Energy and Sustainability Statement

HCVP Ltd

Ham Brewery Tap
4-6 Ham Street
Richmond
TW10 7HT

SRE

Version	Revision	Date	Author	Reviewer	Project Manager
1	A	14.04.2022	Owen Brookes	Yin Mui Tang	Owen Brookes
1	B	19.04.2022	Owen Brookes		Owen Brookes

The figures within this report may be based on indicative modelling and an assumed specification outlined within the relevant sections. Therefore, this modelling may not represent the as built emission or energy use of the Proposed Development and further modelling may need to be undertaken at detailed design stage to confirm precise performance figures. Please contact SRE should you have any questions, or should you wish further modelling to be undertaken post planning.

SRE Main Office | Greenforde Farm

Stoner Hill Road | Froxfield

Petersfield | Hampshire | GU32 1DY

01730 710044

info@sre.co.uk

www.sre.co.uk

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Executive Summary

Executive Summary

This Energy and Sustainability Statement has been written to demonstrate the measures incorporated into the design of the Proposed Development at Ham Brewery Tap, Richmond, which will deliver lower energy and water use, lower carbon emissions and lower operational costs than a Building Regulations compliant design.

The energy strategy has been developed by following the GLA Energy Hierarchy of Lean, Clean, Green and Seen. The chosen energy strategy includes Lean passive and active design measures and Green LZC technologies to achieve a 45.68% improvement over Baseline CO_2 emissions, in-line with the London Borough of Richmond upon Thames Local Plan Policy LP 22, which states a minimum 35% improvement over Baseline CO_2 emissions for all non-residential buildings with an internal floor area >100m^2.

Regulated carbon dioxide savings from each stage of the energy hierarchy for non-domestic buildings		
	CO_2 emissions (tCO_2/year)	Improvement over baseline (%)
Baseline	15.49	-
Lean	14.68	5.21
Clean	14.68	5.21
Green	8.41	45.68

Table 1 - Summary of regulated carbon dioxide savings

Proposed Energy Strategy

- Passive and active design measures
- High efficiency ASHP (VRV/VRF) system to provide cooling and space heating
- High efficiency gas-fired combinational boiler for water heating

The London Borough of Richmond upon Thames (LBRUT) Sustainable Construction Checklist has also been completed for planning (Appendix E), with the Proposed Development achieving a C rating with a score of 44, in compliance with SPD Policy.

Introduction

1.0 Introduction

This Energy and Sustainability Statement has been written by SRE on behalf of HCVP Ltd (the Client) to demonstrate the measures incorporated into the design of the change of use development at Ham Brewery Tap, Richmond (the Proposed Development), which will deliver lower energy and water use, lower carbon emissions and lower operational costs than a Building Regulations Compliant design.

The statement compares the predicted actual building energy requirements with a Building Regulations compliant design, outlines passive and active design measures, and assesses the suitability of low and zero carbon (LZC) technologies specific to this site to address the relevant planning policy requirements.

The statement analyses how the Proposed Development will integrate with its surrounding environment within the context of sustainability to ensure it benefits the surrounding area socially, environmentally and economically.

The Proposed Development consists of a veterinary practice converted from a pub, with on-site parking and associated landscaping. The building consists of 2 no. storeys, with the veterinary practice on the ground floor and residential space on the first floor.

Figure 1 - 3D render of the Proposed Development (ACHIEVEDesign)

Plan	Requirement
Adopted London Borough of Richmond upon Thames (LBRUT) Local Plan (2018-2033)	<u>Policy LP 22 – Sustainable Design and Construction</u> Sustainable Design and Construction: - Developments of 1 dwelling unit or more, or 100m^2 or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application. Reducing Carbon Dioxide Emissions: - All non-residential buildings over 100m^2 should achieve a 35% reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy.

