Central Somers Town - Commumity Facilities; BREEAM Tracker

Prepared Robin Brylewski
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sweett

Key

	No evidence has been received
	Partial evidence has been received
	All evidence has been received - compliance achieved
	Credits lost / in jeopardy
	Possible additional credit
	Issue not targeted

AKA	*Adam Khan Architects*
MF	*Max Fordham*
CC	*Camden Council*
P&M	*Price & Meyers*
Sweett	*Sweett Group QS / Sustainability*
LUC	*Land Use Consultants*

		Available Credits	Targeted Credits	Potential Extra	Outstanding	Credit Criteria	Design Stage evidence required	Evidence Responsibility	Comments
Management		**21**	**19**	**2**	**2**				
Man 1	Project Brief and Design	1	1			**One credit – Stakeholder consultation (project delivery)** 1. Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. 2. In defining the roles and responsibilities for each key phase of the project, the following must be considered: a. End user requirements b. Aims of the design and design strategy c. Particular installation and construction requirements/limitations d. Occupiers budget and technical expertise in maintaining any proposed systems e. Maintainability and adaptability of the proposals f. Requirements for the production of project and end user documentation g. Requirements for commissioning, training and aftercare support. 3. The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design.	Consultation plan setting out the process and scope of the consultation. Consultation report	CC/AKA/MF/P&M/ Sweett	**Action required by Stage 2**
		1	1			**One credit - Stakeholder consultation (third party)** 4. Prior to completion of the Concept Design stage, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content. 5. The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. 6. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.	Communication records confirming consultation process and copies of feedback to parties	CC/AKA	
		1		1	1	**One credit - Sustainability Champion (design)** 8. A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent). 9. The defined BREEAM performance target(s) has been formally agreed between the client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent). 10. To achieve this credit at the interim design stage assessment, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM Assessor's design stage assessment report.	Letter of confirmation of appointment of sustainability champion Agreement documentation of BREEAM performance targets	TBC/Sweett	Sust champion - Michaela is AP; Hareth to ask Michaela if she can cover this **Action required at stage 1 & 2**
		1		1	1	**One credit - Sustainability Champion (monitoring progress)** 11. The Sustainability Champion criteria 8, 9 and 10 have been achieved. 12. A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target(s) throughout the design process and formally report progress to the client and design team. To do this the Sustainability Champion must attend key project/design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013, reporting during, and prior to, completion of each stage, as a minimum.	Meeting minutes to show sustainability champion attendance	TBC/Sweett	
Man 2	Life Cycle Cost & Service Planning	2	2			**Two credits - Elemental life cycle cost (LCC)** 1. An elemental life cycle cost (LCC) analysis has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008 2. The LCC analysis shows: a. An outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years; b. The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'.	Elemental life cycle cost plan.	Sweett/MF	LCC - MF have done LCC on services. Sent to Neil Oliver to complete **Action required by Stage 2** Sweett Group have prepared the Elemental LCC plan
		1	1			**One credit - Component level LCC Plan** 3. A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): a. Envelope, e.g. cladding, windows, and/or roofing b. Services, e.g. heat source cooling source, and/or controls c. Finishes, e.g. walls, floors and/or ceilings d. External spaces, e.g. alternative hard landscaping, boundary protection. 4. Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.	Component level life cycle cost plan	Sweett	
		1	1			**One credit - Capital cost reporting** 5. Report the capital cost for the building in pounds per square metre (£k/ m^2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.	Capital cost report	Sweett	
Man 3	Responsible Construction Practices					**Pre-requisite** 1. All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions).	Letter of commitment from contractor	Contractor	
		1	1			**One credit – Environmental management** 2. The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. third party certified, to ISO 14001/EMAS or equivalent standard; or b. have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555. 3. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.	Specifications demonstrating contractors EMS	Contractor	
		1	1			**One credit – Sustainability Champion (construction)** 4. A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6).To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate. 5. The defined BREEAM performance target forms a requirement of the principal contractor's contract (see compliance note Man 01 Project brief and design – CN5 and in Man 01 Project brief and design – Relevant definitions). 6. To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report.	Letter of confirmation of appointment of sustainability champion Design team meeting minutes	Contractor	
		2	2			**Up to two credits - Considerate construction** 7. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification.The BREEAM credits can be awarded as follows: a. One credit where the contractor achieves 'compliance' with the criteria of a compliant scheme. b. Two credits where the contractor significantly exceeds 'compliance' with the criteria of the scheme.Refer to the Relevant definitions section for a list of compliant schemes and therefore how performance, as determined by a compliant scheme, translates in to BREEAM credits.	Letter of commitment to provide CCS report and certificate and achieve targeted score	Contractor	
		2	2			**Up to two credits - Monitoring of construction-site impacts** 8. Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role. ***First monitoring credit - Utility consumption*** Energy consumption 9. Criterion 7 is achieved. 10. Monitor and record data on principal constructor's and subcontractors' energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. 11. Report the total carbon dioxide emissions (total kgCO2/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool. Water consumption 12. Criterion 7 is achieved. 13. Monitor and record data on principal constructor's and subcontractors' potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. 14. Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool. ***Second monitoring credit - Transport of construction materials and waste*** 15. Criterion 7 is achieved. 16. Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. See Relevant definitions. b. Scope of this monitoring must cover the following as a minimum: i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials. ii. Ground works and landscaping materials. c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan. 17. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions ($kgCO_2$ eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.	Letter to show assigned responsibility and commitment to monitor, record and report energy use, water consumption and transport data Monitoring spreadsheet / report Monitoring spreadsheet / report	Contractor Contractor Contractor	
	Commissioning and	1	1			**One credit - Commissioning and testing schedule and responsibilities** 1. A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric. 2. The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with, such as current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, refer to compliance note CN5 on BMS commissioning procedures. 3. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client. 4. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.	Commissioning schedule Letter of appointment of responsible team member Copy of programme of works		
		1	1			**One credit - Commissioning building services** 5. The commissioning and testing schedule and responsibilities credit is achieved. 6. For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).	Letter to show appointment of specialist commissioning manager and commitment to points 6a -c.	MF	There is a need for specialist commissioning manager to be appointed during design

Man 4	Commissioning and Handover	1	1			**One credit - Testing and inspecting building fabric** 7. The commissioning and testing schedule and responsibilities credit is achieved. 8. The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection. The survey and testing is undertaken by a Suitably Qualified Professional in accordance with the appropriate standard. 9. Any defects identified in the thermographic survey or the airtightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.	Letter of commitment to post construction testing and inspection	MF	This is Risky. Contractors will apply a cost to fabric remediation.
