

Sustainability and Energy Statement

Langstone Park

Prepared for XLB Property Ltd
February 2022



envision

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1 EXECUTIVE SUMMARY

- 1.1 Envision has been appointed by XLB Property Ltd (the applicant) to produce a Sustainability Statement to support a planning application for a site-wide masterplan at Langstone Technology Park in Havant. The application seeks the phased demolition of existing buildings and the erection of new flexible use employment floorspace (Use Classes E(g)(i)-(iii)/B2/B8) and ancillary uses (Use Classes E(b), E(d) and E(f)); and associated works. All matters reserved except Access.
- 1.2 This document outlines the sustainability strategy for the site, explaining how the development puts sustainability at the heart of the proposals and is therefore in accordance with national and local planning policy.
- 1.3 Sustainable development requires the balanced consideration of social, environmental, and economic outcomes – the three pillars, which is integral to our national planning system. The Langstone Park site has been identified by Havant Borough Council as a key location for modernisation and intensification of new industry and new technologies, particularly in the fields of digital, transport and communications. Redevelopment of the site will help to deliver economic benefits, creating up to 1585 direct jobs, as well as jobs through construction activities over a period of 10 years. Moving beyond the economic opportunities, this statement explains how environmental and social objectives can also be delivered through the site wide masterplan.
- 1.4 These objectives are as follows:

Efficient – *Drastically improve energy efficiency and reduce operational carbon emissions*



The existing buildings on site, many of which are hugely inefficient consume over 3.3 million kWh of gas and 18.7 million kWh of electricity each year, which together place the site's annual carbon footprint at over 4,500 tonnes of CO₂. The majority of floor space on site is EPC E rated, being poorly insulated and heated via out-of-date systems. The redevelopment proposals would move away from the existing centralised gas heating systems at the site, towards energy efficient, all electric heat pumps which are able to benefit from future national grid decarbonisation. Whilst at an early stage, following best practice benchmarks could potentially reduce emissions from the site by as much as 80% from existing site levels, which supports draft Policy KP6 of the Havant Local Plan.

Resilient – *Avoid the risks already posed by unavoidable climate change*



Whilst efforts are being taken at the international level to curb greenhouse gas emissions, the inevitable consequences of climate change means that buildings and infrastructure need to be made resilient to future changes. In the UK, climate change will lead to warmer and wetter winters and hotter drier summers, with more intense rainfall events causing flash flooding. The proposed development would respond to these risk factors by putting in place measures to overcome future risks.

Circular – *Promote more sustainable patterns of consumption and production*



Whilst redevelopment presents a real opportunity to improve operational energy performance, it is recognised that construction activities would have an impact on resource consumption and embodied carbon. An audit has been undertaken of the existing site to explore what materials could be recovered and reused, helping to lower this impact. It is estimated that over 200,000 tonnes are theoretically able to be recoverable for use on site, or for projects in the locality, helping to reduce embodied carbon impacts. The reserved matters applications will follow design principles for waste management, building in layers and managing embodied carbon.

Environmental Management – *Apply the highest standards practical in construction and operation*



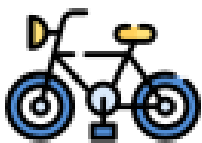
There are currently no buildings constructed to BREEAM standards on the site and it is predicted that the existing buildings would perform no higher than 'Pass' if measured using BREEAM in Use criteria. The existing buildings are often of poor quality with limited levels of natural light, poor indoor air quality and ageing equipment and finishes. Redevelopment of the site enables opportunities for high design standards, including BREEAM Excellent and Wellbeing criteria, meeting policy aspirations and helping to attract new tenants to the site wishing to occupy low impact, high quality buildings.

Integrated – *Promote the site for people and nature*



The site presents significant opportunities for integrating people and nature, helping to achieve net gains in biodiversity, whilst improving people's access to nature and the outdoors. The masterplan includes design principles which support ecological net gain and offer important landscape and habitat buffers to promote local wildlife.

Connected - *Maximising Sustainable Transport Options on Site*



A key strength of the site is its high level of accessibility, both to the strategic road network, but also to sustainable methods of transport. The scheme is being taken forward to promote sustainable transport measures, following a series of design principles which will facilitate the use of electric vehicles, travel planning and the promotion of public transport, including through proposed improvements to pedestrian/cycle access into the site.

2 INTRODUCTION

Scope

- 2.1 This statement explains how planning policy can be addressed by a development of this nature. As the application is being taken forward in outline, the report establishes the sustainability objectives that would be followed, and which would be given further consideration at the reserved matters stage through following a series of sustainable design principles.
- 2.2 This statement is structured as follows:
- Section 2 provides a description of the main sustainability policies and drivers relevant to the application;
 - Section 3 provides an account of the sustainability measures that are put forward and which align with policy;
 - Section 4 provides a summary conclusion and confirms the design principles that will be followed by future reserved matters applications.
 - An outline Energy Assessment, detailing how the scheme will exceed the requirements of draft policy E12 is provided in Appendix i and ii.
 - A BREEAM strategy is provided in Appendix iii, demonstrating compliance with emerging Policy E12(g).
 - A review of relevant Wellbeing standards and their application for the project is provided in Appendix Vi.

Location and Existing Situation

- 2.3 Langstone Technology Park is located in Havant to the south of the A27 and occupies a 40-acre site. The site is strategically located at Havant's A27 Junction, providing easy links to Portsmouth, Southampton, and London. Havant Station is located within a 15-minute walk from Langstone Park.



- 2.4 The Park was developed in the 1960's and 1970's to accommodate IBM's manufacturing operations and represents one of the largest concentrations of commercial floorspace in Havant Borough. Unfortunately, through steady decline, the site now operates at c.40% occupancy and requires significant investment in the order of £500,000 each year just to maintain buildings in their current state.
- 2.5 Whilst the site itself can be considered to be in a highly sustainable location, from a sustainability standpoint the buildings on site are outdated, inefficient and no longer fit for changing demands. Some of the buildings on site are approaching 50 years old and are in need of redevelopment. Other, slightly more recent buildings were not designed to facilitate wellbeing of the staff on site.

Recent water damage in Building 4000



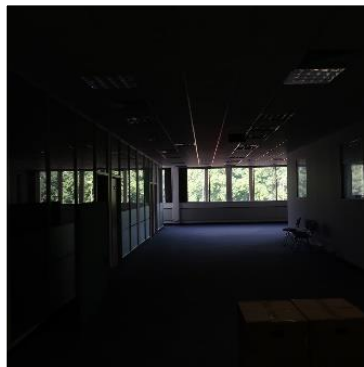
Building 4000 rooftop demonstrating outdated and inflexible building design



Weathering to window fitting on Building 5000



Poor internal daylighting levels found throughout



Vintage boiler requiring retrofitted burner.



Detrimental pooling and patchwork of flat roofing repairs to building 6000



- 2.6 Some of the main sustainability challenges for the existing site which have led to the Park's decline, include:
- Inefficient buildings and site infrastructure, responsible for over 4,600 tonnes of CO₂ per year;
 - The average EPC ratings (by floor area) is EPC E rated, placing these at risk from obsolescence due to Minimum Energy Efficiency Regulations (MEES Regulations);
 - Whilst innovative in the 1970s, the buildings are outdated. None of the buildings on site were designed to current best practice sustainability ratings such as BREEAM. The existing

buildings are predicted to achieve no higher than a Pass under BREEAM's in Use assessment criteria;

- The buildings generally do not offer high levels of occupier wellbeing, with poor levels of natural light and indoor air quality;
- One of the main limitations is that the construction does not facilitate ease of adaptation or flexible use, making reuse of the buildings more complex to facilitate market expectations;
- The buildings are in need of significant refurbishment just to maintain their poor state, with hazardous materials having been identified in places.

Proposal

- 2.7 The Council has a vision for Havant to be a Fourth Industrial Revolution location, focused on digital, green, biological, and physical technology. Havant benefitted from the early computer revolution once before at the site, being the location of the first IBM factory in England which attracted new people and investment to the area and established a technology skill base.
- 2.8 The Langstone Park site has been identified as a key location for modernisation and intensification of new industry, new technologies and low carbon options, particularly in the fields of digital, transport and communications. This vision will be realised through the delivery of modern and efficient buildings and site infrastructure. The applicant is seeking outline planning permission for a site-wide masterplan which seeks the Phased demolition of existing buildings and the erection of new flexible use employment floorspace (Use Classes E(g)(i)-(iii)/B2/B8) and ancillary uses (Use Classes E(b), E(d) and E(f)); and associated works. All matters reserved except Access A general illustrative site layout of the proposed development is given in figure 2.1.



Fig 2.1 - Illustrative Site Masterplan

- 2.9 The applicant intends to fully redevelop the site, which will involve the deconstruction of existing buildings to make way for highly efficient new units. It is anticipated that work will be undertaken in phases, which will be expected to be completed over a 10-year period, giving rise to significant local spend during construction.
- 2.10 The first phase of development has already been granted consent (Ref: APP/19/00703, as amended by Ref: APP/21/00405) and demolition has commenced. The intention to deliver new employment floorspace (under Ref: APP/21/00405) demonstrates a high level of sustainability already, being designed to be EPC A rated and BREEAM Very Good. The applicant intends to further promote sustainability for the remainder of the masterplan through this sustainability strategy.

3 SUSTAINABILITY POLICY & DRIVERS

- 3.1 The mechanism for delivering sustainability and the principles of low-carbon economy is now well enshrined within a wide range of UK statutes, strategies and policies and has most recently been set out within the Government's 'A Green Future: Our 25 Year Plan to Improve the Environment'.
- 3.2 This is also reflected in the UK planning system, which is implemented through national guidance along with local planning policies.

National Planning Policy Framework

- 3.3 The revised National Planning Policy Framework (NPPF) was released on 20th July 2021. This replaces the previous National Planning Policy Framework published in March 2012, revised in July 2018 and updated in February 2019. It sets out the framework for all planning policy in England and how these policies are expected to be applied. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- 3.4 The NPPF sets out a presumption in favour of sustainable development, and the need to support economic growth through the planning system. Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):
- an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
 - a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
 - an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.
- 3.5 Planning plays a key role in helping shape places to achieve radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development. The NPPF does not include detailed measures on sustainable design codes and standards to apply, although expects that when setting any local requirement for a building's sustainability, local planning authorities should do so in a way consistent with the national technical standards.

Havant Borough Council Emerging Local Plan

- 3.6 Havant Borough Council is currently working to their adopted Core Strategy (2011) and Site Allocations Document (July 2014). However, the Council is also in the process of preparing their new Local Plan, which was submitted for Examination in Public on 12th February 2021, with a further minor update made in June 2021. The submission version of the Local Plan is a material consideration and has therefore formed the basis of this statement.
- 3.7 The site is being promoted by Policy KP6 of the emerging Local Plan, which allocates the site for employment development together with supporting uses and infrastructure.

E12 | Efficient use of resources and low carbon design

- 3.8 More specifically for this sustainability statement, emerging Policy E12 requires development proposals which involve an increase in non-residential floorspace to:
- Reuse existing buildings' construction materials wherever possible;
 - Appropriately integrate solar gain, natural ventilation or ventilation with heat recovery, fabric performance and Passivhaus principles into the layout and design;
 - Minimise greenhouse gas emissions and improve energy efficiency of buildings; and
 - Use district heat or combined heat and power (CHP or CCHP) (existing or proposed or on-site), where appropriate;

Energy Efficiency in Non-Residential Development and BREEAM

e. As well as addressing points a) to d) above, proposals for non-residential and multi-residential development are expected to achieve the following standards of the Building Research Establishment's Environmental Assessment Method (BREEAM):

Gross floorspace to be built (sqm)	BREEAM level to be achieved
0-499	Achieving at least Pass under BREEAM is encouraged
500-999	Very Good
1000+	Excellent

Havant Climate Change and Environment Strategy 2021-2026

- 3.9 The strategy was adopted by full council on Wednesday 22nd September 2021. The purpose of the strategy is to provide a clear statement of the Council's climate change and environment objectives and identify priorities that will drive action and promote accountability.
- 3.10 The Langstone Park redevelopment offers the opportunity to support the Council's strategy across key areas, including:
- HB2i - Minimise the climate impact of new development through our Local Plan policies and development management decisions.

- HB 2iii - Reinforce and implement policy and initiatives for low-carbon transport. Prioritise compelling options for active travel, walking and cycling, and insist on best practice for infrastructure design and paths.
- HC1 - In line with Havant Borough Council's Biodiversity Strategy (Jan 2019), support and promote initiatives that halt biodiversity loss, support healthy, well-functioning ecosystems, and establish coherent ecological networks, with more and better spaces for nature for the benefit of wildlife and people.

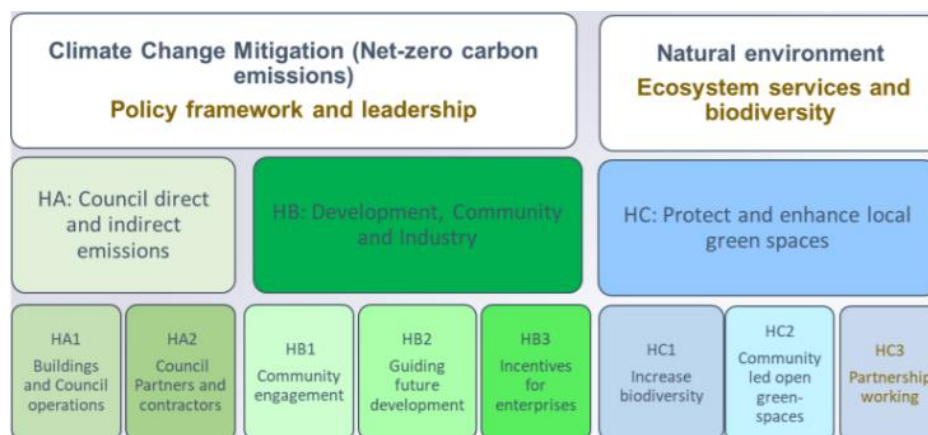


Figure 3.1 - Extract from the Climate Change Strategy 2021 - Overview of Havant BC Climate and Environment Objectives and Initiatives

Sustainability Appraisal of the Site through the Local Plan formulation

- 3.11 As part of the preparation of the emerging local plan, Havant Borough Council prepared a Sustainability Appraisal (SA) of the Pre-Submission Havant Borough Local Plan 2036 in January 2019. This considers the strategic implications of adopting the Local Plan against sustainability appraisal criteria. The council also undertook a site options appraisal using sustainability appraisal techniques. The proposed development site was considered within this review and would latterly be presented as a development allocation under draft Policy KP6 – Langstone Technology Park.

