

452 Basingstoke Road, Reading RG2 0QE
November 2016

Procter & Gamble Ltd P&G Reading Innovation Centre Sustainability Statement



Procter & Gamble Ltd
P&G Reading Innovation Centre
Sustainability Statement

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Contents

	Page
1 Introduction	1
2 Policy Framework	3
3 Adaptation to Climate Change	4
3.1 General	4
3.2 Design Response	5
4 Management	6
5 Health and Well-being	9
6 Energy	10
7 Transport	11
8 Water	13
9 Materials	14
10 Waste	16
11 Land Use and Ecology	17
12 Pollution	19
13 Innovation	21
14 BREEAM Assessment	22
14.1 Background	22
14.2 Relevant Planning Policy	22
14.3 Intended Approach	22
14.4 Pre-assessment	23
15 Conclusion	24

Appendices

Appendix A

Baseline Policy Review

Appendix B

BREEAM Pre-assessment Estimator

1 Introduction

This report is the Sustainability Statement, produced by Arup on behalf of Procter and Gamble Ltd, to support a planning application for the new development at 452 Basingstoke Road, Reading.

Development of a two storey research and development facility within Procter and Gamble's existing Reading site is proposed. The facility will comprise laboratories, offices, storage warehousing, associated access, car parking and hard and soft landscaping works. The works comprise:

- Demolition of the south-western wing of the existing Gillette building, the ground floor security gatehouse and ancillary sub-station and external store buildings;
- Refurbishment of the southern half of the retained Gillette building and erection of a rear extension in the form of a new research and development office and laboratory accommodation (Class B1) and associated storage warehousing (Class B8);
- Refurbishment of the façade of the northern half of the retained Gillette building;
- Provision of a 190 space multi-storey car park to the south of the Gillette building formed of four storeys comprising eight levels. Further parking at grade, adjacent and in the currently vacant land to the north and rear of the existing Gillette building;
- Ancillary plant and engineering works including switch room, generator and transformer buildings;
- Associated hard and soft landscaping works, including access and circulation; and
- Formation of a new northern vehicular access to the application site.

This report summarises the sustainability targets, commensurate with the relevant planning policies, which the development will seek to achieve.

The report follows the format and responds to the questions set within the BREEAM Sustainable Design Checklist contained within Appendix 5 of the Reading Borough Council Revised Sustainable Design and Construction Supplementary Planning Document (2011). Each response includes reference, where appropriate, to the relevant targeted BREEAM credits.

In support of this assessment a BREEAM Pre-assessment estimator is contained within Appendix B of the statement.

Following a general section on Adaptation to Climate Change, the topics are addressed in the following order:

- Management
- Health and Well-being

- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution
- Innovation

2 Policy Framework

The planning policy applicable to this Sustainability Statement is set out below and included in detail within Appendix A:

- National Planning Policy Framework (2012)
- Reading BC Core Strategy (2008 With Alteration Adopted 27th January 2015)
 - o CS1: Sustainable Construction and Design
 - o CS2: Waste Minimisation
 - o CS3: Social Inclusion and Diversity
 - o CS4: Accessibility and Intensity of Development
 - o CS5: Inclusive Access
 - o CS7: Design and public Realm
 - o CS9: Infrastructure, Services, Resources and Amenities
 - o CS20: Implementation of the Reading Transport Strategy (2006-2011)
 - o CS22: Transport Assessments
 - o CS23: Sustainable Travel
 - o CS24: Car/ Cycle parking
- Sites and Detailed Policies Document (2012)
 - o DM1: Adaption to climate change
 - o DM2: Decentralised Energy
 - o DM4: Safeguarding Amenity
 - o DM12: Access, traffic and highway related matters
 - o DM7: Green Network
 - o DM18: Tree planting
 - o DM19: Air quality
- Revised Sustainable Design and Construction SPD (2011)
- Revised Parking Standards and Design SPD (2011)

3 Adaptation to Climate Change

Policy DM1 of the Sites and Detailed Policies document requires that all developments should seek to demonstrate how they have been designed to incorporate measures to adapt to climate change and sets out that:

- New buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements;
- Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change for example by including measures such as solar shading, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, etc.;
- Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets, designed with plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions; and All development shall minimise the impact of surface water runoff from the development in the design of the drainage system. To demonstrate the extent to which the proposal has taken account of the need to minimise the consumption of energy and resources (including water), and maximise the use of sustainable or renewable resources.

3.1 General

This policy is relevant to many of the following sections including Energy, Water, Materials, Land Use and Ecology and Pollution.

The following targeted BREEAM credits are particularly relevant:

- **Hea 04 (Thermal comfort)** in which projected climate change scenarios are considered as part of the thermal model.
- **Ene 04 (Low carbon design)** which requires a passive design analysis covering various issues including building layout, orientation, form, fabric and adaptation to climate change.
- **Wst 05 (Adaptation to climate change)** which encourages consideration and implementation of measures to mitigate the impact of more extreme weather conditions arising from climate change over the lifespan of the building.
- **Pol 03 (Surface water run-off)** which requires run off calculations to include an allowance for climate change.

3.2 Design Response

The Design and Access Statement includes details of building design approach. The following is noted in response to the policy requirements:

The orientation of the new buildings has been determined by the location of the existing D Block main wing which is being retained. The new office laboratory block is located between the existing D block to the east and the new “Shelter”/Warehouse building to the west which provides physical protection from direct sunlight and prevailing wind to the east and west elevations.

The refurbished D Block will have new insulation introduced to the roof and walls to provide thermal performance to meet current standards. The windows will be replaced with new thermally broken double glazed units with glazing treated to reflect heat back into the building whilst also letting in free heat from the sun to provide passive solar gain.

The new buildings will be constructed to meet current standards to achieve all thermal performance regulations. The glazing to the south elevation windows and atrium will be treated to reflect heat back into the building whilst also letting in free heat from the sun to provide passive solar gain. North lights are provided to the atrium to provide natural light into the atrium, passive ventilation to the office space beneath and smoke extraction in the event of a fire.

The external cladding colour chosen is light grey to reflect solar gain.

Additional trees are to be planted to the grass verge to the east of D Block to provide additional solar shading to the east elevation of D Block and the south of D Block.

4 Management

Relevant Policy:

CS1: Sustainable Construction and Design

Aim: To recognise and encourage environmentally and socially considerate development.

1. Will guidance for the non technical building user be provided so they can understand and operate the building efficiently and understand how the design reduces the overall environmental impact of the building and raise environmental awareness?

Yes. A Building User Guide will provide dedicated building/site specific guidance for the non-technical building user and will cover these items.

Relevant BREEAM Credits targeted:

- Man 04 Credit 4 Handover

2. What consideration has been given to resource use, energy consumption and pollution in terms of the construction site impacts?

All of the available Responsible Construction Practices BREEAM credits, including the exemplary credit, are targeted.

The principal contractor will be required to achieve a minimum score of 40 with at least 7 in each category under the Considerate Constructors Scheme.

The principal contractor will be required to operate an environmental management system (EMS) covering their main operations and implement best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.

The following construction site impacts resulting from all on-site construction processes will be monitored, recorded and reported during construction:

- energy use
- water consumption
- transport of construction materials and waste

Relevant BREEAM Credits targeted:

- Man 03 Responsible Construction Practices
 - o Credit 1 Environmental management
 - o Credit 2 Sustainability Champion (construction)
 - o Credit 3 Considerate construction
 - o Credit 4 Monitoring of construction site impacts - Utility consumption
 - o Credit 5 Monitoring of construction site impacts - Transport of construction materials & waste

3. Will site investigation and appropriate remedial action be undertaken?

Yes. A Contamination Desk Study has been carried out. This concluded that the potential for significant widespread contamination is considered to be generally low.

A ground investigation will be carried out in relation to the structural foundation design and will include sampling and testing in relation to the potential presence of sources of contamination on the site. Depending on the findings of the intrusive investigation and the levels of contamination identified, on-site remediation measures may be required. If this is the case, verification records will be kept.

4. Will the community and stakeholders be involved in the design process encouraging flexibly designed buildings which cater for shared use with the local community?

Based on the use of the development and the security arrangements required, it is not considered appropriate for this development to cater for shared use with the local community.

Appropriate stakeholders related to both project delivery and third party, have however been consulted from an early stage and both BREEAM credits related to stakeholder consultation are being targeted.

Relevant BREEAM Credits targeted:

- Man 01 Credit 1 Stakeholder consultation (project delivery)
- Man 01 Credit 2 Stakeholder consultation (third party)

5. How has the building been designed to reduce the opportunity for and the fear of crime?

A security specialist has been consulted from an early stage to advise on appropriate security measures for the development.

The security policy/design principles for the project are to add to the existing site security to achieve a tier 1 level security design and operation.

Relevant BREEAM Credits targeted:

- Hea 06 Credit 2 Security of Site and Building

6. What consideration has been given to the maintenance of the building?

As part of the design process, the building has been designed to ensure the new and refurbished buildings are maintainable and, efficient to operate during the life span of the building. To achieve this the following processes are in place for their design:

- There is a constant dialogue between engineers, architects, designers, client, maintenance personnel, and, eventually, contractors when the job is awarded.
- The site in-house maintenance team are part of the design review process.
- The building is designed in accordance with P&G Global Standards as well as UK Standards to ensure tried and trusted materials and plant are used in the building's design.

Flat roofs are incorporated in the design which enable full maintenance access to roof drainage, roof lights and roof top mounted plant. Wall and cladding finishes are low maintenance durable materials. Powder coated aluminium windows are to be used which are also low maintenance. The multi-storey car park to be clad in galvanised mesh which is again low maintenance.

