GREENING GOLDSWORTH ROAD

BREEAM PRE-ASSESSMENT

For Goldsworth Road Development LLP

June 2020

By Greengage

QA

Goldsworth Road, Woking - BREEAM Pre-Assessment

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1.0 INTRODUCTION

1.1 Greengage Environmental Ltd were commissioned by Goldsworth Road Development LLP (the 'applicant') to undertake this BREEAM Pre-Assessment for the development of several commercial units and a homeless shelter on Goldsworth Road and Church Street West in Woking, Surrey, which form part of the wider proposals for a mixed-used development.

1.2 The proposed development comprises the demolition of the existing buildings and erection of a phased, mixed-use development comprising residential (Class C3), ground floor retail/commercial uses (Class A1-A4, B1, D1-D2), homeless shelter (sui generis) along with public realm and highways alterations to Goldsworth Road, associated car parking and landscaping.

1.3 The development is targeting a 'Very Good' rating under the appropriate BREEAM scheme in line with Woking Core Strategy Policy CS22.

1.4 This BREEAM Pre-Assessment report presents a framework of credits to target a score of 64.01% for the commercial units and 59.09% for the homeless shelter, both equivalent to a BREEAM 'Very Good' rating.

1.5 The assessment strategy is summarised within **Section 3.0** of this report and the full detail is provided within **Appendix A**.

2.0 BREEAM

2.1 The Building Research Establishment's Environmental Assessment Method (BREEAM) is a nationally recognised means of reviewing and improving the environmental performance of buildings.

2.2 The BREEAM UK New Construction 2018 scheme can be used to assess the environmental life cycle impacts of new non-domestic buildings at the design and construction stages. The proposed commercial units and homeless shelter are classed as 'New Construction' as they are new standalone structures that will come into use for the first time upon completion of the works.

2.3 Used as a design tool, BREEAM will assess the environmental performance of new build buildings and refurbishments, providing a framework for improvement and an auditable demonstration of good design practice.

BREEAM CATEGORIES

2.4 BREEAM considers key global and local environmental issues and the internal environment for building occupants under various categories, covering:

- **Management** – rewards good construction site practices, provision of information to building occupants and project management;
- **Health & Wellbeing** – promotes a healthy internal and external environment;
- **Energy** – rewards energy efficiency and renewable energy generation;
- **Transport** – encourages locations with good access to and improvement of sustainable transport options;
- **Water** – promotes water efficiency and water recycling;
- **Materials** – rewards the lifecycle consideration and responsible sourcing of materials;
- **Waste** – encourages good construction and operational waste management practices;
- **Land Use & Ecology** – encourages ecological enhancements; and
- **Pollution** – promotes measures to reduce air and water pollution.

BREEAM RATINGS

2.5 BREEAM rating benchmarks, as set out below, enable comparison of building performance against typical sustainability standards.

Table 2.1 BREEAM Ratings and Percentage Score

Rating	Percentage Score
UNCLASSIFIED	<30%
PASS	≥30%
GOOD	≥45%
VERY GOOD	≥55%
EXCELLENT	≥70%
OUTSTANDING	≥85%

2.6 It is recommended that a score of around 3-4% above the minimum score is aimed for during the design stages and achieved at the final certification stage. This is to ensure that if a credit was lost or disputed and revoked during design progression or third party BRE certification, the target rating would still be robustly achieved.

MINIMUM RATING REQUIREMENT CREDITS

2.7 Under certain categories, there are minimum credit requirements that must be achieved before a particular BREEAM rating can be awarded. All other credits are flexible.

2.8 The following minimum standards are required to reach the targeted 'Very Good' rating:

Table 2.2 BREEAM New Construction 2018 'Very Good' Minimum Standards

Credit	Minimum standard
Man 04: Commissioning and handover	Commissioning – testing schedule and responsibilities
Man 04: Commissioning and handover	Criterion 11 (Building User Guide)
Ene 02: Energy monitoring	One credit (First sub-metering credit)
Wat 01: Water consumption	One credit
Wat 02: Water monitoring	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only

3.0 DEVELOPMENT PERFORMANCE

Commercial units

3.1 The proposed commercial units have been assessed against the BREEAM New Construction 2018 shell & core 'retail' use class methodology. The final use of the units is yet to be confirmed but it is considered that retail is the most likely use in this scenario. There are multiple commercial units and this pre-assessment represents a multiple buildings assessment given the majority of units are under one shell or will be of the same construction type. As the scheme progresses, it is possible that some of the units may be brought forward separately to account for different phased in the design and construction. However, at this stage, a pre-assessment that covers all commercial units is the most appropriate methodology.

3.2 The pre-assessment BREEAM score that is targeted for the commercial units is 64.01%, which is equivalent to a BREEAM rating of 'Very Good' and includes all required minimum standards.

3.3 As shown in Table 2.1, the percentage score required for a BREEAM 'Very Good' rating is ≥55%. The score of 64.01% is therefore above this threshold and provides more than the recommended 3-4% buffer. It is anticipated that further credits will be reviewed and targeted where feasible at the detailed design stages.

3.4 A summary of the current pre-assessment BREEAM strategy is shown Table 3.1. A detailed breakdown of the targeted BREEAM credits is presented in **Appendix A** of this report.

Table 3.1 Summary of BREEAM Category Scores

BREEAM category	Credits available	Credits targeted	Weighting (%)	Category score (%)
Management	18	14	11.0%	8.56%
Health & Wellbeing	11	8	8.0%	5.82%
Energy	19	11	14.0%	8.11%
Transport	12	5	11.5%	4.79%
Water	9	7	7.0%	5.44%
Materials	14	4	17.5%	5.00%
Waste	10	6	7.0%	4.20%
Land Use & Ecology	13	12	15.0%	13.85%

Pollution	12	10	9.0%	7.50%
Innovation	10	0	10.0%	0.00%
TOTAL				**64.01%**
TARGETED RATING				**Very Good**

Homeless shelter

3.5 The proposed homeless shelter has been assessed against the BREEAM New Construction 2018 fully fitted 'residential institution (long term stay)' use class methodology.

3.6 The pre-assessment BREEAM score that is targeted for the homeless shelter is 59.09%, which is equivalent to a BREEAM rating of 'Very Good' and includes all required minimum standards.

3.7 As shown in Table 2.1, the percentage score required for a BREEAM 'Very Good' rating is ≥55%. The score of 59.09% is therefore above this threshold and incorporates the recommended 3-4% buffer. It is anticipated that further credits will be reviewed and targeted where feasible at the detailed design stage.

3.8 A summary of the current pre-assessment BREEAM strategy is shown Table 3.2. A detailed breakdown of the targeted BREEAM credits is presented in **Appendix A** of this report.