Site/Objective	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7	Objective 8	Objective 9	Objective 10	Objective 11	Objective 12	Objective 13	Objective 14
KP6 Langstone Technology Park	++	0	+	++	0	0	+	0	0	0	+	0	+	+

- 3.12 A combination of strong positive, positive and neutral effects was identified through the site's sustainability appraisal for development at Langstone Technology Park. Of these, strong positive effects were found for Objective 1 – relating to a strong and diverse knowledge base economy, and

Objective 4, relating to climate change mitigation. The SA recognises that the refurbishment and/or redevelopment of the site to provide enhanced and, if possible, a greater quantity of employment floorspace will help provide office and industrial accommodation for new and expanding businesses which take advantage of the Fourth Industrial Revolution. Similarly, Objective 4 was deemed to be supported as the Langstone Park site is previously developed land (PDL) and, in line with Policy E12 (Low Carbon Design), redevelopment would be required to achieve “Excellent” under BREEAM. All the above would help minimise Havant Borough’s greenhouse gas emissions. Furthermore, the site was judged to be sustainable due to its proximity to the Solent Retail Park, town centre and bus and railway stations.

Table 3.1. Havant BC Local Plan Sustainability Appraisal (SA) Themes and Objectives

Objective Number	SA Objective	Sustainability Theme	
1	Develop a dynamic, diverse and knowledge-based economy that excels in innovation with higher value, lower impact activities	Economic factors and quality of life	
2	Provide affordable, environmentally sound and good quality housing for all	Housing, population and quality of life	
3	Safeguard and improve community health, safety and wellbeing	Health, population and quality of life	
4	Promote and support climate change mitigation and adaptation through reducing Havant's greenhouse gas emissions from all sources and plan for anticipated levels of climate change	Climate change	
5	Reduce the risk of flooding from all sources and the resulting detriment to public wellbeing, the economy and the environment. Take a sequential approach to development and avoid putting more people and property at risk of being affected by flooding, where possible. Manage flood risk where necessary	Climate change, air, water and soil	
6	Protect, enhance and manage buildings, features, areas and landscapes of archaeological, historical and cultural heritage importance and their setting	Historic environment and landscape	
7	Protect, enhance and manage the character and appearance of the landscape and townscape, maintaining and strengthening local distinctiveness and sense of place	Historic environment and landscape	
8	Protect, enhance and manage biodiversity and geodiversity – supporting the enhancement and connectivity of ecological green networks	Biodiversity and geodiversity	
9	Protect and conserve natural resources	Material assets, air, water and soil	
10	Reduce waste generation and disposal, and promote the waste hierarchy of reduce, reuse, recycle/compost, energy recovery and disposal	Material assets	
11	Improve the efficiency of transport networks by increasing the proportion of travel by sustainable modes, by promoting policies which reduce the need to travel and provide opportunities for walking and cycling	Climate change, accessibility and transport	
12	Improve air, water (ground and surface) and soil qualities through reducing pollution both diffuse and point source	Air, water and soil	
13	Reduce poverty and social exclusion and close the gap between the most deprived areas of the Borough	Quality of life	
14	Ensure easy and equitable access to opportunities	Grade	Appraisal
		Strong positive effect	++
		Positive effect	+
		Neutral/no effect	0
		Negative effect	-
		Strong negative effect	--
		Uncertain effect	+/-

Fig 3.2 SA Scoring Matrix

Fig 3.2 SA Scoring Matrix

Table 4 - SA assessment grades

3.13 This Sustainability Statement reflects on the objectives of the council’s own Sustainability Appraisal of the site and demonstrate how the scheme can continue to support these as the scheme progresses to future reserved matters applications.

4 SUSTAINABILITY STATEMENT

4.1 This section provides an account of how sustainability objectives would be met through the site's comprehensive redevelopment. These objectives draw from the council's own policies and climate change and environmental strategy, and include:

- **Efficient** - Drastically improve energy efficiency and reduce operational carbon emissions;
- **Resilient** - Avoid the risks already posed by unavoidable climate change;
- **Circular** - Promote more sustainable patterns of consumption and production;
- **Environmental Management** - Apply the highest standards practical in construction and operation;
- **Integrated** - Promote the site for people and nature; and
- **Connected** - maximising sustainable transport options on site.



Efficient - Drastically improve energy efficiency and reduce operational carbon emissions

4.2 Globally, the built environment accounts for 38% of CO₂ emissions. The UK has set ambitious targets to be net zero by 2050, requiring decarbonisation across all sectors and the move away from fossil fuels. Havant have also developed a climate change and environment strategy which follows this target.

4.3 In order to meet this, radical change is needed to the built environment which requires buildings to be more energy efficient, consume energy from renewable and low carbon sources, all whilst tackling embodied¹ carbon. New development has an important role to play in promoting energy efficiency, often able to emit significantly reduced carbon emissions by comparison to existing building stock to meet national and international climate targets.

4.4 The existing carbon intensity of Langstone Park is high, estimated to be > 100 kg CO₂ m² / annum, reflecting the age and condition of some of the existing buildings. A central objective is to reverse this impact by drastically improving energy efficiency and reducing operational carbon emissions.

4.5 The carbon footprint of the site is estimated to be **4,668 tonnes.CO₂/annum**, based on energy consumption derived from the sites primary half hourly meter. The consumption is split between gas and electrical use:

¹ In the case of the built environment, embodied carbon relates to the carbon emissions associated with the extraction, production and manufacturing of materials used in a building.

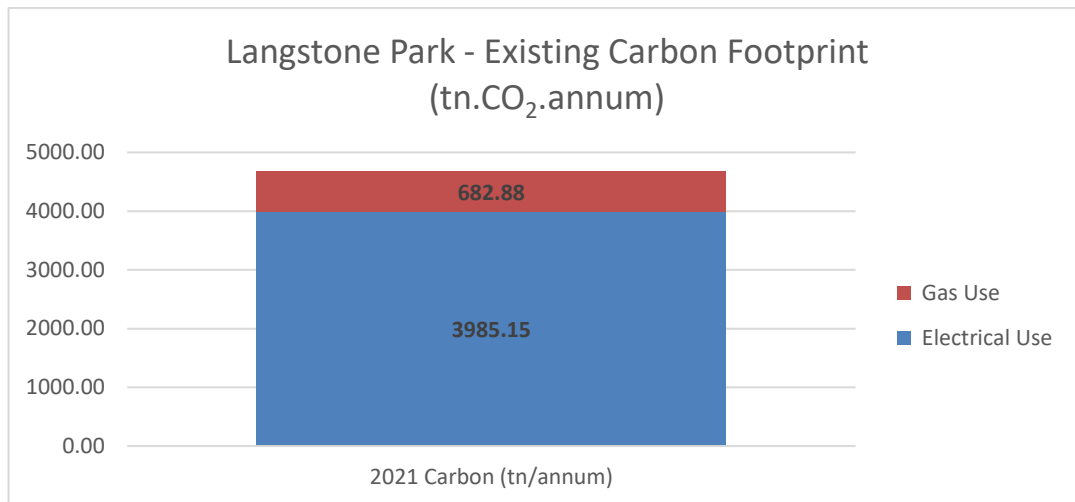


Fig 4.1 - Existing Carbon Footprint

4.6 Policy E12 of the emerging Local Plan includes provisions for energy efficiency and low carbon development. Proposals for non-residential development are expected to meet with BREEAM Excellent. Para (5.124) of the Local Plan confirms the Council will expect building fabric efficiency measures to be prioritised over technological solutions. In addition, Paragraph 5.125 goes on to state that if schemes can provide above the 19% improvement, then this will be a material consideration in the determination of that scheme.

4.7 The energy strategy for Langstone Park will therefore seek to meet the following:

- Demonstrate a significant reduction in operational energy and the associated carbon footprint compared to the existing situation;
- Meet Policy E12 within the emerging Local Plan – ‘efficient use of resources and low carbon design’, and in particular:
 - (b) Appropriately integrate solar gain, natural ventilation or ventilation with heat recovery, fabric performance and Passivhaus principles into the layout and design;
 - (c) Minimise greenhouse gas emissions and improve energy efficiency of buildings;
 - (d) Use district heat or combined heat and power (CHP or CCHP) (existing or proposed or on-site), where appropriate; and
 - (e) Achieve the mandatory energy performance standards required to meet Excellent.

Passive Design Principles

4.8 The promotion of energy efficiency is an important design consideration for Langstone Park, which will be developed further at the reserved matters stage. The design will have regard to an energy and carbon hierarchy, summarised in in figure 4.2, which illustrates the issues which should be considered at different stages of design development.

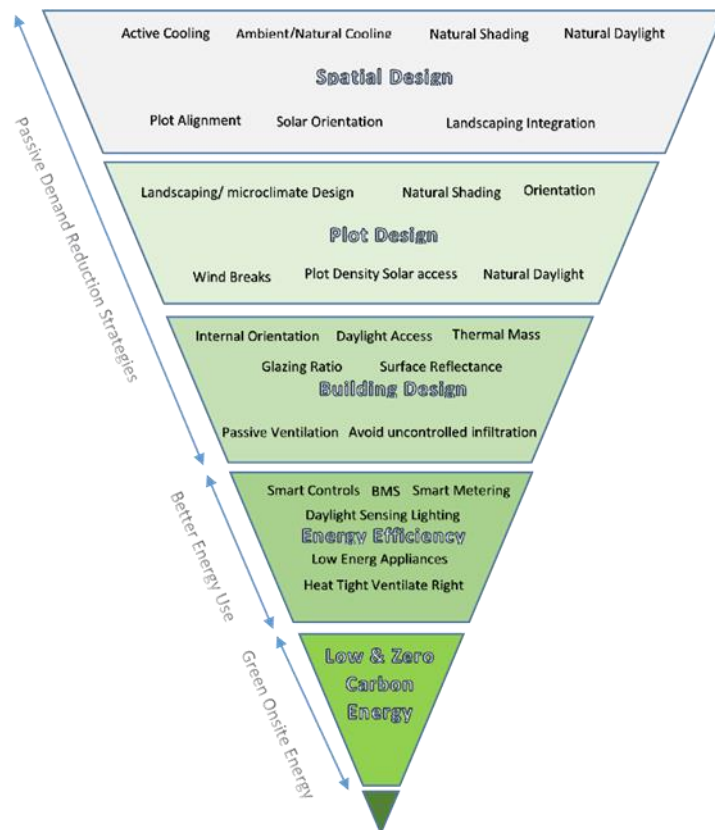


Figure 4.2 Energy & Carbon Hierarchy in design development

- 4.9 In accordance with the above hierarchy, the first stage of design should be to take into consideration basic spatial design elements, including enabling access to solar energy, provision of wind breaks and the integration of the proposed scheme with the natural landscape setting. The second stage considers these issues further in relation to siting of building plots, as well as the scale and massing of the proposed built environment.
- 4.10 Whilst presented in outline, the illustrative site layout demonstrates how good spatial design principles can be readily accommodated. The layout and positioning of occupied floorspace and glazing can be done to access beneficial solar energy, for example. Initial strategies in relation to energy and carbon performance are discussed further in Appendix 1, where an outline energy assessment is presented which explains how carbon reduction may be achieved to exceed building regulations and meet with BREEAM Excellent EPRnc standards, in line with draft policy E12.

District Energy

- 4.11 The existing site is provided heating via a centralised energy centre as pictured in figure 4.3. This would be demolished as part of the final phase of redevelopment. The key initiative is to move away from this fossil-fuel consuming energy centre, by installing systems that deliver heating and hot water by electric means only. This will ensure that the entire development is electrified,

allowing the site to progressively decarbonise in tandem with National Grid projections for the carbon impact of electric into the next decade. This would make the buildings net zero ready.



Fig 4.3 - Existing Energy Centre

- 4.12 Whilst it is recognised that centralised heating is supported by draft policy E12 (d), it is anticipated that the solutions provided would be local to each building on site. This will still be able to deliver BREEAM Excellent and the applicants ambitions carbon targets, but in a way which delivers greater flexibility for the site and future operators.

Integration of Renewable Energy

- 4.13 The proposed development will seek to maximise on-site renewable energy generation through redevelopment. The extensive available roof-space to be provided will be optimal for the installation of photovoltaic (PV) arrays, generating significant quantities of renewable electricity generation per annum.
- 4.14 Opportunities to derive 20% of all projected on-site energy demand from PV is being explored, with attributes as follow considered as a parameter for the outline planning application:
- 900 MWh yield per annum;
 - 1,154 kWp array;
 - 6,000m² of PV.
- 4.15 The feasibility of complementing the PV with solar battery storage will be explored further through design development. The main advantage of solar battery storage is the ability to take the energy generated by solar panels during the day and store it to power the site in the evening and overnight – this would allow Langstone Technology Park to avoid high-energy tariffs which typically occur at night time hours.

Overall Energy Targets

- 4.16 By targeting an operational energy use of 75 kWh/m²/annum through redevelopment, eliminating all fossil fuel use on-site, ensuring an energy efficient design and maximising provision of low-carbon energy, the development is projected to achieve a c.79% reduction in carbon footprint when compared to the existing development. This is a saving expressed against the existing site's carbon footprint. The outline energy assessment presented in Appendix I provides further details, including how savings might be made against each stage of the energy hierarchy and expressed against a Building Regulatory compliant baseline, as opposed the existing site's footprint.