Standardizing of materials/products is to be employed to aid maintenance such as: HVAC equipment, pumps, fans, switches/receptacles, circuit breakers, paint type and colour standardization, toilet fixtures, flooring, lighting fixtures and lamps, doors and door ironmongery. Standardization will result in lower purchase costs, reduced training needs, and less need for multiple maintenance procedures. The overall effect will be buildings that are easier and less costly to maintain.

A maintenance strategy will be produced for the building and will be included within the Operations and Maintenance (O&M) Manual.

Training at handover will cover the maintenance strategy, operations and maintenance (O&M) manual and specific maintenance requirements, including any maintenance contracts and regimes in place.

Relevant BREEAM Credits targeted:

- Man 04 Credit 4 Handover (and various other credits where maintenance requirements are appropriate)

5 Health and Well-being

Relevant Policy:

CS1: Sustainable Construction and Design

Aim: To ensure a good quality amenity level is afforded to occupants of buildings.

7. How has the development been designed to ensure users have sufficient daylight, an external view, adequate and appropriate lighting, ventilation, air quality and drinking water?

The BREEAM credits for daylighting and view out are considered unachievable due to the existing site/building development restrictions and the floor plate depth, however the building will be designed to maximise daylight and external views where possible.

The BREEAM visual comfort credits related to glare control and internal and external lighting levels, zoning and control are targeted.

Four out of a possible five BREEAM credits for Indoor Air Quality are targeted.

An indoor air quality plan will be produced, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan will consider the following:

1. Removal of contaminant sources
2. Dilution and control of contaminant sources
3. Procedures for pre-occupancy flush out
4. Third party testing and analysis
5. Maintaining indoor air quality in-use

The building will be designed to minimise the concentration and recirculation of pollutants in the building. Fresh air will be provided into the building in accordance with the criteria of the relevant standard for ventilation.

The provision for drinking water is no longer considered within the latest version of BREEAM, however it is intended that appropriate drinking water provision will be included within the development for building occupants.

Relevant BREEAM Credits targeted:

- Hea 01 Credit 1 Glare Control
- Hea 01 Credit 3 Internal and external lighting levels, zoning and control
- Hea 02 Credit 1 Indoor air quality (IAQ) plan, Credit 2 Ventilation, Credit 3 Volatile organic compound (VOC) emission levels (products) and Credit 4 Volatile organic compound (VOC) emission levels (post construction)

6 Energy

Relevant Policy:

CS1: Sustainable Construction and Design

DM1: Adaption to Climate Change

DM2: Decentralised Energy

Aim: To conserve energy and maximise the use of energy efficiency techniques.

8. How has the building been designed to minimise CO2 emissions associated with their operational energy consumption?

The building design has followed an energy hierarchy approach (please refer to the Energy Strategy Report for further details) which prioritises passive design measures and efficient building services before the application of renewables.

The design includes energy conservation measures, energy efficient HVAC equipment and low carbon technology in the form of a VRF system with heat recovery in order to mitigate CO2 emissions.

9. How has the development been designed to optimise the use of the energy from the sun, natural daylighting and controlled natural ventilation?

The following passive design features are proposed to minimise energy use in the development:

- Mixed mode ventilation for the offices/write-up spaces, by utilising the atrium extract. This allows natural ventilation to be used when external conditions are suitable.
- Solar control glazing / glazing with low g- value to reduce solar gains and the energy use for cooling.
- Large windows for offices/circulation areas to maximise natural daylighting and reduce energy use for artificial lighting.

10. How will the design of the building make efficient use of energy? (e.g. use of thermally massive materials, levels of insulation and use of green / brown roofs etc).

Efficient use of energy in the building will be achieved through specification of the following:

- Solar control glazing to reduce solar gain, thus reducing cooling demand

- Energy efficient HVAC equipment and system design to reduce energy consumption.
- Energy efficient lighting such as LEDs to reduce electricity consumption.
- Large windows for offices/circulation area to maximise natural daylighting, thereby reducing the need for artificial lighting.
- VRF system with heat recovery, allowing heat to be moved from areas requiring cooling to those that require heating.

11. Have renewable energy sources or decentralised energy been considered for this development and if so, how would they be incorporated within the development?

Yes. The energy strategy report contains a low and zero carbon feasibility study carried out to identify the most appropriate technologies for use on the site. In line with the findings of this study, the following technology is proposed:

- Heat recovery VRF system

The use of renewable energy and decentralised energy were also considered but were not found to be feasible (the use of photovoltaics was discounted due to lack of available roof space). For full details, please refer to the Energy Strategy Report.

7 Transport

Relevant Policy:

CS1: Sustainable Construction and Design

CS3: Social Inclusion and Diversity

CS4: Accessibility and Intensity of Development

CS5: Inclusive Design

CS9: Infrastructure, Services, Resources and Amenities

CS20: Implementation of the Reading Transport Strategy (2006-2011)

CS22: Transport Assessments

CS23: Sustainable Travel

CS24: Car/ Cycle parking

Aim: To reduce the need to travel through appropriately located development.

12. How has the design and layout incorporated measures to reduce the need to travel, especially by car, and promote alternative and sustainable modes of transport such as walking, cycling and the use of public transport?

A Travel Plan is being produced and will include a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during

the building's operation and use. The building occupier is involved in the development of the Travel Plan.

BREEAM compliant cycle parking, showers and changing facilities will be provided. The current proposal is for 44 cycle spaces and 8 showers (4M, 4F) with changing areas to be provided.

Relevant BREEAM Credits targeted:

- Tra 03 Cyclist Facilities
- Tra 05 Travel Plan

13. How have public transport networks been considered in terms of the location of the development and proximity to local amenities?

An Initial Transport Review has been carried out. Based on current local public transport provision, the Accessibility Index for the site was calculated as 5.64 which achieves two out of a possible three credits for Public Transport Accessibility under BREEAM.

The site is within 500m of various local amenities and the BREEAM credit for proximity to local amenities is targeted.

Relevant BREEAM Credits targeted:

- Tra 01 - Public Transport Accessibility
- Tra 02 - Proximity to amenities

14. How have deliveries and the manoeuvring of delivery vehicles been considered?

The BREEAM credit for Safe Access is targeted. This includes the following requirements for deliveries and the manoeuvring of delivery vehicles:

- a. Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public.
- b. There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking.
- c. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.

Vehicle swept path analysis is being carried out by the transport consultant.

Relevant BREEAM Credits targeted:

- Hea 06 Credit 1 - Safety Access

8 Water

Relevant Policy:

CS1: Sustainable Construction and Design,

DM1: Adaption to climate change

Aim: To improve efficiency in the use of water, conserve water resources and minimise vulnerability to flooding.

15. How will the development incorporate the use of water saving devices to achieve a maximum consumption of 5.5 cubic metres per year per person for office developments? (Or the most appropriate benchmark for other types of development).

Low flow water fittings will be specified to achieve at least a 25% improvement over baseline building water consumption.

The building will have pulsed water metering.

Both major leak detection and local leak detection within the toilet areas will be provided. Shut-off valves linked to presence detectors will shut off the water supply to the toilet areas when they are unoccupied to prevent minor leaks.

There is no unregulated water use requirement (eg irrigation) intended for the development. Should this change, any irrigation systems used will be designed to minimise the consumption of potable water.

Relevant BREEAM Credits targeted:

- Wat 01 Water Use
- Wat 02 Water Monitoring
- Wat 03 Leak Detection

16. Will the development and access to and from it such as roads and paths be located away from areas of potential flooding?

The site is located within a Flood Zone 1 as confirmed by the Environment Agency Flood Risk mapping. It therefore has a low annual probability of flooding.

Surface water will be disposed of as follows:-

- Surface and rainwater drainage to the existing buildings will remain unaltered
- Where ground conditions and required surfaces are suitable (eg paving to pathways and car parks) new hard surfaces proposed will comprise non-porous

surfaces such as concrete pavers and tarmacadam with surface water drainage channels and yard gullies.

- Rain and surface water drainage from the new building and new parking areas will be attenuated (via below car park ground tanks) and then discharge into the existing public sewers at a controlled rate.

Relevant BREEAM Credits targeted:

- Pol 03 Credit 1 Flood Resilience
- Pol 03 Credit 2 Surface Water Run-off

17. How will the development incorporate harvesting and re-use of rainwater?

The provision of possible rainwater harvesting has been considered, but has not been included within the scheme due to limited greywater use within the building. As discussed above against item 15, low flow water fittings will be specified to reduce potable water consumption for the development.

Relevant BREEAM Credits targeted:

- Wat 01 Water use

9 Materials

Relevant Policy:

CS1: Sustainable Construction and Design

CS2: Waste Minimisation

DM1: Adaption to climate change

Aim: To retain local character and promote the use of materials with a low environmental impact.

18. How will the selected materials help retain local character, ensure long life and ensure a low environmental impact?

Brickwork is designed into the new buildings to maintain a material link with the retained D Block building to the front of the site. Grey cladding panels have been selected to reflect the concrete columns to the D Block façade. Complimentary modern materials are also incorporated to provide some colour and visual interest more in keeping with a modern commercial setting.

During the design stages, the Architect will carry out an assessment of the development to identify areas which are at particular risk of wear or damage such as vehicle movement areas and circulation spaces. When these areas have been identified, appropriate protection measures and robust finishes will be specified.

A significant percentage of the existing structure is being retained in-situ which is inherently sustainable; reducing the use of raw materials, minimising waste and reducing transport emissions.

The main tool used to assess the environmental impact of new materials for the development will be the BRE's Green Guide to Specification. This is a database of construction materials which enables construction build ups to be rated based on their overall environmental impact, taking into account issues such as climate change, water extraction and fossil fuel depletion.