Table 3.2 Summary of BREEAM Category Scores

BREEAM category	Credits available	Credits targeted	Weighting (%)	Category score (%)
Management	21	14	11.0%	7.33%
Health & Wellbeing	19	11	14.0%	8.11%
Energy	22	8	16.0%	5.82%
Transport	12	7	10.0%	5.83%
Water	9	7	7.0%	5.44%
Materials	14	4	15.0%	4.29%
Waste	10	6	6.0%	3.60%
Land Use & Ecology	13	12	13.0%	12.00%
Pollution	12	10	8.0%	6.67%

Innovation	10	0	10.0%	0.00%
TOTAL				**59.09%**
TARGETED RATING				**Very Good**

4.0 PROGRESS & NEXT STEPS

4.1 A BREEAM workshop was held on 17th February 2020 with the BREEAM assessor/AP, architect, client/developer and M&E engineer present. The workshop identified the most suitable BREEAM strategy and specific credits that could be targeted in order to maximise the overall score.

4.2 The BREEAM workshop also identified any risks and opportunities to achieving the required rating. The most significant risk at this stage is late action on early stage credits that would prohibit a particular feature being included within the design if not considered at this stage.

4.3 The early stage credits/items targeted are detailed within Table 4.1 below, which demonstrates the progress that has been made against each credit.

Table 4.1 BREEAM early stage credit progress

Credit	Completion stage	Progress
Man 01 – Project brief and design	Concept design	Project delivery and stakeholder consultation has been undertaken throughout the design progression. Greengage appointed as BREEAM AP
Hea 06 – Security	Concept design	Not yet undertaken. Can be done post planning provided no opportunities are lost for implementing security measures.
Ene 04 – Low carbon design	Concept design	Passive design analysis and low zero carbon feasibility study undertaken by M&E engineer as part of planning application.
Tra 01 – Transport assessment and travel plan	Concept design	Transport assessment undertaken as part of planning application Travel plan being produced by transport consultant
Mat 03 – Responsible sourcing of construction products	Concept design	Eco World have sustainable procurement plan that includes targets and procedures as required.
Wst 01 – Construction waste management	Concept design	Demolition audit is planned for October prior to demolition. It will be confirmed after this if existing materials can be reused.
Wst 05 – Adaptation to climate change	Concept design	Climate change risk assessment and adaptation study carried out as part of EIA

LE02-LE05 – Land use and ecology	Preparation & brief	Suitably Qualified Ecologist appointed and site survey carried out with enhancement recommendations provided

4.4 During the next phases of design progression, the BREEAM strategy should be continually reviewed to ensure all target credits can still be achieved with the design or if any additional credits can be picked up as greater detail on certain building elements is established.

4.5 The BREEAM design stage assessment would typically be completed and submitted to the BRE for interim certification towards the end of stage 4 or the start of construction.

5.0 CONCLUSION

5.1 This BREEAM Pre-Assessment report has set out a pathway to show how the proposed commercial units and homeless shelter could achieve the required BREEAM 'Very Good' rating. The proposed strategy currently achieves a scores of **64.01%** for the commercial units and **59.09%** for the homeless shelter, both of which represent a 'Very Good' rating and provide the recommended buffer over the scoring threshold.

5.2 Key actions required at the early project stages have been identified and appointments made where necessary to ensure the required credits can be achieved.

5.3 Following this Pre-Assessment report, a BREEAM Design Stage and eventually Post-Construction Stage Assessment would be required in order to gain full BREEAM certification.

5.4 Appendix A provides the detailed BREEAM credit assumptions for both assessments.

APPENDIX A - DETAILED CREDIT ASSUMPTIONS

BREEAM New Construction (2018) Pre-assessment Summary Tracker

Project Name	Goldsworth Road, Woking	
Project Number	551390	
Date	June 2020	
Targeted BREEAM Rating	VERY GOOD	64.01%

Project Notes:
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Category	Credit ID	Credit Name	Credit(s) Available	Proposed Scenario	Responsibility	Time critical	Credit Issue
Management	Man 01	Project Brief and Design	1	1	Architect/Project Manager	Concept Design	**Project Delivery Consultation** A meeting(s) undertaken between key project delivery stakeholders/project team, identifying roles, responsibilities and contributions for key phases of project delivery.
			1	1	Project manager / Planning Consultant	Concept Design - Technical Design	**Stakeholder Consultation (third parties)** - All relevant interested parties (building users, existing community, partnerships and networks) have been consulted by the design team. - Stakeholder contributions and consultation outcomes have influenced Initial Project Brief and Concept Design. - Consultation feedback has been given to, and received by, all relevant parties prior to completion of detailed design.
			1	1	Client / BREEAM AP	Concept Design	**BREEAM AP (Concept Design)** Pre-requisite: Project team, including client, formally agree strategic performance targets early in design process. AP appointed to work with team to maximise project's performance against BREEAM throughout Concept Design, monitor progress against targets, identify risks & opportunities, provide feedback, monitor/coordinate evidence generation.
			1	1	Client / BREEAM AP	Concept Design & Developed Design	**BREEAM AP (Developed Design)** Pre-requisite: Project team, including client, formally agree strategic performance targets early in design process. BREEAM AP (Concept Design) credit must be achieved first. AP is appointed to work with team to maximise project's performance against BREEAM throughout Developed Design, monitor progress against targets, identify risks & opportunities, provide feedback, monitor/coordinate evidence generation.
	Man 02	Life cycle cost and service life planning	2	0	Cost Consultants/ Client	Concept Design	**Elemental Life Cycle Cost (LCC)** Outline entire asset elemental life cycle cost plan carried out.
			1	0		Technical Design	**Component level life cycle costing (LCC)** In line with PD 156865:2008 & includes (where present): - Envelope, e.g. cladding, windows, and/or roofing - Services, e.g. heat source cooling source, and/or controls - Finishes, e.g. walls, floors and/or ceilings - External spaces, e.g. alternative hard landscaping, boundary protection. Examples of how the LCC has influenced the design must be given.
			1	1			**Capital Cost Reporting** Report capital cost in £/sqm GIFA. (Predicted cost at design stage and confirmation at PC) Capital cost includes construction (inc. prep, materials, equipment, labour); site management; construction financing; insurance & taxes; inspection & testing
			✓	✓			**Pre-requisite - All timber and timber-based products used during construction are 'legal and sustainable timber'.**
			1	1			**Environmental Management** All parties who control the site site (principal contractor, demo-contractor) operate EMS (ISO14001 or equivalent) for all main operations and best practice pollution prevention in accordance with Pollution Prevention Guidelines PPG6.