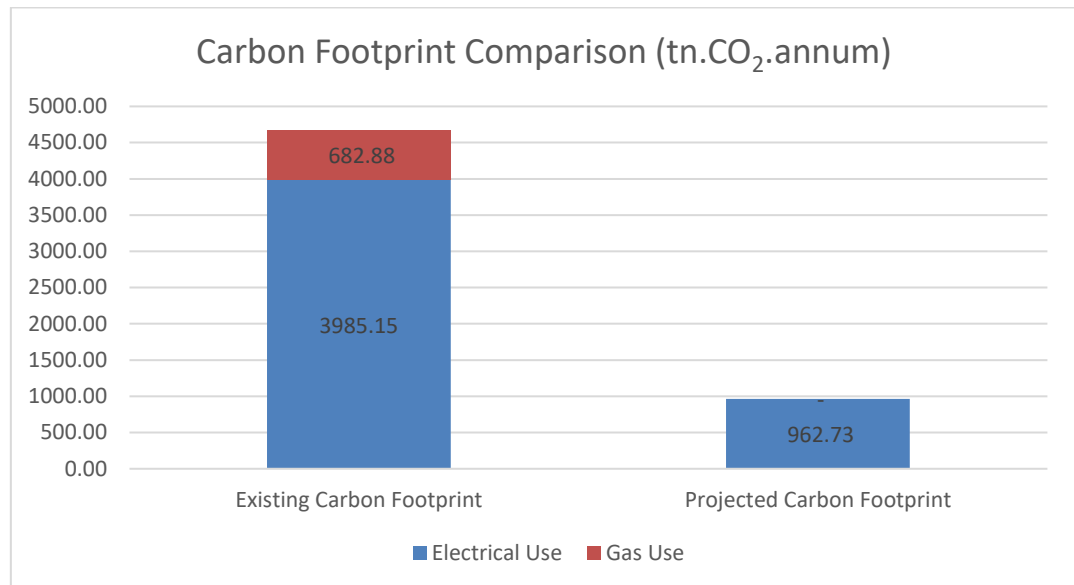


Fig 4.4 - Carbon Footprint Comparison Existing Vs New Build

- 4.17 It is material to note that both the existing and proposed carbon footprint have been calculated using 2021 carbon emission factors for gas and electricity. As the National Grid decarbonises over the coming decade, the carbon associated with electricity will reduce further and track the decarbonisation of the National Grid.
- 4.18 From an operational energy perspective, by targeting an in-use operational energy target of 75 kWh.m²/annum, this will become a more valuable metric to demonstrate improvement over the existing situation, as this more readily demonstrates the improvements in energy efficiency, rather than carbon footprint. The figure below illustrates the scale of the savings per m².

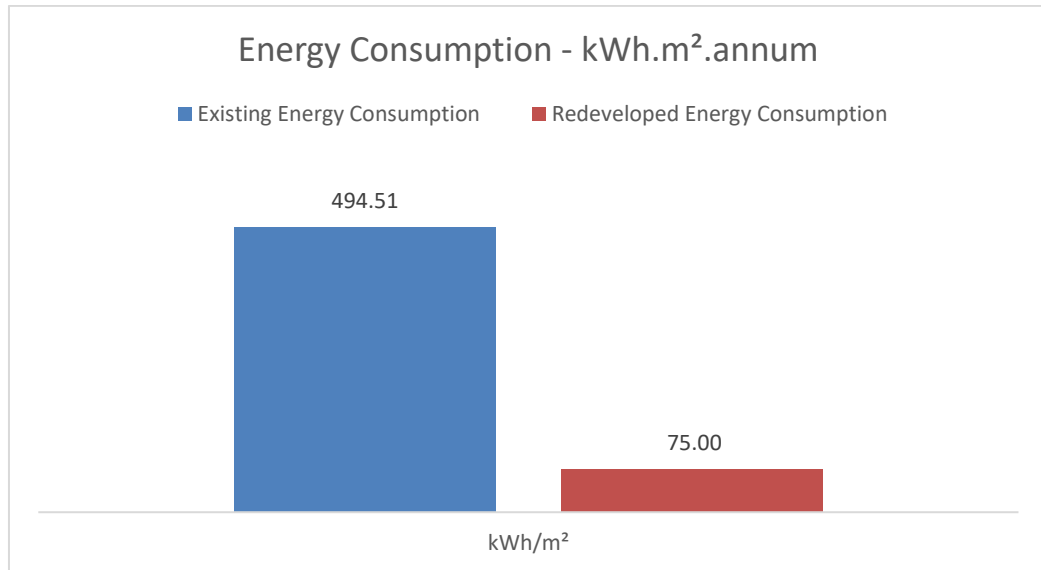


Fig 4.5 - Energy Intensity Comparison Between Existing Site Consumption and Proposed Targets

Electric Vehicle Infrastructure

- 4.19 There has been a significant increase in the uptake of electric vehicle and hybrid cars in the UK. In 2020, there have been over 370,000 new hybrid / battery electric vehicles registered. The site already benefits from nearby superfast Tesla Charging. The redevelopment will also ensure that all plots benefit from EV charging to meet operators' requirements.

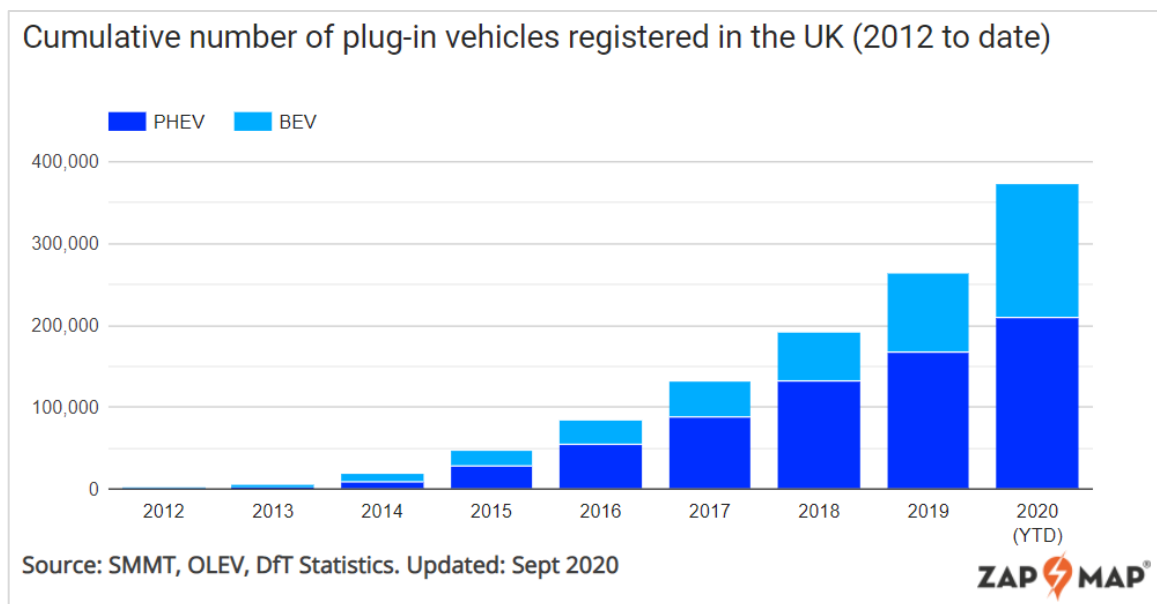


Figure 4.6 - Increase in EV vehicles registered in the UK – 2012 to 2020 (Zap Map)



Resilient - Avoid the risks already posed by unavoidable climate change

- 4.20 Climate change adaptation involves taking steps to adapt to the already inevitable consequences of climate change. In the UK climate change is expected to lead to warmer, wetter winters and hotter, dryer summers. This will lead to greater chances of developments overheating, and increased concerns for water scarcity.

Flood Risk and Sustainable Drainage

- 4.21 A flood risk assessment and surface water drainage strategy has been submitted with the application, which considers how surface water can be managed sustainably. According to the Environment Agency, the site is located within Flood Zone 1 and as such, it is suitable for the proposed development. The Government Flood Maps identify the site to be at very low risk from flooding from rivers or the sea, surface water or from reservoirs. The Strategic Flood Risk Assessment (SFRA) confirms that the site is sequentially preferable as it is in Flood Zone 1 only.
- 4.22 The proposed surface water drainage strategy for the site incorporates a combination of SUDs measures, including attenuation basins, swales, permeable paving and geo – cellular storage. In combination these will ensure that the development can be drained without increasing flood risk on site or elsewhere for up to the 1 in 100-year rainfall event, incorporating a 40% allowance for climate change in accordance with best practice.

Water efficiency

- 4.23 The south is one of the driest parts of the UK and Portsmouth Water, who provide water to the site are classified as being at serious stress levels.
- 4.24 In relation to on-site water conservation, emerging Policy E12 requires all new dwellings to achieve the higher water efficiency standards than Building Regulations Approved Document Part G, however no standards are imposed for non-domestic buildings. The pursuit of BREEAM Excellent would help to secure water efficiency measures within the new buildings and site.
- 4.25 Through the application of BREEAM, the measures employed in this scheme for water conservation are envisaged to be the following;
- Rainwater harvesting is proposed as part of the base specification to reduce the demands on potable water within the buildings.
 - The specification of efficient water fittings where feasible, in line with BREEAM;
 - Water leak detection will be employed around the site.

Mitigate Urban Heat – the use of green Infrastructure and building design principles

- 4.26 Urban heat islands can occur, mainly in summer months, and perpetuated during anticyclone events in which wind strength is low. The effect is exasperated in urban areas, where there is generally increased thermal mass from building and pavement materials, greater human activity, alongside less vegetation and open water which act as a thermo regulator and serve to cool the air. Higher summer temperature can lead to buildings overheating.

- 4.27 Whilst the Borough doesn't accurately map urban heat risks, it is relevant to note that the development site is located close to the sea, where such risks are reduced to coastal breezes. The existing site is also substantially developed, and therefore development would generally not lead to the worsening of existing situations.
- 4.28 The development will be designed to reduce the risk of overheating through the following principles:
- High albedos affect materials on the roof,
 - Integrated landscaping offering shade across the park
 - Overheating analysis will be undertaken through further design stages to optimise glazing and the requirement for building integrated solar shading.
 - Passive design analysis will be undertaken to promote natural cooling.



Circular – Promote more sustainable patterns of consumption and production

- 4.29 It is recognised that the existing site has been an important part of Havant's economy since the 1970s, however occupancy of the site is now at approximately 40% and comprehensive redevelopment is considered fundamental in order to meet the expectations of future occupants and to fulfil the site's full economic potential. The redevelopment of Langstone Park will inevitably require new resources, with an associated impact on embodied carbon. The aim is to limit these impacts as far as possible through pursuing circular principles in the site's phased redevelopment.
- 4.30 A Circular Economy is an alternative method of considering how materials are used, moving away from a Linear Economy model of using and disposing, to considering all materials, including waste materials, as a resource with a value. The alternative approach is detailed in figure 4.7.

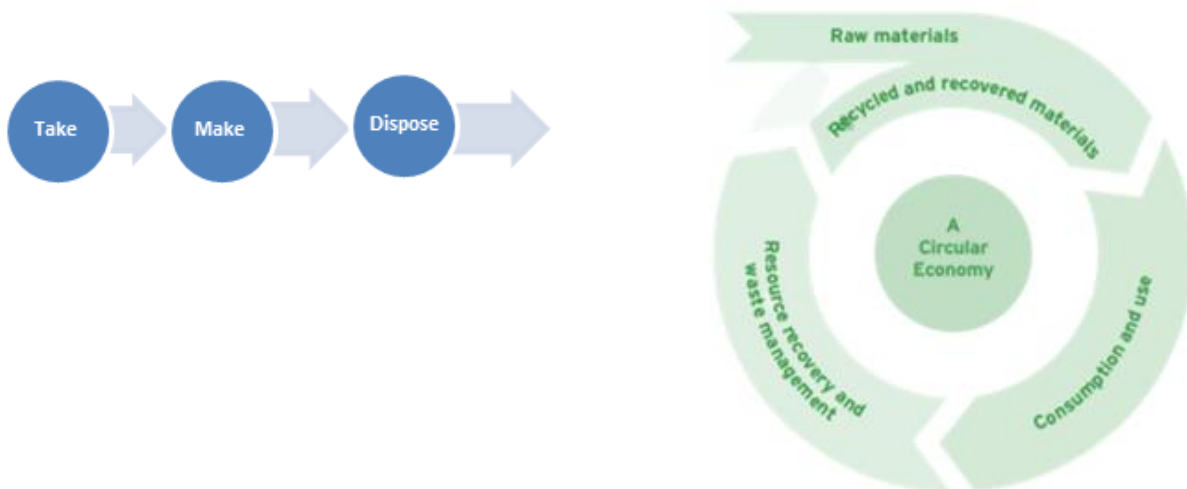


Figure .4.7 - Illustration of Linear (left) and Circular Economy models (right)

- 4.31 The Circular Economy is a relatively new concept which emerged in the 1980s, however has only recently become a mainstream factor in building design. It would not have been a consideration during the design and construction of the original Langstone Park site. Many of the buildings are not designed for ease of adaptation or replacement, and parts of the existing site include failing building fabric and highly inefficient building services which are not easily replaced without significant refurbishment work.
- 4.32 The applicant has set an objective to promote more sustainable patterns of consumption and production. Circular principles have been established for the project, which follow recognised best practices. These include:
- Principle One: Design in layers for ease of maintenance;
 - Principle Two: Manage waste sustainably and at the highest value; and
 - Principle Three: Conserve and optimise materials, whilst reducing embodied carbon.

Principle One: Design in layers for ease of maintenance

- 4.33 The scheme will address the first circular economy principle by ensuring the design is flexible and where possible adaptable, thereby increasing the building's lifespan and minimising maintenance, and by aiming to reduce construction, demolition and excavation waste arisings. The scheme will follow the principle to build in layers, reducing the life cycle impact of replacement and ensuring flexible use.