Relevant BREEAM Credits targeted:

- Mat 01 Life Cycle Impacts
- Mat 05 Designing for Durability and Resilience

19. What consideration has been given to reusing materials in-situ, responsibly sourcing materials and re-using existing structures?

The possibility of reusing materials in-situ has been considered and this has resulted in the decision to retain and reuse a significant percentage of the existing structure as part of the proposed development. This will result in a major reduction in the embodied carbon associated with the new development.

The principal contractor will be required to produce a Sustainable Procurement Plan and source materials for the project in accordance with this plan.

Material specifications will require materials to be sourced from suppliers with third party responsible sourcing certification. This will include the following:

- Timber (including temporary site timber) will be FSC or PEFC certified.
- Concrete will be certified to BES6001.
- Reinforcing steel will be certified by the CARES Sustainable Reinforcement or Eco-Reinforcement Schemes.
- Plasterboard and framing will be certified to BES6001.
- Insulation will have ISO14001 certification for both the product manufacture and key supply chain process or BES6001 certification.

As the design progresses, other options to incorporate materials which are responsibly sourced will be investigated. There will be a target for products to have ISO14001 certification for the product manufacture as a minimum where this is available from a number of suppliers in the market.

Relevant BREEAM Credits targeted:

- Mat 01 Life Cycle Impacts
- Mat 03 Responsible Sourcing of Materials

10 Waste

Relevant Policy:

CS1: Sustainable Construction and Design

CS2: Waste Minimisation

Aim: To minimise the production of waste and maximise re-use and recycling.

20. Has an audit of the materials present on the site been conducted with an assessment of the extent to which materials could be re-used?

The principal/demolition contractor will be required to carry out a pre-demolition audit to determine if reuse of materials is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications.

Relevant BREEAM Credits targeted:

- Wst 01 Construction Waste Management

21. How will the development make the maximum use of construction, demolition waste and recycled materials?

The principal contractor will be required to produce a Resource Management Plan (RMP) covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction. This will include procedures for sorting, reusing and recycling construction waste into defined waste groups, either on-site or through a licensed external contractor.

The target for construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) will be [7.5 m3 ([6.5 tonnes) per 100m2 of gross internal floor area.

The following percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project will be diverted from landfill:

Type of waste	Diversion from landfill benchmark (%)	
	Volume	Tonnage
Non-Demolition	70%	80%
Demolition	80%	90%

Relevant BREEAM Credits targeted:

- Wst 01 Construction Waste Management

22. How will provision be made for the storage and recycling of waste for all users of the site?

A dedicated space will be provided for the segregation and storage of operational recyclable waste volumes generated by the development, its occupants and activities.

This space will be clearly labelled to assist with the segregation, storage and collection of recyclable waste streams and will be accessible both for the deposit and collection of waste.

Relevant BREEAM Credits targeted:

- Wst 03 Operational Waste

11 Land Use and Ecology

Relevant Policy:

CS1: Sustainable Construction and Design

DM1: Adaption to climate change

DM7: Green Network

DM18: Tree planting

Aim: To retain, protect and enhance wildlife habitats and natural features.

23. How have the wildlife habitats and natural features on and adjacent to the site been considered and how will they be retained, protected and enhanced?

A Suitably Qualified Ecologist has been appointed for the project and a preliminary ecological appraisal has been carried out. This confirms that the site is dominated by buildings and hardstanding and is of low ecological value.

The appraisal report identifies the existing wildlife habitats and natural features on and adjacent to the site and provides recommendations for protection where appropriate during construction.

The principal contractor will be required to construct ecological protection recommended by the ecologist, prior to any preliminary site construction or preparation works.

A number of general enhancements were recommended by the ecologist to provide a net gain in biodiversity in accordance with the National Planning Policy Framework and local planning policy. The detailed design of such enhancement measures will be advised by an ecologist once more detailed plans are in place. Some high level enhancements include:

- The provision of a range of habitats and planting structure
- The provision of bat and bird boxes

Relevant BREEAM Credits targeted:

- LE 02 Ecological Value of Site and Protection of Ecological Features
- LE 03 Minimising impact on existing site ecology
- LE 04 - Enhancing site ecology
- LE 05 - Long Term Impact on Biodiversity

24. What consideration has been given to not using previously undeveloped land?

The development is on a brownfield site. Previously undeveloped land will not be used.

Relevant BREEAM Credits targeted:

- LE 01 Site Selection
 - o Credit 1 Previously occupied land

25. What consideration has been given to the removal of contamination from the land?

As discussed in the response to item 3 in the Management section above, a Contamination Desk Study has been carried out. This concluded that the potential for significant widespread contamination is considered to be generally low.

A ground investigation will be carried out in relation to the structural foundation design and will include sampling and testing in relation to the potential presence of sources of contamination on the site. Depending on the findings of the intrusive investigation and the levels of contamination identified, on-site remediation measures including removal may be required. If this is the case, a remediation strategy will be produced and verification records will be kept.

Relevant BREEAM Credit (not currently targeted as only achievable in the event of significant contamination being present):

- LE 01 Site Selection
 - o Credit 2 Contaminated land

12 Pollution

Relevant Policy:

CS1: Sustainable Construction and Design

DM1: Adaption to Climate Change

DM4: Safeguarding Amenity

DM19: Air quality

Aim: To minimise damage to the environment through air, ground/surface water, land, noise or light pollution.

26. What measures have been incorporated to ensure that noise and light pollution plus pollution transported through surface water runoff will be minimised throughout the development?

A noise impact assessment will be carried out by a suitably qualified acoustic consultant. Attenuation measures will be installed on new plant where required to meet the relevant noise criteria.

Light pollution is discussed against item 27 below.

Petrol interceptors and emergency shut off valves are present within the existing drainage system on the site to minimise watercourse pollution. These will be retained downstream of the proposed drainage for the new development.

During construction the contractor will be required to protect the existing water discharged points on and surrounding the site to prevent pollution of water ways.

Relevant BREEAM Credits targeted:

- Pol 03 Credit 3 Minimising watercourse pollution
- Pol 04 Reduction of Night Time Light Pollution
- Pol 05 Noise Attenuation

27. What measures have been incorporated to ensure that light pollution will be minimised throughout the development?

The external lighting strategy will be designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals Guidance notes for the reduction of obtrusive light, 2011.

All external lighting (except for safety and security lighting) will be designed to enable it to be automatically switched off between 23:00 and 07:00.

Relevant BREEAM Credits targeted:

- Pol 04 Reduction of Night Time Light Pollution

28. What consideration has been given to reducing refrigerants and minimising nitrogen oxide emissions?

The design targets for the development are as follows:

- Systems using refrigerants will have Direct Effect Life Cycle CO₂ equivalent emissions (DELC CO_{2e}) of $\leq 1000 \text{ kgCO}_2\text{e/kW}$ cooling/heating capacity.

Plant installed to meet the building's delivered heating and hot water demand will be designed to have under normal operating conditions, a NO_x emission level (measured on a dry basis at 0% excess O₂) $\leq 70 \text{ mg/kWh}$

Relevant BREEAM Credits targeted:

- Pol 01 Impact of Refrigerants
- Pol 02 NO_x emissions

29. How has the development been sited to minimise the impact of flooding.

The site is located within a Flood Zone 1 as confirmed by the Environment Agency Flood Risk mapping. It therefore has a low annual probability of flooding from seas and rivers.

A site specific flood risk assessment (FRA) will be carried out as part of the BREEAM assessment taking both current and future sources of flooding into consideration.

Relevant BREEAM Credits targeted:

- Pol 03 Credit 1 Flood Resilience

30. How has the design considered the use of sustainable drainage systems (SUDS) and how will they be incorporated within the development?

Surface water will be disposed of in the following drainage hierarchy: -

- Surface and rainwater drainage to the existing buildings will remain unaltered
- Where ground conditions and required surfaces are suitable (eg paving to pathways and car parks) new hard surfaces proposed will comprise non-porous surfaces such as concrete pavers and tarmacadam with surface water drainage channels and yard gullies.
- Rain and surface water drainage from the new building and new parking areas will be attenuated (via below car park ground tanks) and then discharge into the existing public sewers at a controlled rate.

The development will utilise sustainable urban drainage design in accordance with the drainage hierarchy as follows:

1. **Store rainwater for later use** – discounted as unpractical owing to insufficient project funds to cover the high initial capital cost of installation, high on-going maintenance costs. Rainwater storage and reuse would be of limited use and zero cost benefit.
2. **Infiltration techniques** – Will be implemented where possible, however, the soil is London Clay (as per the ground investigation report undertaken by ESG reference 3894819/PTE dated 21 April 2010) and so there is limited scope for utilisation of infiltration techniques.
3. **Attenuation of rainwater in ponds or open water features** – discounted as a solution as it is impractical to implement due a lack of on-site space to accommodate this.
4. **Attenuate rainwater by storing in tanks for gradual release** – Adopted for 56% of the site/ 100% of the undeveloped / redeveloped site (8,514m² of roof) of which 8,250m² is currently hardstanding with no water attenuation. Hence, a reduction of existing unattenuated discharge direct to the existing surface water sewers of 54% of the affected site.
5. **Discharge rainwater direct into watercourse** – Discounted as not achievable.
6. **Discharge rainwater into surface water sewer** – Adopted for the existing retained buildings and their immediate hard standing (circa 44% of the total site – a reduction on existing discharge as detailed above).
7. **Discharge rainwater into a combined sewer** – This solution is not applicable to this development site.

Relevant BREEAM Credits targeted:

- Pol 03 Credit 2 Surface Water Run-off

13 Innovation

Aim: To recognise innovation in the field of sustainability.

