodiversity Strategy, which provides further details of priority habitats within Manchester and opportunities for biodiversity enhancement including corridors such as the Mersey, Medlock and Irk river valleys, the canals and disused railway lines and areas of managed greenspace particularly in parks;*
- *the Green Infrastructure Framework for Greater Manchester, which encompasses an ecological framework that seeks to guide and inform habitat creation and repair, including identifying large 'biodiversity opportunity areas' including the Moston Brook Corridor and Nutsford Vale;*
- *the Open Space, Sport & Recreation Study, which identifies areas where there is a deficit of natural and semi-natural greenspace, opportunities for green corridors and other linkages;*
- *Manchester's Climate Change Action Plan;*
- *the Strategic Flood Risk Assessment (SFRA) for Manchester;*
- *the Habitats Regulations Assessment (HRA) for Manchester, which gives detailed consideration to Special Areas of Conservation (SACs), including the Rochdale Canal SAC just outside the district boundary;*
- *the River Basin Management Plan for the North West;*
- *the Manchester Tree Strategy.*

Any adverse impacts on biodiversity will need to be justified against the wider benefits of the proposal, assessed against other LDF policies. Where adverse impacts are unavoidable, developers will be required to provide appropriate mitigation and/or compensation.

Development should wherever possible seek to maintain, enhance, or restore existing geology.'

Policy EN 16 Air Quality

This policy states that 'the Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas'.

Policy EN 19 Waste

This policy states that the Council will:

- *'Require all developers, including those of new waste management facilities within the District, to demonstrate the proposal's consistency with the principles of the waste hierarchy (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal)*
- *Require all developers to submit a waste management plan to demonstrate how both construction and demolition waste will be minimised and recycled on site wherever possible and how the sustainable waste management needs of the end user will be met.*
- *Promote the development of innovation and technological advancement within the sustainable waste management industry, aiming to achieve a closed-loop waste management system.*
- *Require waste management practices to have full regard to the environmental, social & economic impacts of such development and encourage long-term benefits in improving the environment, the regeneration of areas in need of investment and co-location with other employment uses where appropriate.*
- *Encourage communities to take responsibility for the waste created by provision of accessible facilities.'*

3.3. Guide to Development in Manchester Supplementary Planning Document

The Guide to Development in Manchester Supplementary Planning Document (SPD) was adopted in April 2017. The SPD is a material planning consideration for applications; however, it is not part of the development plan. While it references policies from the old Local Plan (UDP) which have been superseded it is still useful as a general guide to development. It includes a section on environmental standards, with sub sections on energy efficiency, renewable energy, environmental design, water management and weather resilience, waste management, construction management, biodiversity, and waterways.

4. RESPONSE TO CLIMATE CHANGE

4.1. Introduction

This section of the report details how the proposed development will address the issue of climate change, in line with Manchester City Council's policies identified in Chapter 3. In particular this section looks to address Manchester Local Plan policies EN4, EN6 and EN8.

4.2. Carbon Reduction

Carbon reduction is key to tackling climate change. When discussing carbon in relation to climate change, this is a term used to cover all greenhouse gas emissions and is measured in terms of CO₂ equivalent. The carbon emissions associated with the development include embodied carbon, construction related carbon, and operational carbon, associated with the energy demand and transport needs of the occupants.

Buildings emit greenhouse gas emissions throughout their operation; this is associated with the energy used to heat, cool, light and ventilate the building, and also energy associated with any other systems used within the building (e.g., plug-in equipment). There are also more indirect operational carbon emissions associated with people's transport to, from and within the development. In addition, there are also significant carbon emissions associated with the construction of the building, including embodied carbon within the materials from which the building is built.

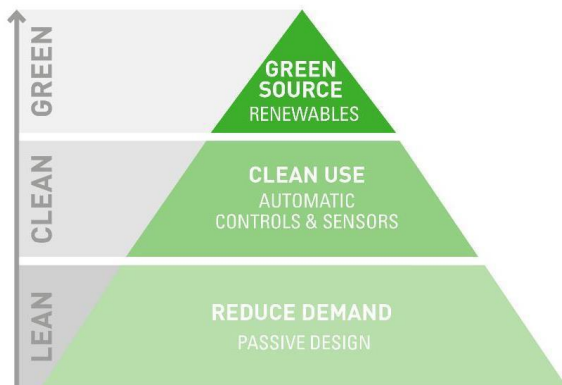
4.2.1. Construction-Related Carbon Emissions

Due to the nature of the development, it is not expected that there will be a significant construction related carbon emissions, however construction related transport emissions will be recorded and monitored through the targeted BREEAM Man 03 credit and within the Site Resource Management Reporting system.

4.2.2. Operational Carbon and Energy

The development will aim to minimise operational CO₂ emissions from the development and the associated impact upon climate change by adhering to the energy hierarchy below, demonstrating compliance with Policy EN 4 Reducing CO₂ Emissions by Enabling Low & Zero Carbon Development.

The “Energy Hierarchy” methodology provides a design framework which was used to develop the proposed low carbon energy strategy. The approach described by this methodology provides a staged process: LEAN, CLEAN and GREEN (Illustrated below) to assess design measures.

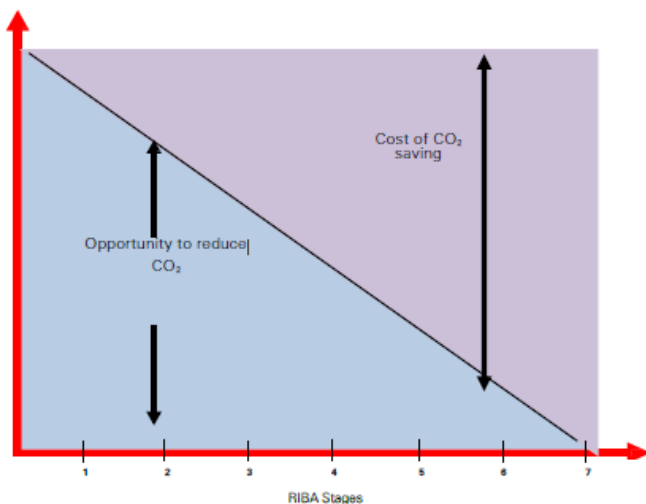


Lean - Main aim is to reduce the buildings energy demand through “passive measures”.

Clean - Meet the reduced energy demand in the most efficient way possible using “active measures”.

Green - Assess the technical feasibility of incorporating a low or zero carbon technology to further reduce the CO₂ emissions.

Note that the above measures are sequential and iterative i.e. only after the “Lean” measures have been exhausted should “Clean” measures be examined and so forth. This approach has been widely accepted across the industry as the methodology for reducing carbon emissions in design. The strategic approach outlined, follows a specific appraisal of technologies at each stage of design and to achieve the overall goal of CO₂ reduction. As on the whole it becomes more expensive to implement carbon reduction measures the further along the design process as the opportunities to reduce demand diminish.



In this first instance it is therefore essential that the buildings ‘**passive measures**’ are optimised and the design teamwork in close collaboration with the Client to consider the future fit out demands.

The next stage is to adopt ‘**efficient technologies**’ such as heat recovery, variable speed drives and occupancy sensors etc. to meet the demand efficiently.

The final approach looks at applying ‘**renewable and low carbon**’ technologies accordingly.

4.2.2.1. Passive Measures – Lean

These measures focus on passive design principles to reduce the overall energy demand for the building. Typical examples of passive design include:

- “Fabric First” – minimising heat losses by improving the performance of the fabric with uplifted U-values and improving air tightness.
- Natural Daylighting – reducing the artificial lighting demand.
- Natural ventilation – reducing the required energy load for mechanical ventilation and air conditioning.
- Passive solar control – Using building orientation, layout, form, and thermal mass and limit solar gain.

The team have maximised passive measures where possible to reduce the initial load of the building in terms of heating and anticipated lighting loads. Designing the proposed refurbishment with improved U-values and Air Permeability that match or are lower than the minimum Building Regulations values is essential to reducing the initial demand for energy in the building from the outset. As this building is a retrofit, the opportunities to exceed minimum Building Regulations U-Values are limited and the intent is to match the Building Regulation U-Values for refurbishments as shown below in the table.

ELEMENTS	ROYAL BUILDINGS PROPOSED U-VALUES
Roof	0.18
Wall	0.55
Floors	0.25
Windows	1.60

The current windows will be replaced to double glazed windows which will promote the reduction of energy use and carbon emissions in the first instance by reducing the energy required to heat and cool the spaces of the proposed refurbishment.

Natural ventilation will be adopted to a degree to ventilate spaces within the building. This is fundamental to reducing the energy load for mechanical ventilation which in turn reduces carbon emissions. However, mechanical air handling plant will be the main source of ventilation.

Solar shading is a method by which solar radiation in the form of heat and light can be mitigated in a building. While natural heat and light are essential in most buildings and modern architecture uses it more and more there are occasions when the levels are too high. This leads to overheating and too much light. Solar shading is a general term for a range of methods used to reduce the amount of solar gain. Whilst maximising daylight, care must be taken to ensure that direct sunlight does not cause glare in the spaces and does not cause excessive solar gains in summer which will cause spaces to overheat. Some examples of solar shading are: canopies, solar control glazing, balconies, internal blinds and curtains which could be adopted on this development. The external façade of the proposed development will be retained, however the windows will be recessed which will provide a level of solar shading.

4.2.2.2. Energy Efficiency Measures - Clean

Having adopted as many passive measures as practicable, the next step is to evaluate the “active measures” which can limit energy consumption. Energy efficient measures assist passive design measures which helps further reduce the energy consumption and associated carbon emissions of a building. These measures focus primarily on limiting energy use through efficient mechanical and electrical systems, some examples of which are as follows:

- Efficient Lighting – Using LED lighting to minimise energy consumption.
- Daylighting Dimming – Lighting design to incorporate daylighting dimming to reduce demand during sunny days

- Efficient Equipment – Use energy efficient appliances and equipment wherever possible to reduce unregulated energy consumption.
- Variable Speed Drives – Variable speed drives should be considered for pumps and fans to reduce energy consumption.
- Occupancy Controls – Energy consumption that aligns with occupancy.
- Plant Run Time – Use modular building systems as opposed to large central plant systems.
- Energy Monitoring - An energy sub-metering strategy should be used to monitor energy use in the building. This system will allow for an understanding of out-of-range values and any anomaly's that could identify faults which may cause the building to use more energy.
- CO₂ Sensors – Use CO₂ monitoring to maintain a safe and productive environment.