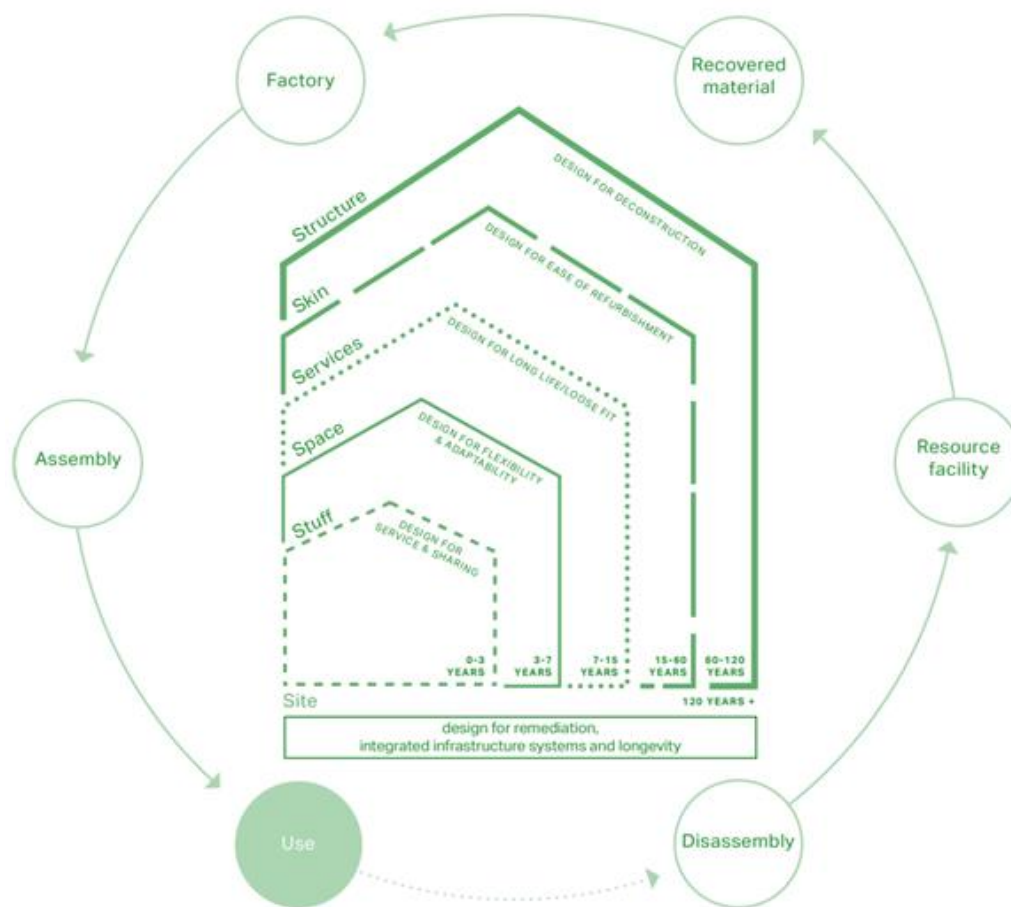


Figure 4.8 – Designing in Layers – (Concept visualised by Useful Projects)

4.34 Each phase of development will require consideration is given to the following BREEAM related studies:

- A material durability study in line with BREEAM Mat 05.
- A material efficiency study in line with BREEAM Mat 06.
- A BREEAM disassembly and adaptability study (Wst 06), ensuring a loose fit, flexible building.

Principle Two: Manage waste sustainably and at the highest value

4.35 The development will aim to implement the second principle of circular economy by ensuring demolition, construction and municipal waste is managed carefully to maximise recycling and reuse and minimise waste sent to landfill. This would include the development of a Resource Management Plan to manage all materials at their highest values.

4.36 To ensure alignment with draft Policy E12 “efficient use of resources and low carbon design” the proposed development will aim to maximise the direct reuse of materials onsite and minimise demolition waste transported offsite. A pre demolition audit has been undertaken for the project

at an early stage to inform opportunities. This predicted Key Demolition Products (KDPs) and the amount of materials likely to arise from demolition activities associated with each. These are shown in Table 4.1 and graphically in Figure 4.9.

Table 4.1 - Estimated material quantities and associated best practice recovery indices

Key Demolition Materials Summary				
Material	Weight (tonnes)	Demolition Recovery Index*	Demolition Recovered Materials Potential (tonnes)	Greenhouse Gas Emissions - kgCO ₂ e **
Concrete	180,000	1.00	180,000	178,045
Brick and Block	15,000	1.00	15,000	14,837
Steel	10,000	1.00	10,000	9,891
Asphalt	5,000	0.95	4,750	4,946
Glass	500	1.00	500	10,647
Bituminous Material	500	0.95	475	10,647
Mixed Metal	500	1.00	500	495
Plasterboard	200	0.95	190	198
Insulation	200	1.00	200	198
Plastic	50	0.95	48	49
Totals	211,950		211,663	229,953
Recovery Index (%)	99.86			

4.37 The following conclusions can be drawn from the pre demolition audit:

- Demolition activities is estimated to generate circa 212,000 tonnes of demolition material;
- The potential theoretical recovery rate of the demolition material is 99.86%, and is based on assumed best practice standards of demolition;
- The estimated greenhouse gas emissions of the disposal of these materials is estimated to be 229,953 kgCO₂e². This will be mitigated as far as possible by re-using materials on site, for example through re-levelling and opportunities for direct reuse.

² Emission factors based on UK Government Greenhouse gas reporting: conversion factors (2021) for waste disposal of construction and other waste materials. Available online: gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

Langstone Park Demolition Key Demolition Quantities (Estimated)

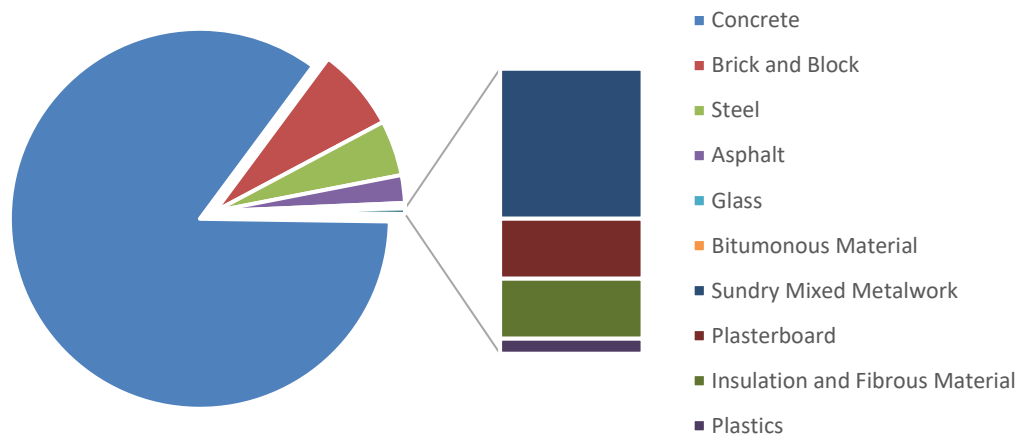


Figure 4.9. Percentage breakdown of key demolition materials

- 4.38 Considering the total quantities highlighted in table 4.1, there is significant opportunity to minimise waste sent off site and maximise waste diverted from landfill. In order to establish a base rate for material recovery the Demolition Recovery Index (DRI) percentage of building elements, products or materials to be reused or recycled and has been set on the basis of best practice in accordance with the Institute of Civil Engineers (ICE) Demolition Protocol 2008.

Principle Three: Conserve and optimise materials to reduce embodied carbon.

- 4.39 The new development at Langstone Park seeks to ensure that material and resource use is minimised as far as possible. It is recognised that new construction can have a high embodied carbon impact, and whilst planning policies in Havant don't yet fully address these impacts, the applicant intends to manage these as far as possible, in line with best practices.
- 4.40 Moving towards a net zero carbon-built environment will require measurement and mitigation of carbon impacts across all stages of a building's lifecycle. A Whole Life Carbon Assessment (WLCA) addresses a building's entire carbon impacts throughout its lifecycle, and will be used to help reduce embodied carbon, where practical.
- 4.41 Through reserved matters applications, the applicant will progress LCAs for each phase, which will quantify the embodied carbon in line with the following key stages:
- **A1-A3: Product Stages** - i.e., all emissions from materials and products used in the buildings;
 - **A4-A5: Construction Stage** - i.e., all emissions from the construction process itself;
 - **B: In-Use Stage** - i.e., all emissions from maintenance, replacement and repairs;
 - **C: End of Life Stage** – i.e., all emissions from the demolition at the end of life.

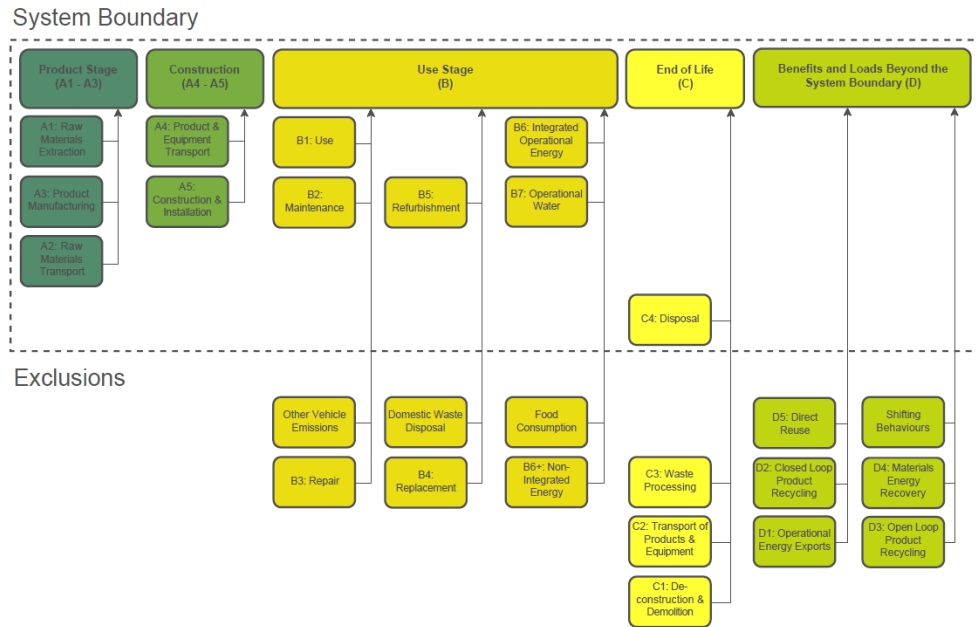


Figure 4.10 - WLCA Boundary

4.42 The chart below taken from the London Energy Transformation Initiative (LETI) / Sturgis Carbon Consulting demonstrates how 50% of all carbon associated with a B2-B8 building³ is associated with carbon emitted before practical completion.

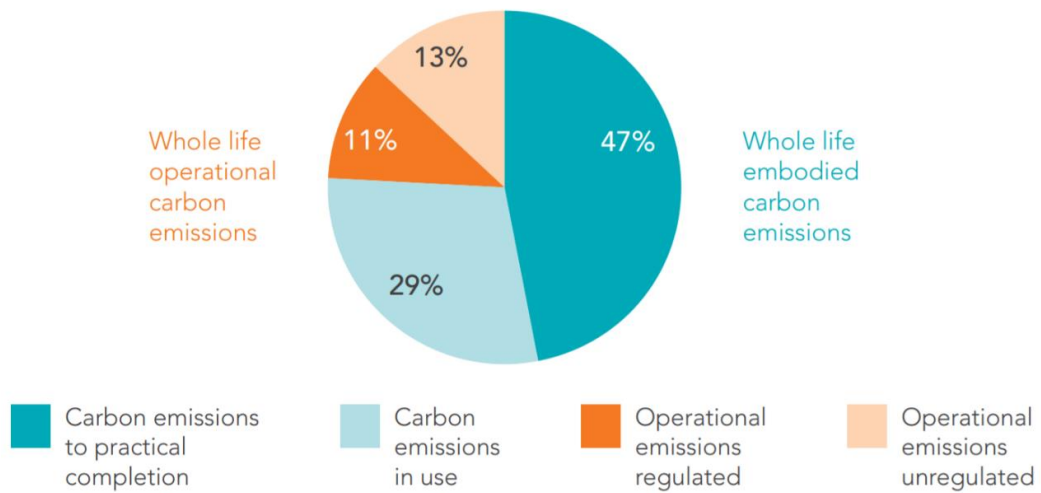


Fig 4.11 - Life Cycle Emissions Stages for a B2 / B8 type building – LETI

4.43 Particular focus will be given to A1-A3 (Product Stages) and A4-A5 (Construction Stages) as this is where the applicant can have the greatest impact from an embodied carbon perspective.

³ Research from UK Green Building Council's Net Zero Buildings – Framework Definition

4.44 Through the reserved matters application(s) and detailed design, focus will be on:

- Reuse of materials available on site;
- Lean structural frame design;
- Low impact materials;
- Prioritisation of materials with Environmental Product Declarations (EPDs).

Targeting Reductions in Embodied Carbon

4.45 The WLCA strategy will be applied iteratively through further design stages and will ultimately inform material and product selections to ensure A1-A5 emissions are accounted for and minimised. The applicant will aim to reduce construction-stage embodied carbon (A1-A5) below a static target of **550 kg.CO₂.e/m²**, a best practice target drawn from LETI and RIBA 2030 Challenge.



Environmental Management - Apply the highest standards practical in construction and operation

Application of BREEAM

4.46 Draft Policy E12 requires new development over 1000 m² of floorspace to achieve BREEAM Excellent. BREEAM is the world's leading sustainability assessment for buildings. According to records there are eight buildings certified to BREEAM standards in and around Havant Town Centre, the council's own offices at the civic centre achieve a Very Good rating, however none of the existing buildings at Langstone Park are certified to BREEAM standards.