31. What consideration has been given to innovative sustainability measures in terms of a procurement strategy, design feature, management process or technological development?

The BREEAM innovation credit for Responsible Construction Practices (Man 03) is targeted. This requires the principal contractor to achieve a minimum score of 40 with at least 7 scored in each category under the Considerate Constructors Scheme.

The BREEAM innovation credit for Aftercare (Man 05) is also being considered as a potential credit. This requires operational infrastructure and resources to be in place to co-ordinate various aftercare/monitoring activities at quarterly intervals for the first three years of building occupation to assist in optimising resource use and occupant satisfaction.

14 BREEAM Assessment

14.1 Background

The Building Research Environmental Assessment Method (BREEAM) is an environmental assessment methodology for buildings. Most commonly, it is used to assess the design, procurement and construction of new buildings or buildings undergoing major refurbishment.

The assessment scheme considers site and building level environmental issues in the following categories: Management, Health and Wellbeing, Energy, Transport, Water, Materials, Land Use and Ecology, Waste and Pollution.

14.2 Relevant Planning Policy

CS1: Sustainable Construction and Design states:

‘All new commercial developments are required to meet the most up to date BREEAM ‘Very Good’ as a minimum standard;’

‘On larger developments of more than 1,000 m² of floorspace, ensure that 50% of the provision meets the most up to date BREEAM ‘Excellent’ standards;’

Table 3.2 of Revised Sustainable Design and Construction (2011) confirms the following under ‘additional information’

‘for larger developments of non-residential developments ie 1,000sq.m and above floor space, proposals will ideally meet the standard set out above, or as a minimum, where the above split is not appropriate for the development, achieve a BREEAM score of 62.5%.’

14.3 Intended Approach

The applicant has appointed a licensed BREEAM Assessor and the development will be assessed using the BREEAM New Construction 2014 (fully fitted) scheme. The project has been registered with the BRE and the registration number is BREEAM-0063-8890.

As the occupied development (ie excluding the car park) is one building within one thermal envelope, a single energy model and single BREEAM assessment is proposed.

It is therefore not considered appropriate for at least 50% of the development to achieve minimum BREEAM ‘Excellent’ and the remainder to achieve minimum ‘Very Good’.

The intended approach is to achieve a minimum final BREEAM score for the development of 62.5% with a BREEAM rating of ‘Very Good’ in line with Table 3.2 of Revised Sustainable Design and Construction (2011).

14.4 Pre-assessment

A BREEAM pre-assessment for the scheme has been carried out with input from appropriate members of the project team. The proposed development will target BREEAM 'Very Good', with a score of 67.2% allowing a reasonable buffer above the 62.5% intended final target. All of the mandatory credits for BREEAM 'Very Good' are targeted.

A full pre-assessment estimator is provided in Appendix B.

15 Conclusion

This statement sets out the sustainability commitments and aspirations of the applicant for this development under a number of key sustainability headings. It summarises the proposals for the development as a response to the BREEAM Sustainable Checklist questions, which take into account local Reading and national policy requirements and targets.

The development will achieve a BREEAM New Construction 2014 rating of “Very Good,” with a current targeted score of 67.2% allowing a reasonable buffer above the intended minimum final score of 62.5%.

It is considered that the scheme achieves an appropriate balance between social, economic and environmental considerations and will therefore make a positive contribution in terms of the sustainable development of the wider area.

Appendix A

Baseline Policy Review

A1 Baseline Policy Review

This sections sets out the planning policies relevant to the site and proposals:

A1.1 National Planning Policy Framework (NPPF) (2012)

The NPPF sets out the overarching planning policies for England, with guidance on how these are expected to be applied. The underlying theme running throughout this policy guidance is a presumption in favour of sustainable development, which should be acknowledged throughout plan-making and decision-taking. The NPPF provides the framework for councils and local communities to develop local and neighbourhood plans, which reflect the needs and priorities of their communities.

The NPPF states that to help achieve economic growth, local planning authorities should plan proactively to meet the development needs of business, and support an economy fit for the 21st Century. Planning policies should recognise and seek to address potential barriers to investment, and plan positively for the location, promotion and expansion of knowledge driven, creative or high technology industries. The NPPF states that local authorities should support existing business sectors, taking account of whether they are expanding or contracting, and where possible, identify and plan for new emerging sectors likely to locate in the area.

A1.2 Reading BC Core Strategy (2008 With Alteration Adopted 27th January 2015)

The Core Strategy (2008) outlines a series of strategic policies for development in Reading. The Core Strategies policies relevant to this development have been listed below:

A1.2.1 CS1: Sustainable Construction and Design

- All new commercial developments are required to meet the most up to date BREEAM ‘Very Good’ as a minimum standard.
- On larger developments of more than 1,000 m² of floorspace, ensure that 50% of the provision meets the most up to date BREEAM ‘Excellent’ standards.
- All new developments maximise the use of energy efficiency and energy conservation measures in their design, layout and orientation to reduce overall energy demand.
- All developments reduce mains water use and demonstrate that water conservation measures are incorporated so that predicted per capita consumption does not exceed the appropriate levels set out in the BREEAM Standards.

- Developments incorporate sustainable urban drainage facilities and techniques.

A1.2.2 CS2: Waste Minimisation

- Development should demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approaches to waste management including the reuse and recycling of construction waste and the promotion of layouts and designs that provide adequate space to facilitate waste storage, reuse, recycling and composting.

A1.2.3 CS3: Social Inclusion and Diversity

- Major developments should demonstrate measures to enhance social inclusion in terms of access to housing, employment, services, community facilities, leisure, health, education, and other services and facilities.
- Planning processes must recognise the potential for disparities and deprivation, ensuring that new development does not result in, or increase the potential for, economic and/ or social disparity. The spatial distribution of deprivation must be taken into account, i.e. pockets of deprivation existing on a local level.
- Employment opportunities should be concentrated in areas of high accessibility wherever possible, to prevent problems of exclusion and poor accessibility, and facilitate convenient access, including the increased use of non-vehicular modes of transport. Provision for skills and other training will be important to ensure that all members of the community can gain access to jobs, including jobs in construction.

A1.2.4 CS4: Accessibility and Intensity of Development

- The scale and density of development within the Borough will be related to its level of accessibility by walking, cycling and public transport to a range of services and facilities.
- A good level of accessibility is considered to be that within 400m of a defined centre with a good range of facilities by pedestrian routes, and within 400m by pedestrian routes of a bus stop served by a service with a frequency of better than one bus every 20 minutes in each direction within daytime hours (7.00 a.m. to 7.00 p.m.).

A1.2.5 CS5: Inclusive Access

- All buildings should be located, sited and designed to provide suitable access to, into and within, its facilities, for all potential users, including disabled people, so that they can use them safely and easily.

A1.2.6 CS7: Design and public Realm

- All development must be of high design quality that maintains and enhances the character and appearance of the area of Reading in which it is located. The various components of development form, including: layout, landscape, density and mix, scale (height and massing) and architectural detail and materials. The development proposed must make a positive contribution to the following urban design objectives: Character, continuity and enclosure, Quality and public realm, permeability, legibility, adaptability, diversity.
- Applications for major and minor developments should be accompanied by a design and access statement that deal with all the above matters.

A1.2.7 CS9: Infrastructure, Services, Resources and Amenities

- Proposals for development will not be permitted unless the local planning authority is satisfied that infrastructure, services, resources, amenities or other assets lost or impacted upon as a result of the development or made necessary by the development will be provided or re-provided at the appropriate time, in order to ensure that the development is both sustainable and contributes to the proper planning of an area in accordance with relevant planning policies. Such contributions may be pooled, in order to allow necessary infrastructure to be secured in a fair and equitable way.
- The local planning authority will require planning obligations entered into by agreement or other means to secure the replacement and enhancement of additional physical and social infrastructure, services, resources, amenities or other assets.

A1.2.8 CS20: Implementation of the Reading Transport Strategy (2006-2011)

- Planning permission will not be granted unless the proposed development contributes appropriately to the provision of a balanced transport network as outlined in the Reading Transport Strategy, including the implementation of the core transport infrastructure projects and area action plans. Such projects and plans will include the provision of measures that make alternatives to the use of private cars (such as walking, cycling and the use of public transport) more attractive, and contribute to improved accessibility and transport safety in accordance with Policy CS4.

A1.2.9 CS22: Transport Assessments

- Planning permission will not be granted unless development proposals make appropriate provision for works and contributions to ensure an adequate level of accessibility and safety by all modes of transport from all parts of a development, particularly by public transport, walking and

cycling, in accordance with an agreed transport assessment submitted as part of the application.

A1.2.10 CS23: Sustainable Travel

- Planning permission will not be granted for major development proposals unless there is a commitment to implement measures to promote and improve sustainable transport facilities, such as through provision to encourage walking, cycling and the use of public transport; and through agreed travel plans, safe routes to schools, safe routes to parks and similar measures.

A1.2.11 CS24: Car/ Cycle parking

- Maximum car parking standards and cycle parking requirements will be applied in relation to the accessibility of locations within the Borough to sustainable transport facilities, particularly public transport [see Parking SPD for further guidance].

A1.3 Sites and Detailed Policies Document (2012)

The Sites and Detailed Policies Document (2012) sets out a range of borough-wide policies which help to guide development and planning applications. The second part of the document identifies sites of particular importance, including those that should be developed, those which should be protected and those where specific policies apply.

A1.3.1 DM1: Adaption to climate change

All developments will demonstrate how they have been designed to incorporate measures to adapt to climate change. The following measures shall be incorporated into development:

- New buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements;
- Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change for example by including measures such as solar shading, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, etc;
- Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets, designed with plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions; and
- All development shall minimise the impact of surface water runoff from the development in the design of the drainage system.