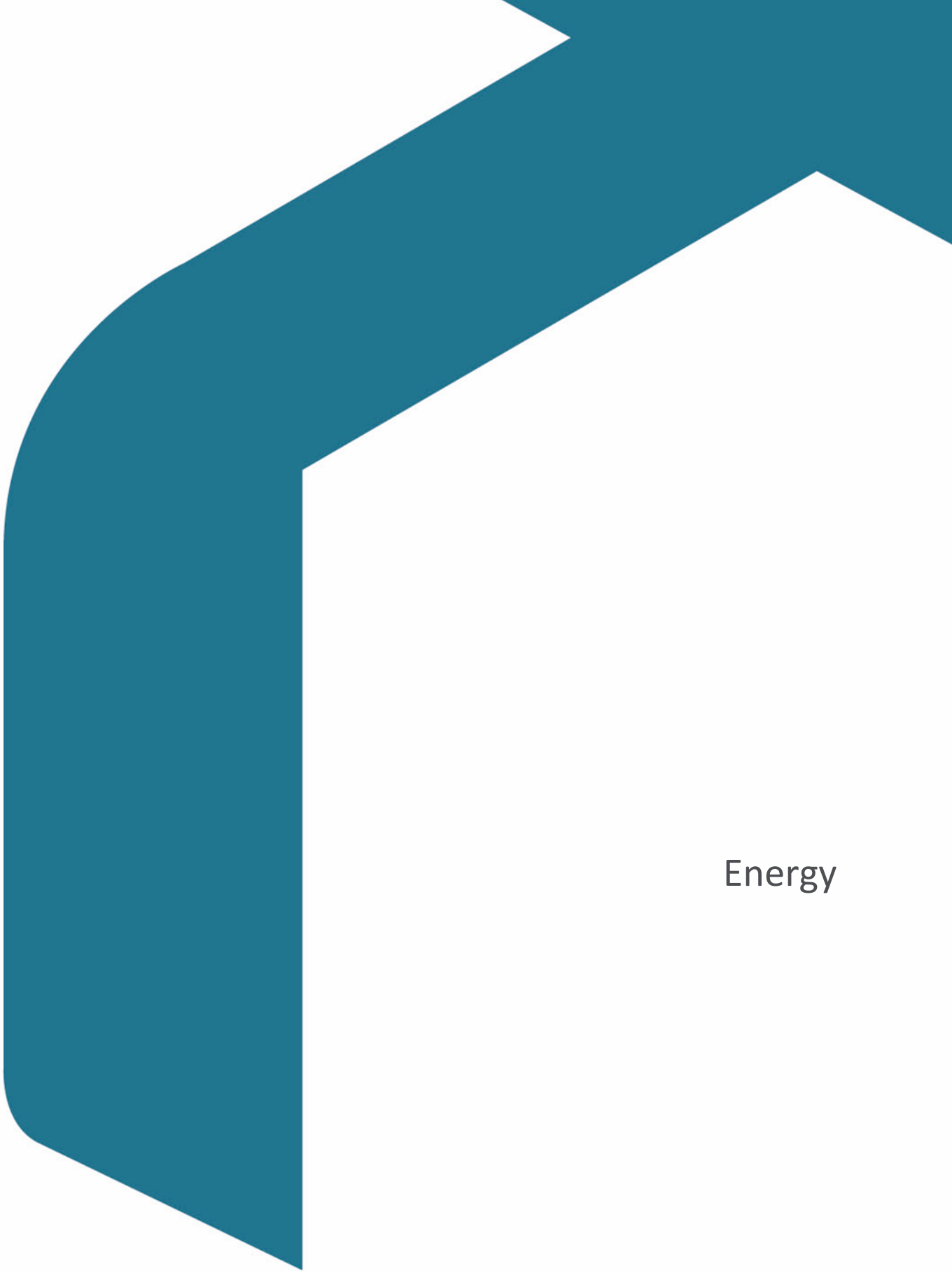
	- Targets are expressed as a percentage improvement over the target emission rate (TER) based on Part L of the 2013 Building Regulations. This should be achieved by following the Energy Hierarchy: 1. Be lean: use less energy 2. Be clean: supply energy efficiently 3. Be green: use renewable energy Decentralised Energy Networks: - Applicants are required to consider the installation of low, or preferably ultra-low, NOx boilers to reduce the amount of NOx emitted in the borough. - Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate.
Adopted London Plan (2021)	<u>Policy SI 2 – Minimising Greenhouse Gas Emissions</u> Major development should be net zero-carbon. This means reducing greenhouse gas emissions and minimising energy demand in accordance with the energy hierarchy. Major development proposals should include an energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy. A minimum on-site reduction of at least 35% beyond Building Regulations is required for major developments. Non-residential developments should achieve 15% through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either: 1) through a cash in lieu contribution to the borough's carbon offset fund, or 2) off-site provided that an alternative proposal is identified and delivery is certain.