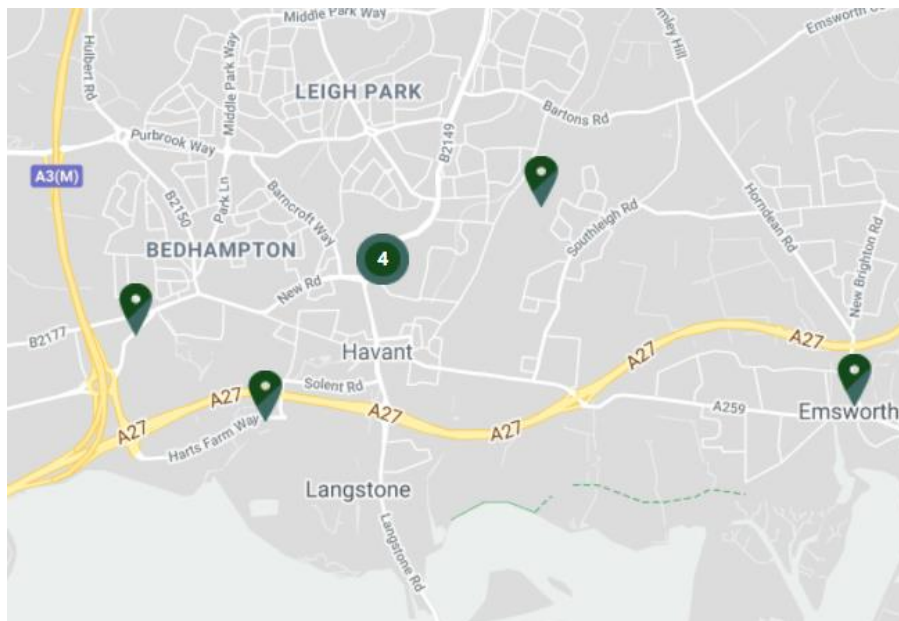


Fig 4.11 - BREEAM Certified buildings in Havant

- 4.47 The first phase of development is underway and is expected to reach BREEAM Very Good as a minimum. The comprehensive redevelopment of Langstone Park will enable higher standards, with BREEAM Excellent a target for all further buildings with a footprint over 1000 m². BREEAM Excellent will be pursued as a sustainable design principle and a planning condition could be expected accordingly. A BREEAM Strategy is provided in Appendix 3 which demonstrates how BREEAM Excellent would be facilitated, against the current New Construction 2018 shell standards.

Wellbeing Principles

- 4.48 In addition to BREEAM, the Applicant wishes to align with the most up to date best practices in sustainable design and construction as part of their own Environmental, Social and Governance (ESG) ambitions. Integral to this ambition is delivering a development that puts the health and wellbeing of future occupants at the centre of design decisions.
- 4.49 BREEAM includes a category on wellbeing, however more advanced wellbeing standards also exist that are becoming mainstream, particularly for commercial offices. Unlike BREEAM, which would provide a certificate at practical completion, the pursuit of wellbeing design principles would help facilitate tenants gain recognition (via certification should they so choose) in the future, once their fit out is complete. Whilst it is not intended that this would be an obligation on future tenants and therefore should not be a planning condition due to the need to remain flexible, the applicant wishes to facilitate this opportunity, by ensuring that the masterplan and building plots can meet with the base construction requirements. A series of wellbeing design principles have been defined which would inform future reserved matters applications to help achieve this. Appendix IV summarises those main opportunities, which relate to:
- Spatial Design Principles;
 - Individual Building Design Principles; and
 - Future Management Principles.



Integrated - Promote the site for people and nature

- 4.50 Since the 1970s, it has been shown that 41% of all UK species have declined. Objective 8 of the Council's Sustainability Appraisal is to 'Protect, enhance and manage biodiversity and geodiversity – supporting the enhancement and connectivity of ecological green networks, wherever possible.
- 4.51 In accordance with site allocation policy KT6, an ecological appraisal has been undertaken to investigate and inform the masterplan layout and outline planning application. The work follows previous site investigations undertaken as part of the original Phase 1 planning application (APP/19/00703). In terms of important ecological designations, Chichester and Langstone Harbour Ramsar and SPA is located approximately 0.3km south of the site and Solent Maritime

SAC lies approximately 0.6km south. In addition, Warblington meadow SSSI, West Hayling Local Nature Reserve (LNR) and Hayling Billy LNR are present within 2km of the site.

4.52 The existing site is generally characterised as being hardstanding and buildings, with mown amenity grassland. There are small pockets of mixed woodland and introduced scrub in places. The areas planned for redevelopment generally comprise the buildings, mown amenity grassland and hard standing, all of which have low ecological value.

4.53 The proposals aim to deliver biodiversity Net Gain, opportunities for enhancements include:

- planting of native trees and scrub particularly fruiting and flowering species;
- creation of wildflower habitat;
- creation of a wildlife friendly pond;
- inclusion of bird boxes (house sparrow and swallow) upon the new proposed buildings; and
- inclusion of bat boxes upon trees and buildings across the site.



Connected - Maximising Sustainable Transport Options on Site

4.54 Langstone Park has been recognised as a highly sustainable location, being in close proximity to both the strategic highway network, as well as the town centre which offers cycle, walking, bus and rail opportunities.

4.55 In terms of the site, draft Policy KT9 requires the enhancement of pedestrian and cycle routes between the site, Havant Town Centre and adjacent employment areas. This includes the enhancement of public footpaths to the north and east of the site. The policy also requires that the design and layout of the redevelopment provides for pedestrian, cycle and bus permeability throughout the site.

4.56 The closest bus stops to the site are located within walking distance along Langstone Road which runs along A3023 to the east of the site. These stops provide access to local bus services, No. 30 and No. 31, which link Hayling Island to the south with Havant town centre to the north.

4.57 Havant train station is located approximately 1.0km walking distance to the north of the site which translates into an approximate walking/cycling time of circa 14 minutes. The station is operated by South Western Rail and provides regular services to and from local and national destinations. It has direct services to Portsmouth, London Waterloo, London Victoria via Gatwick airport, Brighton, and Southampton.

4.58 The site is adjacent to Broadmarsh Industrial Area and is within 800m of National Cycle Route 2 (Harts Farm Way), Solent Retail Park and the "Historic Core". The latter two are part of Havant Town Centre. The Park is already served by a convenient and high-quality network of footpaths, footways and cycle routes. The principal desireline to and from the site is to the north into Havant

town centre. Public Footpath 51 provides for these journeys, running along the north-eastern boundary of the site with connections into the north-east corner.

4.59 The Council's own Sustainability Appraisal of Langstone Park considered that redevelopment in proximity to Havant Town Centre would reduce the need to travel by private car. This would improve the efficiency of the transport network. Due to these factors, the site was assessed as having a "positive effect" against the Council's own Sustainability objective.

4.60 In terms of sustainable transport initiatives, the following is proposed:

- Cycle parking will be provided on site in accordance with local standards, including short stay parking spaces located in accessible locations on site.
- EV charging will be provided.
- The buildings are expected to include measures to facilitate staff walking and cycling, including showers and site welfare facilities.
- A Travel Plan has been submitted with the application to encourage sustainable transport options for people travelling to site.
- There is also potential for new bus stops to be introduced into the Site if required.

5 CONCLUSION

5.1 Envision has been appointed by XLB Property Ltd (the applicant) to produce a Sustainability Statement, to support a planning application for the Phased demolition of existing buildings and the erection of new flexible use employment floorspace (Use Classes E(g)(i)-(iii)/B2/B8) and ancillary uses (Use Classes E(b), E(d) and E(f)); and associated works. All matters reserved except Access.

5.2 The following design principles can be summarised from this sustainability statement:

5.3 **Efficient** – The existing carbon footprint of Langstone Park is very high, estimated as over 4,600 tonnes of CO₂ per annum. The redevelopment proposals would lead to significant improvements over the existing site baseline, by adopting a hierarchical approach to energy and carbon. A hierarchy is set out in the statement which will be followed at reserved matters stage. An illustrative energy assessment has been completed Appendix I which indicates how the scheme may exceed current building regulations standards, incorporate renewable energy to save approximately 76.79% CO₂ emissions by comparison to the current Building Regulations using SAP 10 emissions factors. Key principles include:

- The scheme will employ passive design techniques alongside high standards of thermal construction;
- The scheme will be designed to reduce energy by following an energy hierarchy. The applicant will seek to implement a design strategy that sets a limit of 75 kWh/m² for the development; and
- On-site generation will be utilised through solar rooftop PV.

5.4 **Resilient** - The scheme is located within a low flood risk zone. A sustainable drainage scheme concept has been devised which will enable the development to current brownfield runoff rates, based on a 1:100-year storm event with a 40% allowance for climate change. The scheme will also be designed to reduce the risks of overheating and conserve water.

- The scheme will incorporate sustainable drainage and follows the SUDs hierarchy, using green infrastructure wherever possible, and via a combination of permeable car park bays and cellular storage.
- Buildings will be designed to manage overheating risk, through orientation, the use of high albedo materials and solar controls on glazing.
- Water conservation measures will be employed throughout the site, including the use of rainwater harvesting for flushing WCs.
- Buildings will be designed with durability measures integral to their design, ensuring resilience against increased storminess.
- Overheating analysis will be undertaken through further design stages to optimise glazing and the requirement for building integrated solar shading.
- Passive design analysis will be undertaken to promote natural cooling.

- 5.5 **Circular** – It is recognised that construction activities would have an impact on resource consumption and embodied carbon. The reserved matters applications will follow design principles for waste management, building in layers and managing embodied carbon.
- Each phase of development will be brought forward using Life Cycle Assessment (LCA) to optimise embodied carbon in the buildings through design and specification.
 - Each phase of development will attempt to limit embodied carbon to best practice levels through material selection and reuse, alongside highly efficient design.
 - Each building will be designed in layers, to facilitate ease of maintenance and replacement.
- 5.6 **Environmental Management** - The development is being taken forward with a screening request to determine whether the proposals constitute EIA development. The application is supported by a suite of technical documents which demonstrate how environmental impacts would be managed and mitigated. The scheme will also follow design standards, including BREEAM Excellent and Wellbeing principles for the base build.
- Each phase of development would be designed to meet with BREEAM Excellent for the shell works.
 - Each phase of development will be designed to accommodate applicable wellbeing design principles in the plot design and building's shell.
 - The site will be operated under an Environmental Management System (EMS), focusing on procurement using the local supply chain.
- 5.7 **Integrated** – The masterplan will contribute to the green infrastructure network by introducing green corridors to enhance biodiversity and provide an attractive environment for users.
- The site will obtain ecological net gain.
 - The soft landscape scheme will incorporate native planting and planting that attracts flora and fauna where possible to enhance biodiversity.
 - Further habitat enhancements will be introduced through the addition of bird & bat boxes along with other enhancements such as log piles where deemed appropriate by a suitably qualified ecologist.
 - The addition of soft landscaping and green links along with the addition of external amenity spaces will enhance well-being for users of the Park.
- 5.8 **Connected** - The site is in a highly sustainable location. The developing masterplan incorporates a range of transport measures to reduce impacts from private vehicles. This includes provision of electric vehicle charging, space for the secure storage of cycles and greater pedestrian and cycle permeability.
- The site will prioritise movement within the development for pedestrian and cycle transport modes;

- The masterplan will provide a network of permeable, safe and convenient pedestrian and cycle routes;
- The masterplan will achieve quality walking and cycling connections to local facilities; and;
- The proposed development will operate a Travel Plan to encourage the uptake of sustainable modes of travel in place of use of a private car.

APPENDIX I – OUTLINE ENERGY ASSESSMENT

- A1.1 This section specifically considers the likely energy use by the proposed development as it relates to local policy, Part L of Building Regulations and BREEAM. The Sustainability Statement considered the general good design approach to managing energy and carbon. However, although it is early in the design process it is necessary to consider how the scheme could comply with national and local energy policy and building regulation requirements.
- A1.2 This assessment sets out an indicative strategy for the development in order to demonstrate compliance with emerging Policy E12, which requires new development to meet BREEAM Excellent.
- A1.3 Under BREEAM 2018, a BREEAM Excellent building achieves an Energy Performance Ratio for New Construction (EPR_{nc}) of 0.4, equivalent to 4no. BREEAM credits.
- A1.4 This section will provide a set of design considerations for the detailed design at reserved matters stage to follow, which would need to be examined through future viability and feasibility testing, alongside prevailing best practices at the time of construction.

Methodology

- A1.5 As this is an outline application, with design details unknown, this energy assessment sets out to demonstrate compliance with the above policy requirements as follows:
- **Step 1 – Establish the Target Emission Rate**
This is the carbon emissions baseline against which proposed measures will show a reduction. It will be based on typical and benchmark Target Emission Rates for chosen building types for regulated carbon emissions as required by building regulations
 - **Step 2 – Reducing Energy Requirements (Building Regulations Compliance)**
This will set out a range of energy-saving and renewable technology design measures in order to demonstrate both a route to compliance with Part L of Building Regulations and to achieve a BREEAM EPR_{nc} of 0.4.

Update to Part L and Future Use of SAP 10 Emission Factors

- A1.6 An 'interim' uplift to Part L & F of Building Regulations will be introduced in December 2021, with enactment from June 2022. A key part of this interim uplift will be the use of updated emission factors for electricity (SAP 10/10.1), which reflect the reduced carbon intensity of the national grid. The SAP 10 emission factor for electricity is widely used and is set at 233 grams of CO₂/kWh.
- A1.7 It is therefore reasonable to assume that the interim Part L will be a statutory document by such time that reserved matters applications are being brought forward. Therefore, for the results presented in the main body of this section, the applicant has used the SAP 10 grid emission factor of 233 grams of CO₂/kWh.

Securing Carbon Emission Reductions

- A1.8 The development is being brought forward as an outline application with the details of individual plots' energy strategy to be resolved at reserved matters stage. Therefore, the strategy presented in this outline energy assessment remains indicative.

Development Mix

- A1.9 The applicant is seeking an outline planning application for a site-wide masterplan which seeks to deliver up to 63,290 sqm GEA of floor space, consisting of 62,781 sqm GEA of flexible use Class E(g)(ii)-(iii)/B2/B8, with 509 sqm GEA Class E (café & gym) at the site. With the exception of access, all matters are reserved.
- A1.10 Representative energy modelling has been undertaken on the above Class E/B2/B8, representing 99% of floor area for the outline application and applied across the whole site area.