A1.3.2 DM2: Decentralised Energy

Any development of more than 20 dwellings and/ or non-residential development of over 1,000 sq m shall consider the inclusion of a CHP plant, or biomass-fuelled heating scheme, or other form of decentralised energy provision, within the site, unless it can be demonstrated that the scheme is not suitable or feasible for this form of energy provision.

Where there is existing decentralised energy provision, including a CHP plant or a district energy network present within the vicinity of an application site, further developments of over 10 dwellings or non-residential development of 1,000 sq m will be expected to link into the existing decentralised energy network or demonstrate why this is not feasible.

A1.3.3 DM4: Safeguarding Amenity

Development will not cause a significant detrimental impact to the living environment of existing or new residential properties, in terms of:

- Privacy and overlooking;
- Access to sunlight and daylight;
- Visual dominance and overbearing effects of a development;
- Noise and disturbance;
- Artificial lighting;
- Vibration;
- Dust and fumes;
- Smell; or
- Crime and safety.

A1.3.4 DM12: Access, traffic and highway related matters

In determining proposals involving a new or altered access onto the transport network, improvement works to the transport network, the creation of new transport infrastructure or the generation of additional trips on the transport network, consideration will be given to the effect on safety, congestion and the environment. Development will only be permitted where:

- Accesses and works to the highway comply with the adopted standards of the Transport Authority
- The development would not have a material detrimental impact on the functioning of the transport network;
- The proposals would not be detrimental to the safety of users of the transport network, including pedestrians and cyclists;
- The proposal would not generate regular movement of heavy goods vehicles (HGVs) on unsuitable roads, or on roads without easy access to the Classified Highway Network; and
- For non-residential uses, or new dwellings on classified roads, off-street servicing would be provided.

Proposals involving either the construction of a new site access, or a material increase in the use of an existing site access, directly onto the Classified Highway Network will not be acceptable if they would be likely to result in the encouragement of the use of the network for short local trips or compromise the safe movement and free flow of traffic on the network or the safe use of the road.

A1.3.5 DM7: Green Network

New development shall demonstrate how the location and type of open space, landscaping and water features provided within a scheme have been arranged such that they maintain or link into the existing Green Network and contribute to its consolidation. Such features should be designed to maximise the opportunities for enhancing this network. All new development should maximise opportunities to create new assets and links into areas where opportunities are as yet unidentified on the Proposals Map.

A1.3.6 DM18: Tree planting

New development shall make provision for tree planting within the application site, or off-site in appropriate situations, to improve the level of tree coverage within the Borough, to maintain and enhance the character and appearance of the area in which a site is located, to provide for biodiversity and to contribute to measures to reduce carbon and adapt to climate change. (See Tree Strategy for Reading, 2010).

A1.3.7 DM19: Air quality

Development should have regard to the need to improve air quality and reduce the effects of poor air quality.

- Development that would detrimentally affect air quality will not be permitted unless the effect is to be mitigated. The following criteria should be taken into account: whether the proposal, including when combined with the cumulative effect of other developments already permitted, would significantly reduce air quality; whether the development is within, or accessed via, an Air Quality Management Area; and whether it can be demonstrated that a local reduction in air quality would be offset by an overall improvement in air quality, for instance through reduction in the need to travel.
- Where a development would introduce sensitive uses (such as residential, schools and nurseries, hospitals, care facilities) into, or intensify such uses within, an Air Quality Management Area, detrimental effects on that use will be mitigated. Mitigation measures should be detailed in any planning application.
- Where required, planning obligations will be used to secure contributions to measures to tackle poor air quality or for air quality monitoring.

A1.4 Revised Sustainable Design and Construction SPD (2011)

The SPD aims to promote high standards of Sustainable Design and Construction, providing detail on how to comply with development plan policies set out in the Core Strategy (2008). The table below sets out the submission requirements at each stage of the planning process.

Table 3.1: Summary of submission requirements at each stage of application process

Pre-application stage
• Pre-assessment estimator incorporating a 3% buffer⁴ or for minor development, provision of other appropriate information to provide confidence to the LPA* that policy CS1 requirements can be achieved; • Draft Sustainability statement⁵ for all major development; • Draft Energy Statement for all major development.
Submission with a formal planning application
• A Pre-assessment estimator incorporating a 3% buffer or for minor development, provision of other appropriate information to provide confidence to the LPA that policy CS1 requirements can be achieved; • Sustainability Statement for all major development; • Energy Statement⁶ for all major development.
Post-approval stage
• Condition to ensure sustainability requirements as set out in policy CS1 are met. Typically this would be through a condition requiring an Interim Code/ BREEAM Certificate as appropriate to be submitted prior to commencement of development and a Final Code/ BREEAM Certificate, again as appropriate, to be submitted prior to occupation of the

*More information about a pre-assessment estimator and alternative means of providing the LPA with confidence that these requirements can be met is provided at paragraph 3.5.

⁴ A buffer is an over allowance of credits or contingency. This is designed in at the pre- assessment stage to ensure that if some aspects of the design cannot be achieved and credits are dropped once progression is made to later stages of the sustainability assessment, the level of the Code/ BREEAM thought to be achievable will and can actually be achieved.

⁵ Sustainability Statements typically require the developer to take consideration of all aspects of development form which can contribute to securing high standards of sustainable development, http://www.sapdesigns.co.uk/sustainability_statement.html. In Reading the requirements of the Sustainability Statements should follow the sustainability checklists at Appendix 5. These checklists have their requirements based on the Code for Sustainable Homes/ BREEAM standards but are not a complete repetition of these requirements.

⁶ The Energy Statement demonstrates how the energy related aspects of the proposed development actually meets the requirements of policy CS1 and the CfSH/ BREEAM standards.

Reading Borough Council Sustainability Standards. *Source* – Revised Design and Construction SPD (2011)

The table below sets out the design standards according to development size:

Table 3.2: Required level of relevant sustainability standard
CfSH stands for Code for Sustainable Homes

	Size of development	Required Level of which standard
New build residential development (including flats)	Minor	CfSH Level 3
	Larger developments of more than 10 dwellings	Minimum 50% CfSH Level 4 and remainder with CfSH Level 3
Creation of new residential units through conversion and/ or major refurbishment of residential buildings	Minor	BREEAM (EcoHomes) level 'Very Good'.
	Larger developments of more than 1,000sqm non-residential floorspace	Minimum 50% BREEAM (EcoHomes) level 'Excellent' and remainder BREEAM level 'Very Good'.
Non-residential development	Minor	BREEAM level 'Very Good'.
	Larger developments of more than 1,000sqm non-residential floorspace	Minimum 50% BREEAM level 'Excellent' and remainder BREEAM level 'Very Good'.
Non-residential refurbishment	Minor	BREEAM level 'Very Good'.
	Larger developments of more than 1,000sqm non-residential floorspace.	Minimum 50% BREEAM level 'Excellent' and remainder BREEAM level 'Very Good'.

Additional information:

- For larger developments of non-residential developments i.e. 1,000sq.m and above floor space, proposals will ideally meet the standard set out above, or as a minimum, where the above split is not appropriate for the development, achieve a BREEAM score of 62.5%.
- Where it can be demonstrated that flats cannot easily be split into achieving a minimum of 50% at Code Level 4 and the remainder at Code Level 3, an overall score of 62.5% will be considered appropriate subject to the mandatory energy requirements also achieving a minimum of the mid-way point between Code 3 and Code 4.

Reading Borough Council Sustainability Standards. *Source* – Revised Design and Construction SPD (2011)

A1.5 Revised Parking Standards and Design SPD

The revised parking standards and design SPD (2011) uses a zonal system to enforce parking standards – the figures given represent the maximum amount available for parking. Exceeding these figures will not be permitted unless exceptional circumstances can be demonstrated. Reading is a constrained and dense urban area. The P&G site is located within Zone 3 on the Council's transport map. For B1 (a) office in a Zone 3 location, a maximum car parking standard of **1 space per 50m²** of development is given.

	Maximum Parking Standards			
	Zone 1	Zone 2	Zone 3	Zone 4
Commercial 1 space per m²				
B1(a) Office	250m ²	100m ²	50m ²	*
B1(b) Research & High Tech	250m ²	100m ²	50m ²	*
B1(c) Light Industrial	250m ²	125m ²	100m ²	*
B2 – B7 General & Specific Industrial	250m ²	125m ²	100m ²	*
B8 Storage & Distribution	250m ²	200m ²	150m ²	*

Figure 1: Reading Borough Council Maximum Parking Standards for Commercial developments. Source – Revised Parking Standards and Design SPD (2011), p. 13

A1.5.1 Cycling:

The provision of cycle parking must be considered essential for most developments. Cycle parking must remain independent from vehicle parking figures, and should reflect a desire for more cycle parking to support the reduction in vehicular parking. Cycle parking is based upon the land use, zonal system and floor space of a development. Cycle standards should be applied as minimum. An appropriate mix of long and short stay should be determined on a case by case basis. Provision of short term cycling is easier to implement than long term, therefore the LPA will ensure an appropriate mix of both is included. Cycle parking and storage facilities should also be included.

Minimum cycle parking standards	
	Zone 1 - 4
Commercial 1 per m²	
B1(a) Office	200m ²
B1(b) Research & High Tech	250m ²
B1(c) Light Industrial	250m ²
B2 – B7 General & Specific Industrial	350m ²
B8 Storage & Distribution	450m ²

Figure 2: Reading Borough Council minimum cycle standards for commercial developments. *Source* - Revised Parking Standards and Design SPD (2011), p. 23

A1.5.2 Motorcycle:

Provision should be made for motorcycle and mopeds at all non-residential developments. It is recommended that each motorcycle bay should be 1500mm wide x 2800mm deep, and that an anchor point is included to minimise the risk of theft. For major developments (development of 10 units or more, 1000m²), at least 2% of the max total car parking identified for each zone. For minor developments, motorcycle parking will be required, but determined on a case-by-case basis.