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	Man 03	Responsible construction practices	1	1	Contractor	Construction	**BREEAM AP (site)** Pre-requisite: Client and contractor formally agree performance targets. BREEAM AP is appointed to assist with maximising performance, go beyond design intent, monitor progress against targets, identify risks/opportunities, provide feedback, coordinate generation of evidence.
			2	2			**Responsible construction management** One credit - achieve applicable items in responsible construction management table Two credits - achieve the above plus six additional items Table items include: vehicle movement, pollution management, tidiness, health & wellbeing, security, training and reporting. CCS will cover majority of the above
			2	2			**Monitoring of Construction Site Impacts** Individual appointed to record the utility consumption (energy & water) and transport of construction materials & waste to/from site. Targets must be set and monitored.
	Man 04	Commissioning and handover	✓	✓			**Mandatory - Provision of a Building User Guide (BUG)**
			1	1	Contractor / M&E		**Commissioning - Testing Schedule and Responsibilities** - Commissioning schedule including suitable timescale for commissioning/ re-commissioning of all complex/ non-complex building services and control systems and testing and inspecting building fabric. - Commissioning activities carried out in accordance with current Building Regs, BSRIA, CIBSE guidelines. - Appoint team member to monitor and programme pre-commissioning, commissioning, testing activities - Contractor accounts for the commissioning within their budget and timeline.
			1	1	Contractor / M&E		**Commissioning - design and preparation** Appoint appropriate project team member (by either the client or the principal contractor) to undertake design reviews, give advice, provide commissioning management input during installation and performance testing during handover.
			1	0	Contractor / M&E		**Testing and inspecting building fabric** Thermographic survey and airtightness testing.
			1	1	Contractor / M&E		**Handover** Develop two BUGs and two Training Schedules: 1) Non-technical for distribution to building occupiers; and 2) Technical for FMs.
	0.61%	**Total Credit**	**18**	**14**			
	Per Credit	**Section Score**	**11.00%**	**8.56%**			
	Hea 01	Visual Comfort	2	0	Architect/ M&E		**Daylighting** 2% daylight factor across 80% NIFA. Calculations required to confirm feasibility.
			1	1			**View Out** 95% of floor area in 95% of spaces is within 8m of an external wall with window providing adequate view out and window/opening must be ≥ 20% of the surrounding wall area.
			1	1			**Internal and External lighting levels, Zoning and Controls (External lighting only for S&C)** -External lighting to required illuminance levels (where applicable) including SLL Code for Lighting, CIBSE Lighting Guide 5 & 7 and BS EN 12464.

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Health and Wellbeing	Hea 02	Indoor Air Quality	✓		✓		Air Quality Specialist		**Pre-requisite: Indoor Air Quality Plan** Consideration of: -removal of contaminant sources -dilution and control of contaminant sources -procedures for pre-occupancy flush out -third party testing and analysis -maintaining indoor air quality in use
			1		1		Air Quality Specialist / M&E		**Ventilation** Ventilation pathways minimise build-up of air pollutants. Air intakes must be 10m horizontal distance from building exhausts and other external sources of pollution. HVAC systems incorporate suitable filtration. Variable occupancy areas have CO2 sensors linked to mechanical ventilation system.
	Hea 04	Thermal comfort	1		1		M&E		**Thermal Modelling** Thermal modelling carried out using full dynamic thermal analysis software in accordance with CIBSE AM11. Building designed for over heating in accordance with CIBSE TM52. Meets CIBSE Guide A Table 1.5 for winter temperatures. PMV & PPD reported for air conditioned buildings.
			1		1				**Design for future thermal comfort** Thermal modelling demonstrates that the building design and services strategy delivers same thermal comfort levels, PMV and PPD indices as for the first credit under a projected climate change environment.
	Hea 05	Acoustic performance	1		1		Acoustician		**Indoor Ambient Noise** The building meets the appropriate acoustic performance standards and testing requirements for the building type. Indoor ambient noise in line with Section 7 of BS 8233:2014
	Hea 06	Security	1		1		Architect	Concept Design	**Security of Site and Building** - Suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) including visual audit and the recommendations implemented.
	Hea 07	Safe and healthy surroundings	1		1		Architect		**Safe access** Dedicated cycle paths Dedicated/safe footpaths Pedestrian drop off areas providing direct access to footpaths Delivery areas not accessed through general parking areas. Dedicated parking/waiting area for goods vehicles separate to manoeuvring area Parking/turning designed for simple manoeuvring.
			1		0		Architect		**Outside space** Providing building users with external amenity area - outdoor, landscaped, appropriate seating, non-smoking, avoids noise disturbance**.**
	0.73%	Total Credit	11		8				
	Per Credit	Section Score	8.00%		5.82%				

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Energy	Ene 01	Reduction of Energy Use and Carbon Emissions	9	6	M&E		**Energy Performance** Based on energy performance BRUKL document **Minimum 4 credits for Excellent**
			4	0	M&E		**Prediction of operational energy consumption** Pre-requisite: Preliminary design workshop on operational energy performance Additional energy modelling to generate predicted operational energy consumption figures. Risk assessment carried out.
	Ene 02	Energy Monitoring	1	1	M&E		**Mandatory - Sub-metering of end-use categories** Labelling required for each output: Space heating, DHW, cooling, ventilation, lighting, small power, pumps, renewables, others. Pulsed output BMS for buildings over 1000sqm
			1	1	M&E		**Sub-metering of high energy load and tenancy areas** Accessible energy monitoring and management system for tenanted areas or relevant function areas or separate sub-meters.
	Ene 03	External Lighting	1	1	M&E		**External Lighting** Average initial luminous efficacy of external light fittings is not less than 70 luminaire lumens per circuit Watt. External light fittings automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.
	Ene 04	Low Carbon Design	1	1	M&E	Concept Design	**Passive Design Analysis** Thermal modelling credit under Hea 04 has been achieved. Identify opportunities for passive design solutions by Concept Design stage Implement passive design measures and quantify reduced total energy demand and CO2 emissions
			1	0		Concept Design	**Free Cooling** Analysis of free cooling and implementation opportunities within passive design analysis
			1	1		Concept Design	**Low Zero Carbon Feasibility Study** LZC study by energy specialist. LZC technology specified in line with feasibility study. Quantify reduced regulated CO2 emissions.
	0.74%	Total Credit	19	11			
	Per Credit	Section Score	14.00%	8.11%			
Transport	Tra 01	Transport assessment and travel plan	2	2	Transport consultant		**Travel Plan** Developing a travel plan, based upon the findings set out within a travel assessment/statement, incorporating the sustainable measures into the design.
	Tra 02	Sustainable transport measures	10	3	Transport consultant / Architect		**Transport options implementation** Tra 01 is pre-requisite Identify sustainable transport options, award credits based on AI and number of options. Measures include - dedicated bus service, public transport information system, electric charging, car sharing, cycle storage, cycle facilities, existing amenities.
	0.96%	Total Credit	12	5			
	Per Credit	Section Score	11.50%	4.79%			