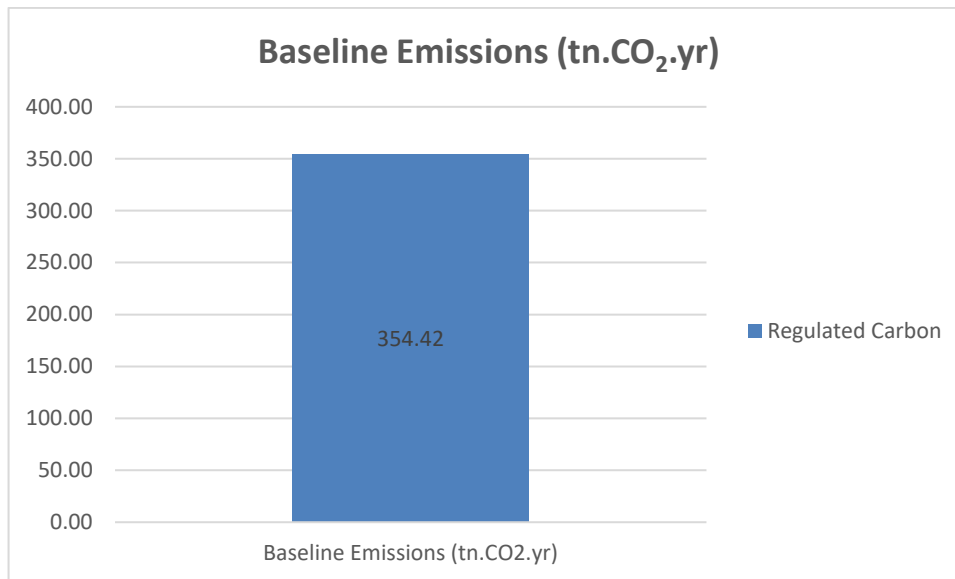
Step 1 – Establish the Target Emission Rate

- A1.11 The total emissions savings calculated in this report are expressed against a Building Regulation Target Emission Rate. This is the Baseline against which the measures implemented must show an improvement.
- A1.12 The Target Emission Rates for the development have been established using typical and benchmark examples, calculated using DCLG approved methodology and software.
- A1.13 The calculated carbon emissions and total energy demand for the Target Emission Rate are illustrated below. The calculated figure demonstrates a Part L1A Building Regulations 2013 compliant model – arrived at using SAP 10 emission factors.

Table A.1 Step 1 Baseline Emissions

Unit	Total Area (m ²)	SAP 10 TER	Total Target Regulated Emissions (tn.CO ₂ .yr)	Target Regulated Energy Demand (kWh/annum)
Class E (B2/B8)	63,290	5.60	354.42	1,522,757.40
		Total	354.42	1,522,757.40

- A1.14 The indicative target figure for the entire development is **354.42 tonnes.CO₂.annum**. This the figure that must be improved upon by the indicative design proposals in this section.



Step 2 – Reducing Energy Requirements

- A1.15 Robust low carbon seeks a ‘fabric first’ approach to reducing the carbon footprint of the built environment. This is achieved through buildings using less energy by improving u-values, airtightness and lighting efficiency amongst others. This is the first step to consider in reducing a building’s carbon emissions before the efficient delivery of power, heat or renewables are considered by a design-team.

Fabric Efficiency

- A1.16 U-Values are used to measure how effective elements of a building’s fabric are as insulators. That is, how effective they are at preventing heat from transmitting between the inside and the outside of a building. The lower the U-value of an element of a building's fabric, the more slowly heat is able to transmit through it, and so the better it performs as an insulator. Very broadly, the better (i.e. lower) the U-value of a buildings fabric, the less energy is required to maintain comfortable conditions inside the building., The following U-Values are proposed for the development:

Table A.2- Proposed U-Values for Development

Elements	New Thermal Elements: U-Values – W/m ² K	Comment
External Wall	0.18	Walls adjoining unheated warehouse space are assumed to be heat loss walls and will require insulation
Ground Floor	0.25	n/a
Exposed Roof	0.18	n/a
Windows/Glazing	1.6	Assumed as double-glazed with a G-value of 0.40 and Light Transmittance value of 0.744
Rooflights	1.6	Assumed as double-glazed with a G-value of 0.50 and Light Transmittance value of 0.744
Roller Shutter Doors	1.5	-
External Solid Doors	2.2	-
Whitewall (adjoining unheated spaces)	0.35	Walls adjoining unheated warehouse space are assumed to be heat loss walls and will require insulation
Floor (adjoining unheated spaces)	0.25	Floors adjoining unheated warehouse space are assumed to be heat loss walls and will require insulation

Air Permeability

- A1.17 The designed Air Permeability Rate (APR) has been assumed at 3 m³/h.m² @ 50Pa for the entire development. This will require good construction detailing to be adopted by the design team and main contractor.

Lighting

- A1.18 This energy demand will be limited by the installation of efficient LED lighting with the use of photocell daylight control where relevant. The following lighting design requirements are therefore stipulated:

Table A.3 – Lighting

Lighting zone	Luminaire Lumens / Circuit Watt	Light Output Ratio	Photocell Dimming (Parasitic Power – W/m ²)	Occupancy Sensing – On/Off (Parasitic Power – w/m ²)
Office/Store/WC	110	1	No	Yes (0.3 W/m ²)
Warehouse Areas	120	1	Yes (0.3 W/m ²)	No

Ventilation

- A1.19 The ventilation strategy will be detailed to improve the energy efficiency needed to lower carbon emissions. The following strategy is proposed:

Table A.4- Ventilation

Ventilation Zone	System	Specific Fan Power	Heat Recovery (Efficiency)
Warehouse	n/a	n/a	n/a
WC/Changing	Basic Extract	0.4	n/a
Office/Gym	AHU	1.5	85%

Space Heating & Cooling

- A1.20 The first low-carbon/renewable energy proposed for the units is an air-source heat pump (ASHP). ASHPs with the following specifications have been assumed for each commercial unit;
- The proposed ASHP for the ancillary areas is a conventional VRF air source heat pump system⁴.
 - Cooling plant will have a minimum Energy Efficiency Ratio (EER) of 5.5 and SEER of 5.5.
 - The ASHP will have a minimum COP of 4.5 for heating.

⁴ This is a planning stage assumption and subject to change at Stage 3 Detail Design.

- HVAC system controls installed will be operating efficiently and to include automatic monitoring and targeting with alarms for out-of-range values as well as local time and temperature control.

A1.21 The back-of-house heating to amenity areas has been assumed as a fanned electric heater.

Hot Water

A1.22 All areas of low-energy water use are assumed to be served by the same hot water system, an instantaneous electric water heater.

A1.23 For areas of high hot water use (i.e. gym and changing facilities), to negate high energy consumption, hot water will be generated from heat-pump led technology.

Renewable Technology

A1.24 One of the key energy reduction targets(s) of the site is to generate 20% of the development's energy needs from renewable energy, as outlined in Section 4.

A1.25 Initial energy modelling has indicated the B2/B8 plots should generate **c. 10 kWh/m²** of renewable generation to meet this requirement. This level of PV has been modelled for indicative results.

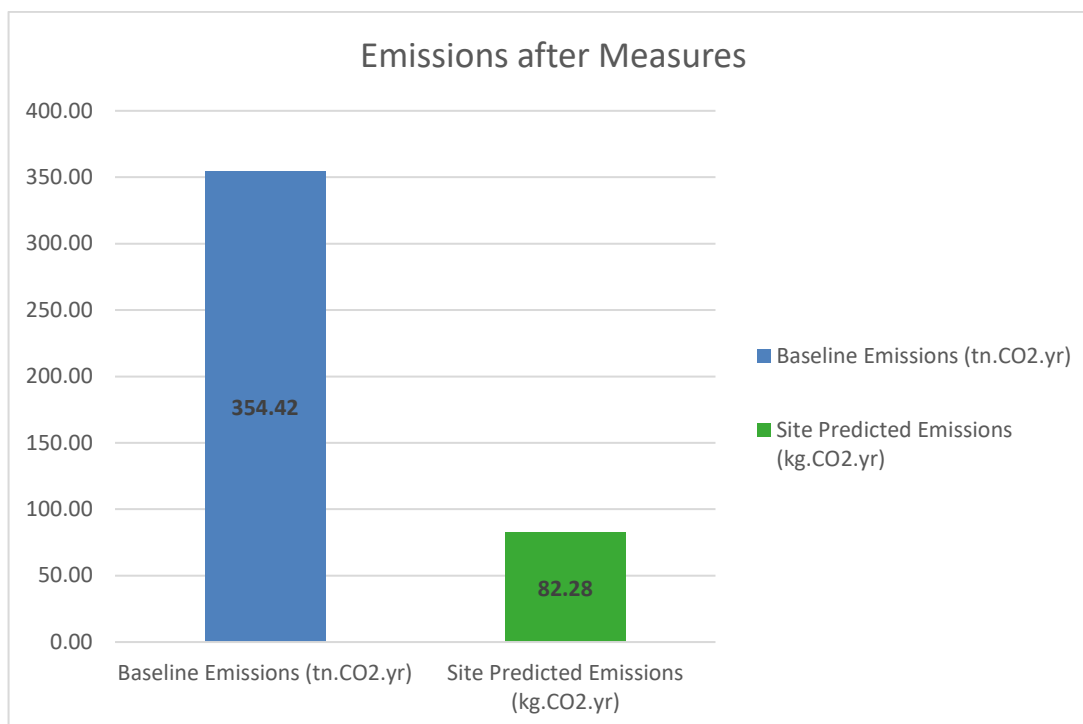
Step 2 – Predicted Results

A1.26 Based on the measures presented in this section, the following tables and graphs represent the Step 2 improvements for the development over the target baseline emissions.

Table A.5 - Step 2 Results

Unit	Total Area (m ²)	SAP 10 TER	Total Target Regulated Emissions (tn.CO ₂ .yr)	Target Regulated Energy Demand (kWh/annum)
Class E (B2/B8)	63290	1.3	82.28	390,499.30
		Total	82.28	390,499.30
		Reduction over Step 1	272.15	1,132,258.1
		% Reduction	76.79%	74.36%

A1.27 As detailed above following the indicative energy saving measures laid out in Step 2, the development could be expected to achieve a **76.79%** reduction in regulated CO₂ emissions – calculated using SAP 10 emission factors.



Results Summary (Step 1 to 2)

- A1.28 At this stage of the project design timeline, the solutions proposed are considered to be technically viable and will deliver the policy requirements in advance of those mandated by building regulations, thus in full support of emerging Policy E12.
- A1.29 The measures laid out in this section provide a set of design considerations for reserved matters applications for the development to follow, which would need to be tested through future viability and feasibility testing.
- A1.30 At this stage, based on the applicants' proposals and strong commitments to energy efficient and carbon reduction, the site could achieve an overall 76% reduction in regulated CO₂ emissions below a Part L baseline, by following the measures laid out in this section. This would also achieve an EPRnc of >0.4 in line with requirements of BREEAM 'Excellent'.
- A1.31 This outline energy assessment sets the parameters of future reserved matters but remains at a strategic level. The calculations in this document are an indication of system size and carbon emissions based on guidance documents, approved software and practical experience.

APPENDIX II – BRUKL OUTPUTS

Project name

Shell and Core

Langstone - Typical B2 B8

As designed

Date: Mon Nov 29 18:51:00 2021

Administrative information

Building Details

Address: Langstone, ,

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: DesignBuilder SBEM

Interface to calculation engine version: v6.1.8

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Ciaran Dorrity

Telephone number: 01908 062819

Address: Unit 2 Lodge Farm Business Centre,
Castlethorpe, MK19 7ESCriterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	11.3
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	11.3
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	2.9
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.31	0.35	"FF - FF Acc WC_P_7"
Floor	0.25	0.25	0.25	"FF - FF Acc WC_F_3"
Roof	0.25	0.18	0.18	"FF - FF Acc WC_R_10"
Windows***, roof windows, and rooflights	2.2	1.7	1.7	"GF - GF Stairwell 2_G_8"
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	3

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- BOH Heater

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

2- Unit 1 VRF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.5	5.5	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

1- Direct Electric DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.019
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I			
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard	
FF - FF Acc WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
FF - FF female WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
FF - FF male WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
GF - GF Acc shower	-	-	0.5	-	-	-	-	-	-	-	N/A	
GF - GF Cleaner Store	-	-	0.5	-	-	-	-	-	-	-	N/A	
FF - FF ancillary office	-	-	-	1.5	-	-	-	-	-	0.82	0.5	
FF - FF main office	-	-	-	1.5	-	-	-	-	-	0.82	0.5	
Hub Office GF - Hub Office GF	-	-	-	1.5	-	-	-	-	-	0.82	0.5	

Shell and core configuration

Zone	Assumed shell?
FF - FF Acc WC	NO
FF - FF female WC	NO
FF - FF male wC	NO
GF - GF Stair Up	NO
GF - GF Acc shower	NO
GF - GF Stairwell 2	NO
Hub Office GF - Hub Office Staircase	NO
FF - FF store	NO
GF - GF riser	NO
GF - GF Warehouse	NO
GF - GF Cleaner Store	NO
GF - GF Lift	NO
Hub Office GF - Hub Office Riser	NO
FF - FF circulation	NO
FF - FF ancillary office	NO
FF - FF main office	NO
GF - GF Reception	NO
Hub Office GF - Hub Office GF	NO

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
FF - FF Acc WC		-	120	-	68
FF - FF female WC		-	120	-	158
FF - FF male wC		-	120	-	160
GF - GF Stair Up		-	120	-	27
GF - GF Acc shower		-	120	-	120
GF - GF Stairwell 2		-	120	-	132
Hub Office GF - Hub Office Staircase		-	120	-	92
FF - FF store		120	-	-	8
GF - GF riser		120	-	-	129
GF - GF Warehouse		130	-	-	144552
GF - GF Cleaner Store		120	-	-	15
GF - GF Lift		120	-	-	117
Hub Office GF - Hub Office Riser		120	-	-	66
FF - FF circulation		-	120	-	213
FF - FF ancillary office		120	-	-	830
FF - FF main office		120	-	-	5098
GF - GF Reception		-	120	100	169
Hub Office GF - Hub Office GF		120	-	-	1669

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
GF - GF Warehouse	NO (-34.8%)	NO
FF - FF circulation	NO (-14.2%)	NO
FF - FF ancillary office	NO (-26.9%)	NO
FF - FF main office	NO (-23.3%)	NO
GF - GF Reception	YES (+71.5%)	NO
Hub Office GF - Hub Office GF	NO (-48.1%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	45062.9	45062.9
External area [m ²]	104481	104481
Weather	BIR	BIR
Infiltration [m ³ /hm ² @ 50Pa]	3	3
Average conductance [W/K]	37345.2	34713.3
Average U-value [W/m ² K]	0.36	0.33
Alpha value* [%]	1.49	11.3