		1	1			**One credit - Handover** 10. A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers (see Relevant definitions). 11. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The building's design intent b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. e. Maintenance requirements, including any maintenance contracts and regimes in place	Letter of confirmation that a BUG will be provided to building occupiers and premises managers	AKA/CC/MF	
Man 5	Aftercare	1	1			**One credit - Aftercare support** 1. There is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum: a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to: i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content. ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. b. On-site facilities management training, to include a walkabout of the building and introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. c. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations). d. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management. 2. There is (or will be) operational infrastructure and resources in place to co-ordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly.	Letter of commitment	CC/MF	Exemplary level to be investigated; Ask client if they will commit to quarterly evaluation for 3 years
		1	1			**One credit - Seasonal commissioning** 3. The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied: a. Complex systems - Specialist Commissioning Manager: i. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn). ii. Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy. iii. Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. iv. Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals. b. Simple systems (naturally ventilated) - external consultant/aftercare team/facilities manager: i. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. ii. Take all reasonable steps to re-commission systems following the review to take account of deficiencies identified and incorporate any relevant revisions in operating procedures into the O&M manuals.	Letter of commitment to provide seasonal commissioning over a minimum 12-month period for criteria 3a - 3b	CC/MF	
		1	1			**One credit - Post occupancy evaluation** 4. The client or building occupier makes a commitment to carry out a post-occupancy evaluation (POE) exercise one year after initial building occupation. This is done to gain in-use performance feedback from building users to inform operational processes, including re-commissioning activities, and maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent party (see Man 01 Project brief and design – Relevant definitions) and needs to cover: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Other relevant issues vi. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rainwater harvesting etc.). 5. The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post-occupancy performance. This is done to share good practice and lessons learned and inform changes in-user behaviour, building operational processes and procedures, and system controls. Refer to compliance notes CN4, CN5 and CN5 for a definition of appropriate dissemination. This also provides advice on appropriate dissemination where the building or building information is commercially or security sensitive.	Letter of commitment from the client or building occupier to undertake post occupancy evaluation	CC/MF	
Health & Wellbeing		**17**	**13**	**0**	**4**					
Hea 1	Visual Comfort	1	1			**One credit - Glare control** 1. The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures (see compliance note CN3). 2. The glare control strategy avoids increasing lighting energy consumption, by ensuring that: a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade. AND b. The use or location of shading does not conflict with the operation of lighting control systems.	Design drawings demonstrate where glare has been designed out	AKA	
		1	1			Up to two credits - Daylighting (building type dependent) 3. Daylighting criteria have been met using either of the following options: a. All occupied spaces in the building meet good practice daylight factor(s) and other criterion as follows: i. Average daylight factor of 2% is reached in 80% (m^2) of the development AND ii. Either (a) or [(b) and (c)] in Table - 11 OR b. All occupied spaces in the building meet good practice average and minimum point daylight illuminance criteria as follows: i. Average daylight illuminance (averaged over entire space) at least 300 lux for 2000 hours per year or more AND ii. Minimum daylight illuminance at worst lit point at least 90 lux for 2000 hours per year or more	Daylighting calculations Design drawings	AKA	
		1	1			**One credit - View out** 4. 95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. 5. The window/opening must be ≥ 20% of the surrounding wall area (refer to Relevant definitions in the Additional information section). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than. the values in table 1.0 of BS 8206.	Daylighting calculations Design drawings	AKA	
		1	1			***Internal lighting*** 7. All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts. 8. Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. 9. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) b. For up lighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.	Lighting design strategy/specificatio to confirm illuminance levels are compliant Manufacturer data/specifications for the luminaires	MF/AKA	
		1	1			***External lighting*** 10. All external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.	Letter of confirmation that external lighting is comliant with standards As above	MF/AKA	
						Zoning and occupant control 11. Internal lighting is zoned to allow for occupant control (see Relevant definitions) in accordance with the criteria below for relevant areas present within the building: a. In office areas, zones of no more than four workplaces b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled c. Seminar and lecture rooms: zoned for presentation and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area f. Whiteboard or display screen g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas i. Retail: separate zoning of display and counter areas j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff. 12. Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5	Design drawings demonstrate internal lighting zoning Specification	MF	
		1	1			**Minimising sources of air pollution** ***One credit - Indoor air quality (IAQ) plan*** 1. An indoor air quality plan has been 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 must consider the following: a. Removal of contaminant sources b. Dilution and control of contaminant sources c. Procedures for pre-occupancy flush out d. Third party testing and analysis e. Maintaining indoor air quality in-use	Copy of the indoor air quality plan Evidence confirming commitment to carry out testing post construction e.g. letter of confirmation	MF	
		1		1		***One credit- Ventilation*** The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: 2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. 3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:2007 Annex A2. b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution. 4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. 5. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: a. In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.	Relevant sections of the building specification or contract Model outputs / report	MF	
		1		1		***One credit - Volatile organic compound (VOC) emission levels (products)*** 6. All decorative paints and varnishes specified meet the criteria in Table - 18 7. At least five of the seven remaining product categories listed in Table - 18 meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions (listed in the table).	Relevant sections of the building specification or contract	AKA/Contractor	To review as a potential.