Table 2 - Summary of relevant local planning policy requirements

The Proposed Development classifies as a minor non-residential development, in-line with the GLA definition of major non-residential development having a floor space of 1,000m^2 or more. As a result, the London Plan requirements do not apply to the Proposed Development, and only LBRUT local planning policy applies.

In-line with the LBRUT Local Plan Policy LP 22, the Proposed Development will achieve a >35% reduction in CO_2 emissions compared to a Building Regulations Part L compliant scheme.

A Sustainable Construction Checklist SPD will also be completed and submitted as part of the planning application.



Energy

2.0 Energy

2.1 Method

The energy strategy design follows national policy guidance[1] and seeks to be:

Lean

minimise the overall environmental impact and energy use through energy efficiency measures

Clean

ensure that energy systems on-site (heat & power) are efficient & produce minimal CO_2 emissions

Green

Implement suitable technologies to provide renewable and emission free energy sources

Seen

incorporate monitoring through SMART metering and accessible displays

CO_2 Conversion Factors (Table) have been taken from Building Regulations 2013:

	CO_2 Conversion Factor ($kgCO_2/kWh$)
Electricity (mains)	0.519
Electricity (offset)	-0.519
Gas (mains)	0.216
Heating Oil	0.298
Wood Pellets	0.039
Woodchip	0.016

Table 3 - CO_2 conversion factors by energy source

The energy modelling for the Proposed Development has been calculated using SBEM software in accordance with Building Regulations 2013 Part L2B. The notional building provides the energy baseline and is the exact size and shape of the Proposed Development but is based on existing and notional U-values and heating specifications outlined in Approved Document L and the Non-Domestic Building Services Compliance Guide.

	CO_2 emissions (t/yr)
Baseline	15.49

Table 4 - Baseline CO_2 emissions

[1]The draft New London Plan https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan

2.2 LEAN – Demand Reduction

The lean scenario can achieve a 5.21% reduction in CO_2 emissions compared to a Building Regulations Part L compliant scheme using passive and active design measures.

	CO_2 emissions (t/yr)	Improvement (%)
Baseline	15.49	-
Lean	14.68	5.21

Table 5 - Lean CO_2 emissions and improvement over Baseline

2.2.1 Passive Design Measures

All glazed areas of the building will have elements of shading provided by the building form or internal curtains or blinds. The building orientation and design maximises natural light and positive solar gains with glazing on the South East and South West elevations. Glazing on the North East elevation is limited, minimising overall heat loss.

The building fabric of the Proposed Development is not being changed from the existing building. This consists of traditional load bearing masonry construction, with solid brick walls. The U-Values applied to the energy modelling of the Proposed Development are provided within Table 6; see the indicative Building Performance Specification in Appendix B for details of the proposed building fabric.

The overall building should have a medium thermal mass as a result of the masonry construction. A medium thermal mass will balance providing high energy efficiency and limiting overheating during the summer months.

Element	Notional Compliance (U-value)	Proposed (U-value)
External Walls	1.70	1.70
Ground Floor	0.58	0.58
Roof	2.30	2.30
Windows	4.80	4.80
Solid Doors	3.00	3.00
Air Tightness @ 50 N/m^2	25 ($m^3/hr/m^2$)	25 ($m^3/hr/m^2$)
Thermal Bridge	Not Applicable	Not Applicable

Table 6 - Fabric energy efficiencies

2.2.2 Active Design Measures

The Proposed Development will utilise 100% low energy/LED lighting in excess of Building Regulation requirements. All external lighting will positioned to avoid excessive light pollution and be supported by PIR/daylight sensor and time controls with a maximum lamp capacity of 150W (equivalent) for essential security lighting.

Hot water for the building will be provided by a high efficiency combinational gas boiler (minimum efficiency of 89%). A high efficiency maximises the amount of heat generated for a given amount of fuel. The Proposed Development will only use this boiler for water heating, however the 'Lean' model also applies it to space heating, showing an improvement in the model compared to the notional boiler in the baseline model.

Time, temperature and zonal controls will be installed as a minimum to allow the control of individual zones/rooms throughout the building.

In modern air-tight buildings, careful consideration needs to be given to the specification of ventilation systems to ensure moisture is removed and ventilation standards are met to ensure a healthy standard of internal air. Standard extract ventilation is provided to all wet-rooms throughout the Proposed Development. Openable windows will also provide purge ventilation when required.

2.2.3 Cooling

The cooling hierarchy has been used to ensure that passive building design has been optimised to reduce the cooling load for the Proposed Development.