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
100	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	0.65	0.62
Cooling	0.33	0.44
Auxiliary	0.25	0.16
Lighting	9.37	17.98
Hot water	4.5	4.86
Equipment*	30.54	30.54
TOTAL **	15.1	24.06

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	9.59	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	206.07	264.54
Primary energy* [kWh/m ²]	46.36	62.81
Total emissions [kg/m ²]	2.9	11.3

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Other local room heater - fanned, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Natural Gas									
Actual	255.6	21.2	84.3	0	6.7	0.84	0	1	0
Notional	246.5	74.7	28.2	0	6	2.43	0	----	----
[ST] No Heating or Cooling									
Actual	122.5	83.7	0	0	0	0	0	0	0
Notional	126.8	137.6	0	0	0	0	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	61.1	129.7	3.8	8.8	5.6	4.41	4.11	4.5	5.5
Notional	105.2	153	12	11.8	3.3	2.43	3.6	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

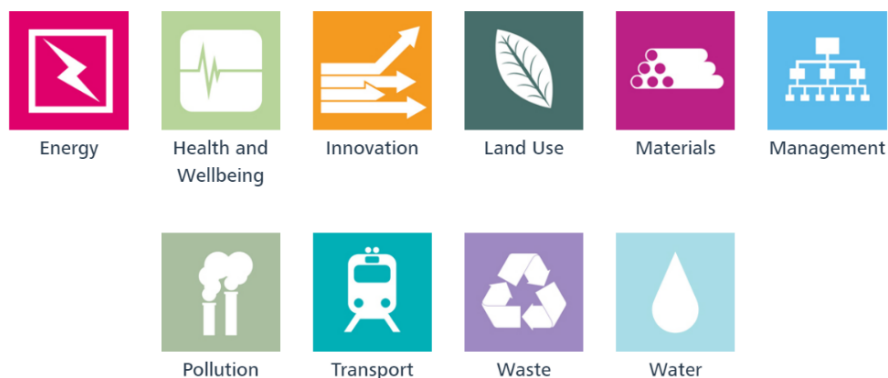
Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.26	"GF - GF Stairwell 2_W_7"
Floor	0.2	0.25	"FF - FF Acc WC_F_3"
Roof	0.15	0.18	"FF - FF Acc WC_R_10"
Windows, roof windows, and rooflights	1.5	1.7	"GF - GF Stairwell 2_G_8"
Personnel doors	1.5	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)]			U _{i-Min} = Minimum individual element U-values [W/(m²K)]
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	3

APPENDIX III – BREEAM STRATEGY

What is BREEAM?

- A3.1 BREEAM (Building Research Establishment's Environmental Assessment Method) is a sustainability rating system for non-domestic buildings. The assessment considers a range of criteria, including principles of Management, Health & Well Being, Energy, Transport, Water, Materials, Waste, Land Use & Ecology and Pollution. Innovation credits are also available, recognising developments which exhibit a new or exemplary level of performance in a specific sustainability issue.



- A3.2 BREEAM ratings range from 'Pass' through to BREEAM 'Outstanding'. A review has been undertaken of the Langstone Technology Park masterplan to consider the applicability of the BREEAM standards towards a development of this nature and how high ratings may be attained.

Why apply it?

- A3.3 Havant Local Plan Policy E12 (e) requires development proposals which involve an increase in non-residential floorspace to achieve the following standards of the Building Research Establishment's Environmental Assessment Method (BREEAM):

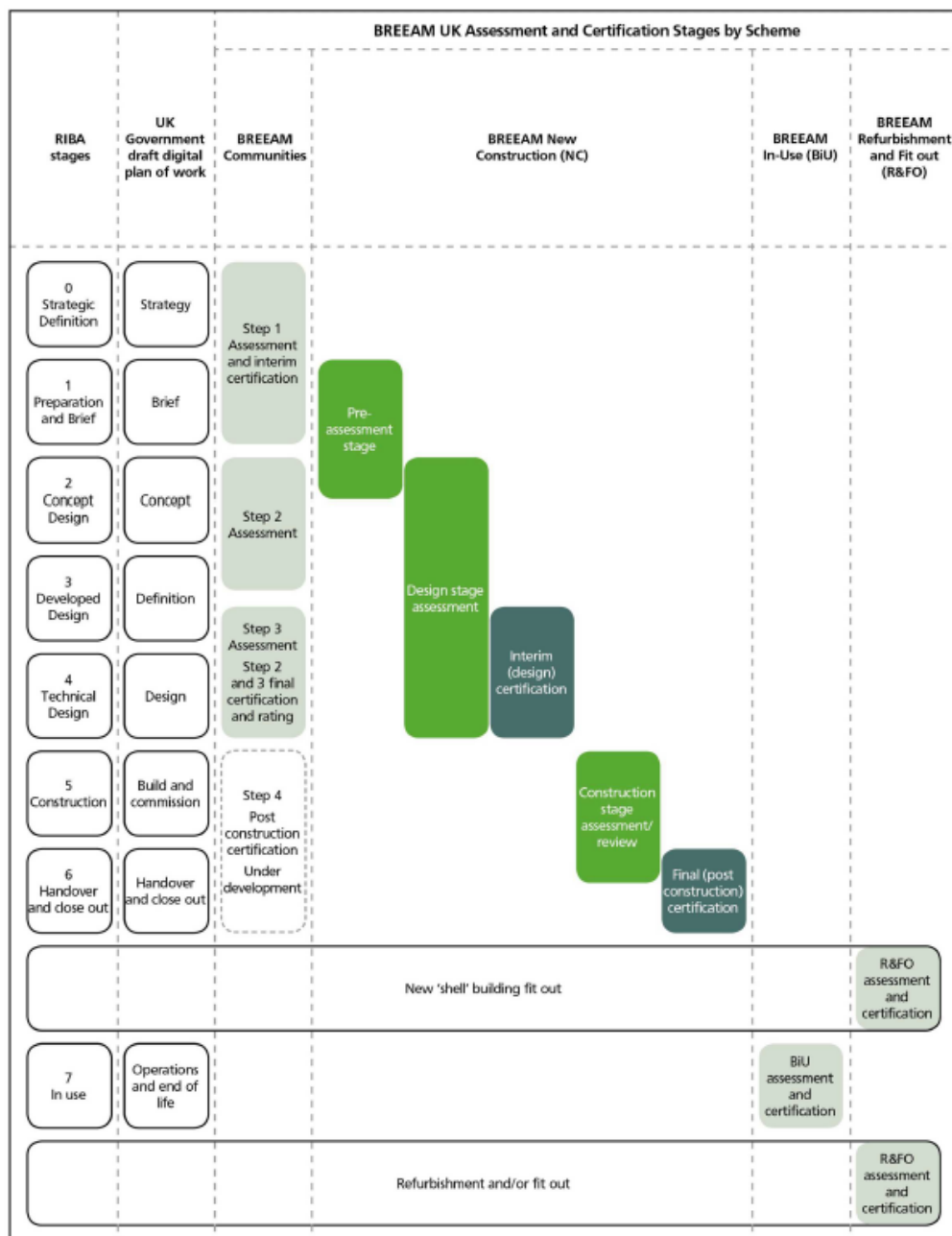
Gross floorspace to be built (sqm)	BREEAM level to be achieved
0-499	Achieving at least Pass under BREEAM is encouraged
500-999	Very Good
1000+	Excellent

- A3.4 There are currently no buildings constructed to BREEAM standards on the Langstone Park Site and it is predicted that the existing buildings would perform no higher than 'Pass' if measured using BREEAM in Use criteria. The existing buildings are often of poor quality

with limited levels of natural light, poor indoor air quality and ageing equipment and finishes. The new

When is BREEAM applied?

A3.5 The table indicates the assessment stages of BREEAM New Construction 2018. An outline planning application generally doesn't fit into the RIBA stages, however in general the high level of scheme development, limited to parameters and design principles indicates that the scheme is still at the strategic definition stage. Through further reserved matters applications it will be necessary to consider how BREEAM applies in more detail for each phase / plot.



Applying BREEAM at Langstone Park

- A3.6 The development is being taken forward as a flexible use Class E(g)(ii)-(iii)/B2/B8. Given the speculative nature of the development it will only be practical to certify BREEAM based on a shell only approach. Furthermore, it is likely that the buildings, which are expected to follow similar construction techniques could be assessed and certified in accordance with the similar buildings approach. Whereby a number of separate, non-domestic buildings which are the same BREEAM building type and of similar construction and design may undergo a single assessment using the Similar Buildings approach, provided always that:
- They are on the same site.
 - Have the same principal function.
 - Be a similar construction type and specification.
 - Be developed by the same project team
- A3.7 A Similar Buildings assessment results in a single BREEAM rating covering all buildings assessed. A single BREEAM certificate will be issued listing all the buildings certified based on the worst performing building.

Engaging Early Credits

- A3.8 Many BREEAM credits are time based, meaning that they can only be achieved if it can be demonstrated how these have been considered early in the design process. A number of these relate to works which need to happen to inform the developing concept design through reserved matters.
- A3.9 A summary of key credits which require actions / activities to occur during the preparation and brief stages and concept design stages are given below.

Credit	Commentary	Score
Man 01 - Project Delivery Planning	A full team has been appointed early in the design process to support the delivery of the Langstone Park. Project team members need to meet to review roles, responsibilities and contributions towards the design of the development. A project execution plan can help to demonstrate this.	1
Man 01 – External Stakeholder Consultation	It will be necessary to consult with external stakeholders and record this process through the early design stages. A statement of community consultation is often a good way of demonstrating this. A specific list of consultation material is given in the BREEAM manual under ‘minimum consultation content’ as well as an indicative list of consultees ‘interested parties’. The project is subject to a community consultation exercise and feedback is being collated.	1
Man 02 - Elemental Life Cycle Costing	Early life cycle costing (LCC) analysis on the whole development is required. This involves an outline, entire asset LCC plan at Stage 2 together with any	2

Credit	Commentary	Score
	design options appraisals. A stage 2 Life Cycle Cost Assessment report is required for each of the plots, which needs to distinguish between each building, irrespective of whether these are being collectively assessed as part of a similar buildings approach.	
Hea 06 – Security Liaison	Up to two credits are available if a security specialist is engaged in the project and provides advice towards security of the site and building. This must be through a Security Needs Assessment . The recommendations must be implemented. The second credit is available if the project formally applies a recognised certification standard, such as SABRE. A security consultant should be consulted on the developing masterplan to inform security principles.	2
Ene 01 – Energy Modelling	Energy modelling must be undertaken to inform the energy strategy and building performance. Envision has prepared the preliminary calculations for the outline planning application, however actual building energy modelling must be prepared in support of future reserved matters applications based on the built form of each building. Further credits are available for an operational energy assessment using TM54. This can occur after concept design.	9/13
Ene 04 – Renewable feasibility	A Low and Zero Carbon (LZC) assessment is required during the concept design stage. Envision has already undertaken reviews of available technologies, which is expected to include PV and heat pumps. In due course feasibility studies to explore the suitability of ground source heat pumps.	1
Tra 01 – Transport Assessment and Travel Planning	A Transport Assessment and Travel Plan must be prepared during the concept stages, which can be used to influence the site layout and built form. This document has been prepared for the outline application to inform the layout and traffic impacts.	2
Tra 02 – Transport measures	Up to 10 credits are available if the project team can demonstrate an enhancement in travel measures as a result of the scheme. This includes a specific set of design criteria, which should be reviewed by the Transport consultant and design team and incorporated where possible: - Increase in public transport - Cycle facilities, showers and lockers etc - Enhanced local amenities - Electric vehicle charging - Dedicated bus services - Car sharing - Improve pedestrian and cycle access through consultation with the LA A number of these initiatives are being put forward as design principles.	10

Credit	Commentary	Score
Man 01 – Life Cycle Carbon Assessment	During the concept design it is necessary to carry out a building Life Cycle Carbon Assessment (LCA) on of the superstructure and hard landscaping is undertaken to evaluate options for reducing impacts. This will require a complaint Life Cycle Assessment Report to be prepared and submitted to BRE. This is proposed as part of the approach to circularity. .	7
Mat 03 – Sustainable Procurement Plan	A Sustainable Procurement Plan must be used by the design team to guide specification towards sustainable construction products. The plan must be in place before Concept Design.	1
Mat 06 – Material Efficiency Study	At the concept stage, a dedicated report that sets out a clear framework to guide material efficiency activities throughout the design and construction of the project. The report should set out aims, objectives, targets, performance indicators, opportunities, constraints and responsibilities to guide material efficiency activities. A workshop should be held, and minutes taken to capture hoe the brief has been interpreted at concept stage.	1
Wst 03 – Operational Waste	The scheme needs to include sufficient waste storage relevant to its uses, which will be a consideration for reserved matters. general space allocation would be least 2m ² per 1000m ² of net floor area for buildings. The space standards and requirements should be reviewed with regard to expected operators needed.	1
Wst 05 – Climate Resilience Assessment	The team need to co-ordinate an assessment which considers the site's climate resilience. This should be structured against the following: 1.a.i Hazard identification 1.a.ii Hazard assessment 1.a.iii Risk estimation 1.a.iv Risk evaluation 1.a.v Risk management. Develop recommendations or solutions based on the climate change adaptation before or during Concept Design, which aim to mitigate the identified impact. A report is required which summarises findings and the solutions sought.	1
Wst 06 – Disassembly and adaptability Assessment	It will be necessary to conduct a study to explore the ease of disassembly and the functional adaptation potential of the development. Develop recommendations or solutions based on study at concept stage. It is proposed that such a study is undertaken to inform the developing design at reserved matters.	1
Le 02 – Ecology Assessment and Recommendations	The site has been assessed for its ecological potential. The scope of the ecologists works should ensure that credits Le 02 – Le05 are covered in their initial advice. Whilst a formal report is not required for BREEAM prior to planning, it will be necessary for the ecologists to demonstrate how they have undertaken all relevant surveys and engaged with relevant	11

Credit	Commentary	Score
	stakeholders to ascertain the value of the site. Biodiversity Net Gain should be targeted , with calculations provided in accordance with BREEAM method	
Pol 03 – FRA and Drainage Design	A Flood Risk and Drainage Strategy has been produced for the outline planning application. The drainage strategy addresses design principles in accordance with BREEAM standards.	5
Pol 04 – Noise	A Noise Impact Assessment compliant with BS 4142:2014(220) must be undertaken to measure existing background noise levels at the nearest or most exposed noise-sensitive development. The noise level from the assessed building, as measured in the locality of the nearest or most exposed noises sensitive development, must be at least 5dB lower than the background noise throughout the day and night.	1

Future studies needed to inform the design for reserved matters

A3.10 In conclusion the following further studies are deemed necessary and should be commenced during RIBA Stage 2 concept design to inform future reserved matters applications:

- Security Needs Assessment for the site
- Life Cycle Cost Assessment for each building within each phase
- Life Cycle Carbon Assessment for each building within each phase
- Material Efficiency Study for each phase
- Climate Change Appraisal for each phase
- Material Efficiency Study for each phase
- Ecology scope to include BREEAM advice and calculations.