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Water	Wat 01	Water Consumption	5		3	M&E/ Architect		**Mandatory 1 credit for 12.5% improvement** 1 credit - 12.5% improvement over baseline performance- litres/person/day. 2 credits - 25% improvement over baseline performance- litres/person/day. 3 credits - 40% improvement over baseline performance- litres/person/day. 4 credits - 50% improvement over baseline performance- litres/person/day . 5 credits - 55% improvement over baseline performance- litres/person/day. >3 credits requires the implementation of greywater/rainwater recyling.
	Wat 02	Water Monitoring	1		1	M&E		**Mandatory Criterion 1** Criterion 1- specification of water meter on mains - Areas of 10% + of water consumption fitted with sub-meters - Sub-meters connected to BMS - Pulsed water meter.
	Wat 03	Water Leak Detection	1		1	M&E		**Leak Detection System** Leak detection system capable of detecting major leak on mains.
			1		1			**Flow Control Devices** Sanitary supply shut-off. Flow control devices fitted to each WC area/facility to ensure water is supplied only when needed.
	Wat 04	Water efficient equipment	1		1	M&E		**Water efficient equipment** Identify water demands that can be realistically mitigated or reduced. Identify systems or processes to reduce relevant water demand
	0.78%	Total Credit	9		7			
	Per Credit	Section Score	7.00%		5.44%			
Materials	Mat 01	Environmental impacts from construction products - Building life cycle assessment (LCA)	6		0	Architect	Prior to planning application	**Superstructure** Building LCA options appraisal of 2-4 significantly different superstructure design options & comparison to benchmark at Concept Design, submit pror to planning application Building LCA options appraisal of 2-3 significantly different superstructure design options & comparison to benchmark at Technical Design.
			1		0	Architect	Prior to planning application	**Substructure and hard landscaping options appraisal during Concept Design** LCA options appraisal on a combination of at least 6 different substructure or hard landscaping design options (at least 2 of each). Submit prior to planning application.
	Mat 02	Environmental impacts from construction products - Environmental Product Declarations (EPD)	1		0	Architect		**Specification of products with a recognised environmental product declaration (EPD)** Total EPD points score of at least 20
	Mat 03	Responsible sourcing of construction products	✓		✓	Architect/ Contractor		**Mandatory - Pre-requisite - All timber used must be 'legal' and 'sustainable' as per UK Government Timber Procurement Policy"**
			1		1		Concept Design	**Enabling Sustainable Procurement** Contractor sources materials in accordance with a Sustainable Procurement Plan (SPP).
			3		2			**Responsible Sourcing of Materials** One credit - Superstructure & >10% of points Two/three credits - internal finishes and substructure & hard landscaping & >20% or >30%

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	Mat 05	Designing for Durability and Resilience	1		1	Architect		**Protecting Vulnerable Parts of the Building from Damage.** Design and specification measures to limit material degradation due to accidental/malicious damage. **Protecting exposed parts of the building from material degradation** Exposed building elements designed to limit degradation due to environmental factors through appropriate quality standard or a detailed assessment of the element's resilience. Convenient access to roof and facade for cleaning/repair and design roof to prevent water damage/ingress.
	Mat 06	Material Efficiency	1		0	Architect/ Contractor	All design stages from Preparation & Brief	**Material Efficiency** Opportunities and measures to optimise the use of materials in building design, procurement, construction, maintenance and end of life have been identified. Measures must be implemented and targets/actual material efficiencies achieved reported.
	1.25%	Total Credit	14		4			
	Per Credit	Section Score	17.50%		5.00%			
Waste	Wst 01	Construction Waste Management	1		1	Demolition contractor / Architect	Concept Design	**Pre-demolition audit** Pre-demo audit carried out at Concept Design and referred to in RMP.
			3		2	Contractor		**Construction Resource Efficiency -** Construction Resource Management Plan (CRMP) ≤7.5m3 (≤6.5 tonnes) per 100 sqm GIFA of non-hazardous construction waste generated.
			1		1			**Diversion of Waste from Landfill** Non-Demo - 70% Volume / 80% Tonnage Demolition - 80% Volume / 90% Tonnage
	Wst 02	Use of recycled and sustainably sourced aggregates	1		0	Contractor / Structural Engineer		**Project sustainable aggregate points** Pre-requisite - pre-demo audit if applicable. Identify all aggregates including quantity, source, distance travelled.
	Wst 03	Operational Waste	1		1	Architect		**Operational waste** Dedicated space to cater for segregation and storage of operational recyclable waste volumes generated. Space is clearly labelled, accessible, of appropriate capacity
	Wst 05	Adaptation to Climate Change	1		1	Architect / M&E / Structural Engineer	Concept Design & Technical Design	**Resilience of structure, fabric, building services and renewables installation** Climate change adaptation strategy appraisal Develop recommendations based on appraisal Provide update during technical design on implementation of recommendations
	Wst 06	Design for disassembly and adaptability	1		0	Architect / Structural Engineer	Concept Design	**Design for disassembly and functional adaptability - recommendations** - Study to explore ease of disassembly and functional adaptation potential of different designs - Develop recommendations and solutions by end of Concept Design
			1		0	Architect / Structural Engineer	Concept Design	**Disassembly and fuunctional adaptability - implementation** Update during Technical Design on implementation of recommendations or solutions and any changes. Produce building adaptability and disassembly guide for prospective tenants.
	0.70%	Total Credit	10		6			
	Per Credit	Section Score	7.00%		4.20%			

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Land Use and Ecology	LE 01	Site Selection	1	1	Architect		**Previously occupied land** At least 75% of the proposed development's footprint on an area of land which has previously been developed.
			1	0	Contaminated Land Specialist		**Contaminated Land** Land deemed to be contaminated and subsequently remediated
	LE 02	Ecological risks and opportunities	2	2	Ecologist	Preparation & Brief	**Survey and evaluation** Pre-requisite - assessment route determined using GN34. Compliance against legislation monitored. Survey & evaluation by ecologist to determine baseline and ecological outcomes.
	LE 03	Managing impacts on ecology	1	1	Ecologist	Concept Design	**Planning and measures on-site** Roles & responsibilities defined. Site preparation to optimise benefits. Collaboration with stakeholders, solutions implemented.
			2	2	Ecologist	Concept Design	**Managing negative impacts** Negative impacts from construction managed according to hierarchy (2 credits = no overall loss of ecological value).
	LE 04	Ecological change and enhancement	1	1	Ecologist / Contractor	Concept Design	**Ecological enhancement** Stakeholder liaison solutions and measures implemented in a way that enhances ecological value on site as priority**.** Data provided to local environmental records centre
			3	3		Concept Design	**Change and enhancement of ecology** Calculate change in ecological value to award credits
	LE 05	Long term ecology management and maintenance	1	1	Ecologist / Contractor		**Management and maintenance throughout the project** Parts of LE04 are pre-requisite. Monitoring and reporting on project outcomes. Section on ecology in tenant/building owner information
			1	1	Ecologist		**Landscape and ecology management plan** Plan developed in accordance with BS 42020:2013 covering first five years after completion.
	1.15%	**Total Credit**	**13**	**12**			
	Per Credit	**Section Score**	**15.00%**	**13.85%**			