Active measures that have been adopted on the design of the proposed refurbishment are:-

Mechanical Ventilation Heat Recovery (MVHR): Mechanical ventilation with heat recovery is a mechanical system that ensures there is minimal heat loss when ventilating a room. Where fresh air is supplied, and stale warm air extracted by mechanical ventilation, heat recovery will be used to recycle up to 90% of the heat from the extracted air to warm the incoming air. The system/units work by extracting the stale air inside the building and feeding it through filters whilst also extracting the heat energy so that it's not exhausted to the outside but transferred back into the building with the filtered incoming air. The main components of MVHR units are; a heat recovery cell (where the indoor heat is extracted and supplied into the outside air coming into the building), fans (pull in the air and blow out the air), and filters (filtering outside air from dust and particles inside the unit, protecting longevity and efficiency). Alongside this, units come with a summer bypass, meaning they can control the amount of energy recovered this is controlled either manually or by an electronic sensor. Benefits of MVHR units include, filtered air, minimal heat losses, mitigates overheating, and retains heat that would usually be exhausted to the outside environment.

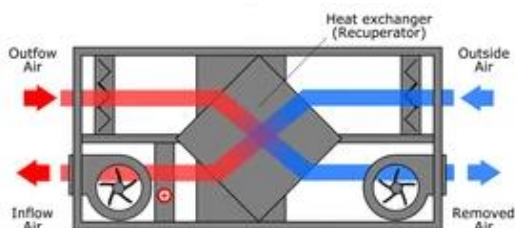


Figure 1 - Mechanical Ventilation Heat Recovery Concept

The current air handling unit on the development will be replaced with a new highly energy efficient unit with better heat recovery. This will be linked to local fan coil units of each room which will generate space heating and cooling to the rooms and will also provide cooling to the reception area of the refurbishment. Summer bypass mode will be used on the units during the summer periods which will reject heat instead of recovering. This will be used to avoid summer time overheating as during the warmer months of the year, heat recovery will not be required in the habitable spaces. Using MVHR can saving up to 30% of the required heating load of a building compared to naturally ventilated buildings.

LED Lighting: An LED lamp or LED light bulb is an electric light that produces light using light-emitting diodes. LED lamps are significantly more energy-efficient than equivalent incandescent lamps and can be significantly more efficient than most fluorescent lamps. Extensively adopted LED fittings will be used throughout the scheme to limit the energy associated with internal and external lighting and will be coupled with demand operated controls. Typically, this will be in the form of Passive Infra-Red Sensors (PIRs) in small spaces and microwave sensors in larger areas. This will reduce energy demand by shutting down the lighting systems when no occupancy is detected but will instantly turn back on when required.



Lighting to the communal spaces and corridors will be provided with daylight dimming to limit the power usage during times when the daylight provides suitable lux levels to these spaces.

Occupancy Sensors: An effective method of reducing energy consumption on a building of this type is using occupancy sensors. Such systems are effective in controlling the heating, ventilation, cooling, and lighting systems which is fundamental to reduce the energy efficiency of buildings. Where ventilation, heating and cooling is provided to a space that may not always be in use, occupancy sensors can be used. These will shut down the systems serving the spaces when they are not required and turn them back on instantly when they are required.



- Lighting PIR's (Passive Infra-Red Sensor): will be used in the corridors of the Hotel which will detect when corridors are occupied or unoccupied and adjust the lighting accordingly.
- Hotel key card system: These will be used in every bedroom of the proposed refurbishment and is designed for energy saving of the mechanical and electrical equipment contained within the rooms. When the card is inserted into the switch system, the hotel guest can use the lighting, air conditioner and other equipment within the room. Once the card is removed when the guest is leaving the systems will automatically be powered off which will reduce associated energy consumption and CO₂ emissions.
- BMS (Building Management System): A building management system is a computer-based control system installed in buildings that controls and monitors the building's mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems. The building will be provided with an intelligent building management system that will learn how the building operates and optimise the function of the ventilation, heating, cooling, lighting, fire systems and security systems to minimise energy use.



Sub metering: Building submetering is a meter within a building or facility for specific energy measurements.



Electrical submetering involves the installation of power meters that can measure energy usage after it reaches the primary utility meter. This offers the ability to monitor energy usage for, pieces of equipment or other loads to account for their actual energy usage. The lighting, small power, and mechanical equipment will be sub metered which will allow for accurate energy monitoring, this data

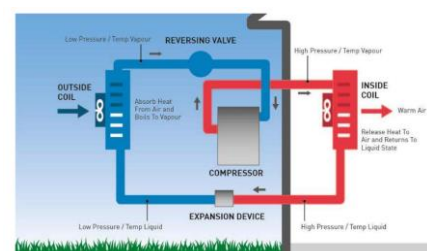
can then be used to optimise the energy performance of the building as well as identify and eliminate wasted energy.

Variable Speed Drives (VSD): Variable speed drives and controls allow an energy system to modulate during periods of low demand. Using VSD pumps therefore uses less energy than traditional pumps, which run at a constant speed. Using VSD pumps therefore uses less energy than traditional pumps, which run at a constant speed. It is proposed that all pumps and fans should be provided with variable speed motors which will speed up and slow down as the demand increases or reduces to conserve energy.



4.2.2.3. Renewable & Low Carbon Technologies - Green

After adopting as many passive and optimisation measures as possible, the next step is to evaluate the feasibility of "renewable" technologies to provide the energy. These are known as Low and Zero Carbon (LZC) technologies. These technologies should only be considered once the Be Lean and Be Clean measures have been exhausted. A review of possible technologies through a Low/Zero Carbon Feasibility Study has been undertaken as part of the BREEAM Ene 04 Very Good Target. (See: Ridge 'LZC Report'). It is proposed that Air Source Heat



Pumps (ASHP) will be utilised to provide low carbon heating, hot water and cooling to the development which will replace the existing inefficient gas boilers which are currently serving these systems. The ASHP system does offer an attractive solution in terms of the de-carbonisation of the grid and the omission of natural gas to the development. This is the favoured solution to generate heating, hot water, and cooling to the proposed refurbishment. The ASHP solution will generate domestic hot water, space heating and space cooling to the development with a high efficiency system. The efficiency of ASHP's is measured by Coefficient of Performance (CoP); this is the ratio of units of heat output for each unit of electricity used to drive the system, the average CoP is around 2.5-4.

The associated roof top plant consists of:

- **6 No. CO₂ heat pumps for hot water generation feeding 3 No. thermal storage tanks.**



The CO₂ heat pumps provide a high efficiency, low carbon hot water delivery solution with supply water temperature of up to 90°C. benefits of using CO₂ heat pumps include:

- High efficiency at high flow temperatures
- Utilises CO₂ refrigerant with a global warming potential of 1
- Full heating capacity down to -3°C outdoor temperature and operates down to -25°C
- COPs of 3.4

- **5 No. Hybrid Variable Refrigerant Flow (VRF) Air Source Heat Pumps providing heating and cooling**



VRV is a technology that alternates the refrigerant volume in a system to match a building's precise requirements. Only a minimum amount of energy is required for a system to maintain set temperatures and ensure that it automatically shuts off when no occupants are detected in a room. This unique mechanism is more sustainable in the long run, as end users save on energy costs while reducing their system's carbon emissions.

The indoor air conditioning units will be connected to the outdoor ASHP units. The individual indoors units will determine the capacity it requires based on the indoor temperature and the requested temperature from the remote control (set

point)

This demonstrates compliance with EN 4 Reducing CO₂ Emissions by Enabling Low & Zero Carbon Development & EN6 Target Framework for CO₂ reductions from low or zero carbon energy supplies.

4.2.3. Embodied Carbon Emissions

While operational carbon occurs gradually over the life of a building, embodied carbon emissions occur predominantly in the building materials and therefore are emitted immediately. Once the building is constructed, they cannot be reduced further, Reduction of embodied carbon emissions therefore plays an essential part in achieving the net zero targets.

As part of the BREEAM RFO targeted credits a detailed Life Cycle Analysis will be carried out to assist in the selection of materials for internal walls and partitions, internal floor finishes and ceilings. Optioneering will seek to reduce the initial assumptions by incorporating low carbon, locally sourced alternatives as well as using low carbon redevelopment techniques where appropriate.

4.2.4. Transport

A Transport Statement has been prepared for the planning application by Vectos, which includes a review of the existing situation with regards to transport to and from the site, including by walking, cycling, and public transport. The site is bound by Mosley Street to the East, with Fountain Street bordering the site to the North. This site is located in an area of high public transport accessibility.

The site is very well located to encourage journeys to be undertaken on foot. The local pedestrian network comprises high-quality pedestrian friendly streets across the city centre. To support pedestrian trips in the local area and to nearby transport nodes, Fountain Street, Market Street, and part of Mosley Street are completely pedestrianised. Fountain Street and Mosley Street provide key pedestrian routes to and from the central retail district. Dropped kerbs and tactile paving are also located on these roads facilitating safe movement of those who are visually impaired or need a wheelchair. Regarding cycling, Manchester Victoria, Piccadilly, Oxford Road and Deansgate are all located within a short cycle from the site, facilitating the possibility of multi-modal journeys by bicycle and train.

The site is situated in close proximity to an extensive range of amenities, given its city centre location, removing the need for travel by car. The site is within walking distance of several food outlets, convenience stores and outdoor open spaces, many of which are within 500m. Additionally, postal services, pharmacies and ATMs are located within 500m.

The site is within walking distance of numerous bus stops. The key stops are those at Piccadilly Gardens Interchange, 80m from the site providing approximately 32 bus services across Greater Manchester. The Manchester Freebus also operates across the city centre, running on a 10- or 12-minute frequency. These services can also be boarded at Piccadilly Gardens. Importantly, the site is located 80m from the Metrolink Stop on Market Street, and 250m from the stop at Piccadilly Gardens, where services operate on around a 12-minute frequency in each direction Monday to Sunday. Overall, the site is located in Accessibility Level 8, which translates as an area of 'Very High' public transport accessibility. This is the highest possible GMAL rating and confirms the excellent opportunity the site offers for travel by public transport services.

Prospective staff and guests will be notified regarding the absence of on-site car parking. However, off-street public car parks are located close to the site that would cater for any staff and guests who require car parking. The site has the provision for a sufficient amount of internal cycle parking, along with showers and a changing facility.