Expected BREEAM scoring

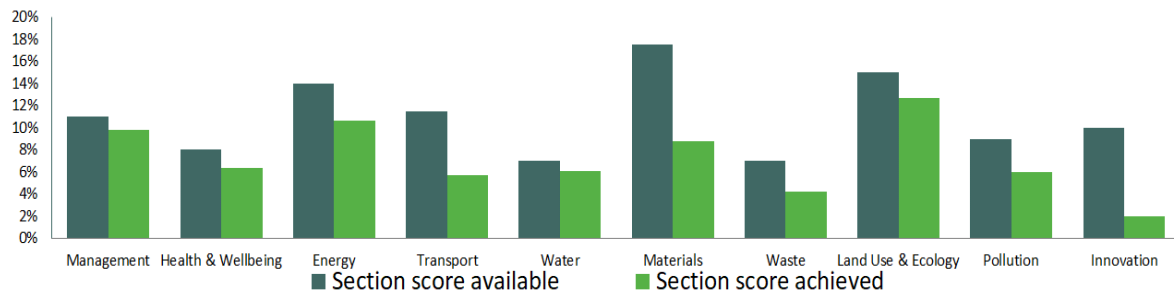
A3.11 Whilst at an early stage, the successful implementation of early time-based activities, alongside the wider commitments to energy, embodied carbon, wellbeing and resource management would ensure that a BREEAM Excellent rating can be delivered for the shell works.

Figure A3.1. Expected BREEAM Scoring – Langstone Park

Overall Building Performance

Building name	Langstone Park Concept
BREEAM rating	Excellent
Total Score	72.30%
Min. standards level achieved	Outstanding level

Building Performance by Environment Section



Environmental Section	No. credits available	No. credits Achieved	% credits achieved	Section Weighting	Section Score
Management	18	16	88.89%	11.00%	9.77%
Health & Wellbeing	10	8	80.00%	8.00%	6.40%
Energy	21	16	76.19%	14.00%	10.66%
Transport	12	6	50.00%	11.50%	5.75%
Water	8	7	87.50%	7.00%	6.12%
Materials	14	7	50.00%	17.50%	8.75%
Waste	10	6	60.00%	7.00%	4.20%
Land Use & Ecology	13	11	84.62%	15.00%	12.69%
Pollution	12	8	66.67%	9.00%	6.00%
Innovation	10	2	20.00%	10.00%	2.00%

APPENDIX IV – WELLBEING STRATEGY

Introduction

- A4.1 The Applicant wishes to align with the most up to date best practices in sustainable design and construction as part of their own Environmental, Social and Governance (ESG) ambitions. Integral to this ambition is delivering a development that puts the health and wellbeing of future occupants at the centre of design decisions.
- A4.2 In defining current and emerging best practice in this field, reference has been made to the most internationally recognised certification standards and, at this early stage of design development, defining a set of guiding principles that would be adopted for the development of the overall site and individual building design and construction.

Healthy Building Standards

- A4.3 The most recognised certification standards for building health are: -



Launched in 2014 by the International WELL Building Institute, the WELL Building Standard is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and wellbeing. All buildings must achieve a specific set of mandatory 'preconditions', and then are awarded a Silver, Gold or Platinum rating dependant on the number of additional 'optimisations' achieved. A summary of the key requirements is provided in Table 1.



Originally developed as a concept by the US Centers for Disease Control and Prevention, and now operated by the Centre for Active Design, Fitwel was launched in 2017 to support the adoption of health promoting strategies in the built environment. Buildings can achieve a 1, 2 or 3 Star rating, based on a balanced scorecard approach. A summary of the key requirements is provided in Table 2.

- A4.4 The WELL Standard can only be formally certified once the building is occupied, whereas FitWel has both a (detailed) Design and Building (once occupied) assessment route. A decision on which is the most appropriate certification standard to pursue will be dependent on the future occupant of each building. The Healthy Buildings Design Strategy has been developed to ensure relevant requirements will be incorporated in the design of the base build to enable future certification, however formal certification is not proposed as part of the outline planning application due to the need to remain flexible for future occupiers needs.

WELL		
Concept	Summary of Key Requirements	Assessment Method
 AIR	- Indoor air quality monitoring - Low VOC, Formaldehyde, PM_{2.5} and PM₁₀ levels - Good ventilation strategy and pollution infiltration management	Third party verification on site
 WATER	- Water quality monitoring - Mould, moisture, water leak management - Drinking water promotion - Specific bathroom design to provide hygiene support	Written / Photographic evidence
 NOURISHMENT	- Promote nutritional food - Provide nutritional transparency on packaged foods and drinks - Limit artificial foods and drinks - Provide nutritional education - Accommodate special diets - Source food locally	Written / Photographic evidence

fitwel		
Summary of Requirements		Assessment Method
Location	Buildings and campuses in walking distance of local amenities and public transport nodes	Written / Photographic evidence
Building Access	- Safe walking routes to public transport nodes - Carry out travel survey - Provide secure and covered bicycle parking - Provide showers and lockers - Provide financial incentives for sustainable travel methods and charge for onsite parking - Limit total number amount of carparking, provide priority parking for carshare schemes, include soft landscaping in carpark areas	
Outdoor Spaces	- Provide outdoor amenity spaces, including seating - Provide an outdoor walking trail - Provide an outdoor fitness area - Provide an outdoor restorative garden - Provide access to a farmers' market	

 LIGHT	• Provide adequate indoor daylight • Electric light strategies in line with a specific luminance thresholds • Minimise glare caused by electric light • Support circadian lighting design • Provide occupants lighting controls	Third party verification on site
 MOVEMENT	• Building design to promote physical activity/exercise • Provide ergonomic and active workstations • Provide access to public transport • Encourage movements	Written / Photographic evidence
 THERMAL COMFORT	• Specific thermal requirements for mechanically, naturally and mixed-mode-conditioned spaces • Design thermal zones • Provide thermal controls • Thermal comfort and humidity control monitoring	Third party verification on site

	• Provide a fruit / vegetable garden or on-site hydroponic garden • Install lighting in all outdoor spaces, pathways and parking areas • Tobacco- and smoke-free policy for all outdoor spaces	
Entrances and Ground Floor	• Signs confirming no smoking and the use tobacco products on site • Orientate main entrance towards outdoor pedestrian areas • Locate amenities (e.g., benches, public art, wayfinding, cycle storage) in close proximity to building entrance • Install lighting at building entrances • Public spaces on ground floor (e.g., retail or café, public seating area), with links to outdoor pedestrian areas • Information display of local amenities • Entrance designed to improve indoor air quality	
Stairs	• Provide stair access to all floors, in visible area, with active design strategies to encourage use, including signage. • Include stair safety features	

 SOUND	• Specific acoustic ambient noise levels and reverberation time • Provide sound barriers and sound reducing surfaces • Minimised background sound	Third party verification on site
 MATERIALS	• Material selection with low VOC content • Permanently installed product disclose ingredients • Use low-hazard cleaning products • Integrate pest management principles	Written / Photographic evidence
 MIND	• Promote mental health awareness • Provide mental health services and education • Stress management support • Provide restorative spaces and programmes • Provide access to nature	Written / Photographic evidence

Indoor Environment	• All indoor areas tobacco and smoke-free • Asbestos control measures • Establish indoor air quality policy • Carry out indoor air quality testing and monitoring (including PM_{2.5}, VOC and Formaldehyde, CO₂ and CO and relative humidity) • Green purchasing policy for cleaning products • Source ventilation for chemical storage areas • Integrated Pest Management Plan	
Workspaces	• Access to natural daylight • Views of indoor / outdoor natural elements • Operable shading • Active workstations • Thermal control devices	
Shared spaces	• Regular cleaning protocols • Educational signs for handwashing • Access to break areas and quiet rooms • Access to lactation rooms • Access to fitness facilities • Access to fresh fruit and vegetables • Onsite health promotion programmes • Occupant satisfaction surveys	

	• Regular communications about health and well-being resources, programs, policies etc. • Provide health benefits plan • Offer parent leave • Offer workplace breastfeeding support • Offer childcare support • Operate third-party 'diversity and inclusion' program • Provide emergency resources	Written / Photographic evidence
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Water Supply	• Drinking water supply • Bottle refilling stations • Water Quality Testing	
Prepared Food Areas / Vending Machines and Snack Bars	• Provision of healthy food and beverages and pricing incentives • Nutritional information displays • Free potable water supply in food areas	
Emergency Preparedness	• Emergency Preparedness Plan • Installation of Defibrillators • Onsite certified First Responders • Emergency address notification system	

Langstone Park Healthy Buildings Design Principles

Spatial Design Principles

- A4.5 Langstone Park benefits from being well located, with existing close proximity to local amenities and public transport, integral to supporting the healthy lifestyles of future occupants of the park.
- A4.6 The site is proposed to be redeveloped in phases over a 10-year period, following a masterplan led approach. Spatial design principles to support the provision of healthy buildings have been integrated in the illustrative masterplan, which provides an indication of the likely spatial layout. These principles, as presented in the table below, will be further developed as the masterplan evolves.

Spatial Design Principle	Measures to be incorporated at Langstone Park
Promoting walking & cycling	Masterplan layout designed to prioritise movement for walking and cycling, including a network of permeable, safe and convenient pedestrian and cycle routes  Building orientation and positions with direct links to walking and cycling routes
Encouraging active lifestyles	Provision of gym on site, as confirmed in the use classes included in the outline application Site layout encouraging outdoor fitness, potential to include outdoor fitness trails / training equipment 
Promoting healthy eating and good nutrition	Provision of café on site, with potential focus on nutrition/healthy eating Potential to incorporate community allotments (potentially movable as site redevelops, as adopted in the Kings Cross Central Skip Gardens philosophy) and/or hydroponics

Spatial Design Principle	Measures to be incorporated at Langstone Park
	 Example of Skip Garden  Example of ship container with Hydroponics
Designing for health and wellbeing	Provision of outdoor space designed for relaxation and reflection, with access to nature  Provision of wayfinding signs across the site Potential provision of public art  
Providing of high-quality infrastructure	Water Quality Testing to be carried out for whole site supply, to ensure in line with WELL requirements

Individual Building Design Principles

- A4.7 All buildings on Langstone Park are to be designed to ensure relevant WELL and FitWel standards are met where feasible and within the control of the applicant. This will include the relevant WELL Preconditions applicable to the shell and core design are achieved, and relevant optimisation credit requirements integrated into the detailed design that could enable future tenants to certify to WELL standards once

occupied, should they so wish. Similarly, relevant FitWel requirements will be considered in the shell and core design, to support future tenants achieving FitWel certification.

- A4.8 This will include the provision of space for cycle storage, in accordance with the relevant accreditation standards, and minimising the provision carparking in line with local planning requirements.
- A4.9 The design of the building shell will look to adopt best practice principles, in line with relevant BRE, CIBSE and BSRIA standards, for the provision of daylighting, ventilation and acoustic performance. The internal layout of the buildings will focus on providing spaces that promote health and wellbeing, providing good views out, and locating the stairs in a prominent position with good visibility to promote healthy lifestyles. Materials used within the construction of the building shell will be specified to minimise the impact on the future indoor air quality, including specification of materials with low VOC and formaldehyde content. Relevant air quality monitoring sensors will be installed, where the specification permits, to allow future occupants to monitor the air quality of relevant spaces.
- A4.10 In the future fitout phase of the buildings, tenants will be encouraged to incorporate health and well-being measures, including consideration of the internal space provision dependant on the needs of the future occupants (e.g., public spaces provided on the ground floor e.g., café/retail, provision of relaxation rooms, provision of showers/lockers in line with WELL standards). The detailed design will also incorporate active design strategies for stairs, relevant thermal comfort controls, best practice lighting design and controls, and design for high standards of acoustic performance and ventilation. The finishes specification will focus on improving indoor air quality, as well potential incorporation of biophilic design principles where appropriate, bring nature into the building. Consideration will be given to providing drinking water and promoting healthy eating.

Future Management Principles

- A4.11 The final step in developing a healthy buildings strategy is in how the buildings are managed once occupied.
- A4.12 At the whole site level, Langstone Park will have an active health and wellbeing management policy to support all the site's tenants. This will include an active travel coordinator, consideration of healthy eating options in the central café, and potential provision of refillable water stations across the park. There is potential, dependant on tenant demand, to hold community events within the park to encourage development of a 'Langstone Park tenant community' with active participation from different businesses, to create a level of ownership and pride in working at Langstone Park. Occupant satisfaction surveys will be carried out to identify and review further opportunities for improvement.
- A4.13 The site will also ensure all relevant health and safety management measures are in place, including relevant emergency preparedness planning. Consideration will be given to installation of defibrillator at an appropriate prominent position.
- A4.14 At the individual building level, tenants will be encouraged to implement policies and practices for promoting health and wellbeing, good hygiene practices, specifying the use of low-hazard cleaning products, pest management and monitoring indoor air quality.
- A4.15 Once the buildings are occupied, the tenants will have the opportunity to gain formal recognition by certifying to Well Standards. This is not proposed as part of the outline planning application as the decision to do this should ultimately rest with tenants. Should tenants wish to gain recognition, the final step in achieving WELL certification could be completed. In such instances the buildings would undergo independent health buildings performance testing, to verify the achievement of the WELL requirements.