A1.5.3 Disabled parking:

The provision of parking for disabled motorists is a key element of all developments that are open to the public. The suggested levels of disabled parking for all zones are as follows:

- All developments up to 200 spaces: 3 disabled spaces, or 5% of total capacity (whichever is greater)
- Commercial uses over 200 spaces: 6 disabled spaces plus 2% of total capacity

The parking guidance states that these standards will be reviewed on an annual basis.

Appendix B

BREEAM Pre-assessment Estimator

General information

BRE Assessment reference no.	BREEAM-0063-8890
Client name	Procter and Gamble
Building end user/occupier	Procter and Gamble
Assessor name	Daniel Roe
Assessor organisation	Arup

Building details

Building name	P&G Reading Innovation Centre
Country	England
Building type (main description)	Other
Building type (sub-group)	Other - Research and development (cat 2 or 3 labs - Non Higher Education)
Building floor area (GIA) m ²	9887
Building floor area (NIFA) m ²	8500
BREEAM scheme	New Construction
BREEAM version	2014 (SD5076)
BREEAM UK 2014 technical manual issue number	SD5076 Issue 4.0
Project type	New Construction (Fully fitted)
Assessment stage	Pre-Assessment
Location type	Medium urban (>25,000 population)
If applicable, does this industrial building have a heated or cooled operational area?	Option not applicable to building type
Does water heating contribute less than 10% of the buildings total energy consumption?	No
Commercial/industrial refrigeration and storage systems	Yes
Building user transportation systems (lifts and/or escalators)	Yes
Laboratory function/area and size category	Laboratory present: ≥10% - <25% of building's Gross Internal Floor Area
Laboratory containment level	Cat Level 2
Fume cupboard(s) and/or other containment devices	Yes
Unregulated water uses present? (e.g. vehicle wash system, irrigation)	No
If applicable, will this healthcare building house inpatients?	Option not applicable to building type
If applicable, does this industrial building have an office area?	Option not applicable to building type
If applicable, does this building contain areas requiring SAP assessment?	Option not applicable to building type
If SAP used, what proportion of the building's total floor area (GIA) does it apply to?	Option not applicable to building type

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BREEAM UK New Construction 2014 Pre-Assessment Estimator: Assessment Issue Scoring

Building name	P&G Reading Innovation Centre
Building score (%)	67.20%
Building rating	Very Good
Minimum standards level achieved	Excellent level

MANAGEMENT

Man 01 Project brief and design

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

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will stakeholder consultation (project delivery) take place?	Yes	1	1
Will stakeholder consultation (third party) take place?	Yes	1	1
Will a sustainability champion (design) be assigned?	Yes	1	1
Will a sustainability champion (monitoring progress) be assigned?	Yes	1	1
Total BREEAM credits achieved	4		
Total contribution to overall building score	2.29%		
Total BREEAM innovation credits achieved	0		
Minimum standard(s) level	N/A		

Comments/notes:

Man 02 Life cycle cost and service life planning

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

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an elemental life cycle cost (LCC) analyses be carried out?	No	2	0
Will a component level LCC plan be developed?	No	1	0
Will the predicted capital cost be reported?	Yes	1	1
Expected capital cost of the project (if available)		£/m ²	
Total BREEAM credits achieved	1		
Total contribution to overall building score	0.57%		
Total BREEAM innovation credits achieved	N/A		
Minimum standard(s) level	N/A		

Comments/notes:

Man 03 Responsible construction practices

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

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Is all site timber used in the project 'legally harvested and traded timber'?	Yes		
Will/does the principal contractor operate a compliant Environmental Management System?	Yes	1	1
Will a construction stage sustainability champion be assigned?	Yes	1	1
Will a considerate construction scheme be used by the principal contractor? (One credit where 'compliance' has been achieved. Two credits where 'compliance' is significantly exceeded.)	2	2	2
Will construction site impacts be metered/monitored?	Yes		
Will site utility consumption be metered/monitored?	Yes	1	1
Will transport of construction materials and waste be metered/monitored?	Yes	1	1
Will exemplary level criteria be met?	Yes	1	1

Key Performance Indicators: Construction site energy use

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

Key Performance Indicators: Construction site greenhouse gas emissions

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

Key Performance Indicators: Construction site use of freshwater resources

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

Total BREEAM credits achieved	6
Total contribution to overall building score	3.43%
Total BREEAM innovation credits achieved	1
Minimum standard(s) level	Outstanding level

Comments/notes:

Man 04 Commissioning and handover

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

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will commissioning schedule and responsibilities be developed & accounted for?	Yes	1	1
Will a commissioning manager be appointed?	Yes	1	1
Will the building fabric be commissioned?	Yes	1	1
Will a building user guide be developed prior to handover?	Yes	1	1
Will a training schedule be prepared for building occupiers/managers?	Yes	1	1

Total BREEAM credits achieved	4
Total contribution to overall building score	2.29%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Man 05 Aftercare

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

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will aftercare support be provided to building occupiers?	Yes	1	1
Will seasonal commissioning occur over 12 months once substantially occupied?	Yes	1	1
Will a post occupancy evaluation be carried out 1 year after occupation?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	3
Total contribution to overall building score	1.71%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

HEALTH & WELLBEING

Hea 01 Visual Comfort

No. of BREEAM credits available	4	Available contribution to overall score	3.16%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will the design provide adequate glare control for building users?	Yes	1	1
How many credits will be targeted for the daylighting criteria?	0	1	0
Will the design provide adequate view out for building users?	No	1	0
Will internal/external lighting levels, zoning and controls be specified in accordance with the relevant CIBSE Guides/British Standards?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	1.58%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Hea 02 Indoor Air Quality

No. of BREEAM credits available	5	Available contribution to overall score	3.95%
No. of BREEAM innovation credits available	2	Minimum standards applicable	No

Assessment Criteria

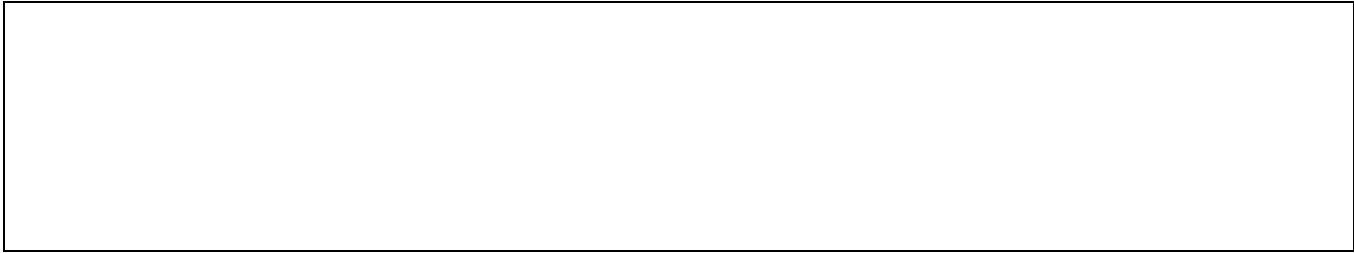
	Compliant?	Credits available	Credits achieved
Will an air quality plan be produced and building designed to minimise air pollution?	Yes	1	1
Will building be designed to minimise the concentration and recirculation of pollutants in the building?	Yes	1	1
Will the relevant products be specified to meet the VOC testing and emission levels required?	Yes	1	1
Will formaldehyde and total VOC levels be measured post construction?	Yes	1	1
Will the building be designed to, or have the potential to provide, natural ventilation?	No	1	0
Will exemplary level VOCs (products) criteria be met?	0	2	0

Key Performance Indicators: Indoor air quality

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

Total BREEAM credits achieved	4
Total contribution to overall building score	3.16%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:



Hea 03 Safe containment in laboratories

No. of BREEAM credits available	2	Available contribution to overall score	1.58%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an objective risk assessment of proposed laboratory facilities' design be completed?	Yes		
Will the manufacture & installation of fume cupboards and containment devices meet best practice standards?	Yes	1	1
Will containment level 2 & 3 labs meet best practice safety & performance criteria?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.58%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 04 Thermal comfort

No. of BREEAM credits available	3	Available contribution to overall score	2.37%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will thermal modelling of the design be carried out?	Yes	1	1
Will the building design be adapted for a projected climate change scenario?	Yes	1	1
Will the modelling inform the development of a thermal zoning and control strategy?	Yes	1	1

Key Performance Indicators: Thermal comfort

Predicted Mean Vote (PMV)	INA
Predicted Percentage Dissatisfied (PPD)	INA

Total BREEAM credits achieved	3
Total contribution to overall building score	2.37%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 05 Acoustic Performance

No. of BREEAM credits available	3	Available contribution to overall score	2.37%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

Assessment Criteria	Credits	Credits available	Credits achieved
Will the building meet the appropriate acoustic performance standards and testing requirements for: a. Sound insulation b. Indoor ambient noise level c. Reverberation times?	1	3	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.79%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 06 Safety and Security

No. of BREEAM credits available	2	Available contribution to overall score	1.58%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Where external site areas are present, will safe access be designed for pedestrians and cyclists?	No	1	0
Will a suitably qualified security consultant be appointed and security considerations accounted for?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.79%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The safe access access will be targeted if the requirements are found to be feasible based on the site requirements. It remains on the potential list.

ENERGY

Ene 01 Reduction of energy use and carbon emissions

No. of BREEAM credits available	12	Available contribution to overall score	6.43%
No. of BREEAM innovation credits available	5	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits achieved for this issue?