Hea 2	Indoor Air Quality	1 1	 1		1	***One credit - Volatile organic compound (VOC) emission levels (post construction)*** 8. The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/averaged over 30 minutes (WHO guidelines for indoor air quality: Selected pollutants, 2010). 9. The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/over 8 hours, in line with the building regulation requirements. 10. Where VOC and formaldehyde levels are found to exceed the limits defined in criteria 8 and 9, the project team confirms the measures that have, or will be taken, in accordance with the IAQ plan, to reduce the levels to within these limits. 11. The testing and measurement of the above pollutants are in accordance with the following standards where relevant: a. BS ISO 16000-4: 2011 Diffusive sampling of formaldehyde in air b. BS ISO 16000-6: 2011 VOCs in air by active sampling c. BS EN ISO 16017-2: 2003 VOCs - Indoor, ambient and workplace air by passive sampling d. BS ISO 16000-3: 2011 formaldehyde and other carbonyls in air by pumped sampling. 12. The measured concentration levels of formaldehyde (µg/m^3) and TVOC (µg/m3) are reported, via the BREEAM Assessment Scoring and Reporting Tool. **One credit - Adaptability - Potential for natural ventilation** 13. The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows: a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system: i. Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM10 (or for education buildings by using the ClassVent tool).For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13.a.i. above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 14. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space. **Note:** Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type. **Note:** Multi-residential buildings with self-contained flats and individual bedrooms must have a degree of openable window function. This does not need to provide two levels of user-control (as required above), but must be occupant controlled.	Formal letter of commitment to complete testing of VOCs post construction Formal letter from design team of ventilation strategy and calculations from appropriate software modelling tool(s) (e.g. IES) outputs	CC/MF MF/AKA	To review as a potential.
Hea 3	Safe Containment in Laboratories	N/A	N/A	N/A	N/A	N/A			
Hea 4	Thermal Comfort	1 1	 1		1	**One credit - Thermal modelling** 1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling. 2. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11). 3. The modelling demonstrates that: a. For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. For naturally ventilated/free running buildings: i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings. 4. For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool. **One credit - Adaptability - for a projected climate change scenario** 5. Criteria 1 to 4 are achieved. 6. The thermal modelling demonstrates that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment (see Relevant definitions). 7. Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6. 8. For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool. **One credit - Thermal zoning and controls** 9. Criteria 1 to 4 are achieved. 10. The thermal modelling analysis (undertaken for compliance with criteria 1 to 4) has informed the temperature control strategy for the building and its users. 11. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers: i. User knowledge of building services ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required) iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc., iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike drafts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	Thermal modelling, with simulation that provides full dynamic thermal analysis Where relevant written confirmation that temperatures in occupied spaces will be in accordance with CIBSE Guide A Environmental design If necessary for criteria 7 documentation to demonstrate how building has been adapted Thermal modelling results Thermal comfort study	MF MF MF	IES model has been set up. To look at Climate change scenarios To look at Climate change scenarios; MF to confirm if criteria 2 can be achieved (will the building design be adapted for a projected climate change scenario?)
Hea 5	Acoustic Performance	3	3			***Up to two credits*** Where the building meets the acoustic performance standards and testing requirements detailed in Table - 23 for all relevant functional areas. ***Up to three credits*** Where a suitably qualified acoustician is appointed to define a bespoke set of performance requirements for all function areas in the building using the three acoustic principles (sound insulation, indoor ambient noise level, reverberation times), setting out the performance requirements for each and the testing regime required.	Acoustician report and calculations Letter of appointment confirming acoustician appointment Formal letter from the project team regarding commitments	MF MF	Depends on performance standards. SG QS has allowed for acoustics. MF report from Neil(?) confirms that all credits are achievable
Hea 6	Safety and Security	1 1	1 1			**One credit - Safe access** Where external site areas form part of the assessed development the following apply: 1. Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary. 2. Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing). 3. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes. 4. Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points. 5. For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing). 6. The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: 7. 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. 8. There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 9. 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. 10. There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function). **One credit - Security of site and building** 11. A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). 12. The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA. 13. The recommendations or solutions proposed by the SQSS are implemented (see CN9. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	Design drawings demonstrating safe access SNA results and meeting minutes to demonstrate implementation	AKA AKA	Note; the first part of this issue (Safe access) is not applicable, as there are no relevant external areas included in the scope of the assessment. As such, both credits can be awarded based on the evidence for 'Security of site and building' – Compliance Note 3. **Action required by Stage 2 - Crime Impact Assessment** Marked-up plan and summary e-mail of meeting received.
Energy		**23**	**19**	**0**	**0**				
Ene 1	Reduction of CO_2 emissions	12	8			Calculate an Energy Performance Ratio for New Constructions (EPRNC) using BREEAM's Ene 01 calculator. 2) The EPRNC calculation takes account of the following parameters; a) The building's operational energy demand, b) The energy delivered (consumption) and the total resulting CO_2 emissions. c) The calculation is determined using the following performance data from modelling the building's specified/designed regulated fixed building services, as sourced from the approved building energy calculation software: I. Building floor area (m2) II. Notional building energy demand (MJ/m^2) III. Actual building energy demand (MJ/m2) IV. Notional building energy consumption (kWh/m^2) V. Actual building energy consumption (kWh/m^2) VI. Target Emission Rate (kgCO2/m^2) VII. Building Emission Rate (kgCO2/m^2) Compare the EPRNC achieved with Table 6-1 of benchmarks and award the corresponding number of BREEAM credits. Report the building's total modelled operational carbon dioxide emissions in kgCO2/m2/year via the BREEAM scoring and reporting tool. BREEAM Excellent requires a minimum EPRNC of 0.375 (5 credits).	A copy of the Building Regulations Output Document from the approved software. The output documents must be based on the design stage of analysis.	MF/Contractor	
Ene 2	Energy Monitoring	1 1	1 1			**One credit - Sub-metering of major energy consuming systems** 1. Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems (see Methodology). 2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m^2 are metered using an appropriate energy monitoring and management system. 3. The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system (see Relevant definitions). 4. The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs. **One credit - Sub-metering of high energy load and tenancy areas** 5. An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.	Specifications / design drawings demonstrating sub-metering Specifications / design drawings demonstrating sub-metering	MF MF	
Ene 3	External Lighting	1	1			1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances). OR Alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. 3. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	Specifications / design drawings demonstrating external lighting strategy	MF/AKA	

Ene 4	Low Carbon Design	1 1 1 1 1 1	1 1 1 1 1 1			**Passive design** ***One credit - Passive design analysis*** 1. The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces. 2. The project team carries out an analysis of the proposed building design/development to influence decisions made during Concept Design stage (RIBA Stage 2 or equivalent) and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services (see compliance note CN4). 3. The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result (see compliance note CN16). ***One credit - Free cooling*** 4. The passive design analysis credit is achieved. 5. The passive design analysis carried out under criterion 2 includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. 6. The building uses ANY of the free cooling strategies listed in compliance note CN5 to reduce the cooling energy demand, i.e. it does not use active cooling. **Low and zero carbon technologies** ***One credit - Low zero carbon feasibility study*** 7. A feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent) by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development (see compliance note CN7). 8. A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO_2) emissions (see compliance note CN16).	Passive design analysis Report / design drawings showing implementation of free cooling strategies LZC feasability study	MF/AKA MF MF	**Action required by Stage 2 - Passive design analysis** Passive design analysis completed by MF 'Ene04_1 Passive Design.pdf' 30/07/15- During RIBA stage 2 **Action required at Stage 2 - Feasibility Study** Feasibility study completed by MF 'Ene 04_2LZC Technologies.pdf' 9/07/15 - During RIBA stage 2
Ene 5	Energy Efficient Cold Storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Ene 6	Energy Efficient Transportation Systems	1 2	1 2			**One credit - Energy consumption** 1. Where lifts, escalators and/or moving walks (transportation types) are specified: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6. d. The transportation system with the lowest energy consumption is specified. **Note:** The transport analysis can be in the form of a written statement justifying the lift selection. for the following conditions: where a single lift is provided in a low rise building for the purpose of providing disabled access only; or where a goods lift is selected based on the size of the goods it is intended to carry. **Two credits - Energy efficient features** 2. Criterion 1 is achieved. ***Lifts*** 3. For each lift, the following three energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. 4. Where the use of regenerative drives is demonstrated to save energy, they are specified. ***Escalators and/or moving walks*** Each escalator and/or moving walk complies with at least one of the following: 5. It is fitted with a load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR 6. It is fitted with a passenger-sensing device for automated operation (auto walk), so the escalator operates in standby mode when there is no passenger demand.	Professional study of transportation analysis and calculations Relevant sections of the building specification Formal letter of commitment to comply with energy efficient features Manufacturers literature	MF MF	
Ene 7	Energy Efficient Laboratory Systems	N/A	N/A		N/A	N/A	N/A		
Ene 8	Energy Efficient Equipment	2	2			1. Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical/standard specification. 2. Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy consumption of the development and its operation. 3. Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. **See Table - 28** **Table - 28** contains solutions deemed to satisfy compliance for common examples of significant contributors to unregulated energy consumption, for a number of different building types/functions.	Relevant sections of the building specification or contract Design drawings demonstrating energy efficient equipment	MF	
Ene 9	Drying Space	N/A	N/A		N/A	N/A	N/A	N/A	
Transport		**11**	**9**	**0**	**0**				
Tra 1	Public Transport Accessibility	5	5			**Up to five credits - Accessibility Index** 1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the table of building types, AI benchmarks and BREEAM credits. 2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day. **Note:** Transport for London hosts a Planning Information Database that allows users to search for a specific London location by street name, co-ordinates or postcode and then calculate the Accessibility Index (AI) for that location. The Total AI is confirmed for the Point of Interest (POI) within the summary seport, which can be downloaded and used as evidence of compliance for the assessed building. Go to: www.webptals.org.uk	A completed copy of the Tra 01 calculator Documentary evidence supporting the data used to complete the Calculator tool.	Sweett	**Note:** Building type 'Other 2' used
Tra 2	Proximity to Amenities	1	1			1. Where the building is located within close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants, as outlined in Table - 31. 2. Where a building type is indicated to have core amenities (Labelled as C in Table - 31) at least two of these must be provided as a part of the total number required. The remaining number of amenities required can be met using any other applicable amenities (including any remaining core amenities).	Maps / photographs Where the amenities do not currently exist but are due to be developed a letter from the client/developer confirming: 1. The location and type of amenities to be provided 2. The timescale for development of the amenities.	Sweett	
Tra 3	Cyclist facilities	1 1				**One credit - Cycle storage** 1. Compliant cycle storage spaces that meet the minimum levels set out in Table - 32 (see checklists and tables) are installed. **Note:** 1 space per 10 FTS + 1 space per 10 visitors **One credit - Cyclist facilities** 2. Criterion 1 has been achieved. 3. At least two of the following types of compliant cyclist facilities have been provided for all building users (including pupils where appropriate to the building type) - see relevant definitions for the scope of each compliant cyclist facility: a. Showers b. Changing facilities c. Lockers d. Drying spaces	Specifications confirming cycle storage space Design drawings Design drawings	AKA/CC AKA/CC	**Note:** Building type 'Other 2' used Sweett to check on forums about this **Note:** Building type 'Other 2' used Sweett to check on forums about this
Tra 4	Maximum car parking	2	2			**Up to two credits - Car parking capacity** 1. The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table - 33 and the relevant number of BREEAM credits awarded. **Note:** For most building types, except those where stated, the benchmarks vary according to the building's public transport Accessibility Index (AI determined in accordance with BREEAM issue Tra 01 Public transport accessibility). Therefore, for these building types the AI must be determined prior to assessing this issue. This is required to ensure that the building's car parking capacity is relative to the development's accessibility to the public transport network.	Design drawings Where relevant, a completed copy Tra 01 calculator confirming the building's Accessibility Index	AKA	No car parking spaces provided so should score highly
Tra 5	Travel plan	1	1			1. A travel plan has been developed as part of the feasibility and design stages. 2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. b. Travel patterns and transport impact of future building users. c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) d. Disabled access (accounting for varying levels of disability and visual impairment) e. Public transport links serving the site f. Current facilities for cyclists. 3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use. 4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the buildings management in operation.	Travel plan Letter of confirmation from occupier (if known) that travel plan will be implemented post construction	AKA	AKA responsibility
Water		**9**	**6**	**1**	**2**				
Wat 1	Water consumption	5	2	1	1	An assessment of the efficiency of the building's domestic water consuming components is undertaken using the BREEAM Wat 01 calculator. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs b. Urinals c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit) d. Showers e. Baths f. Dishwashers (domestic and commercial sized) g. Washing machines (domestic and commercial or industrial sized). The water consumption (litres/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded as follows: • 12.5% Improvement – 1 Credit • 25% Improvement – 2 Credits • 40% Improvement – 3 Credits • 50% Improvement – 4 Credits • 55% Improvement – 5 Credits • 65% Improvement – Exemplary	A completed copy of the BREEAM Wat 01 calculator Documentary evidence supporting the data used to complete the Calculator tool.	MF	12.5% improvement to meet outstanding for 2 credits.
					1	Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water. Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.	As above	MF	
Wat 2	Water monitoring	1	1			The following is required to demonstrate compliance: 1. The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source. 2. Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with sub meters or have water monitoring equipment integral to the plant or area (see Compliance notes). 3. Each meter (main and sub) has a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption. 4. If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed water meter(s) for the new building must be connected to the existing BMS.	Specifications and design drawings	MF	Irrigation submeter. For planning- 100% rainwater is needed for irrigation for planning. Could have a dedicated metering and display system. No BMS.

Wat 3	Water Leak Detection and Prevention	2	1 1			**Water leak detection and prevention system** A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. The leak detection system is: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods d. Programmable to suit the owner/occupiers' water consumption criteria e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. **Flow control devices** Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).	Relevant sections of the building specification or contract Design drawings Manufacturer product details Same as above	MF MF	Yes but it will cost. Yes but it will cost.
Wat 4	Water Efficient Equipment	1	1	0	0	The design team has identified all unregulated water demands that could be realistically mitigated or reduced. System(s) or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building. **Note: Unregulated water** - For the purposes of this BREEAM Issue, unregulated water is water not used for domestic purposes and is therefore not regulated by Building Regulations or other relevant legislation. This includes, but is not limited to, equipment used for irrigation and, for the relevant building types, vehicle wash plant/equipment.	Specifications and design drawings	MF	Irrigation is required to be 100% sourced by rainwater. Potentially a pump for a stream in the garden.
Materials		**14**	**10**	**0**	**2**				
Mat 1	Life Cycle Impacts	6	5			BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements of: External walls, Windows, Roof, Upper floor slab, Internal walls, Floor finishes / coverings. Credits are awarded on the basis of the total number of points achieved, as calculated using the BREEAM Mat 01 calculator. This point's score is based on the **Green Guide** rating(s) achieved for the specifications that make-up the main building elements (as above). Life cycle Green House Gas emissions (kgCO2 eq.) for each element are also required to be reported based on a 60-year building life. Where specific data is not available for a product or element, generic data should be used. Generic data can be obtained from the online **Green Guide** for each element and must be entered in to the BREEAM Mat 01 calculator.	A copy of the output from the BREEAM Mat 01 Calculator tool, including the Green Guide rating and element number for each specification assessed. The online Green Guide Calculator output (where relevant). Documentary evidence detailing how the Calculator tool has been completed. Site plans and specifications for the building elements	AKA	Concrete panels - AKA have found ones that will comply with the Green Guide ratings. Planning requirement - Green guide A or A+ requirements for all major building elements
Mat 2	Hard landscaping and boundary protection	1			1	Where at least 80% of all external hard landscaping and boundary protection (by area) in the construction zone achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at: www.thegreenguide.org.uk	The Green Guide rating and element number for the assessed specifications. Site plans and specifications for hard landscaping materials	AKA	Planning condition- for 80% of hardlandscaping and boundary protection to be A or A+ rated on Green Guide. Using concrete columns in the fencing - is this going to be a problem? Astroturf and wet pore rubbers are likely to be used- what are the implications?
Mat 3	Responsible Sourcing of Materials	4	 1 1		 1	**Pre-requisite - Timber procurement** Confirmation that all timber used on the project is ' Legally harvested and traded timber', as outlined in the Central Point of Expertise on Timber (CPET) 5th Edition report on the UK Government Timber Procurement Policy. **One credit - Sustainable procurement plan** The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan (see the Relevant definitions in the Additional information section). **Up to 3 credits - Responsible sourcing of materials (RSM)** 1. The available RSM credits can be awarded where the applicable building materials are responsibly sourced in accordance with the BREEAM methodology. The number of BREEAM credits achieved is determined as follows: 3 ≥ 54% 2 ≥ 36% 1 ≥ 18%	See The BREEAM evidential requirements section for a list of general evidence types that can be used to demonstrate compliance with the relevant criteria for this issue. Completed copy of the Mat 03 Calculator tool Documentary evidence detailing how the Calculator tool has been completed. Completed copy of the Mat 03 Calculator tool Documentary evidence detailing how the Calculator tool has been completed including responsible sourcing certificates for materials	AKA AKA AKA	Concerns about contractors meeting this requirement. Needs to be written into the contracts
Mat 4	Insulation	1	1			**Embodied impact** Any new insulation specified for use within the following building elements must be assessed: a. External walls b. Ground floor c. Roof d. Building services The Green Guide rating for the thermal insulation materials must be determined. Green Guide ratings for thermal insulation can be found at: www.thegreenguide.org.uk (please refer to the Compliance notes for guidance where specific insulation has been assessed within an element for BREEAM issue Mat 01). The Insulation Index for the building insulation is the same as or greater than 2.5. The Insulation Index is calculated using the BREEAM Mat 04 calculator which uses the following calculation methodology: For each type of thermal insulation used in the relevant building elements, the volume weighted thermal resistance provided by each type of insulation is calculated as follows: a. (Area of insulation (m2) x thickness(m))/Thermal conductivity (W/ m.K) OR b. Total volume of insulation used (m3)/Thermal conductivity (W/m.K) The volume weighted thermal resistance for each insulation material is then multiplied by the relevant Green Guide point(s) to give the Green Guide Rating corrected value.	A completed copy of the Mat 04 Calculator tool Green Guide ratings for insulation materials Specifications confirming the location of insulation mayerials and area and thickness or volume	AKA	