A Travel Plan has been also prepared for the site which includes measures proposed to further encourage the use of sustainable modes of transport (VN236780_Framework Travel Plan v1).

4.3. Climate Change Adaptation

As the scheme design develops, the team will ensure that the effects of climate change on the development are mitigated wherever possible as directed by EN8 Adaptation to Climate Change. In line with BREEAM

credit Wst 05, the change in climate will be considered when designing both the external envelope and the building services and the buildings will be future proofed where reasonably possible.

The potential impacts of climate change considered include:

- increased temperatures (including the heat island effect)
- flood risk
- increased weather volatility
- impacts on water resources
- changes in ground conditions

The heat island effect occurs when a development is significantly warmer than surrounding rural areas. Sustained high temperatures can have impacts on health, local microclimate/weather conditions and energy use (for cooling). Methods which will be considered for adapting to or reducing the heat island effect include, but are not limited to:

- design to enable airflow throughout the development.
- external finishes that are designed to avoid heat absorption (e.g., light-coloured surfaces)
- site layout/orientation to maximise microclimatic cooling.

Rising sea levels and increases in average winter precipitation, as well as a general increase in the frequency, duration and intensity of rainfall may result in flood risks. Methods for adapting to increased flood risk include, but are not limited to:

- flood resilient buildings and materials
- managing flood pathways
- use of sustainable drainage systems

The Environment agency maps confirm that the site is in a Flood Zone 1 or Low probability from flooding. As the proposals comprise a change of use only, the existing impermeable area will not be increased. Therefore, the proposals will comply with EN 14 Flood Risk

It is thought that extreme weather events may occur as a result of climate change, including storms, high winds, cold events, and heatwaves. The confidence level in predictions for these is low and there are a number of diverging projections. However, it is important to ensure the development is designed so that it will be resilient against future extreme weather wherever possible. This will be taken into consideration when specifying materials and structural detailing.

Low summer rainfall could lead to water shortages and a decrease in water quality due to low flows in watercourses having less of a dilution effect on pollutants. In line with BREEAM credit Wat 01, the development will specify sanitary fittings that reduce flow rates the development compared to industry baselines to optimise its water use. Water meters will be installed so that occupier is able to monitor their consumption.

5. OTHER AREAS OF ENVIRONMENTAL & SUSTAINABILITY PERFORMANCE

5.1. Introduction

Sustainability measures that consider the site as a whole are proposed to be integrated into the final design solution, in line with the requirements of national, regional, and local planning policy.

5.2. Materials and Waste

Sustainable use of resources includes both efficient use of materials and minimisation of waste. This will be addressed through targeting various BREEAM credits, including Mat 01 (Life Cycle Impacts), Mat 03 (Responsible Sourcing), Mat 04 (Insulation), Wst 01 (Project Waste Management), Wst 03 (Operational Waste) and Wst 06 (Functional Adaptability).

The proposed development will seek to minimise waste as much as possible in line with best practice efficiency benchmarks and the provision of a communal bin store. Based on the number of refuse containers located in the refuse store, a private collection regime will be implemented. This will comprise a collection frequency of approximately four times per week, or daily if required. Refuse stores will be located on the ground floor, and will accommodate dedicated containers to store, general, pulpable, co-mingled and organic waste. This demonstrates compliance with EN 19 Waste.

5.3. Biodiversity

A Preliminary Bat Roost Assessment Report has been produced by Collington Winter Environmental Ltd. An initial desk-based assessment was conducted to collate baseline data. This study reviewed potential habitat links on and off-site to determine the potential zone of influence of the proposed development, and the locations of granted European Protected Species Licences (EPSL) within 5km of the site. Next, a preliminary roost assessment was undertaken on the 7th of June 2023 on site. The survey involved undertaking a detailed internal and external inspection of any features to compile information on potential roosting features, and potential access points.

The desk study identified that Piccadilly Gardens, located adjacent to the eastern aspect of the site is of limited value to local bat populations. Additionally, the River Irwell located approximately 0.6km north-west from the site boundary may provide commuting routes for bats. The same has been noted for Manchester Piccadilly train station located 0.9km south-east from the site boundary. Importantly, Mayfield Park, located 1km south-west from the site which opened on 22nd September 2022, has been identified as potentially providing suitable habitats for bat populations. Within the preliminary roost assessment, it was identified that the walls throughout the dwellings did not provide any potential roost features (PRF's). Similarly, the internal walls, a flat roof, and external windows and doors were well sealed and did not provide any PRF's. Within the loft, several gaps were found, however, no bat droppings or feeding remains were identified, and it was concluded the loft does not provide any PRF's.

Overall, the survey did identify multiple potential roost features throughout the building in relation to the slate tile roof and the tears within the roofing felt. However, the building was assessed as providing 'low' bat roosting potential. Finally, an inspection of the roof was conducted revealing no evidence of nesting birds, but suitable platforms for nesting birds such as European Herring Gulls and Pigeons.

The above demonstrates compliance with EN 15 Biodiversity and Geological Conservation.

5.4. Pollution

An Air Quality Assessment has been prepared by Redmore Environmental Ltd, to determine baseline conditions and consider location suitability for the proposed end-use of the development, and to assess the potential effects as a result of the scheme. As the proposals do not include any car parking spaces, road traffic exhaust emission impacts were not predicted to be significant. The potential for exposure of future occupants to elevated pollution levels was assumed based on the results of a desktop study. This indicated that concentrations are likely to be below the relevant criteria at the development location. The site is therefore considered suitable for the proposed end-use from an air quality perspective. Overall, based on the air assessment results, air quality factors are not considered a constraint to planning consent for the proposals. As such, this demonstrates compliance with EN 16 Air Quality.

A Noise Impact Assessment has been undertaken by Savills to ensure that any noise associated with the development is kept to a minimum and to establish the indoor ambient noise levels within the hotel. In line with BS 8233, the current façade design of Royal Buildings allows for appropriate internal noise levels for hotel use, with the existing façade providing a level of attenuation at least 3 dB better than required. This will also comply with BREEAM credit Pol 05. Overall, there is considered to be a very low risk for noise breakout from the proposed hotel to adversely affect the neighbouring land users.

Light pollution will also be minimised through BREEAM credit Pol 04, using a lighting strategy which complies with ILP best practice guidance.

5.5. BREEAM

A BREEAM preassessment has been undertaken by a licensed BREEAM Assessor (included in Appendix A). This indicates that the development will achieve a BREEAM Very Good certification under the BREEAM 2014 Refurbishment and Fit Out (R&FO). All four parts of the BREEAM R&FO Scheme will be applied.

Many of the BREEAM targeted credits also support and demonstrate how the development addresses and often exceeds the Policies listed above.

Achieving a Very Good certificate at post Construction stage exceeds the requirement to achieve a minimum of BREEAM 'Very Good' set out in CS Policy DM 1: Development Management.

6. CONCLUSION

When reviewing the energy and sustainability strategy for this redevelopment, careful consideration has been given to the context of the site, local planning policy and the 2021 Building Regulations.

The approach taken for the proposed energy strategy for the development has followed a sequential approach. The Energy Hierarchy has been adopted - assessing in turn the feasibility of reducing the energy demand of the building, using energy more cleanly and finally applying renewable technologies.

Key proposed energy efficient building services systems include LED lighting installations, occupancy controls and daylight dimming. A feasibility assessment has been undertaken into the applicability of renewable technologies. Air Source Heat Pumps were identified as the most appropriate form of LZC technology for application to the scheme.

Wider sustainability aspects are also proposed for the scheme which will enable a BREEAM rating of Very Good to be achieved. These include provision of cycle storage together with a strategy for the key issues of material and waste efficiency, pollution, and ecology.

It is considered that the scheme has maximised the opportunities for sustainable improvement and decarbonisation on the site compared to and within the constraints of the existing development and proposed end use.

APPENDIX A – BREEAM PRE-ASSESSMENT



RIDGE

**ROYAL BUILDINGS,
MANCHESTER**

**BREEAM 2014 R&FO
PREASSESSMENT REPORT**

16th June 2023

ROYAL BUILDINGS, MANCHESTER

BREEAM 2014 R&FO PREASSESSMENT REPORT

16th June 2023

Prepared for

Criterion Capital

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1. INTRODUCTION

Ridge and Partners LLP has been appointed to undertake a BREEAM Pre-assessment of the redevelopment of the upper floors of the Royal Buildings in Manchester.

The hotel redevelopment will need to achieve a BREEAM Very Good rating for planning consent. The project will be assessed under BREEAM 2014 Refurbishment and Fit Out (R&FO). Although the proposal comprises a mixture of refurbishment and new build, the infill areas of new construction do not exceed 500m², meaning the whole works can be assessed using the R&FO scheme.

The purpose of this report is to identify the likely costs and issues associated with targeting Very Good Rating and to provide the design team with information relating to the key actions that should be carried out to ensure successful certification.

The team should take cognisance of the information and guidance provided within this report and associated documentation, to assist them in ensuring that the design accounts for the full BREEAM requirements.

2. MEETINGS AND ATTENDEES

A BREEAM workshop was held via video conference on 07.06.23. The meeting was attended by:

- Samuel Da Silva Resende– Criterion Capital
- Jay Patel – Savills (Planning)
- Jack Dixon – Ridge and Partners (MEP)
- Tammy Welz – Buttress
- Wendy Broomhead – Ridge & Partners (BREEAM AP, WH-03)
- Beth Cushnie – Ridge and Partners (BREEAM)

3. PROJECT DESCRIPTION

The project will comprise re-development and minor infills of the upper floors of an existing inner former office accommodation. The basement and ground & first floor tenanted commercial units are not part of these works and will not be covered by the BREEAM Certification.

The redevelopment will see a change of use from office to hotel accommodation. The hotel has reception and bedrooms only with no restaurant or bar facilities. There are no existing or proposed external works or soft landscaping.

The areas associated with the works will be refitted and reservices with upgrades to the thermal envelope (eg roof insulation, secondary glazing and external walls to improve the aesthetics and energy performance.