Ene 01 Calculator

Country of the UK where the building is located		Confirm building regulation and version to be used:	
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New Construction (Fully fitted)

Building floor area m2

Notional building heating and cooling energy demand		MJ/m2yr
Actual building heating and cooling energy demand		MJ/m2yr
Notional building primary energy consumption		kWh/m2yr
Actual building primary energy consumption		kWh/m2yr
Target emission rate (TER)		kgCO2/m2yr
Building emission rate (BER)		kgCO2/m2yr
Building emission rate improvement over TER		
Heating & cooling demand energy performance ratio (EPR _{ED})		
Primary consumption energy performance ratio (EPR _{PC})		
CO ₂ Energy performance ratio (EPR _{CO2})		
Overall building energy performance ratio (EPR _{NC})		

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

Total BREEAM credits achieved	6
Total contribution to overall building score	3.21%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Excellent level

Comments/notes:

Estimate based on initial energy modelling. Refer to Energy Strategy for further details.

Ene 02 Energy monitoring

No. of BREEAM credits available	2	Available contribution to overall score	1.07%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will a BMS or sub-meters be specified to monitor energy use from major building services systems?	Yes	1	1
Will a BMS or sub-meters be specified to monitor energy use by tenant/building function areas?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.07%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Ene 03 External lighting

No. of BREEAM credits available	1	Available contribution to overall score	0.54%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will external light fittings and controls be specified in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.54%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 04 Low carbon design

No. of BREEAM credits available	3	Available contribution to overall score	1.61%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will passive design measures be used in line with an analysis be carried out during concept design stage (RIBA stage 2 or equivalent)?	Yes	1	1
Will free cooling measures be implemented in the whole building in line with the passive design analysis?	No	1	0
Will a LZC technology be specified in line with a feasibility study carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent)?	No	1	0

KPI - Low and/or zero carbon energy generation

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

Total BREEAM credits achieved	1
Total contribution to overall building score	0.54%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 05 Energy efficient cold storage

No. of BREEAM credits available	2	Available contribution to overall score	1.07%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will the refrigeration system be designed, installed & commissioned in accordance with BREEAM criteria?	No	1	0
Will the refrigeration system demonstrate a saving in indirect greenhouse gas emissions?	No	1	0

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

Comments/notes:

Both credits will be targeted if the requirements are found to be feasible based on the building requirements. It remains on the potential list.

Ene 06 Energy efficient transportation systems

No. of BREEAM credits available	3	Available contribution to overall score	1.61%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will a transportation system analysis be carried out to determine and specify the optimum number, size and type of lifts that is most energy efficient?	Yes	1	1
Will the relevant energy-efficient features criteria be met?	Yes	2	2

Total BREEAM credits achieved	3
Total contribution to overall building score	1.61%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 07 Energy efficient laboratory systems

No. of BREEAM credits available	3	Available contribution to overall score	1.61%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

	Compliant?	Credits available	Credits achieved
Pre-requisite: Criterion 1 of Hea 03 - risk assessment of laboratory facilities	Yes		
Have the occupants' laboratory requirements & performance criteria been confirmed during the preparation of the initial project brief to minimise energy demand?	Yes	1	1

Best Practice Energy Practices in Laboratories (table 27)	Yes	2	1
Will the laboratory meet criteria item b) Fan power?	Yes		
Will the laboratory criteria item c) Fume cupboard volume flow rates?			
Will the lab meet item d) Grouping / isolation of high filtration/ventilation activities?			
Will the laboratory meet criteria item e) Energy recovery - heat?			
Will the laboratory meet criteria item f) Energy recovery - cooling?			
Will the laboratory meet criteria item g) Grouping of cooling loads?			
Will the laboratory meet criteria item h) Free cooling?			
Will the laboratory meet criteria item i) Load responsiveness?			
Will the laboratory meet criteria item j) Cleanrooms?			
Will the laboratory meet criteria item k) Diversity?			
Will the laboratory meet criteria item l) Room air-change rates?			

Total BREEAM credits achieved	2
Total contribution to overall building score	1.07%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

The lab architect has confirmed that two out of a possible three credits should be targeted for the project based on the criteria above.

Ene 08 Energy efficient equipment

No. of BREEAM credits available	2	Available contribution to overall score	1.07%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

Which of the following will be present and likely to be a/the major contributor to 'unregulated' energy use?	Present	Major impact
Ref A Small power and plug in equipment?		
Ref B Swimming pool?		
Ref C Communal laundry?		
Ref D Data centre?		
Ref E IT-intensive operation areas?		
Ref F Residential areas?		
Ref G Healthcare?		
Ref H Kitchen and catering facilities?		

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?		2	0

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

Comments/notes:

Ene 09 Drying space

Assessment issue not applicable

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

Assessment criteria

	Compliant?	Credits available	Credits achieved
Will internal/external drying space and fixings be provided?			
Total BREEAM credits achieved	N/A		
Total contribution to overall building score	N/A		
Total BREEAM innovation credits achieved	N/A		
Minimum standard(s) level	N/A		

Comments/notes:

TRANSPORT

Tra 01 Public Transport Accessibility

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

Building type category (for purpose of Tra01 issue assessment)	Other Building Type 1
--	-----------------------

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI):	5.64	3	2
Will the building have a dedicated bus service?			N/A

AI	Indicative Accessibility Index for pre-assessment
0	Poor or no public transport provision
1	A single BREEAM compliant public transport node available
2	Some BREEAM compliant public transport nodes/services available
4	A selection of BREEAM compliant public transport nodes/services available
8	Good provision of public transport i.e. small urban centre / suburban area
10	Very Good provision of public transport i.e. small/medium urban centre
12	Excellent provision of public transport, i.e. medium urban centre
18	Excellent provision of public transport, i.e. large urban/metropolitan city centre

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

Comments/notes:

Results based on Initial Transport Review.

Tra 02 Proximity to Amenities

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

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the building be in close proximity of and accessible to applicable amenities?	Yes	1	1

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

Comments/notes:

Tra 03 Cyclist facilities

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

Building type category (for purpose of Tra03 issue assessment)	Business - (office/Industrial)
How many compliant cycle storage spaces will be provided?	15
What cyclist facilities will be provided?	Showers and changing facilities

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cycle storage spaces	Yes	2	2
Cyclist facilities	Yes		
Total BREEAM credits achieved	2		
Total contribution to overall building score	2.00%		
Total BREEAM innovation credits achieved	N/A		
Minimum standard(s) level	N/A		

Comments/notes:

Number of cycle spaces is an estimate and will be confirmed during the design stages.

Tra 04 Maximum Car Parking Capacity

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

Building type category (for purpose of Tra04 issue)	Business - (office/Industrial)
Building's indicative Accessibility Index (sourced from issue Tra01)	5.64

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?	No	2	
Total BREEAM credits achieved	0		
Total contribution to overall building score	0.00%		
Total BREEAM innovation credits achieved	N/A		
Minimum standard(s) level	N/A		

Comments/notes:

Tra 05 Travel Plan

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

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will a transport plan based on site specific travel survey/assessment be developed?	Yes	1	1

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

Comments/notes:

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	4.38%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the BREEAM credits to be achieved for this issue?	Define a target % improvement over baseline sanitary fittings
What is the target for % reduction in potable water consumption for sanitary use in the building?	25% - two credits

Please select the calculation procedure used	
--	--

Standard approach data

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

Key Performance Indicator - use of freshwater resource

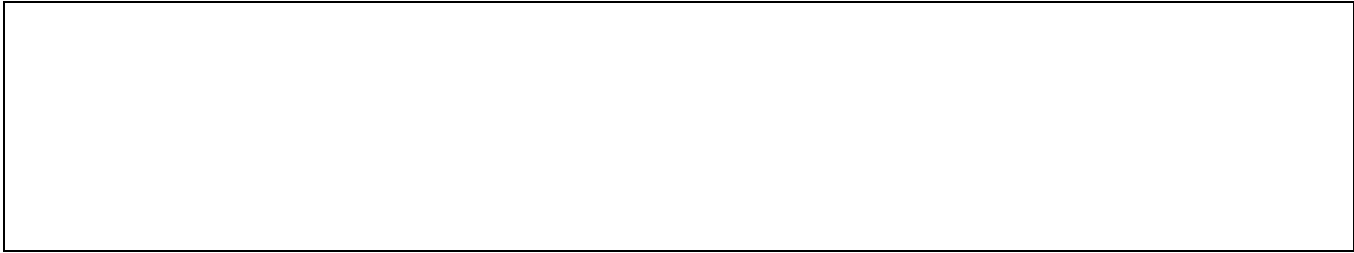
Total net Water Consumption		m3/person/yr
Default building occupancy		

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:



Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.88%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will there be a water meter on the mains water supply to the building(s)?	Yes	1	1
Will metering/monitoring equipment be specified on the water supply to any relevant plant/building areas?	Yes		
Will all specified water meters have a pulsed output?	Yes		
If the site/building has an existing BMS connection, will all pulsed meters be connected to the BMS?	N/A		

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

Comments/notes:

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will a mains water leak detection system be installed on the building's mains water supply?	Yes	1	1
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wat 04 Water Efficient Equipment

Assessment issue not applicable

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

Assessment Criteria

Compliant?

Credits available

Credits achieved

Has a meaningful reduction in unregulated water demand been achieved?			
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Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

MATERIALS

Mat 01 Life Cycle Impacts

No. of BREEAM credits available	6	Available contribution to overall score	5.79%
No. of BREEAM innovation credits available	3	Minimum standards applicable	No

How do you wish to assess the number of BREEAM credits to be achieved for this issue?