Mat 5	Designing for durability and resilience	1	1			**Protecting vulnerable parts of the building from damage.** 1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas. **Protecting exposed parts of the building from material degradation** 2. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors.	Design drawings showing measures taken for durability and resilience	AKA	
Mat 6	Material Efficiency	1	1			1. Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life , 2. The above is carried out by the design/construction team in consultation with the relevant parties (see CN3) at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction.	Stage 1 report and specifications showing efficient materials Documentation demonstrating this review process for criteria 2	MF	**Action required from Stage 1 onwards** Matrix and report to address Material efficiencies completed by desing team during stage 2. 'Mat 06 Matrix AKA DRAFT.pdf' and 'Material Efficiency Report.pdf'
Waste		**8**	**5**	**1**	**3**				
Wst 1	Construction Waste Management	4	1 1	1	2	**Waste reduction** Where a Resource Management Plan (RMP) has been developed 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. Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the following benchmarks: Credits Waste generated per 100m2 1 13.3m3 or 11.1 tonnes 2 7.5 m3 or 6.5 tonnes 3 3.4 m3 or 3.2 tonnes Exemplary 1.6 m3 or 1.9 tonnes Where existing buildings on the site will be demolished a predemolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high-grade/value applications. The audit must be referenced in the SWMP and cover: a. Identification of the key refurbishment/demolition materials. b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials **Diversion from landfill** 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 have been diverted from landfill: Credits Type of waste Volume Tonnage 1 Non-demo 70% 80% 1 Demo 80% 90% 1 Excavation N/A N/A Exemplary Non demo 85% 90% Exemplary Demo 85% 95% Exemplary Excavation 95% 95% Waste materials will be sorted into separate key waste groups see Table 10-1 (according to the waste streams generated by the scope of the works) either onsite or offsite through a licensed contractor for recovery.	A copy of the Resource Management plan and, where relevant, pre-demolition audit A copy of the Resource Management plan and, where relevant, pre-demolition audit	Contractor Contractor	There will be demolition works- small log cabin and lots of tarmac. **Therefore a pre-demolition audit** is needed. Concerns over whether the contractor will meet the waste targets. Gone for a middle ground.
Wst 2	Recycled aggregates	1			1	Not Targeted	Not Targeted		There is a huge amount of concrete; Ask Price & Meyers if they are happy with the criteria and to write it in to the tender documents
Wst 3	Operational Waste	1	1			There is dedicated space(s) to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. The dedicated space(s) must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants / facilities operators for the deposit of materials and collections by waste management contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided as part of its waste management strategy: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility. c. Where organic waste is to be stored/composted on site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	Design drawings demonstrating dedicated space for operational waste	AKA	
Wst 4	Speculative Floor and Ceiling Finishes					N/A	N/A	N/A	

Wst 5	Adaptation to Climate Change	1	1			A number of BREEAM issues within the New Construction scheme contain assessment criteria which aim to support mitigation of the impacts of extreme weather events arising from climate change. The main credit in this issue focuses on structural and fabric resilience not covered in other issues. An Exemplary credit is awarded where a holistic approach on adaptation to climate change has been covered, demonstrated by achieving credits in other issues. The following is required to demonstrate compliance: **One credit - Adaptation to climate change – structural and fabric resilience** 1. Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: a. Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management.	Report to be generated including a climate change adaptation strategy appraisal	MF	Will have a go at this. Not exemplary level criteria. **Action required within design stage 1 and 2**. Need to check we can evidence this. Adaption to Climate Change draft report submitted by MF; reviewed and is compliant with BREEAM - final draft of the report recieved ' WST 05 Climate Change Adaption Risk Assessment.pdf' 03/07/15 - During RIBA stage 2
Wst 6	Functional adaptability	1	1			**One credit - Functional adaptability** 1. A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation. 2. Functional adaptation measures have been adopted in the design by Technical Design stage (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.	Functional adaptation strategy and implementation plan report Design drawings to show functional adaptation measures adopted	AKA/MF	Will target, have done some analysis already.AKA responsibility **Action required within design stage 1 and 2** Functional Adaptability risk assessment prepared by MF 'Wst 06 Report.pdf' 07/07/15 - During RIBA stage 2
Land Use & Ecology		**10**	**5**	**0**	**2**				
LE 1	Site Selection	2	1			**One credit - Previously occupied land** 1. At least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure. **One credit - Contaminated land** 2. A contaminated land specialist's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: a. The degree of contamination b. The contaminant sources/types c. The options for remediating sources of contamination which present an unacceptable risk. 3. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land specialist.	Design drawings to show previous land use A copy of the remediation strategy and implementation plan Design drawings to show any contaminated areas	AKA AKA/Ecologist	
LE 2	Ecological value of site and protection of ecological features	2	1			**One credit - Ecological value of site** Land within the construction zone is defined as 'land of low ecological value' using either: a. The BREEAM checklist for defining land of low ecological value (see Additional Information section below) OR b. A Suitably Qualified Ecologist who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey. All existing features of ecological value (see Relevant definitions) within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013. In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).	Where a Suitably Qualified Ecologist is not employed: BREEAM checklist for defining land of low ecological value. Ecologist report As above	AKA/Ecologist AKA/Ecologist	One category B tree is being removed on the west side of the site. May pose a risk to achieving the credits. A fair amount of planting to be put in.