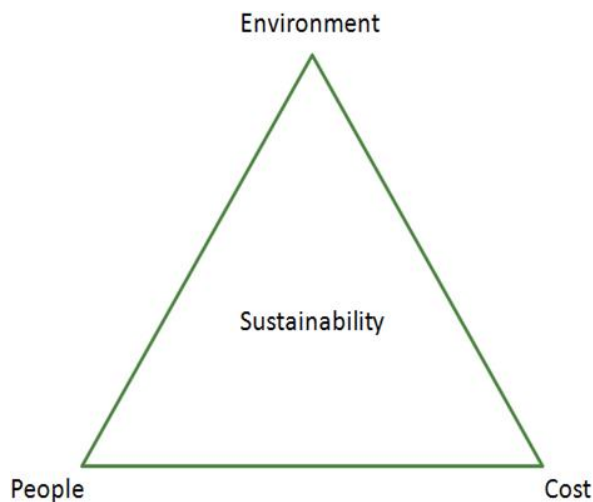
All 4 parts of the BREEAM R&FO scheme will be applied.

4. PROJECT PROGRAMME

The project is currently in RIBA Stage 2 progressing to Stage 3 and a planning application by the end of June 2023.

5. BACKGROUND TO SUSTAINABLE DESIGN & BREEAM

Sustainability is defined as the ability to meet the needs of today, without compromising the ability of future generations to provide for the needs of tomorrow. It can be described as the equilibrium between environmental and financial considerations, and the needs of the community. A truly sustainable development will achieve a balance between fitness-for-purpose, value-for-money and environmental impact and will achieve this via integration as part of a larger, sustainable community.



BREEAM (Building Research Establishment's Environmental Assessment Method) is a voluntary scheme that can be used to assess the environmental life cycle of new non-domestic buildings at the design and construction stages.

BREEAM assessments can be either undertaken in two stages: Firstly, the design stage, which leads to an Interim BREEAM certified rating; Secondly, the post construction stage, which leads to a final BREEAM certified rating or as a single Post Construction Assessment which leads to a final BREEAM certified rating.

Buildings are assessed using a system of credits. The credits are grouped within the following categories: Within each of the BREEAM categories outlined above, there are several credit requirements that reflect the options available to designers and managers of buildings.

An environmental weighting is applied to the scores achieved under each category. For a refurbishment or change of use development, these will be determined by the BRE's online scoping tool and is dependent upon the parts chosen and the answers to the scoping questions. These weightings are used to calculate the final BREEAM score.

The assessment process results in a report covering the issues assessed together with a formal certification giving a rating on a scale of PASS (at least 30%), GOOD (at least 45%), VERY GOOD (at least 55%), EXCELLENT (at least 70%) and OUTSTANDING (at least 85%). A score of less than 30% is UNCLASSIFIED.

BREEAM Section
Management
Health and Wellbeing
Energy
Transport
Water
Materials
Waste
Land Use & Ecology
Pollution

6. BREEAM STRATEGY & TARGETS

Manchester City Council Planning Authority will require a minimum of a BREEAM 'Very Good' rating. The following report therefore outlines how this could be achieved.

This development will need to be assessed based the BREEAM 2014 R&FO scheme fully fitted with all 4 parts being scoped in. This assessment covers only the hotel accommodation and ancillary functions, so the commercial units on the ground and first floor are excluded from assessment.

In all assessments we recommend a score buffer of between 5 and 7% to allow for unexpected changes or compliance issues as the project progresses

Within the preassessments there may be issues which are outside of the current scope of works/specification. Attention must be paid to ALL credits listed within this report, to ensure the necessary measures required to achieve the associated credits are feasible, and if so, incorporated within specifications. It is sometimes the case that achievement of a particular BREEAM credit comes with a disproportionately increased cost, without offering equivalent advantages in functionality or sustainability. We would recommend that any such issues are identified early and that these issues are only incorporated within the design once a cost-benefit analysis has been carried out.

It is important to build a robust strategy for the BREEAM certification process into the project programme to ensure that the client's requirements can be achieved. It is recommended that a 'managed' post construction assessment is undertaken. A single report will be submitted to the BRE following completion of the building, rather than a separate interim (design stage) and final (post construction) submission. This option provides a more streamlined approach to assessment. It has the benefit of continual assessment throughout the design and construction phases and allows changes to be picked up as they occur.

For the certification to be a smooth process for all concerned, an Information Required Schedule (IRS) will be issued, depicting all the required information with an indication of when it should be issued for assessment. It is by this approach that we ensure a constant flow of information and avoid credit time deadlines being missed and the BREEAM rating jeopardised.

Please note that due to the current 20-week minimum comments period for any submission and resubmission to BRE at least 12 months should be allowed from handover of the building to receipt of the certificate.

7. TIME DEPENDENT ACTIONS

There are various key actions that are time dependant. These are listed in Table 1.

Table 1. Time Dependent Actions

Credit		Time requirements	Comment / Action
RIBA Stage 1			
Man 01 Req 9	Sustainability Champion (Design)	Requires evidence that the BREEAM AP was appointed at RIBA Stage 1.	Criterion
RIBA Stage 2			
Man 01	Pre-Requisite - BREEAM AP	The project team and client will formally agree (contract or letters of appointment) strategic performance targets, including the BREEAM rating, early in the design process.	Criterion
Man 01 Req 10-13	BREEAM AP	A BREEAM AP works with the team throughout Preconstruction phase attending meetings and producing reports at each RIBA Stage	Ridge (Sust)
Hea 06	Security of Site and Building	Prior to the end of RIBA Stage 2, a Security Needs Assessment (SNA) must be undertaken by a suitably qualified security specialist and any recommendations are implemented.	Criterion/Buttress
Ene 04	Low Zero Carbon	Prior to the end of RIBA Stage 2, an energy specialist must produce a BREEAM compliant Low Zero Carbon feasibility study. (A LZC technology must be implemented in line with the findings of the study which reduces CO ₂ emissions)	Ridge (MEP)
Tra 05	Transport Assessment & Travel Plan	Requires that during feasibility and design stages a BREEAM compliant Transport Assessment and draft travel plan will be produced.	Vectos/SLR
Wst 05	Adaption to Climate Change	Requires production of a Climate Change Adaptation Strategy Appraisal using a risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. And to develop recommendations to mitigate the identified impact before the end of RIBA Stage 2.	Buttress with input from Ridge MEP & Structs)
Wst 06	Functional Adaptability	Requires production of a study to explore the functional adaptation potential of different design scenarios by the end of Concept Design (RIBA Stage 2) and to develop recommendations or solutions based on the study that aim to enable and facilitate functional adaptation.	Buttress with input from Ridge MEP & Structs)

Credit		Time requirements	Comment / Action
RIBA Stage 3-4			
Man 01	BREEAM AP	A BREEAM AP is appointed and works with the team during Developed Design.	Ridge (Sust) to be appointed for RIBA stage 3
Man 02	Component Life Cycle Cost	Prior to the end of RIBA Stage 4, a competent person will carry out a component level LCC plan in line with PD 156865:2008 including: Envelope; Finishes; Services and External Spaces. In addition, Stage 4 Mat 01 options must be modelled	Ridge (Sust) or (QS) to be appointed for RIBA Stage 4
Man 04 Req 6-7	Commissioning – Design & Preparation	Requires a team member, not involved in installation works, to undertake design reviews, provide commissioning management input and manage commissioning performance testing and handover / post-handover stages. Additionally, a specialist commissioning manager must be appointed.	Contractor's MEP
Wst 06	Design Functional adaptability	Requires that an update, during Technical Design (Stage 4), on how the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective and that omissions have been justified.	Buttress with input from Ridge MEP & Structs)

8. KEY ISSUES TO ACHIEVE A 'VERY GOOD' CERTIFICATION

Credits have been identified worth 61.47% which would achieve a 'Very Good' rating with 6.5% margin of safety. Appendix A provides detail on the specification targeted to achieve the above score and assumptions made.

The tables within the following pages provide a brief summary of the issues required to achieve the rating. These should be read in conjunction with Appendix A and the current BRE 2014 R&FO Manual which provides more detail on the requirements. Please note not all items are listed below.

8.1.1. Client Issues

Credit		Requirements
Man 01 Req 8	Pre-Requisite BREEAM (Design)	- Requires evidence showing Ridge and Partners were appointed at RIBA Stage 1
Man 01 Req 8	Pre-Requisite BREEAM (Design)	- The project team and client will formally agree (contract or letters of appointment) strategic performance targets, including the BREEAM rating, early in the design process.
Man 01 Req 9-13	BREEAM AP	Requires ongoing appointment of BREEAM AP throughout RIBA Stage 2-4
Man 03 Req 5	Pre-Requisite - BREEAM AP (Site)	The client and the contractor will formally agree performance targets.
Hea 05	Acoustic Performance	Requires appointment of an acoustician to check that the proposed construction will achieve the required 3dB betterment of the building regulations residential acoustic requirements;
Wat 01	Water Consumption	Requires provision of pod sanitary ware specification capable of bettering industry standards by 12.5%
Wst 03 Req 2	Compactor Bailer and Composting	Requires justification of waste streams to exclude the need for a compactor bailer and requires a evidence of a recycled waste removal contract in place for occupation.
Man 05 Innovation	Aftercare	Requires the FM team, for a period of three years after occupation will: Collect, monitor, report, set targets & adjust systems as necessary based on occupant satisfaction, energy & water consumption data. They will also feedback 'lessons learned' to the design team and provide actual annual building energy, water consumption & occupant satisfaction data to BRE

8.1.2. Quantity Surveyor Issues

Credit			Requirements
Man 02 Req 3	Component LCC Plan	Level	Requires a component life cycle cost plan to be carried out at RIBA Stage 4 to PD 156865: 2008. (QS or Sustainability)
Man 02 Req 4	Capital reporting	cost	Requires reporting of project capital cost to the Assessor for sending to the BRE.

8.1.3. Acoustician

Credit			Requirements
Hea 05	Acoustic Performance		Requires acoustician to check that the proposed construction will achieve the required 3dB betterment of the building regulations residential acoustic requirements and to carry out necessary testing to demonstrate that all rooms comply post construction.;
Pol 05	Noise attenuation		Requires a noise impact assessment to BS 7445 and for noise levels as measured in the locality of the nearest or most exposed noise-sensitive development, will be a difference no greater than +5dB during the day and +3dB at night compared to the background noise level.

8.1.4. Architectural Issues

Credit			Requirements
Man 02	Component Cycle Cost	Life	Confirm that the Life Cycle Costing exercise has influenced design and specification.
Hea 01 Req 1-2	Glare Control		Requires glare control to be provided to all areas where workstations / projector screens are used (e.g. low eaves or blinds transmittance of <0.1)
Hea 06	Security		Requires appointment of an SQSS to carry out an SNA prior to the end of RIBA Stage 2 and incorporation of recommendations into the proposals.
Wat 01	Water Consumption		Requires careful specification of water consuming equipment to achieve a 12.5% betterment on industry standards
Mat 01	Life Cycle Impacts		Requires input into LCA where requested by LCA consultant.
Mat 04 Req 1-2	Embodied Impact of Insulation		Requires all new insulation products to have a low embodied impact through the specification of A+ rated materials.
Wst 03	Operational Waste		Requires a dedicated adequately sized, labelled, accessible recycled waste storage area.
Wst 05	Adaption to Climate Change		Produce a study into the effects, risk and mitigation strategies for accommodating Climate Change to the building fabric during RIBA Stage 2
Wst 06	Functional Adaptability		Produce a compliant 'Functional Adaptation Study' during Concept Design (RIBA Stage 2) that is updated and implemented at RIBA Stage 4.

8.1.5. Civil & Structural Engineer's Issues

Credit		Requirements
Wst 05	Adaption to Climate Change	Requires input into a study into the effects, risk and mitigation strategies for accommodating Climate Change to the building fabric during Concept Design, RIBA Stage 2
Wst 06	Functional Adaptability	Requires input into a compliant Functional Adaptation Study' during Concept Design. RIBA Stage 2 updated at RIBA Stage 4
Pol 03 Req 7-8	Surface Water Run-Off	Requires Drainage Consultant to confirm and provide calculations & details showing that there will be no increase in the rate of run off from the site as a result of the development.

8.1.6. Building Services Consultant and Subcontractor's Issues

Credit		Requirements
Man 04 Req 1-4	Commissioning and Testing Schedule and Responsibilities	A 'schedule of commissioning' needs to be developed, with a commissioning monitor appointed.
Man 04 Req 5-6	Commissioning Building Services	Requires appointment of a specialist commissioning manager to undertake design reviews, provide commissioning management to construction programme and management of commissioning during handover / post-handover stages.
Man 05 Req 3	Seasonal Commissioning	Requires seasonal commissioning to take place over a 12-month period after occupation.
Hea 01 Req 8-14	Internal and External Lighting Levels, Zoning and Control	Requires SLL & CIBSE compliant lighting design, and BREEAM compliant control & zones (manual switching required).
Hea 04 Req 1-4	Thermal Modelling	Requires dynamic thermal modelling to be carried out in accordance with CIBSE AM11, demonstrating that building is designed to limit the risk of overheating in accordance with CIBSE TM52.
Hea 04 Req 5-8	Design for Future Thermal Comfort	Requires thermal modelling to demonstrate compliance (as above) when run for a projected climate change environment or has potential to adapt using passive measures.
Hea 04 Req 9-11	Thermal Zoning & Controls	Requires the thermal model to inform a temperature control strategy addressing the issues detailed within the BREEAM guidance.
Hea 05	Acoustic Performance	Requires acoustic attenuation measures as required by acoustic report to limit noise to 3 dB better than the building regulation requirements for residential units.
Ene 01 Req 1	Energy Performance	The 'whole building energy score' approach will be used. This will require modelling the building pre and post refurbishment and producing the epc.inp files and pdf. The BRE's Bespoke spreadsheet will perform an area weighting to confirm the number of credits achieved. 11 credits of the 15 are targeted for Very Good

Credit		Requirements
Ene 02 Req 1-4	Sub-metering of Major Energy Consuming Systems	Requires that energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems and an accessible energy monitoring and management system.
Ene 03	External lighting efficiency	Requires all external lighting to be controlled via time clock/daylight sensor and have less than 60 lamp lumens per circuit watt plus PIRs to areas with intermittent pedestrian use.
Ene 04	Low Zero Carbon	Prior to the end of RIBA Stage 2, an energy specialist must produce a BREEAM compliant Low Zero Carbon feasibility study. LZC technology must be implemented in line with the findings of the study which reduces CO ₂ emissions.
Wat 01	Water Consumption	Requires careful specification of water consuming equipment to achieve a betterment of 12.5% on current industry standards.
Wat 02	Water sub meter	The main supply to the building will be fitted with a pulsed water meter and additional sub meters where applicable.
Wat 03 Req 1-2	Water leak Detection	Requires a BREEAM compliant leak detection system will be specified and installed on the buildings water supply to detect leaks between the utilities meter and building and within the building itself..
Mat 04	Insulation	Requires specification of A+ / A rated building services insulation materials.
Wst 06	Functional Adaptability	Requires input into a compliant 'Functional Adaptation Study' during Concept Design (RIBA Stage 2) and reviewed at RIBA Stage 4.
Pol 04	Reduction of Night-Time Light Pollution	Requires that all Illuminated advertisements comply with ILP PLG05 and all external lighting with Table 2 ILP:2011 Additionally, lighting can be automatically switched off between 23:00 and 07:00, excluding for safety and security lighting which complies with the lower lighting levels in Table 2 ILP:2011
Pol 05	Reduction of Noise Pollution	Requires acoustic attenuation measures as required by NIA.

8.1.7. Main Contractor's Issues

Credit		Requirements
Man 03	Responsible Construction Practices	Requires the main contractor to: - Uses Legally harvested and traded timber'. - Operates an Environmental Management System which is third party certified. (ISO14001 certificate) - Implement best practice pollution prevention policies. - Uses a BREEAM AP. (within Ridge appointment) - Register and achieve an average score of at least 39 with no section having and average score of <13 under the Considerate Constructors Scheme - Monitor & report construction site impacts including energy, water and transportation of construction materials and waste

Credit		Requirements
Man 04 Req 1-4	Commissioning - Testing Schedule and Responsibilities	The contractor accounts for commissioning, testing, responsibilities and standards within budget and programme of works.
Man 04 Req 11-12	Handover	Requires production of simple building user guide & training for the relevant building users.
Man 05 Req 1-2	Aftercare Support	Requires facilities management training and aftercare support for the first 12 months from occupation
Hea 03 Req 1	Indoor Air Quality Plan	Requires indoor air quality plan to be produced.
Hea 02 Req 8-12	VOC Emission Levels (Post Construction)	To achieve this credit pre-occupation testing of formaldehyde concentration and VOC emissions will need to be undertaken post construction and results must be below the limits detailed within the BREEAM guidance. If results are above the limits remedial action is taken to bring down the levels.
Ene 06 Req 1-4	Energy Efficient Transportation Systems	Requires: production of a vertical lift transport analysis: study on alternatives and specification of energy efficiency: and measures incl regen unit where appropriate.
Mat 03 Req 1	Responsible Sourcing	Requires that all timber used within the project will be legally harvested and traded timber.
Mat 03 Req 2	Sustainable Procurement Plan	Materials are sourced in accordance with a documented BREEAM compliant Sustainable Procurement Plan.
Mat 04 Req 1-2	Embodied Impact of Insulation	Requires all new insulation products to have a low embodied impact through the specification of A+ rated materials.
Mat 03	Measuring Responsible Sourcing	Requires that materials will be sourced from suppliers with appropriate responsible sourcing certification (e.g., BES6001 / ISO14001 / FSC / CSA / MTCC / PEFC / SFI etc.) and 18% of available points will be achieved for the Superstructure, substructure, hard landscaping and finishes elements.
Wst 01 Req 5-6	Construction Resource Efficiency	Requires that a Resource Management Plan (RMP) is developed, and that non-hazardous construction waste is less than 11.1 m ³ or 3.5 tonnes per 100m ² GIFA.
Wst 01 Req 7	Diversion of resources from landfill	Requires 75% by volume (83% by weight) of non-hazardous construction waste and 83% by volume (91% by weight) of demolition waste to be diverted from landfill.

9. SUMMARY AND RECOMMENDATIONS

In the preassessment meeting a target was identified to achieve a Very Good BREEAM rating with a small contingency. The results have been summarised in the sections above to highlight the credits where there is a time constraint and by discipline showing the requirements to reach each target. A more detailed breakdown is provided in Appendix A

It is recommended that each discipline review the suggested targets and ensure as a minimum that the necessary elements are incorporated into the design documentation to achieve a Very Good rating. Any additional uplifts shown in in section 8.0 should be costed and identified as soon as possible.

Please note that for any particular rating there are mandatory credits that need to be achieved within the targeted percentage score. These are also highlighted in Appendix A

APPENDIX A- DETAILED ASSESSMENT REPORT

BREEAM 2014 Refurbishment and Fit Out Preassessment Report

5022067 Royal Buildings, Manchester

PASS	30
GOOD	45
VERY GOOD	55
EXCELLENT	70
OUTSTANDING	85

Report Prepared By: Wendy Broomhead
Report Checked By: Susie Sidley
BRE Reference: TBC
Date: Jun-23

Results Summary				
Sector	Total Available	Weighting		Development target
Management	21	14.83%		10.59%
Health & Wellbeing	20	16.85%		7.58%
Energy	23	16.36%		12.09%
Transport	11	9.06%		7.41%
Water	8	6.59%		2.47%
Materials	13	15.45%		10.70%
Waste	11	8.50%		3.86%
Land Use & Ecology	0	0.00%		0.00%
Pollution	13	12.36%		4.75%
Total Predicted Score				59.47%
Innovation	10	10.0%		2%
Total Score				61.47%
BREEAM Rating				VERY GOOD

Key to Responsibilities		
Role	Company	Ref
Client	Criterion Capital	Criterion
Planning Consultant	Savills	Savills
Architect	Buttress Architects	Buttress
M&E Consultant	Ridge and Partners	Ridge(MEP)
Structural & Civil Eng	Ridge and Partners	Ridge(S&C)
Acoustician	Savills	Savills
BREEAM Assessor & AP	Ridge and Partners	Ridge(SUS)
Transport Consultant	Vectos/ SLR	Vectos
Main Contractor	TBC	contractor
M&E Sub Contractor	TBC	MEP Sub

Notes:

- 1) Shading Denotes Mandatory Credit
- 2) This document is to be read in conjunction with the current BREEAM Manual available online, which gives full details of credit requirements - <https://www.breeam.com/ndrefurb2014manual/>
- 3) The weightings are based on the answers to the set up questions (contained in Appendix C of the Pre-Assessment Report). If the answers to these change please notify the BREEAM assessor so that the weightings can be updated.