Define the number of Mat 01 credits achieved

Assessment Criteria

Predicted total Mat01 credits achieved	2
Predicted total Mat01 points achieved	
Number of building elements assessed	
Green Guide exemplary level compliant?	
Has IMPACT compliant software been used?	

Key Performance Indicator - embodied green house gas emissions by element

Total area of
element m²Total impact
kgCO₂ eq.Area of element
impact data
relevant to m²

External walls			
Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

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

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

Total BREEAM credits achieved	2
Total contribution to overall building score	1.93%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Mat 02 Hard Landscaping and Boundary Protection

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will ≥80% of all external hard landscaping and boundary protection achieve a Green Guide A or A+ rating?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 03 Responsible Sourcing

No. of BREEAM credits available	4	Available contribution to overall score	3.86%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria

	Compliant	Credits available	Credits achieved
All timber and timber based products are 'Legally harvested and trader timber'	Yes		
Is there a documented sustainable procurement plan?	Yes	1	1
Percentage of available responsible sourcing of materials points achieved		3	0

Please confirm the route used to assess Mat03	Please select
---	---------------

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Mat 04 Insulation

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

		Credits available	Credits achieved	
What is the building's targeted insulating index?	2.50	1	1	Note: An insulating index of 2.50 is required for a building to be considered as a low energy building.

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 05 Designing for durability and resilience

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will suitable durability/protection measures be specified and installed to vulnerable areas of the building?	Yes	1	1
Will suitable durability/protection measures be specified and installed to exposed parts of the building?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 06 Material efficiency

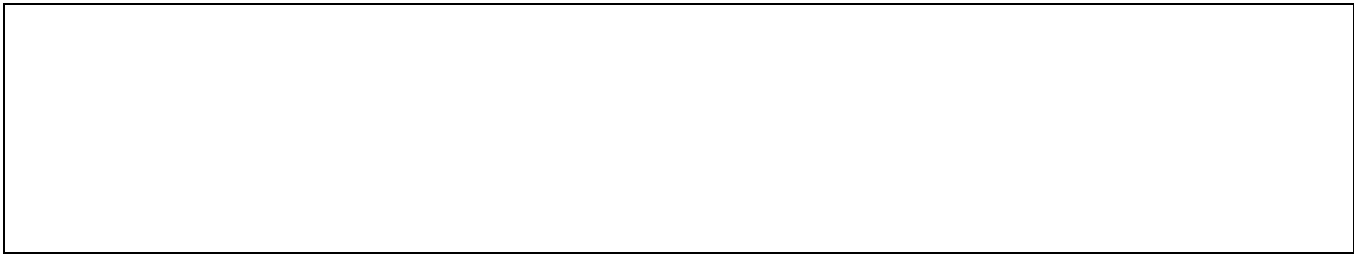
No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will material efficiency measures be identified & implemented during all RIBA stages?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:



WASTE

Wst 01 Construction Waste Management

No. of BREEAM credits available	4	Available contribution to overall score	4.25%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes
How do you wish to assess the number of BREEAM credits to be achieved for this issue?		Please select	

Assessment Criteria

Compliant?

Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

Key Performance Indicators - Construction Waste

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

Note: At the pre-assessment stage this
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Total BREEAM credits achieved	3
Total contribution to overall building score	3.19%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wst 02 Recycled Aggregates

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

Assessment Criteria

Total

What is the target total % of high-grade aggregate that will be recycled/secondary aggregate?	
---	--

% of high-grade aggregate that is recycled/secondary aggregate - by application

Structural frame	
Bitumen/hydraulically bound base, binder and surface courses	
Building foundations	
Concrete road surfaces	
Pipe bedding	
Granular fill and capping	

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

Comments/notes:

Wst 03 Operational Waste

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

Assessment Criteria

Compliant?

Credits available

Credits achieved

Will operational recyclable waste volumes be segregated and stored?	Yes	1	1
Will static waste compactor(s) or baler(s) be specified where appropriate?	N/A		
Will vessel(s) for composting suitable organic waste where appropriate?	N/A		

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

Comments/notes:

Wst 04 Speculative Floor and Ceiling Finishes

Assessment issue not applicable

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

Assessment Criteria

Compliant?

Credits available

Credits achieved

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

Comments/notes:

Wst 05 Adaption to climate change

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

Assessment Criteria

Compliant?

Credits available

Credits achieved

Will a climate change adaptation strategy appraisal for structural and fabric resilience be conducted by the end of Concept Design (RIBA Stage 2 or equivalent)?	Yes	1	1
Will exemplary level criteria – Responding to adaptation to climate change be met?	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	1.06%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Wst 06 Functional adaptability

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

Assessment Criteria

Compliant?

Credits available

Credits achieved

Will a building specific functional adaptation strategy appraisal be conducted by Concept Design (RIBA Stage 2 or equivalent) and will functional adaptation measures be implemented?	Yes	1	1
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Total BREEAM credits achieved	1
Total contribution to overall building score	1.06%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LAND USE & ECOLOGY**LE 01 Site Selection**

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

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will at least 75% of the proposed development's footprint be located on previously occupied land?	Yes	1	1
Is the site deemed to be significantly contaminated?	No	1	0

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

Comments/notes:

LE 02 Ecological Value of Site and Protection of Ecological Features

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No
Ecological value of the land defined using		Please select	

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Can the land within the construction zone be defined as 'land of low ecological value'?	Yes	1	1
Will all features of ecological value surrounding the construction zone/site boundary be protected?	Yes	1	1

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

Comments/notes:

LE 03 Mitigating Ecological Impact

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

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

What is the likely change in ecological value as a result of the sites development?	≥0 species (i.e. no negative change)	Plant species richness
Total BREEAM credits achieved	2	
Total contribution to overall building score	2.00%	
Total BREEAM innovation credits achieved	N/A	
Minimum standard(s) level	Outstanding level	

Comments/notes:

LE 04 Enhancing Site Ecology

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

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a suitably qualified ecologist be appointed to report on enhancing and protecting site ecology?	Yes	2	1
Will the suitably qualified ecologist's general recommendations be implemented?	Yes		
What is the targeted/intended improvement in ecological value as a result of enhancement actions?	<6 species (small positive change)		Plant species rich

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

Comments/notes:

LE 05 Long Term Impact on Biodiversity

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

Assessment Criteria

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a Suitably Qualified Ecologist be appointed to monitor/minimise impacts of site activities on biodiversity?	Yes	2	2
Will a landscape and habitat management plan be produced covering at least the first five years after project completion in accordance with British Standards?	Yes		
Number of applicable measures to improve biodiversity confirmed by SQE:	4		
Number of applicable measures implemented:	4		

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

Comments/notes:

POLLUTION

Pol 01 Impact of Refrigerants

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

		Credits available	Credits achieved
Refrigerant containing systems installed in the assessed building?	Yes	2	1
Do all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 & 3) & where refrigeration systems containing ammonia are installed, the IoR Ammonia Refrigeration Systems Code of Practice?	Yes		
Global Warming Potential of the specified refrigerant(s) 10 or less?	No		
What is the target range Direct Effect Life Cycle CO ₂ eq. emissions for the system?	1000	kgCO ₂ eq/kW coolth capacity	
Cooling/Heating capacity of the system		kW	
Will a refrigerant leak detection and containment system be specified/installed?		1	0
Total BREEAM credits achieved	1		
Total contribution to overall building score	0.77%		
Total BREEAM innovation credits achieved	N/A		
Minimum standard(s) level	N/A		

Comments/notes:

Pol 02 NO_x Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

NO _x emission level - space heating	70.00	mg/kWh
NO _x emission level - cooling	70.00	mg/kWh
NO _x emission level - water heating	70.00	mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?		
Energy consumption: heating and hot water		kWh/m ² yr
Total BREEAM credits achieved	2	
Total contribution to overall building score	1.54%	
Total BREEAM innovation credits achieved	N/A	
Minimum standard(s) level	N/A	

Comments/notes:

Pol 03 Surface Water Run off

No. of BREEAM credits available	5	Available contribution to overall score	3.85%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
What is the actual/likely annual probability of flooding for the assessed site?	Low	2	2
Will a Flood Risk Assessment be undertaken?	Yes	1	1
Will the site meet the BREEAM criteria for peak rate surface water run off?	Yes	1	0
Will the site meet the criteria for surface water run off volume, attenuation and/or limiting discharge?		1	0
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?		1	0

Total BREEAM credits achieved	3
Total contribution to overall building score	2.31%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 04 Reduction of Night Time Light Pollution

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Will the external lighting specification be designed to reduce light pollution?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 05 Noise Attenuation

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

	Compliant	Credits available	Credits achieved
Will there be noise-sensitive areas/buildings within 800m radius of the development?	Yes	1	1
Will a noise impact assessment be carried out and, if applicable, noise attenuation measures specified?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

INNOVATION

Inn 01 Innovation

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

Assessment Criteria

	Compliant?	Credits available	Credits achieved
Man 03 Responsible construction practices	Yes	1	1
Man 05 Aftercare	No	1	0
Hea 01 Visual Comfort	No	1	0
Hea 02 Indoor Air Quality	No	2	0
Ene 01 Reduction of energy use and carbon emissions	No	5	0
Wat 01 Water Consumption	No	1	0
Mat01 Life Cycle Impacts	No	3	0
Mat03 Responsible Sourcing of Materials	No	1	0
Wst01 Construction Waste Management	No	1	0
Wst02 Recycled Aggregates	No	1	0
Wst 05 Adaption to climate change	No	1	0

Number of 'approved' innovation credits achieved?	
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Total BREEAM innovation credits achieved	1
Total contribution to overall building score	1.00%
Minimum standard(s) level	N/A

Comments/notes: