



Great Ormond Street Hospital – New iMRI Building

BREEAM Pre-assessment Report

18th April 2017

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Review Status

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1.	18/04/17	485/1/1	Report issued as an appendix to the project Sustainability Statement (for Planning Submission)

Prepared by:

Signature -



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Position - Director

Date - 18/04/17

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1.0 Introduction

This report is intended as a summary of the BREEAM pre-assessment review for the following project:

Project Name	GOSH iMRI
BREEAM Version	BREEAM 2014 NC
Assessment Stage	Pre-Assessment Stage
Lead Assessor	Ben Cartmell
Target Rating	Excellent (70%)

A BREEAM pre-assessment has been undertaken with the design team of the new GOSH iMRI facility to establish the most appropriate way of attaining the target BREEAM rating of 'Excellent'.

The pre-assessment shows that based on the initial design intent the development would attain a score of 56.6% (Very Good), however, further credits have been identified by the team which would deliver a score of 72.7% and therefore delivery a rating of Excellent. This list of credits are now considered to be 'targeted' and will be used to deliver the required rating.

The BREEAM assessment will now proceed to the first formal process; the design stage / Interim assessment. All relevant project team members will be given access to our online BREEAM project management system, *Tracker Plus*. This will enable cross working and efficient delivery of the assessment process.

2.0 Scoring scenarios

It should be noted that the pre-assessment scores have been based on the following scoring scenarios;

- Current - The number of credits currently achievable.
- To Excellent - Current, plus additional credits required to achieve Excellent.

On this basis, the following scores are considered achievable under each scenario;

Scenario	Score	BREEAM Rating
Current	56.6	Very Good
To Excellent	72.7	Excellent

2.1 Minimum Standards

In addition performance against the minimum standards (required for the specified target rating) under each scenario is summarised below;

Issue	Current	To Excellent
Man 03 - Responsible construction practices	Yes	Yes
Man 04 - Commissioning and handover	Yes	Yes
Man 05 - Aftercare	Yes	Yes
Ene 01 - Reduction of energy use and carbon emissions	Yes	Yes
Ene 02 - Energy Monitoring	Yes	Yes
Wat 01 - Water Consumption	Yes	Yes
Wat 02 - Water Monitoring	Yes	Yes
Mat 03 - Responsible Sourcing of Materials	Yes	Yes
Wst 01 - Construction Waste Management	Yes	Yes
Wst 03 - Operational Waste	Yes	Yes
LE 03 - Minimising impact on existing site ecology	Yes	Yes

If the required minimum standards are not met then the target rating will not be achieved regardless of overall score.