LE 3	Mitigating Ecological Impact	2	1			**Two credits - Change in ecological value 1** 1. The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change, using the methods outlined in either (a) or (b) below: a. Determine the following information and input this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat type(s) that define the landscape of the assessed site in its existing pre-developed state and proposed state (see Table - 56). ii. Area (m2) of the existing and proposed broad habitat types. OR b. Where a Suitably Qualified Ecologist (SQE) has been appointed and, based on their site survey, they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state. ii. Area (m2) of the existing and proposed broad habitat plot types. iii. Average total taxon (plant species) richness within each habitat type. **One credit - Change in ecological value 2** 2. Where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change, use the methods outlined in either 1 (a) or (b) above.	Where relevant: A completed copy of the BREEAM LE 03/LE 04 calculator Documentary evidence supporting the data used to complete the Calculator tool. Ecologist report As above	AKA/Ecologist AKA/Ecologist	
LE 4	Enhancing Site Ecology	2	1		1	**One credit - Ecologist's report and recommendations** 1. A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage. 2. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE (see also CN5). 3. The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build. **One credit - Increase in ecological value** 4. The criteria of the first credit are met. 5. The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the SQE confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater (refer also to Compliance note CN9 for alternative means of compliance). 6. The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.	Where relevant: A completed copy of the BREEAM LE 03/LE 04 calculator Documentary evidence supporting the data used to complete the Calculator tool. Confirmation of appointment of ecologist and ecologist report As above	AKA/Ecologist AKA/Ecologist	
LE 5	Long-term impact on biodiversity	2	1		1	1. Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process. 2. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff. 3. Where additional measures to improve the assessed site's long term biodiversity are adopted. No. of credits No. of additional measures 1 2 2 4 **Additional measures** 1. The principal contractor nominates a 'Biodiversity Champion' with the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised in line with the recommendations of a suitably qualified ecologist. 2. The principal contractor trains the site workforce on how to protect site ecology during the project. Specific training must be carried out for the entire site workforce to ensure they are aware of how to avoid damaging site ecology during operations on site. Training should be based on the findings and recommendations for protection of ecological features highlighted within a report prepared by a suitably qualified ecologist. 3. The principal contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of the construction process. The requirement commits the principal contractor to make such records available where publicly requested. 4. Where a new ecologically valuable habitat, appropriate to the local area, is created. This includes habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important itself; including any habitat listed in the UK Biodiversity Action Plan (UK BAP) priority habitats, Local Biodiversity Action Plan (LBAP) habitats, those protected within statutory sites (e.g. SSSIs), or those within non-statutory sites identified in local plans. Local biodiversity expertise should be sought during the Preparation and Brief (RIBA Stage 1 or equivalent) to help identify species of local biodiversity importance on-site and ensure that the proposals support local priorities. 5. Where flora and/or fauna habitats exist on site, the contractor programmes site works to minimise disturbance to wildlife. For example, site preparation, round works, and land-scaping have been, or will be, scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on, for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This additional requirement will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity in line with the recommendations of a suitably qualified ecologist. **6. Education buildings (pre-schools, schools and sixth form colleges only)** A partnership has been set up by the design team with a local group that has wildlife expertise (e.g. local Wildlife Trust or similar local body) and the group has: a. Provided advice early in the design process regarding protecting and/or providing habitat for species of local importance on the site. b. Provided advice to ensure the design is in-keeping with the local environment. In particular this should draw on their local knowledge of any features or species of ecological interest on or near the site. c. Provided, or will continue to provide, ongoing support and advice to the educational establishment to help them manage, maintain and develop the outdoor space in the longer term. A suitable starting point for discussion with the local wildlife group would be to ask for advice on how to take account of the Local Biodiversity Action Plan (LBAP) in the school/college landscape design.	Ecologists report Formal letter of commitment that a Biodiversity Champion has been appointed, including name and scope of responsibilities Formal letter of commitment to undertak appropriate training, including scope of training. Formal letter... Ecologists report to show proposed habitat is of ecologically significant importance Ecologists report outlining recommendations, and contractors programme to show recommendations actioned N/A	AKA/Ecologist AKA	
Pollution		**13**	**9**	**0**	**2**				
Pol 1	Impact of Refrigerants	3	2			**Three credits - No refrigerant use** 1. Where the building does not require the use of refrigerants within its installed plant/systems. **Pre-requisite** 2. All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice. **Two credits - Impact of refrigerant** 3. Where the systems using refrigerants have Direct Effect Life Cycle CO2equivalent emissions (DELC CO2e) of ≤100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO2e please refer to the Relevant definitions in the Additional information section and the Methodology section. OR 4. Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤10. OR **One credit - Impact of refrigerant** 5. Where the systems using refrigerants have Direct Effect Life Cycle CO2equivalent emissions (DELC CO2e) of ≤1000 kgCO2e/kW cooling/heating capacity. **One credit - Leak detection** 6. Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. 7. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident.	Completed copy of the Pol 01 Calculator tool Documentary evidence supporting the data used to complete the Calculator tool. Completed copy of the Pol 01 Calculator tool Documentary evidence supporting the data used to complete the Calculator tool e.g. specification clause or letter from M&E engineer/ system manufacturer confirming relevant refrigeration type and system information As above	MF MF MF	Potential to have heat pumps, therefore refrigerants. Target one credit but potential to improve on this
Pol 2	NOx emissions	3	1		2	Where the plant installed to meet the buildings delivered heating and hot water demand has, under normal operating conditions, a dry NOx emission level (measured at 0% excessO2), as follows: ≤100 mg/kWh 1 credit ≤70 mg/kWh 2 credits ≤40 mg/kWh 3 credits	Calculations showing the average NOx emissions for the building where multiple systems are present.	MF	Heat pumps- potentially 1 credit. This depends on the strategy taken to meet the 35% reduction from 2013 standards. Have done carbon emissions modelling. Gas boilers would need more PV than can fit on the site.