Assessment Issue	Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
MANAGEMENT						
Man01	Project Brief and Design		Minimum standard: None			
Req 1-4	Stakeholder Consultation (Project Delivery)	1	0.71	Credit not targeted because the following requirements are unlikely to be fully met: - Prior to the end of RIBA Stage 1, produce a Sustainability Brief including project budget, programme, constraints, appointments and sustainability targets. - Prior to the end of RIBA Stage 2 the project delivery stakeholders (all of the following - client/developer, contractor, architect, structural engineer, services engineer, QS, Environmental Consultant and project manager) meet, identify and define roles responsibilities & contributions during the key phases. - Project delivery stakeholder contributions have influenced or changed the Initial Project Brief.	0	
Req 5-7	Stakeholder Consultation (Third Party)	1	0.71	Credit not targeted because although some consultation has occurred, all the following requirements may not be fully met: - Prior to the end of RIBA Stage 2 BREEAM compliant consultation has occurred with all relevant stakeholders. The consultation has influenced/changed the design. - Prior to the end of RIBA Stage 4 consultation feedback has occurred.	0	
Req 9-11	Sustainability Champion (Design)	1	0.71	At RIBA Stage 1 the BREEAM AP, Ridge, was appointed to provide advice during the briefing period. The BREEAM target will be formally agreed between the client and design team prior to the end of RIBA Stage 2 and will be reflected in their appointment documents.	1	High Ridge/ Criterion
Req 12-13	Sustainability Champion (Monitoring Progress)	1	0.71	Ridge will be appointed to undertake BREEAM AP to provide support during RIBA stage 2, 3 & 4. They will attend meetings during each RIBA stage and provide reports prior to, during and on completion for each RIBA stage.	1	High Ridge/ Criterion
Man02	Life Cycle Cost and Service Life Planning		Minimum standard: None			
Req 1-2	Elemental Life Cycle Cost	2	0.71	Prior to the end of RIBA Stage 2, an elemental life cycle costing (LCC) analysis together with elemental options appraisals will not be carried out in accordance with PD 156865:2008.	0	Possible QS
Req 3	Component Level LCC Plan	1	0.71	Prior to the end of RIBA Stage 4 a component level LCC plan will be developed in line with PD 156865:2008.	1	Medium QS
Req 4	Capital Cost Reporting	1	0.71	The Cost Consultant will report the capital cost for the building via the BREEAM Spreadsheet in £k/m2	1	Low QS
Man03	Responsible Construction Practices		Minimum standard: None			
Req 1	Pre-requisite: Timber			All timber and timber based products used on the project will be 'Legally harvested and traded timber'.		Low Contractor
Req 2-3	Environmental Management	1	0.71	The following requirements will be met: - Main contractor operates a certified Environmental Management System. - Best practice pollution prevention policies and procedures will be implemented on site in accordance with PPG 6.	1	Low Contractor
Req 4-6	Sustainability Champion (Construction)	1	0.71	The following requirements will be met: - During RIBA Stages 5 & 6 a Sustainability Champion will be appointed to monitor; ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s). - The Sustainability Champion will be site based or visit. They will carry out spot checks, monitor site activities and report on progress at relevant project team meetings.	1	Low Ridge(Sus)/ Contractor
Req 7-8	Considerate Construction	2	0.71	The contractor will comply with the Considerate Constructors Scheme and will achieve an average score of at least 35 out of 50 with no section scoring an average of below 11.	2	Medium Contractor

Assessment Issue		Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
Req 9	Monitoring of Construction- Site Impacts- Pre-requisite			Responsibility will be assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data throughout the build programme.		Low	Contractor
Req 10-15	Monitoring of Construction- Site Impacts (Energy and Water)	1	0.71	The contractor's nominated individual will monitor and report data on energy & water consumption on site.	1	Low	Contractor
Req 16-18	Monitoring of Construction- Site Impacts (Transport)	1	0.71	The contractor will monitor and report data for CO2 emissions for transport of construction materials and waste separately. Litres of fuel and km travelled will also need to be reported.	1	Low	Contractor
Man04	Commissioning and Handover			Minimum Standard: Criterion 9 Building User Guide for Excellent and Outstanding			
Req 1-4	Commissioning and Testing Schedule and Responsibilities	1	0.71	The following requirements will be met: - There is a 'Schedule of commissioning' which identifies systems and standards to which all elements should be commissioned (MEP Sub) - The client appoints a 'Commissioning Monitor' to ensure systems are planned & commissioned appropriately (Ridge(MEP)). - The contractor allows sufficient and appropriate time and funds for all systems to be commissioned.	1	Low	Contractor/ Ridge(MEP/ MEP Sub
Req 5-6	Commissioning Building and Design	1	0.71	The following requirements will be met: For buildings with complex building services and systems, a specialist commissioning manager will be appointed during the design stage with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member, provided they are not involved in the general installation works for the building services system(s).	1	Low	Ridge(MEP/ MEP Sub
Req 7-8	Testing and Inspecting Building Fabric	1	0.71	An air tightness survey, and thermographic survey will NOT be undertaken to QA integrity of the building fabric, continuity of insulation, avoidance of thermal bridging and air leakage paths. Any defects found will be rectified.	0	Possible	Contractor
Req 9-10	Handover	1	0.71	The following requirements will be met: - a simple, standalone building user guide covering all aspects described within the BREEAM 2014 Manual will be produced that is suitable for general building users as well as the facilities management team. - A schedule of training will be identified for the occupiers at handover to cover all points set out within the BREEAM manual.	1	Low	Contractor
Man05	Aftercare			Minimum Standard: One Credit Seasonal Commissioning for Excellent and Above			
Req 1-2	Aftercare Support	1	0.71	The following requirements will be met: - There will be a meeting programmed to occur with the building occupier/management (prior to initial occupation) to explain the aftercare support, including the Building User Guide and training schedule AND present building information. - There will be on-site facilities management training, including building walkabout and familiarisation with the building systems, controls and operation. - Initial aftercare frequent support will be provided for at least the first month of building occupation, followed by longer term support for at least the first 12 months from occupation. - There will be collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied and systems adjusted accordingly.	1	Low	Contractor
Req 3	Seasonal Commissioning	1	0.71	The following requirements will be met: - Completed over a minimum 12-month period, once the building becomes substantially occupied. - Includes complex and simple systems . - It must take place under part load conditions (spring/autumn) and during periods of extreme (high or low) occupancy. - Requires occupant feedback and recommissioning and revisions to O&M Manuals	1	Low	MEP Sub
Req 4-5	Post Occupancy Evaluation	1	0.71	A Post Occupancy Evaluation will NOT be undertaken by an independent third party one year after building occupation, to gain building performance feedback and to disseminate this information via a case study in order to share good practice and lessons learned.	0	Possible	Criterion

Assessment Issue	Credits Available	Weighted worth of 1 credit	Credit Information		Development target	Risk	Responsibility
HEALTH & WELLBEING							
Hea01	Visual Comfort	Minimum Standard: None					
Req 1-2	Glare Control	1	0.84	Credit awarded by default as all applicable rooms are internal and have neither roof lights nor external windows that are applicable for glare control (KBCN0146). Applicable rooms for this development are areas of the building where lighting and resultant glare could be problematic for users, e.g. those areas with workstations, projector screens etc. - reception and BOH office	1	Low	Buttress
Req 3-5	Daylighting	3	0.84	Credits will NOT be achieved due to the presence of internal rooms and no proposed improvements to daylighting.	0		
Req 6-9	View Out	2	0.84	Credits will NOT be achieved due to the presence of internal offices and workspaces.	0		
Req 10-14	Internal and External Lighting Levels, Zoning and Control	1	0.84	The following requirements will be met: For internal lighting: - Any fluorescent and compact fluorescent lamps are fitted with high frequency ballasts. - Specified in accordance with the appropriate maintained Illuminance levels (in LUX) recommended by SLL Code for Lighting 2012. - Areas with computer screens complies with CIBSE G7 sections 3.3,4.6-4.9. - Areas are zoned and occupant (manual) controlled appropriate for their use and location (see credit criteria in the BREEAM Manual). For external Lighting: - All external lighting located within the refurbishment/fit-out zone is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas & BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.	1	Low	Ridge(MEP/ MEP Sub
Hea02	Indoor Air Quality	Minimum Standard: None					
Req 1	Indoor Air Quality Plan	1	0.84	A BREEAM compliant indoor air quality plan will be produced and implemented. It will detail the actions that minimise indoor air pollution during occupation of the building.	1	Medium	Contractor
Req 2-5	Ventilation	1	0.84	This credit may not be achieved because the air intakes and exhausts are unlikely to be able to be over 10m apart and intakes are likely to be within 20m of sources of external pollution. In addition, areas subject to large/ unpredictable/ variable occupancy patterns will not have carbon dioxide (CO2)/air quality sensors specified which are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.	0	Possible	Ridge(MEP)
Req 6-7	VOC Emission Levels (Products)	1	0.84	This credit may not be achieved because the material finishes are unlikely to meet the following standards: emissions of VOCs from paints and varnishes and at least 5 of 7 other key internal finishes and fittings, as detailed within table 20 of the BREEAM 2014 R&FO Manual will comply with testing & emission requirements.	0	Possible	Contractor/ Buttress/ Criterion
Req 8-12	VOC Emission Levels (Post Construction)	1	0.84	Pre occupation testing of formaldehyde concentration and VOC emissions will be undertaken post construction and results will be below the limits detailed within the BREEAM guidance. If results are above the limits remedial action will be taken to bring down the levels.	1	Medium	Contractor
Req 13-14	Potential for Natural Ventilation	1	0.84	This credit cannot be achieved because of the presence of internal occupied rooms.	0		
Hea04	Thermal Comfort	Minimum standard: None					
Req 1-5	Thermal Modelling	1	0.84	A full dynamic thermal modelling will be carried out in accordance with CIBSE AM11. The study will demonstrate that the building design and services strategy can deliver thermal comfort levels in accordance with the criteria set out in CIBSE Guide A table 1.5 and the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices will be reported.	1	Low	Ridge(MEP)
Req 6-9	Adaptability- for a Projected Climate Change	1	0.84	The thermal modelling above will also demonstrate compliance when run for a projected climate change environment (see Relevant definitions in the BREEAM 2014 Manual) and if thermal comfort criteria are not met, it will be demonstrates how the building can be easily adapted in future using passive design solutions in order to meet the requirements above. The PMV and PPD indices based on the above modelling will also be reported via the BREEAM assessment scoring and reporting tool.	1	Low	Ridge(MEP)