BREEAM New Construction (2018) Pre-assessment Summary Tracker

Project Name	Goldsworth Road, Woking	
Project Number	551390	
Date	June 2020	
Targeted BREEAM Rating	VERY GOOD	64.01%

Project Notes:
BREEAM 2018 New Construction
COMMERCIAL
SHELL & CORE

Pollution	Pol 01	Impact of Refrigerants	2		2	M&E		**Pre-requisite- compliance with BS EN 378:2016 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.** **Impact of refrigerant** 2 credits: Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity OR all refrigerants used have GWP <10. 1 Credit : Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity.
			1		1			**Leak Detection** Refrigerant leak detection system installed or the system is Hermetically sealed.
	Pol 02	Local air quality	2		2	M&E		**Local air quality** Combsution plant emissions from plant providing space heating and doemstic hot water do not exceed required levels in table.
	Pol 03	Flood and surface water management	2		2	Flood / Drainage Consultant		**Pre-requisite - appropriate consultant appointed** **Flood Resilience** 2 Credits for low flood risk or 1 Credit for medium / high flood risk
			2		2			**Surface water run-off** **Pre-requisite- bespoke surface water run-off design solutions** - Peak rate of run-off has 30% improvement for developed site compared to pre-developed for 1 and 100 yr return events. Include climate change allowance. (1 credit) - Flooding of property will not occur in the event of local drainage system failure and use of SuDS to ensure post development runoff volume no greater than pre-development. (1 credit)
			1		0			**Minimising Water Course Pollution** No discharge from site for rainfall up to 5mm. Appropriate level of pollution prevention using SuDS. Oil separators.
	Pol 04	Reduction of Night Time Light Pollution	1		1	M&E		**Night Time Light Pollution** External lighting strategy designed in compliance with ILP Guidance Notes for the Reduction of Obtrusive Light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.
	Pol 05	Reduction of Noise Pollution	1		1	Acoustician		**Acoustic Report** Noise impact assessment in compliance with BS 4142:2014. Noise from assessed building 5dB lower than background noise.
	0.75%	Total Credit	12		11			
	Per Credit	Section Score	9.00%		8.25%			

BREEAM New Construction (2018) Pre-assessment Summary Tracker

Project Name	Goldsworth Road, Woking
Project Number	551390
Date	June 2020
Targeted BREEAM Rating	VERY GOOD — **64.01%**

Project Notes:
BREEAM 2018 New Construction
COMMERCIAL
SHELL & CORE

Innovation	Man 03	Responsible Construction Practices	1		0		Contractor	
	Hea 01	Visual comfort	2		0		M&E	
	Hea 02	Indoor air quality	1		0			
	Hea 06	Security	1		0			
	Ene 01	Reduction of energy use and carbon emissions	5		0			
	Wat 01	Water consumption	1		0			
	Mat 01	Life Cycle Impacts	3		0			
	Mat 03	Responsible Sourcing of Materials	1		0			
	Wst 01	Construction Site Waste Management	1		0			
	Wst 02	Recycled Aggregates	1		0			
	Wst 05	Adaptation to Climate Change	1		0		Energy Modeller / M&E / Architect / Structures	
	LE 02	Identifying and understanding the risks and opportunities for the project	1		0		Ecologist / Landscape Architect / Structures	
	LE 04	Change & enhancement of ecological value	1		0		Ecologist / Landscape Architect	
	1.00%	Total Credit	10		0			
	Per Credit	Section Score	10.00%		0.00%			
		Overall Credits	128.00		78.00			
		Final BREEAM Score	110.00%		64.01%			
		BREEAM Rating	-		VERY GOOD			

BREEAM New Construction (2018) Pre-assessment Summary Tracker

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Project Notes:
BREEAM 2018 New Construction
Residential institution, long-term stay
FULLY FITTED

Category	Credit ID	Credit Name	Credit(s) Available	Proposed Scenario	Responsibility	Time critical	Credit Issue
	Man 01	Project Brief and Design	1	1	Architect/Project Manager	Concept Design	**Project Delivery Consultation** A meeting(s) undertaken between key project delivery stakeholders/project team, identifying roles, responsibilities and contributions for key phases of project delivery.
			1	1	Project manager / Planning Consultant	Concept Design - Technical Design	**Stakeholder Consultation (third parties)** - All relevant interested parties (building users, existing community, partnerships and networks) have been consulted by the design team. - Stakeholder contributions and consultation outcomes have influenced Initial Project Brief and Concept Design. - Consultation feedback has been given to, and received by, all relevant parties prior to completion of detailed design.
			1	1	Client / BREEAM AP	Concept Design	**BREEAM AP (Concept Design)** Pre-requisite: Project team, including client, formally agree strategic performance targets early in design process. AP appointed to work with team to maximise project's performance against BREEAM throughout Concept Design, monitor progress against targets, identify risks & opportunities, provide feedback, monitor/coordinate evidence generation.
			1	1	Client / BREEAM AP	Concept Design & Developed Design	**BREEAM AP (Developed Design)** Pre-requisite: Project team, including client, formally agree strategic performance targets early in design process. BREEAM AP (Concept Design) credit must be achieved first. AP is appointed to work with team to maximise project's performance against BREEAM throughout Developed Design, monitor progress against targets, identify risks & opportunities, provide feedback, monitor/coordinate evidence generation.
	Man 02	Life cycle cost and service life planning	2	0	Cost Consultants/ Client	Concept Design	**Elemental Life Cycle Cost (LCC)** Outline entire asset elemental life cycle cost plan carried out.
			1	0		Technical Design	**Component level life cycle costing (LCC)** In line with PD 156865:2008 & includes (where present): - Envelope, e.g. cladding, windows, and/or roofing - Services, e.g. heat source cooling source, and/or controls - Finishes, e.g. walls, floors and/or ceilings - External spaces, e.g. alternative hard landscaping, boundary protection. Examples of how the LCC has influenced the design must be given.
			1	1			**Capital Cost Reporting** Report capital cost in £/sqm GIFA. (Predicted cost at design stage and confirmation at PC) Capital cost includes construction (inc. prep, materials, equipment, labour); site management; construction financing; insurance & taxes; inspection & testing
			✓	✓			**Pre-requisite - All timber and timber-based products used during construction are 'legal and sustainable timber'.**