Cooling Hierarchy	Potential Design Measures
Minimising internal heat generation through energy efficient design	All primary pipework to be insulated, therefore low system losses. Low energy lighting throughout.
Reducing the amount of heat entering the building in summer	Shading and internal blinds are to be provided to minimise solar gain.
Use of thermal mass and high ceilings to manage the heat within the building	Thermal mass is anticipated to be medium with some element of exposed mass.
Passive Ventilation	Openable windows will be provided to all rooms and cross ventilation is possible.
Mechanical Ventilation	Standard extract ventilation in wet rooms.

Table 7 - Design measures following the cooling hierarchy

Active cooling through VRF systems will be provided to all main occupied areas and communal areas to prevent overheating during the summer months.

2.3 CLEAN – Heating Infrastructure

Connection of the Proposed Development to a district heating system is not currently feasible, therefore has not been proposed. The London Heat Map shows that the Proposed Development is within an area of low heat density and is not located near any existing heat network areas. There are also currently no proposals for a network nearby. Therefore, there is no further improvement of 'Clean' measures above the 'Lean' scenario.

	CO_2 emissions (t/yr)	Improvement (%)
Lean	14.68	-
Clean	14.68	0.00

Table 8 - Clean CO_2 emissions and improvement over Lean

2.4 GREEN – Low Carbon and Renewable Energy

The addition of 'Green' technologies can provide a significant reduction in CO_2 emissions and enable the Proposed Development to meet the threshold of a minimum 35% improvement over Baseline emissions, in-line with LBRUT Local Planning Policy LP 22.

	CO_2 emissions (t/yr)	Improvement over Clean (%)	Improvement over Baseline (%)
Clean	14.68	-	5.21
Green	8.41	42.70	45.68

Table 9 - Green CO_2 emissions and improvement over Clean and Baseline

2.4.1 Air Source Heat Pumps

The use of heat pumps is often the most direct method of reducing CO_2 emissions for a Proposed Development with minimal change in aesthetics or the way in which a building is designed. Often a 'straight swap' alternative for a gas system boiler, the use of heat pumps has the potential to provide significant offset in CO_2 emissions.

All Heat Pump systems consume electricity to operate - the Coefficient of Performance (CoP) of the system is the ratio of heat energy emitted to electrical energy consumed. Generally, a CoP of 3 or 4 can be achieved, meaning 3 or 4 units of thermal energy are produced for each unit of electricity consumed.

Heat pumps will only deliver low grade heat (up to ~55°C) efficiently, and therefore HP systems alone are generally relatively inefficient in providing hot water, as this requires additional electrical input (immersion or increased compressor use).

An air-to-air, variable refrigerant flow (VRF) heat pump system has been proposed, providing space heating and cooling for the scheme through ceiling/wall cassettes. The hot water for the Proposed Development will still be provided via a high efficiency combinational gas boiler.

ASHPs tend to generate some noise and therefore the location/space in which the pump is positioned would need to be adequately sound insulated or appropriately located to prevent disturbances to the occupants of this and/or neighbouring buildings.

2.5 Carbon Offsetting

The London Plan requires all major developments to be net-zero carbon.

The Proposed Development is not a major development and is not required to meet the zero-carbon target.

2.6 SEEN – In-use monitoring

It is recommended that the Proposed Development will be supplied with Smart Meters (where available from the utility supplier) along with associated internal energy displays. This will further improve energy efficiency by allowing building managers to observe their energy use in 'real time' and manage it more effectively.

2.7 Energy Conclusions

The Proposed Development will deliver passive and active energy demand reduction measures along with low and zero carbon technologies in order to reduce energy demand and associated CO_2 emissions resulting from the Proposed Development's operation.