Assessment Issue		Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
Req 10-12	Thermal Zoning and Controls	1	0.84	The following requirements will be met: That the thermal modelling analysis will inform the temperature control strategy for the building and its users, and that the strategy for proposed heating and cooling systems will address all of the issues below: 1. Demonstrate that zones within the efficiently and appropriately heat or cool these areas. e.g. consider the different requirements for the central core vs. the external perimeter adjacent to the windows. 2. The degree of occupant control required for these zones, based on discussions with the end user (or specific design guidance, case studies, feedback) considers: i. User knowledge of building services ii. Occupancy type, patterns and room functions iii. How the user is likely to operate or interact with the system(s), iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. balance between occupant preferences, e.g. fresh air vs. drafts). 3. How will multiple systems interact with each other and how this affects occupants thermal comfort. 4. The need for an accessible building user actuated manual override for any automatic systems	1	Low	Ridge(MEP) / MEP Sub
Hea05		Acoustic Performance		Minimum standard: None			
	Basic level requirements	1	0.84	The requirements below will be met: -Airborne sound insulation values are at least 3dB higher and impact sound insulation values are at least 3dB lower than the performance standards in the relevant Building Regulations or Standards. - A programme of pre-completion acoustic testing is carried out by a compliance test body to ensure that the relevant spaces (at as built stage) achieve the required performance standards for sound insulation.	1	High	Acoustician/ Buttress
	Better level requirements	2	0.84	The requirements below may not be met: - Airborne sound insulation values are at least 5dB higher and impact sound insulation values are at least 5dB lower than the performance standards in the relevant Building Regulations or Standards. - it is assumed that <5% of the floor area is 'non-residential' areas, therefore these areas do not need to be assessed, - A programme of pre-completion acoustic testing is carried out by a compliance test body to ensure that the relevant spaces (at as built stage) achieve the required performance standards for indoor ambient noise levels.	0	Possible	Acoustician/ Buttress
	Best level requirements	1	0.84	The requirements below are unlikely to be met: -Airborne sound insulation values are at least 8dB higher and impact sound insulation values are at least 8dB lower than the performance standards in the relevant Building Regulations or Standards. - it is assumed that <5% of the floor area is 'non-residential' areas, therefore these areas do not need to be assessed, - A programme of pre-completion acoustic testing is carried out by a compliance test body to ensure that the relevant spaces (at as built stage) achieve the required performance standards for reverberation.	0		
Hea06		Safety and Security		Minimum standard: None			
	Security of Site and Building	1	0.84	A Suitably Qualified Security Specialist (Crime Prevention Design Advisors (CPDA), Architectural Liaison Officers (ALO) or Counter Terrorism Security Advisor (CTSA)) will conduct a Security Needs Assessment based on local knowledge of the site or a site visit. Note that this should ideally be carried out at Stage 2. and the recommendations from the SNA will be implemented in the final design	1	Medium	Buttress
ENERGY							
Ene01		Reduction of Energy Use and Carbon Emissions		Minimum standard: Five Credits for Excellent, Eight for Outstanding			
Req 1	Energy Performance	15	0.71	EPCs will be produced modelling the building pre and post development, which will show that 11 credits are likely to be achieved using option 1 (whole building energy model). Please provide output from energy models for both before and after scenarios in epc.inp format when available	11	High	Ridge(MEP) / MEP Sub
Ene02		Energy Monitoring		Minimum standard: One Credit- First Sub-metering Credit for Very Good and Above			
Req 1-4	Sub-metering of Major Energy Consuming Systems	1	0.71	The following will be achieved: - Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. - The energy consuming systems are metered using an appropriate energy monitoring and management system if the floor area is over 1000m2. - The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.	1	Medium	Ridge(MEP) / MEP Sub

Assessment Issue		Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
Ene03	External Lighting	Minimum standard: None					
Req 1-3	External Lighting	1	0.71	The following will be achieved: - average initial luminous efficacy of all external light fittings within the construction zone (including existing fittings) is not less than 60 luminaire lumens per circuit Watt. - All external lights have daylight sensors and PIRs in areas of intermittent pedestrian traffic.	1	Medium	Ridge(MEP) / MEP Sub
Ene04	Low Carbon Design	Minimum standard: None					
Req 1-3	Passive Design Analysis	1	0.71	The project team will NOT carry out a Passive Design Analysis (PDA) during Concept Design stage (RIBA Stage 2) which identifies opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services. The building will use passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the PDA. The total reduction in energy demand and CO2 emissions will be quantified to be >5%. The first credit within Hea 04 Thermal comfort is targeted and must be achieved to award this credit.	0	Possible	Ridge(MEP)
Req 5-6	Free Cooling	1	0.71	This credit cannot be achieved because a Passive Design Analysis has not been undertaken and active cooling is required.	0		
Req 7-8	Low Zero Carbon Feasibility Study	1	0.71	A feasibility study will be carried out by the completion of the Concept Design stage (RIBA Stage 2) by an energy specialist to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development. Local LZC technology (e.g. ASHP, PVs) will be specified in line with the recommendations of the feasibility study and this method of supply will result in a >5% reduction in regulated carbon dioxide (CO2) emissions.	1	low	Ridge(MEP)
Ene06	Energy Efficient Transportation Systems	Minimum Standard: None					
Req 1	Energy Consumption	1	0.71	Where new lifts, escalators and/or moving walks (transportation types) are specified within refurbishment works: An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification of escalators and moving walks, for one of the following: At least two types of system (for each transportation type required); OR An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR A system strategy which is 'fit for purpose'. The use of regenerative drives should be considered, subject to the requirements in CN6 The transportation system with the lowest energy consumption is specified (when demonstrating compliance through either b.i. or b.ii.).	1	Medium	Contractor
Req 2-4	Energy Efficient Features	2	0.71	For each newly specified lift, the following three energy efficient features are specified and for existing lifts within the project scope of influence, at least two of the following energy efficient features are specified: a)The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b)The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c)The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. -Where the use of regenerative drives is demonstrated to save energy, they are specified.	2	Medium	Contractor
TRANSPORT							
Tra01	Sustainable Transport Solutions	Minimum Standard: None					
Req 1-2	Accessibility Index	5	0.82	The project is classified as 'OTHER BUILDING TYPE 2' (a building occupied by a number of core staff/employees with a larger number of consistently frequent visitors/users). Based on the AI of 48.41 it should achieve all 5 credits	5	Low	Ridge(SUS)

Assessment Issue		Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
Tra02	Proximity to Amenities			Minimum Standard: None			
	Proximity to Amenities	1	0.82	At least 2 No amenities from the list below are within 500m of the building entrance: Appropriate food outlet☐ Access to cash☐ Access to an outdoor open space (public or private, provided suitably sized and accessible to building users)☐☐ Access to a recreation/leisure facility for fitness/sports	1	Low	Ridge(SUS)
Tra03	Cyclist Facilities			Minimum Standard: None			
	Cycle Storage	1	0.82	This credit is not targeted because no staff cycle storage facilities are being provided due to limited space. The requirement would be for 1 space for every 20 staff (note for hotels the requirement for visitors is excluded see CN 19) (the sliding scale may also be used if >200 staff) with a minimum of 4 spaces. Please note that if cycle storage is not in a prominent location, signage will be required indicating their location to users.	0	Possible	Buttress
	Cycle Facilities	1	0.82	This credit cannot be sought because cycle storage provision is not being provided, however if this changed the requirements are for at least 2 out of the following list of cycle facilities are provided: - Showers (ratio 1 per 10 cycle spaces required) - Lockers (ratio 1 per cycle space) - Changing facilities - Drying Room	0	Possible	Buttress
Tra 04	Maximum Car Parking			Minimum Standard: None			
		2	0.82	Credits achieved by default as no car parking providing.	2	Low	Ridge(SUS)
Tra05	Travel Plan			Minimum Standard: None			
Req 1-4	Travel Plan	1	0.82	A BREEAM compliant travel plan, based on a transport assessment/statement will be prepared as part of the feasibility & design stages and that if so, the recommendations within this will be incorporated into the design. Vectos Appointed	1	Low	Vectos
WATER							
Wat01	Water Consumption			Minimum standard: 1 credit for Good and Above; 2 credits for Outstanding			
Req 1-3	Water Consumption	5	0.82	A 12.5% improvement in water consumption over the notional baseline will be achieved through the specification water consuming facilities. An example of compliant specification is given below: - 4.5 litre effective flush WCs incl disabled WCs - wash hand basin taps flow rate limited to 4.5litre/min - Urinals (2 or more) 6 litres/bowl/hour - Showers flow rate limited to 8 litre/min - kitchen pre-rinse nozzles to 7.5 litres / min flow rate - no waste disposal units - commercial dishwashers limited to 7 litres / rack - no rainwater / greywater harvesting systems	1	Medium	Criterion/ Buttress/ MEP Sub
Wat02	Water Monitoring			Minimum standard: Criteria 1			
Req 1-5	Water Sub Meters	1	0.82	A water meter with a pulsed output connected to the hotel BMS will be providedfor the cold water supply to the hotel.	1	Low	Ridge(MEP)
Wat03	Water Leak Detection and Prevention			Minimum Standard: None			
Req 1	Leak Detection System	1	0.82	A BREEAM compliant leak detection system will be installed on the building's water supply.	1	Medium	Ridge(MEP)
Req 2	Flow Control Devices	1	0.82	Flow control devices will NOT be fitted on the cold water supply to WCs and handbasin taps in each WC area / facility due to the number required to cover all ensuite facilities	0	Possible	Ridge(MEP)