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Greengage

Management	Man 03	Responsible construction practices	1	1	Contractor		**Environmental Management** All parties who control the site site (principal contractor, demo-contractor) operate EMS (ISO14001 or equivalent) for all main operations and best practice pollution prevention in accordance with Pollution Prevention Guidelines PPG6.
			1	1		Construction	**BREEAM AP (site)** Pre-requisite: Client and contractor formally agree performance targets. BREEAM AP is appointed to assist with maximising performance, go beyond design intent, monitor progress against targets, identify risks/opportunities, provide feedback, coordinate generation of evidence.
			2	2			**Responsible construction management** One credit - achieve applicable items in responsible construction management table Two credits - achieve the above plus six additional items Table items include: vehicle movement, pollution management, tidiness, health & wellbeing, security, training and reporting. CCS will cover majority of the above
			2	2			**Monitoring of Construction Site Impacts** Individual appointed to record the utility consumption (energy & water) and transport of construction materials & waste to/from site. Targets must be set and monitored.
	Man 04	Commissioning and handover	✓	✓			**Mandatory - Provision of a Building User Guide (BUG)**
			1	1	Contractor / M&E		**Commissioning - Testing Schedule and Responsibilities** - Commissioning schedule including suitable timescale for commissioning/ re-commissioning of all complex/ non-complex building services and control systems and testing and inspecting building fabric. - Commissioning activities carried out in accordance with current Building Regs, BSRIA, CIBSE guidelines. - Appoint team member to monitor and programme pre-commissioning, commissioning, testing activities - Contractor accounts for the commissioning within their budget and timeline.
			1	1	Contractor / M&E		**Commissioning - design and preparation** Appoint appropriate project team member (by either the client or the principal contractor) to undertake design reviews, give advice, provide commissioning management input during installation and performance testing during handover.
			1	0	Contractor / M&E		**Testing and inspecting building fabric** Thermographic survey and airtightness testing.
			1	1	Contractor / M&E		**Handover** Develop two BUGs and two Training Schedules: 1) Non-technical for distribution to building occupiers; and 2) Technical for FMs.

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FULLY FITTED

Greengage

	Man 05	Aftercare	1	0	Client		**Aftercare Support** **-** Operational infrastructure in place to provide aftercare support to the occupier including, meetings with the occupier, on-site facilities training and walkabout, weekly attendance on-site for first month, longer term availability for 12 months. - Monitor energy and water consumption for 12 months
			1	0	Client		**Commissioning - implementation** - Over a 12 month period - Full load and part load, summer and winter as appropriate - Interviews with building occupants where affected - Monthly reports comparing sub-metered energy performance to predicted one - Re-commissioning systems and incorporating any revisions into the O&M manuals
			1	0	Client		**Post Occupancy Evaluation (POE)** 3rd party POE one year after occupation including a review of the design intent and construction process as well as feedback from building users on the environmental conditions of the building. Independent party provides report with lessons learned. Client or occupier commits funds to pay for POE in advance.
	0.52%	**Total Credit**	**21**	**14**			
	Per Credit	**Section Score**	**11.00%**	**7.33%**			
	Hea 01	Visual Comfort	1	1	Architect/ M&E		**Control of glare from sunlight** Glare control assessment to identify risk areas Glare control strategy for all relevant areas - Blinds - Building Integrated measures - Bioclimatic Control - External shading or brise soleil Strategy must not increase energy consumption from lighting, therefore curtains are non-compliant.
			2	0			**Daylighting** 2% daylight factor across 80% NIFA. Calculations required to confirm feasibility.
			1	0			**View Out** 95% of floor area in 95% of spaces is within 8m of an external wall with window providing adequate view out and window/opening must be ≥ 20% of the surrounding wall area.
			1	1			**Internal and External lighting levels, Zoning and Controls** -Internal & external lighting to required illuminance levels (where applicable) including SLL Code for Lighting, CIBSE Lighting Guide 5 & 7 and BS EN 12464. -Internal lighting zoned for occupant control as per criteria.

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Health and Wellbeing	Hea 02	Indoor Air Quality	✓	✓	Air Quality Specialist		**Pre-requisite: Indoor Air Quality Plan** Consideration of: -removal of contaminant sources -dilution and control of contaminant sources -procedures for pre-occupancy flush out -third party testing and analysis -maintaining indoor air quality in use
			1	1	Air Quality Specialist / M&E		**Ventilation** Ventilation pathways minimise build-up of air pollutants. Air intakes must be 10m horizontal distance from building exhausts and other external sources of pollution. HVAC systems incorporate suitable filtration. Variable occupancy areas have CO2 sensors linked to mechanical ventilation system.
			2	0	Architect		**Emissions from construction products** One credit: 3 of 5 product types meet emission limits/testing criteria plus wood products Two credits: all product types meet emission limits/testing criteria
			1	0	M&E / Contractor		**Post construction indoor air quality measurement** Formaldehyde concentration in indoor air does not exceed WHO guidelines. TVOC concentration does not exceed specified limits.
	Hea 04	Thermal comfort	1	1	M&E		**Thermal Modelling** Thermal modelling carried out using full dynamic thermal analysis software in accordance with CIBSE AM11. Building designed for over heating in accordance with CIBSE TM52. Meets CIBSE Guide A Table 1.5 for winter temperatures. PMV & PPD reported for air conditioned buildings.
			1	1			**Design for future thermal comfort** Thermal modelling demonstrates that the building design and services strategy delivers same thermal comfort levels, PMV and PPD indices as for the first credit under a projected climate change environment.
			1	1			**Thermal Zoning and Controls** Thermal modelling has informed the temperature control strategy The strategy addresses appropriate zones for heating and cooling, degree of occupant control required, interaction of these systems and potential for manual override of automatic systems**.**
	Hea 05	Acoustic performance	4	3	Acoustician		**Sound Insulation, Indoor Ambient Noise and Room acoustics** The building meets the appropriate acoustic performance standards and testing requirements for the building type.
	Hea 06	Security	1	1	Architect	Concept Design	**Security of Site and Building** - Suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) including visual audit and the recommendations implemented.