3.0 - Credits and Comments Table

		Available	Current	To Excellent	Comments
Management					
Man 01	Project brief and design	4	4	4	<p>Credit 1 - Project Brief & Roles: Development of project brief & assignment of project roles & responsibilities within team prior to completion of Concept Design. <i>Credit Targeted. Achievable if started at appropriate design stage and most information should be available in the Strategic Outline Case.</i></p> <p>Credit 2 - Consultation: Consultation with external stakeholders prior to completion of Concept Design & provide feedback to stakeholders prior to completion of Technical Design. <i>Credit targeted. The team have advised that a full consultation exercise has been undertaken and documented and a team member can be assigned the role of independent consultation manager.</i></p> <p>Credit 3 - Sustainability Champion from RIBA Stage 1: BREEAM AP appointed prior to end of Brief Stage & formally agree BREEAM target no later than Concept Design stage. It is understood that Ansell & Bailey retain a BREEAM AP qualified person and would be able to deliver these services. <i>Credit targeted.</i></p> <p>Credit 4 - Sustainability Champion to RIBA Stage 4: BREEAM AP appointed to monitor & report progress on BREEAM performance throughout the design process (to end of Technical Design). It is understood that Ansell & Bailey retain a BREEAM AP qualified person and would be able to deliver these services. <i>Credit targeted.</i></p>
Man 02	Life cycle cost and service life planning	4	1	1	<p>Credit 1 - Elemental LCC: Elemental LCC analysis carried out before end of Concept Design. To cover options for basic building structure & envelope and servicing strategy. <i>Credit not targeted.</i></p> <p>Credit 2 - Component Level LCC: Component level LCC plan to be developed by end of Technical Design, To cover envelope, core & local services, finishes and external landscaping (where present). <i>Credit not targeted.</i></p> <p>Credit 3 - Capital Cost Reporting: Report capital cost for the works in pounds per square metre. <i>Credit targeted.</i></p>
Man 03	Responsible construction practices	6	5	5	<p>Pre-requisite - Site Timer Procurement: All timber products used on site must be 'Legally harvested and traded timber'</p> <p>Credit 1 - Construction Site Management: Principal contractor to operate an environmental management system ie ISO 14001 & implement best practice pollution prevention policies / procedures on-site in accordance with EA guide PPG6. <i>Credit targeted.</i></p> <p>Credit 2 - Sustainability Champion to RIBA Stage 6: BREEAM AP appointed to monitor progress against BREEAM target during Construction, Handover and Close Out. BREEAM target set at Concept Design must be achieved. It has been decided BREEAM AP qualified person for RIBA Stages 5 & 6 would be provided by the appointed contractor. <i>Credit targeted.</i></p> <p>Credit 3 - Considerate Constructors Scheme: Two credits for achieving CCS score of 35 or more. <i>Two credits targeted.</i></p> <p>Credit 4 - Utilities: Contractor to monitor, record and report energy & water use resulting from all on-site refurbishment or fit-out processes. <i>Credit targeted.</i></p> <p>Credit 5 - Transport CO2 Emissions: Contractor to monitor, record & report data on transport for materials delivery to and waste collections from site. <i>Credit not targeted.</i></p>

Man 04	Commissioning and handover	4	3	4	<p>Credit 1 - Commissioning: Commissioning and testing schedule & responsibilities. <i>Credit targeted.</i></p> <p>Credit 2 - Complex Systems: Appointment of specialist commissioning agent for commissioning of building services. <i>Credit targeted.</i></p> <p>Credit 3 - Building Fabric Testing: Thermographic survey of building fabric & commitment to rectify any defects identified in survey. <i>Credit targeted for Excellent.</i></p> <p>Credit 4 - Building Users Guide & Training: Production of Building User Guide & training schedule for building occupiers/premises managers. <i>Credit targeted.</i></p>
Man 05	Aftercare	3	2	3	<p>Credit 1 - Aftercare Support: Aftercare support (handover, meeting, on-site facilities management training and aftercare support for first 12 months of occupation) plus collect and report energy and water consumption data for first 12 months. <i>Credit targeted.</i></p> <p>Credit 2 - Seasonal Commissioning: Seasonal commissioning for the first 12 months of occupation. <i>Credit targeted to achieve Excellent.</i></p> <p>Credit 3 - Post Occupancy Evaluation: Commitment to carry out POE one year after occupation and to disseminate results publicly. <i>Credit targeted to achieve Excellent.</i></p>
Management Totals:		21	15	17	
Management score totals:		12	8.57	9.714	
Health & Wellbeing					
Hea 01	Visual Comfort	5	2	2	<p>Credit 1 - Glare Control: Provide suitable glare control (eg user controlled blinds in office areas). <i>Credit targeted.</i></p> <p>Credit 2 - Daylighting: 80% of occupied floor space to have a daylight factor of 2% or more. Two Credits available. <i>Credits not targeted.</i></p> <p>Credit 3 - Daylighting: 95% of occupied floor space to have a view out of a window (within 7m). <i>Credit not targeted.</i></p> <p>Credit 4 - Internal & External Lighting: Internal / external lighting to be specified in accordance with best practice plus adequate zoning & control systems. <i>Credit targeted.</i></p>
Hea 02	Indoor Air Quality	5	1	3	<p>Credit 1 - Indoor Air Quality: Produce Indoor Air Quality plan specifying control & removal of contaminant sources, maintaining good internal air quality in use etc. <i>Credit targeted.</i></p> <p>Credit 2 - Ventilation: Provide fresh air in accordance with relevant best practice standard & locate air intakes / exhausts to avoid pollution sources. <i>Credit not targeted.</i></p> <p>Credit 3 - VOCs: All paints & varnishes to meet relevant VOC standards & at least five products must meet relevant testing standards. <i>Credit targeted to achieve Excellent.</i></p> <p>Credit 4 - VOC Testing: VOC emission level testing (post construction) <i>Credit targeted to achieve Excellent.</i></p> <p>Credit 5 - Natural Ventilation: Potential for natural ventilation (5% openable window area). <i>Credit not targeted.</i></p>
Hea 04	Thermal comfort	3	0	1	<p>Credit 1 - Thermal Modelling: Undertake dynamic thermal modelling in compliance with CIBSE AM11 & demonstrate that internal conditions meet standards of either CIBSE Guide A or TM52.</p>