Pol 3	Surface Water Run-off	2 1	2			**Up to two credits - Flood resilience** Two credits - Low flood risk 1. Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration (see CN5). One credit - Medium/high flood risk 2. Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration. 3. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located; OR b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2011 **Two credits - Surface water run-off** Pre-requisite 4. An Appropriate Consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the following criteria: One credit 5. Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events. 6. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 7. Calculations include an allowance for climate change; this should be made in accordance with current best practice planning guidance (see definitions). One credit 8. Where flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND ***EITHER*** 9. Drainage design measures are specified to ensure that the post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development for the 100-year 6-hour event, including an allowance for climate change (see criterion 14). 10. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other Sustainable Drainage System (SuDS) techniques. ***OR*** (only where criteria 9 and 10 for this credit cannot be achieved): 11. Justification from the Appropriate Consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. 12. Drainage design measures are specified to ensure that the post development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: a. The pre-development 1-year peak flow rate; OR b. The mean annual flow rate Qbar; OR c. 2L/s/ha. Note that for the 1-year peak flow rate the 1-year return period event criterion applies (as described in the peak run-off criteria above). 13. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 14. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance. **One credit - Minimising watercourse pollution** 15. There is no discharge from the developed site for rainfall up to 5mm (confirmed by the Appropriate Consultant). 16. In areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. 17. Where there is a high risk of contamination or spillage of substances such as petrol and oil (see Compliance notes for a list of areas), separators (or an equivalent system) are installed in surface water drainage systems. 18. Where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure). 19. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual. For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13. 20. A comprehensive and up-to date drainage plan of the site will be made available for the building/site occupiers. 21. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. 22. Where present, all external storage and delivery areas designed and detailed in accordance with the current best practice planning guidance	Flood risk assessment Calculation results for the pre and post development peak rate of run-off Information showing the proposed drainage solution, system failure flood flow routes, potential flood ponding levels and ground floor levels Calculation results for the pre and post development volume of run-off Calculation results for the limiting discharge Calculation of the 5mm rainfall event from the relevant areas As above	MF MF	Potential- Green roof, under the MUGA or underground. FRA is included in the Stage 1 Masterplanning report
Pol 4	Reduction of night-time light pollution	1	1			1. Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team. 3. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. 4. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes. 5. Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.	Design drawings Relevant sections of the building specification	MF	Check MUGA lighting
Pol 5	Noise attenuation	1	1			1. Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed site. OR 2. Alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the site, one credit can be awarded as follows: a. Where a noise impact assessment in compliance with BS 7445 has been carried out and the following noise levels measured/determined: i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar. ii. The rating noise level resulting from the new noise source. 3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body (see Relevant definitions in the Additional information section). 4. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. 5. Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.	Design drawings highlighting noise sensitive buildings Acoustician report, acoustician's qualifications and professional status. Report contains recommendations for noise attenuation measures Formal letter where relevant from design team confirming that attenuation measures will be installed	MF/Acoustician	
Innovation		**12**	**0**	**0**	**3**				
Man 3	Responsible Construction Practices	1			1	Where the principal contractor's performance against the compliant scheme has been confirmed by independent assessment and verification and the contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice.	Letter of commitment to provide CCS report and certificate and achieve targeted score	Contractor	
Man 5	Aftercare	1			1	There is (or will be) operational infrastructure and resources in place to co-ordinate the following activities at quarterly intervals for the first 3 years of building occupation: a) collection of occupant satisfaction, energy & water consumption data b) data analysis to check building performance and make necessary adjustments c) set and monitor targets for reducing water & energy consumption d) feedback lessons learned to design team & developer e) provision of actual annual building energy, water consumption & occupant satisfaction data to BRE	Letter of commitment	CC/MF/Contractor	
Hea 1	Visual comfort	1				Where daylighting criteria have been met at 3% average daylight factor required and 80% minimum area to comply. Where used, a minimum point daylight factor of 1.2% or 2.1% for spaces with glazed roofs, such as atria OR Where at least 300 lux for 2650 hours per year or more average daylight illuminance and at least 90 lux for 2650 hours per year or more minimum daylight illuminance at worst lit point	Daylighting calculations	AKA	
Hea 2	Indoor Air Quality	2				2 credits are available where decorative paints and varnishes meet VOC compliance levels of Table-18 in BREEAM guidance. All products excluding paints and varnishes should have formaldehyde emission levels less than or equal to 0.01mg/m3 air, in accordance with the approved testing standards. Only 1 credit will be available when the formaldehyde emission levels are less than or equal to 0.06mg/m3.	VOC testing certificates	AKA/ Contractor	
Ene 1	Reduction of energy use and CO_2 emissions	1				Where the building achieves an EPR NC≥ 0.9 and zero net regulated CO2 emissions and 10% of the building's modelled 'regulated' operational energy consumption, is generated by carbon neutral on-site or near-site sources & used to meet energy demand from 'unregulated' building systems or processes	A copy of the Building Regulations Output Document from the approved software. The output documents must be based on the design stage of analysis.	MF/ Contractor	
Wat 1	Water Consumption	1				Where a 65% improvement over baseline building water consumption is achieved as compliant	Output from BREEAM Wat 01 calculator	MF	
Mat 1	Life Cycle Impacts	1				Where assessing 4 or more applicable building elements, the building achieves at least 2 points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria OR Where assessing fewer than 4 applicable building elements, the building achieves at least 1 point in addition to the total points required to achieve maximum credits under the standard BREEAM criteria.	Green Guide ratings and Mat 01 calculator output	AKA	
Mat 3	Responsible Sourcing of Materials	1				Where at least 70% of the available responsibly sourcing materials are achieved	Output from BREEAM Mat03 calculator	AKA	
Wst 1	Construction Site Waste Management	1				Where the amount of waste generated per 100m2 (GIA) is less than or equal to 1.9 tonnes. Where 85% volume non-demolition, 85% demolition and 95% excavation waste is diverted from landfill and all key waste groups are identified for diversion from landfill in the RMP	A copy of the Resource Management plan and, where relevant, pre-demolition audit	Contractor	
Wst 2	Recycled Aggregates	1				Where the % of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) meets the minimum levels (by weight and volume) of high grade aggregate specified per application that is recycled or secondary aggregate: structural frame 30%, bitumen or hydraulically bound base 75%, building foundations 35% and concrete road surfaces 45%. Where the total amount of recycled or secondary aggregate specified is greater than 35% (by weight or volume) of the total high grade aggregate specified for the project. The contributing recycled or secondary aggregate must not be transported more than 30km by road transport	Calculation confirming the amount of recycled or secondary aggregate to be used	-	
Wst 5	Adaptation to Climate Change	1			1	Where a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent) and where the specified criterion is achieved for the following credits Hea 04 - thermal modelling requirements as outlined above Ene 01 - at least 8 credits have been achieved for the Ene 01 EPR NC benchmark scale Ene 04 - the passive design analysis credit in this issue has been achieved Wat 01 - a minimum of three credits in this issue have been achieved Mat 05 - criterion 2 relating to material degredation in this issue has been achieved Pol 03 - minimum of one credit for flood risk has been achieved and two credits for surface water run-off.	Report to be generated including a climate change adaptation strategy appraisal	MF	
		138	**95**	**4**	**20**				