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	Hea 07	Safe and healthy surroundings	1	1	Architect		**Safe access** Dedicated cycle paths Dedicated/safe footpaths Pedestrian drop off areas providing direct access to footpaths Delivery areas not accessed through general parking areas. Dedicated parking/waiting area for goods vehicles separate to manoeuvring area Parking/turning designed for simple manoeuvring.
			1	0	Architect		**Outside space** Providing building users with external amenity area - outdoor, landscaped, appropriate seating, non-smoking, avoids noise disturbance**.**
	0.74%	Total Credit	19	11			
	Per Credit	Section Score	14.00%	8.11%			
Energy	Ene 01	Reduction of Energy Use and Carbon Emissions	9	2	M&E		**Energy Performance** Based on energy performance BRUKL document **Minimum 4 credits for Excellent**
			4	0	M&E		**Prediction of operational energy consumption** Pre-requisite: Preliminary design workshop on operational energy performance Additional energy modelling to generate predicted operational energy consumption figures. Risk assessment carried out.
	Ene 02	Energy Monitoring	1	1	M&E		**Mandatory - Sub-metering of end-use categories** Labelling required for each output: Space heating, DHW, cooling, ventilation, lighting, small power, pumps, renewables, others. Pulsed output BMS for buildings over 1000sqm
	Ene 03	External Lighting	1	1	M&E		**External Lighting** Average initial luminous efficacy of external light fittings is not less than 70 luminaire lumens per circuit Watt. External light fittings automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.
	Ene 04	Low Carbon Design	1	1	M&E	Concept Design	**Passive Design Analysis** Thermal modelling credit under Hea 04 has been achieved. Identify opportunities for passive design solutions by Concept Design stage Implement passive design measures and quantify reduced total energy demand and CO2 emissions
			1	0		Concept Design	**Free Cooling** Analysis of free cooling and implementation opportunities within passive design analysis
			1	1		Concept Design	**Low Zero Carbon Feasibility Study** LZC study by energy specialist. LZC technology specified in line with feasibility study. Quantify reduced regulated CO2 emissions.

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Greengage

Transport	Ene 06	Energy Efficient Transportation Systems	1		1		Lift Consultants		**Energy Consumption** Transport demand of lifts & usage patternd determined. Lift energy consumption calculated in accordance with BS EN ISO 25745. Lift systems with the lowest energy consumption specified.
			1		1				**Energy Efficient Features** Lifts must be specified to operate in standby condition during off-peak periods, compliant lighting (> 70 lamp lumens/circuit Watt.), compliant drive controller AND use of regenerative drive if it demonstrates energy reduction.
	Ene 08	Energy Efficient Equipment	2		0		M&E		**Unregulated Energy** **-** Identify the building's unregulated energy loads and estimate their contribution to the total annual unregulated energy demand. - Identify the systems that use a significant proportion of the buildings unregulated energy consumption. - Demonstrate a meaningful reduction in this energy consumption through appropriate specification.
	0.73%	**Total Credit**	**22**		**8**				
	Per Credit	**Section Score**	**16.00%**		**5.82%**				
Transport	Tra 01	Transport assessment and travel plan	2		2		Transport consultant	Concept design	**Travel Plan** Developing a travel plan, based upon the findings set out within a travel assessment/statement, incorporating the sustainable measures into the design.
	Tra 02	Sustainable transport measures	10		5		Transport consultant / Architect		**Transport options implementation** Tra 01 is pre-requisite Identify sustainable transport options, award credits based on AI and number of options. Measures include - dedicated bus service, public transport information system, electric charging, car sharing, cycle storage, cycle facilities, existing amenities.
	0.83%	**Total Credit**	**12**		**7**				
	Per Credit	**Section Score**	**10.00%**		**5.83%**				
Wate	Wat 01	Water Consumption	5		3		M&E/ Architect		**Mandatory 1 credit for 12.5% improvement** 1 credit - 12.5% improvement over baseline performance- litres/person/day. 2 credits - 25% improvement over baseline performance- litres/person/day. 3 credits - 40% improvement over baseline performance- litres/person/day. 4 credits - 50% improvement over baseline performance- litres/person/day . 5 credits - 55% improvement over baseline performance- litres/person/day. >3 credits requires the implementation of greywater/rainwater recyling.
	Wat 02	Water Monitoring	1		1		M&E		**Mandatory Criterion 1** Criterion 1- specification of water meter on mains - Areas of 10% + of water consumption fitted with sub-meters - Sub-meters connected to BMS - Pulsed water meter.

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	Wat 03	Water Leak Detection	1		1		M&E		**Leak Detection System** Leak detection system capable of detecting major leak on mains.
			1		1				**Flow Control Devices** Sanitary supply shut-off. Flow control devices fitted to each WC area/facility to ensure water is supplied only when needed.
	Wat 04	Water efficient equipment	1		1		M&E		**Water efficient equipment** Identify water demands that can be realistically mitigated or reduced. Identify systems or processes to reduce relevant water demand
	0.78%	Total Credit	9		7				
	Per Credit	Section Score	7.00%		5.44%				
Materials	Mat 01	Environmental impacts from construction products - Building life cycle assessment (LCA)	6		0		Architect	Prior to planning application	**Superstructure** Building LCA options appraisal of 2-4 significantly different superstructure design options at Concept Design. Submit prior to planning application. Building LCA options appraisal of 2-3 significantly different superstructure design options at Technical Design.
			1		0		Architect	Prior to planning application	**Substructure and hard landscaping options appraisal during Concept Design** LCA options appraisal on a combined at least 6 different substructure or hard landscaping design options (at least 2 of each). Submit prior to planning application
	Mat 02	Environmental impacts from construction products - Environmental Product Declarations (EPD)	1		0		Architect		**Specification of products with a recognised environmental product declaration (EPD)** Total EPD points score of at least 20
	Mat 03	Responsible sourcing of construction products	✓		✓		Architect/ Contractor		**Mandatory - Pre-requisite - All timber used must be 'legal' and 'sustainable' as per UK Government Timber Procurement Policy"**
			1		1			Concept Design	**Enabling Sustainable Procurement** Contractor sources materials in accordance with a Sustainable Procurement Plan (SPP).
			3		2				**Responsible Sourcing of Materials** One credit - Superstructure & >10% of points Two/three credits - internal finishes and substructure & hard landscaping & >20% or >30%
	Mat 05	Designing for Durability and Resilience	1		1		Architect		**Protecting Vulnerable Parts of the Building from Damage.** Design and specification measures to limit material degradation due to accidental/malicious damage. **Protecting exposed parts of the building from material degradation** Exposed building elements designed to limit degradation due to environmental factors through appropriate quality standard or a detailed assessment of the element's resilience. Convenient access to roof and facade for cleaning/repair and design roof to prevent water damage/ingress.