					<p><i>Credit not targeted.</i></p> <p>Credit 2 - Further Thermal Modelling: Repeat thermal modelling for projected climate change scenario & specify how the building has been or could be adapted in future to meet CIBSE Guide A or TM52 comfort standards.</p> <p><i>Credit not targeted.</i></p> <p>Credit 3 - Thermal Zoning & Control: Thermal analysis has informed building's zoning & control strategy & appropriate zoning & controls specified to suit user need.</p> <p><i>Credit targeted for Excellent.</i></p>
Hea 05	Acoustic Performance	3	0	3	<p>Credit 1 - Sound Insulation: For adequate sound insulation between rooms (Section 2 of HTM08-01).</p> <p><i>Credit targeted for Excellent.</i></p> <p>Credit 2 - Indoor Ambient Noise Levels: For adequate internal noise levels. In accordance with HTM08-01 (external sources and mechanical & electrical services)</p> <p><i>Credit targeted for Excellent.</i></p> <p>Credit 3 - Reverberation: For adequate reverberation times. In accordance with Section 2 of HTM08-01</p> <p><i>Credit targeted for Excellent.</i></p>
Hea 06	Safety and Security	2	2	2	<p>Credit 1 - Safe Access: Safe site access (layout of cyclist & pedestrian access).</p> <p><i>Credit attained through compliance with Credit 2.</i></p> <p>Credit 2 - Security: Safety & security (Secured by Design consultation).</p> <p><i>Credit targeted.</i></p>
Health & Wellbeing Totals:		18	5	11	
Health & Wellbeing score totals:		15	4.17	9.167	
Energy					
Ene 01	Reduction of energy use and carbon emissions	12	5	5	<p>Up to 5 Credits available based on Part L calculations.</p> <p><i>5 Credits are required to achieve an Excellent rating.</i></p>
Ene 02	Energy Monitoring	2	2	2	<p>Credit 1 - End Use Meters: Pulsed output sub-metering installed to cover at least 90% of the annual consumption for each fuel used in the building & BMS specified for buildings over 1000m².</p> <p><i>Credit targeted.</i></p> <p>Credit 2 - Functional Area Meters: Pulsed output sub-meters covering significant majority of the energy supply to tenanted areas (eg by floor plate).</p> <p><i>Credit targeted.</i></p>
Ene 03	External Lighting	1	1	1	<p>Credit 1 - External Lighting: Efficacy of external light fittings not less than 60 luminaire lumens per circuit Watt & all external light fittings are automatically controlled for prevention of operation during daylight hours.</p> <p><i>Credit targeted.</i></p>
Ene 04	Low carbon design	3	1	2	<p>Credit 1 - Passive Design Analysis: Passive design analysis & specification of passive design measures. Requires credit Hea 04 (Thermal Comfort) to also be achieved.</p> <p><i>Credit not targeted.</i></p> <p>Credit 2 - Free Cooling: Specification of free cooling to reduce cooling energy demand. It is understood that an evaporative system will be included which meets the credit requirements.</p> <p><i>Credit targeted.</i></p> <p>Credit 3 - Low & Zero Carbon Feasibility Study: LZC feasibility study & specification of LZC to reduce energy demand.</p> <p><i>Credit targeted to achieve Excellent.</i></p>
Ene 08	Energy Efficient Equipment	2	0	2	<p>Two credits - Energy Efficient Equipment. Two credits are available for the commitment to specify and purchase energy efficient equipment. e.g. Office and small power equipment compliant with Energy Star rating or in accordance with the Government buying standards.</p> <p><i>Two Credits targeted to achieve Excellent.</i></p>

Energy Totals:		20	9	12	
Energy score totals:		15	6.75	9	
Transport					
Tra 01	Public Transport Accessibility	5	5	5	Up to 5 credits - Public Transport Accessibility. 5 credits are available based on the local provision of public transport services. It is anticipated that with the excellent public transport available to GOSH that the full 5 credits will be attainable. <i>5 Credits targeted.</i>
Tra 02	Proximity to amenities	1	1	1	Credit 1 - Local Amenities. This credit can be achieved for proximity to local amenities. Given the location of GOSH, this should be easily attainable. <i>Credit targeted.</i>
Tra 03	Cyclist facilities	2	0	2	Credit 1 - Cycle Storage: For provision of secure covered cycle storage for 1 in every 10 staff plus 1 space for every two consulting rooms provided. It is understood that new covered cycle storage racks will be provided in the existing courtyard area. <i>Credit targeted. to achieve Excellent.</i> Credit 2 - Cyclist Facilities: For cyclist facilities eg showers, changing space, lockers & drying space (at least 2 facilities must be provided). <i>Credit targeted. to achieve Excellent.</i>
Tra 04	Maximum Car Parking Capacity	1	1	1	Credit 1 - Max Car Parking Capacity. One credit is available for limiting the amount of car parking. Due to the large number of visitors and limited car parking on site it is expected that this credit will be achievable. <i>Credit targeted.</i>
Tra 05	Travel Plan	1	1	1	Credit 1 - Travel Plan. One Credit for the provision of a travel plan (started during Concept Design) and incorporation of recommendations into design. <i>Credit targeted.</i>
Transport Totals:		10	8	10	
Transport score totals:		9	7.2	9	
Water					
Wat 01	Water Consumption	5	2	2	Up to 5 Credits - Water Consumption. Up to 5 credits can be awarded on basis of sanitary ware specification. <i>Two credits targeted.</i>
Wat 02	Water Monitoring	1	1	1	Pre-requisite: Pulsed output water meter on the mains water supply to the building <i>Must be achieved for Good rating & above.</i> Credit 1 - Water Monitoring: Pre-requisite plus any water-consuming plant / areas consuming 10% or more of total water demand to be fitted with pulsed output sub-meters. <i>Credit targeted.</i>
Wat 03	Leak Detection	2	1	2	Credit 1 - Major Leak Detection: Leak detection system specified that covers water supply between boundary and building plus within building, must be programmable and have an audible alarm. <i>Credit targeted.</i> Credit 2 - Sanitary Supply Shut Off: Flow control devices specified to WC areas to shut off cold water supply when areas are unoccupied. <i>Credit targeted for Excellent.</i>
Water Totals:		8	4	5	
Water score totals:		7	3.5	4.375	
Materials					

Mat 01	Life Cycle Impacts	6	2	2	Up to 6 Credits available on basis of Green Guide ratings for main building materials. <i>Two credits targeted.</i>
Mat 02	Hard Landscaping and Boundary Protection	1	1	1	Credit 1 - Hard Landscaping & Boundary Protection: One Credit available where 80% of external hard landscaping is A or A+ rated. <i>Credit targeted.</i>
Mat 03	Responsible Sourcing of Materials	4	2	2	Pre-requisite: All timber products used on the project must be 'Legally harvested and traded timber'. Credit 1 - Sustainable Procurement Plan: Principal contractor sources materials for the project in accordance with a documented sustainable procurement plan. <i>Credit targeted.</i> Credit 2 - Responsible Sourcing: Responsible sourcing of materials (suppliers with ISO 14001 or similar). <i>One credit targeted.</i>
Mat 04	Insulation	1	1	1	Credit 1 - Insulation: One Credit where an insulation index of 2.5 is achieved. <i>Credit targeted.</i>
Mat 05	Designing for durability and resilience	1	1	1	Credit 1 - Designing for Durability & Resilience: One Credit for protection of vulnerable parts of the building from damage and protecting exposed parts of the building from materials degradation. <i>Credit targeted.</i>
Mat 06	Material efficiency	1	1	1	Credit 1 - Material Efficiency: One Credit is available where opportunities are identified and measures implemented which optimise the use of materials through building design, procurement, refurbishment, maintenance and end of life (analysis must be carried out at each RIBA Stage 1 -5). <i>Credit targeted.</i>
Materials Totals:		14	8	8	
Materials score totals:		13.5	7.71	7.714	
Waste					
Wst 01	Construction Waste Management	4	2	2	Up to 3 Credits - Waste Generated: Carry out pre-demolition audit (if required) to identify all materials that can be retained, reused & recycled. For one credit waste is limited to less than 13.3 m ³ /100m ² GIA (or 11.1 tones/100m ² GIA). Two additional credits are available for further reductions. <i>One credit targeted.</i> Credit 4 - Diversion from Landfill: Ensure that at least 70% by volume (or 80% by weight) of waste off site is diverted from landfill. <i>Credit targeted.</i>
Wst 02	Recycled Aggregates	1	0	1	Credit 1 - Recycled Aggregates: One Credit where 25% of high grade aggregate used on site is either recycled or secondary aggregate (must also meet minimum % for each usage type). <i>Credit targeted to achieve Excellent.</i>
Wst 03	Operational Waste	1	1	1	Credit 1 - Operational Waste: One Credit where dedicated space for storage of recyclable waste at 2m ² per 1000m ² <i>Credit targeted.</i>
Wst 05	Adaptation to climate change	1	1	1	Credit 1 - Adaptation to Climate Change: One Credit for the development of a climate change adaptation strategy covering a 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. <i>Credit targeted.</i>
Wst 06	Functional adaptability	1	1	1	Credit 1 - Functional Adaptability: One Credit for undertaking a building-specific functional adaptation strategy study by Concept Design which includes recommendations for measures to be incorporated to facilitate future adaptation. Adopt functional adaptation measures in the design by end Technical Design.

					Credit targeted.
Waste Totals:		8	5	6	
Waste score totals:		8.5	5.31	6.375	
Land Use & Ecology					
LE 01	Site Selection	2	2	2	Credit 1 - Site Selection: Where 75% of site was previously developed. <i>Credit targeted.</i> Credit 2 - Contaminated Land: Where the site is significantly contaminated & remedial works undertaken to bring the site back into use. It is understood that the site is subject to asbestos contamination which will be remediated as part of the works. It is understood that asbestos contamination has been identified and this will be remediated as part of these works. <i>Credit targeted.</i>
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2	2	Credit 1 - Ecological Value of the Site: Where site is defined of low ecological value. <i>Credit targeted.</i> Credit 2 - Protection of Ecological Features: Where all ecological features are protected during the construction works. <i>Credit targeted.</i>
LE 03	Minimising impact on existing site ecology	2	1	2	2 Credits - Minimising impact on existing site ecology. Two credits are available where the development results in no negative ecological impact. <i>Note: At least one credit must be achieved for BREEAM Very Good and above.</i> <i>1 Credit targeted. 2 Credits required to achieve Excellent.</i>
LE 04	Enhancing site ecology	2	0	2	Credit 1 - Ecologists Report & Recommendations: Where an ecologist is appointed to carry out a site survey before construction commences and produces a report with general recommendations to be adopted. <i>1 Credit targeted for Excellent.</i> Credit 2 - Enhancing Site Ecology: Where planting is specified to increase site ecology by 6 plant species or greater. <i>1 Credit targeted for Excellent.</i>
LE 05	Long Term Impact on Biodiversity	2	2	2	2 Credits - Long Term Impact on Biodiversity: Two credits are available where an ecologist is appointed to ensure all works are carried out in accordance with UK/EU legislation, produce a landscape management plan and the contractor manages the construction site to minimise impacts on site ecology. <i>2 Credits targeted.</i>
Land Use & Ecology Totals:		10	7	10	
Land Use & Ecology score totals:		10	7	10	
Pollution					
Pol 01	Impact of Refrigerants	3	0	0	Up to 3 Credits - Impact of Refrigerants: Two credits are available on basis of Direct Effect Life Cycle CO ₂ equivalent emissions (DELCO _{2e}) of refrigerants. <i>No credits targeted.</i>
Pol 02	NOx emissions	3	0	0	Up to 3 credits - NOx Emissions: Three credits are achievable based on NOx emissions of heating / hot water system. <i>No Credits targeted.</i>
Pol 03	Surface Water Run Off	5	5	5	Credits 1&2 - Flood Resilience: Flood risk assessment confirms a low risk of flooding. <i>Two credits targeted.</i> Credit 3 - Surface Water Run-off (Drainage measures): Where drainage measures are specified to ensure that peak rate run-off from the site to watercourses is no greater than the pre-development situation. The proposed sedum roof will help deliver this credit. <i>Credit targeted.</i> Credit 4 - Surface Water Run-off (Potential Flooding): Where flooding will not occur in the event of local drainage

					failure. No basement will be provided so there is no potential for flooding in the event of local drainage failure. <i>Credit targeted.</i> Credit 5 - Surface Water Run-off: Minimising watercourse pollution. Where there is a decrease in permeable area by 50% OR where the first 5mm rainfall from all new and existing parts of the building are managed on-site through source control measures. The proposed sedum roof will help deliver this credit. <i>Credit targeted.</i>
Pol 04	Reduction of Night Time Light Pollution	1	1	1	Credit 1 - Reduction of Night Time Light Pollution: One Credit where ILE guidance on prevention of light pollution is met. Ensure all non-security lighting to be switched off between 23.00-07.00 & reduced light levels for security lighting between 23.00-07.00 <i>Credit targeted.</i>
Pol 05	Noise Attenuation	1	1	1	Credit 1 - Noise Attenuation: One Credit where noise sensitive dwellings within 800m of the site then carry out background noise survey & ensure that noise impact of refurbishment will be no more than +5dB during the day and +3dB at night. <i>Credit targeted to achieve Excellent.</i>
Pollution Totals:		13	7	7	
Pollution score totals:		10	5.38	5.385	
Innovation					
Man 03	Responsible construction practices	1	0	1	Credit 1 - Considerate Constructors Scheme (Exemplary Performance): This credit should be achievable given the sensitive site. Requires a CCS score of 40 or more and this should be stated as a Contractors requirement. <i>Credit targeted to achieve Excellent.</i>
Man 05	Aftercare	1	1	1	Credit 1 - Aftercare (Exemplary Performance): Commitment to monitor energy & water data for first 3 years of occupation. Analyse data to identify whether building is performing as expected, set targets for consumption reduction / monitor progress and feedback lessons learned.
Hea 01	Visual Comfort	1	0	0	<i>Credit not targeted.</i>
Hea 02	Indoor Air Quality	2	0	0	<i>Credits not targeted.</i>
Ene 01	Reduction of energy use and carbon emissions	5	0	0	<i>Credits not targeted.</i>
Wat 01	Water Consumption	1	0	0	<i>Credit not targeted.</i>
Mat 01	Life Cycle Impacts	3	0	0	<i>Credits not targeted.</i>
Mat 03	Responsible Sourcing of Materials	1	0	0	<i>Credit not targeted.</i>
Wst 01	Construction Waste Management	1	0	0	<i>Credit not targeted.</i>
Wst 02	Recycled Aggregates	1	0	0	<i>Credit not targeted.</i>
Wst 05	Adaptation to climate change	1	0	0	<i>Credit not targeted.</i>
AI	Approved Innovation	1	0	0	<i>Credit not targeted.</i>
Innovation Totals:		19	1	2	
OVERALL SCORE TOTALS:		119	56.6	72.73	