Assessment Issue	Credits Available	Weighted worth of 1 credit	Credit Information		Development target	Risk	Responsibility
MATERIALS							
Mat01	Life Cycle Impacts		Minimum Standard: None				
Req 8-10	Life Cycle Impacts	6	1.19	Option 1, a Project Lifecycle Assessment Study will be undertaken using the BRE Green Guide to assist in the selection of materials as follows: -Internal walls and partitions -Internal floor finishes (including access floors) ceilings This will require provision of a report including a statement on how the study has benefited the environmental performance of the building.	6	Medium	Ridge(SUS) with input from QS, Ridge (C&S) & Butress
Mat03	Responsible Sourcing		Minimum standard: Criterion One Only for Pass and Above				
Req 1	Pre Requisite			All timber and timber based products used on the project will be 'Legally harvested and traded timber'.		Medium	Contractor
Req 2	Sustainable Procurement Plan	1	1.19	The following requirement will be met: The principal contractor sources materials for the project in accordance with a documented Sustainable Procurement Plan which sets out a clear framework for the responsible sourcing of materials for both procurement and specification of construction materials. It covers: 1. Risks and opportunities are identified (BS 8902:2010 can be used as a guide). 2. Aims, objectives and targets to guide sustainable procurement activities. 3. The strategic assessment of sustainably sourced materials available locally and nationally. 4. Procedures to check and verify that the plan is being implemented/adhered to.	1	Medium	Contractor
Req 3	Responsible Sourcing	3	1.19	At least 18% of the available points will be achieved, through the sourcing of materials within major elements from suppliers with appropriate certification (e.g. BES6001 / ISO14001 / FSC / CSA / MTCC / PEFC / SFI etc.) to achieve 1 credit	1	Medium	Contractor
Mat04	Insulation		Minimum Standard: None				
Req 1-2	Embodied Impact of Insulation	1	1.19	All NEW insulation products used in both the building fabric and services will have a low embodied impact when compared to their thermal properties. To ensure that this credit is achieved, A+ rated insulation types, according to the BRE's Green Guide Online, will need to be selected.	1	Medium	Contractor/ Butress
Mat05	Designing for Durability and Resilience		Minimum Standard: None				
Req 1-5	Designing for Durability and Resilience	1	1.19	Credit Not sought. The following will be NOT all be achieved because of the aesthetics required in the corridors: The building will incorporate suitable durability/ protection measures/ designed features/solutions to prevent damage to vulnerable parts of the building including: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). Note: this may require upgrade of some corridor walls to severe duty. b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. Note: this may require additional bump rails and corner protection to some corridors.	0		
Mat06	Material Efficiency		Minimum Standard: None				
Req 1-2	Material Efficiency	1	1.19	This credit has not been targeted due to the onerous evidencing requirements at stage 3, 4 & 5. Credit requirements are listed below for information: Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life. The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: a. Preparation and Brief c. Developed Design e. Construction. b. Concept Design d. Technical Design	0		

Assessment Issue	Credits Available	Weighted worth of 1 credit	Credit Information				Development target	Risk	Responsibility	
WASTE										
Wst01	Project Waste Management		Minimum standard: One Credit for Outstanding							
Req 1	Pre-refurbishment audit	1	0.77	A pre-refurbishment audit will NOT be carried out during RIBA Stage 2 , by an independent competent person who has appropriate knowledge of buildings, waste and options for the reuse and recycling of different waste streams.				0		
Req 2-4	Reuse and direct recycling of materials	2	0.77	Credit not sought because <50% of the total available points for the relevant waste materials that are present on the project based on the material are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling. Relevant materials would be: inert; metal; composite; plasterboard; furniture; Timber products; mineral fibre ceiling tiles /panels; vinyl floor coverings; carpet tiles ; insulation board, fixtures & fittings & Packaging materials.				0		
Req 5-6	Construction Resource Efficiency	3	0.77	A Resource Management Plan (RMP) will be developed and the non-hazardous waste relating to on-site refurbishment or fit-out, and dedicated off-site manufacture or fabrication processes generated by the building’s design and construction will be no greater than 11.3m3 or 3.5 tonnes per 100m2 gross internal floor area.				1	Medium	Contractor
Req 7	Diversion of waste from Landfill	1	0.77	The following percentages of refurbishment waste (on-site and off-site manufacture/fabrication in a dedicated facility), generated by the project will be diverted from landfill: - Refurbishment/ Fit-Out - 85% by volume or 90% by tonnage - Demolition/ strip-out - 90% by volume or 95% by tonnage				1	Medium	Contractor
Wst02	Recycled Aggregates		Minimum Standard: None							
Req 1-3	Recycled Aggregates	1	0.77	It is assumed that this credit cannot be achieved because there is very little high grade aggregate being used. To achieve the credit the total amount of recycled or secondary aggregate specified must be greater than 25% of the total high grade aggregate specified for the project. Recycled or secondary aggregate is either construction, demolition and excavation waste obtained on-site or off-site or secondary aggregate obtained from a non-construction post consumer industrial product source.				0		
Wst03	Operational Waste		Minimum standard: 1 credit for Excellent and Outstanding							
Req 1	Dedicated space for recyclables	1	0.77	A dedicated recycling area, clearly labelled, adequately sized to serve the hotel development and accessible to building occupiers and waste contractors, will be provided (in addition to the waste provision for the ground floor commercial units). A minimum storage space provision of 2m2 per 1,000m2 should be used for recycled waste (Note: this is additional to the space required for general waste) and a waste management contract must be in place for occupation, that will sort the recyclable waste .				1	Medium	Buttress/ Criterion
Req 2	Compactor / Baler / Composting			Waste streams for the building will be confirmed and if a static compactor / baler is required, it will be provided. AS there is no food preparation present in the hotel areas no compostable waste collection or space is required.						
Wst05	Adaptation to Climate Change		Minimum standards - none							
Req 1	Adaptation to Climate Change	1	0.77	A Climate Change Adaptation Strategy Appraisal will be prepared for structural and fabric resilience by the end of Concept Design (RIBA Stage 2). The Appraisal must: - Be a systematic (structural and fabric resilience specific) risk assessment. - Identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change. -Where feasible, mitigate against these impacts. - Cover: Hazard identification; Hazard assessment; Risk estimation; Risk evaluation & Risk management.				1	Medium	Buttress with input from Ridge Structures & MEP
Wst06	Functional Adaptability		Minimum standards - none							
Req 1-2	Functional Adaptability	1	0.77	A BREEAM compliant, building-specific functional adaptation strategy study will be undertaken by the design team during Concept Design (RIBA Stage 2) , which will include recommendations for measures to be incorporated to facilitate future adaptation.				1	Medium	Buttress with input from Ridge Structures & MEP

Assessment Issue	Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility	
POLLUTION							
Pol01	Impact of Refrigerants			Minimum standard: None			
Req 2	Buildings With Refrigerants Prerequisite		All systems (with electric compressors) may comply with the requirements of BS EN 378:2008 (parts 2 & 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.				
Req 3-5	Impact of Refrigerants	2	0.95	Credits not sought because systems using refrigerants are likely to have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of >1000 kgCO2e/kW cooling/heating capacity.	0	Possible	Ridge(MEP)
Req 6-7	Leak Detection	1	0.95	Credit not sought because, it is assumed that systems will have a charge of > 6kg each and that systems using refrigerants will not have a permanent automated refrigerant leak detection system installed or an in-built automated diagnostic procedure.(installed systems must be capable of continuously monitoring for leaks and must of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident).	0	Possible	Ridge(MEP)
Pol02	NOx Emissions			Minimum standard: None			
Req 1-2	NOx Emissions	3	0.95	Credit not sought because the space heating and hot water will deliver more than 100mg/kWh of NOx emissions because all systems will be powered by grid electricity.	0		
Pol03	Surface Water Run-Off			Minimum standard: None			
Req 1-2	Flood Risk	2	0.95	The Environment Agency's flood maps confirm that the site is within a Low Flood Zone.	2	Medium	Ridge(SUS)
Req 9	Pre-requisite		An Appropriate Consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the following criteria:				
Req 7-8	Neutral Impact on Surface Water	1	0.95	There will be EITHER no increase in the impermeable surfaces as a result of the works; OR if there is an increase in the impermeable surface then the following will be met: a. Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hardstanding area will be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding will include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface. b. Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension will be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm.	1	Low	Ridge(S&C)
Req 10	Reducing Run-Off	1	0.95	It is assumed that there will NOT be a decrease of >50% in impermeable area although will run-off be reduced from the site.	0		
Req 11-14	Minimising water course pollution	1	0.95	It is assumed that the following is NOT achievable: - there will be no discharge from the site for up to 5mm of rainfall. - Pollution prevention measures are put in place for different sources of pollution - a petrol interceptors will be provided for high contamination risk areas - SUD's/source control systems will be used for low risk areas - All design measures to PPG3, SUD'S Manual or PPG25 and Ear's PPGA - For Chemical/liquid gas storage areas, shut off valves are fitted - For vehicle washing areas, pollution prevention systems must be in accordance with PPG 13 - Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SUDs must be in place	0		
Pol04	Reduction in Light Pollution			Minimum standard: None			
	Reduction in light pollution	1	0.95	The external lighting will comply with the following: - The external lighting strategy has been designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011 - All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. - Any safety or security lighting which is used between 23:00 & 07:00, complies with the lower levels of lighting recommended in Table 2 of the ILP's Guidance notes. - luminated advertisements must be designed in compliance with ILE Technical Report 5. Any existing illuminated signage or external lighting which is within the refurbishment zone will need to comply	1	Medium	Ridge(MEP)/ MEP Sub

Assessment Issue		Credits Available	Weighted worth of 1 credit	Credit Information	Development target	Risk	Responsibility
Pol05	Noise attenuation			Minimum standard: None			
Req 2-5	Noise attenuation	1	0.95	The following will be met: - A noise impact assessment in compliance with BS 7445 will be carried out and the following noise levels measured/determined: I. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar. ii. The rating noise level resulting from the new noise source. - The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body - The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. - Where the noise source(s) from the proposed site/building is greater than above, measures have been installed to attenuate the noise at its source to a level where it will comply with the above.	1	Medium	Savills
INNOVATION CREDITS - Targeted and possible credits only shown							
Man 03	Responsible Construction Practices	1	1.00	The contractor will achieve an average score of at least 39 in the Considerate Construction Scheme with no section scoring less than 13 on average.	1	High	Contractor
Man 05	Aftercare	1	1.00	Operational infrastructure and resources will be put in place to co-ordinate the following activities at quarterly intervals for the first three years of building occupation: a. Collection of occupant satisfaction+182:186n, energy consumption and water consumption data. b. Analysis of the data to check the building is performing as expected and make any necessary adjustments to systems controls or to inform building user behaviours. c. Setting targets for reducing water and energy consumption and monitor progress towards these. d. Feedback any 'lessons learned' to the design team and developer for use in future projects. e. Provision of the actual annual building energy, water consumption and occupant satisfaction data to BRE.	1	Low	Criterion



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