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	Mat 06	Material Efficiency	1		0	Architect/ Contractor	All design stages from Preparation & Brief	**Material Efficiency** Opportunities and measures to optimise the use of materials in building design, procurement, construction, maintenance and end of life have been identified. Measures must be implemented and targets/actual material efficiencies achieved reported.
	1.07%	Total Credit	14		4			
	Per Credit	Section Score	15.00%		4.29%			
Waste	Wst 01	Construction Waste Management	1		1	Demolition contractor / Architect	Concept Design	**Pre-demolition audit** Pre-demo audit carried out at Concept Design and referred to in RMP.
			3		2	Contractor		**Construction Resource Efficiency -** Construction Resource Management Plan (CRMP) ≤7.5m3 (≤6.5 tonnes) per 100 sqm GIFA of non-hazardous construction waste generated.
			1		1			**Diversion of Waste from Landfill** Non-Demo - 70% Volume / 80% Tonnage Demolition - 80% Volume / 90% Tonnage
	Wst 02	Use of recycled and sustainably sourced aggregates	1		0	Contractor / Structural Engineer		**Project sustainable aggregate points** Pre-requisite - pre-demo audit if applicable. Identify all aggregates including quantity, source, distance travelled.
	Wst 03	Operational Waste	1		1	Architect		**Operational waste** Dedicated space to cater for segregation and storage of operational recyclable waste volumes generated. Space is clearly labelled, accessible, of appropriate capacity
	Wst 05	Adaptation to Climate Change	1		1	Architect / M&E / Structural Engineer	Concept Design & Technical Design	**Resilience of structure, fabric, building services and renewables installation** Climate change adaptation strategy appraisal Develop recommendations based on appraisal Provide update during technical design on implementation of recommendations
	Wst 06	Design for disassembly and adaptability	1		0	Architect / Structural Engineer	Concept Design	**Design for disassembly and functional adaptability - recommendations** - Study to explore ease of disassembly and functional adaptation potential of different designs - Develop recommendations and solutions by end of Concept Design
			1		0	Architect / Structural Engineer	Concept Design	**Disassembly and fuunctional adaptability - implementation** Update during Technical Design on implementation of recommendations or solutions and any changes. Produce building adaptability and disassembly guide for prospective tenants.
	0.60%	Total Credit	10		6			
	Per Credit	Section Score	6.00%		3.60%			

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Land Use and Ecology	LE 01	Site Selection	1	1	Architect		**Previously occupied land** At least 75% of the proposed development's footprint on an area of land which has previously been developed.
			1	0	Contaminated Land Specialist		**Contaminated Land** Land deemed to be contaminated and subsequently remediated
	LE 02	Ecological risks and opportunities	2	2	Ecologist	Preparation & brief	**Survey and evaluation** Pre-requisite - assessment route determined using GN34. Compliance against legislation monitored. Survey & evaluation by ecologist to determine baseline and ecological outcomes.
	LE 03	Managing impacts on ecology	1	1	Ecologist	Concept Design	**Planning and measures on-site** Roles & responsibilities defined. Site preparation to optimise benefits. Collaboration with stakeholders, solutions implemented.
			2	2	Ecologist	Concept Design	**Managing negative impacts** Negative impacts from construction managed according to hierarchy (2 credits = no overall loss of ecological value).
	LE 04	Ecological change and enhancement	1	1	Ecologist / Contractor	Concept Design	**Ecological enhancement** Stakeholder liaison solutions and measures implemented in a way that enhances ecological value on site as priority. Data provided to local environmental records centre
			3	3		Concept Design	**Change and enhancement of ecology** Calculate change in ecological value to award credits
	LE 05	Long term ecology management and maintenance	1	1	Ecologist / Contractor		**Management and maintenance throughout the project** Parts of LE04 are pre-requisite. Monitoring and reporting on project outcomes. Section on ecology in tenant/building owner information
			1	1	Ecologist		**Landscape and ecology management plan** Plan developed in accordance with BS 42020:2013 covering first five years after completion.
	1.00%	**Total Credit**	**13**	**12**			
	Per Credit	**Section Score**	**13.00%**	**12.00%**			

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Greengage

Pollution	Pol 01	Impact of Refrigerants	2		2	M&E		**Pre-requisite- compliance with BS EN 378:2016 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.** **Impact of refrigerant** 2 credits: Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity OR all refrigerants used have GWP <10. 1 Credit : Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity.
			1		1			**Leak Detection** Refrigerant leak detection system installed or the system is Hermetically sealed.
	Pol 02	Local air quality	2		2	M&E		**Local air quality** Combsution plant emissions from plant providing space heating and doemstic hot water do not exceed required levels in table.
	Pol 03	Flood and surface water management	2		2	Flood / Drainage Consultant		**Pre-requisite - appropriate consultant appointed** **Flood Resilience** 2 Credits for low flood risk or 1 Credit for medium / high flood risk
			2		1			**Surface water run-off** **Pre-requisite- bespoke surface water run-off design solutions** - Peak rate of run-off has 30% improvement for developed site compared to pre-developed for 1 and 100 yr return events. Include climate change allowance. (1 credit) - Flooding of property will not occur in the event of local drainage system failure and use of SuDS to ensure post development runoff volume no greater than pre-development. (1 credit)
			1		0			**Minimising Water Course Pollution** No discharge from site for rainfall up to 5mm. Appropriate level of pollution prevention using SuDS. Oil separators.
	Pol 04	Reduction of Night Time Light Pollution	1		1	M&E		**Night Time Light Pollution** External lighting strategy designed in compliance with ILP Guidance Notes for the Reduction of Obtrusive Light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.
	Pol 05	Reduction of Noise Pollution	1		1	Acoustician		**Acoustic Report** Noise impact assessment in compliance with BS 4142:2014. Noise from assessed building 5dB lower than background noise.
	0.67%	Total Credit	12		10			
	Per Credit	Section Score	8.00%		6.67%			

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Greengage

Innovation	Man 03	Responsible Construction Practices	1		0		Contractor		
	Hea 01	Visual comfort	2		0		M&E		
	Hea 02	Indoor air quality	1		0				
	Hea 06	Security	1		0				
	Ene 01	Reduction of energy use and carbon emissions	5		0				
	Wat 01	Water consumption	1		0				
	Mat 01	Life Cycle Impacts	3		0				
	Mat 03	Responsible Sourcing of Materials	1		0				
	Wst 01	Construction Site Waste Management	5		0				
	Wst 02	Recycled Aggregates	1		0				
	Wst 05	Adaptation to Climate Change	1		0		Energy Modeller / M&E / Architect / Structures		
	LE 02	Identifying and understanding the risks and opportunities for the project	1		0		Ecologist / Landscape Architect / Structures		
	LE 04	Change & enhancement of ecological value	1		0		Ecologist / Landscape Architect		
	1.00%	Total Credit	10		0				
	Per Credit	Section Score	10.00%		0.00%				
		Overall Credits	**142.00**		79.00				
		Final BREEAM Score	**110.00%**		**59.09%**				
		BREEAM Rating	**-**		**VERY GOOD**				