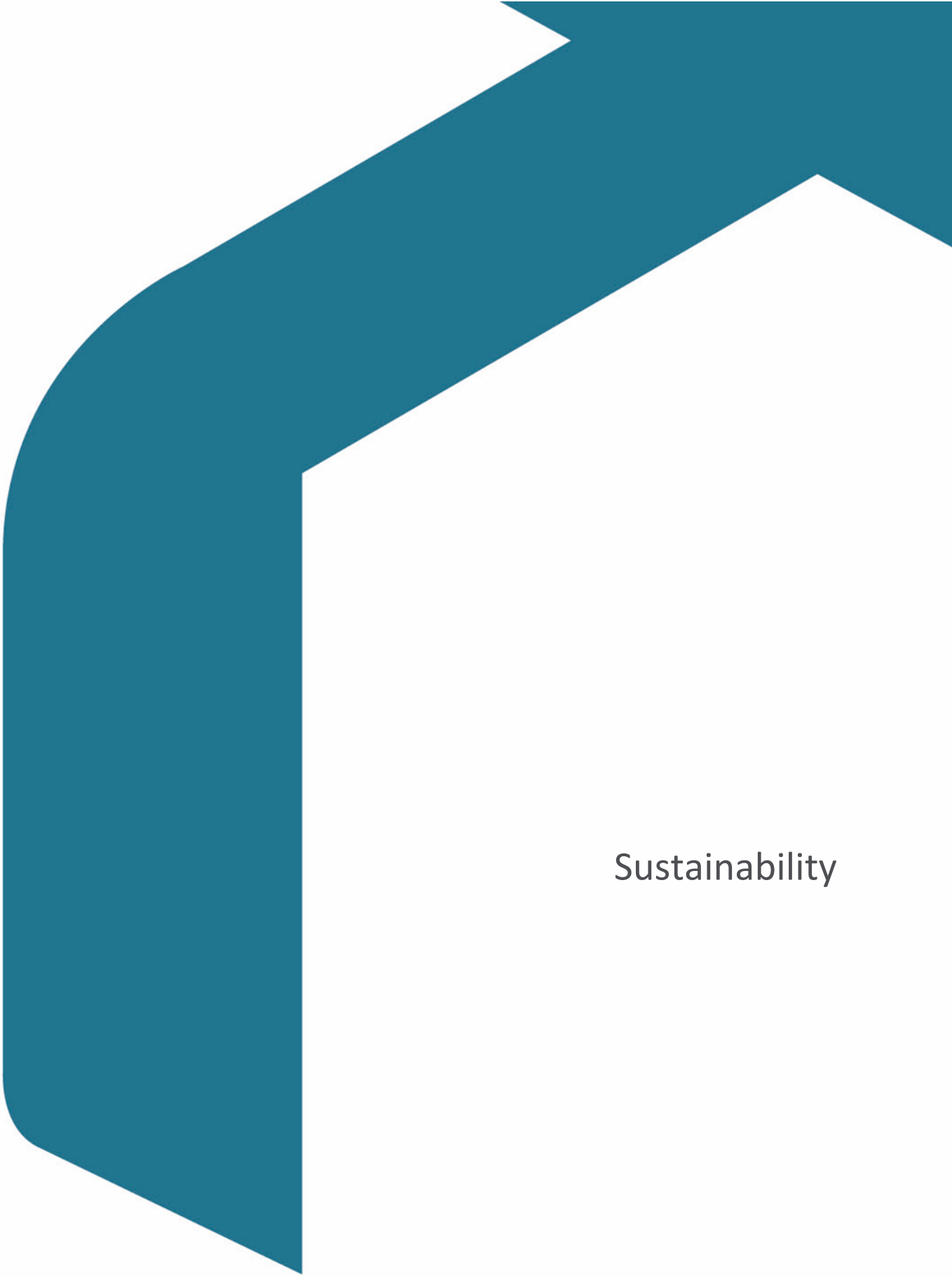
The calculations undertaken demonstrate that the Proposed Development will successfully exceed Building Regulations Part L2B compliance by >35%, achieving the emissions reductions requirements set by the LBRUT Local Plan.

	CO_2 emissions (tCO_2/year)	Improvement over baseline (%)
Baseline	15.49	-
Lean	14.68	5.21
Clean	14.68	5.21
Green	8.41	45.68

Table 10 - Summary of CO_2 emissions and improvement over Baseline

In delivering the Green energy strategy, the Proposed Development provides:

- Passive and active design measures
- High efficiency ASHP (VRV/VRF) system to provide cooling and space heating
- High efficiency gas-fired combinational boiler for water heating



Sustainability

3.0 Sustainability

The World Commission on Environment and Development (WCED) report: Our Common Future, describes Sustainable Development as development that:

"meets the needs of the present without compromising the ability of future generations to meet their own needs."

3.1 Pollution

Air

The Proposed Development is located within an Air Quality Management Area – as is the whole Borough of Richmond – due to the historically high levels of Nitrogen Dioxide (NO_2) and Particulate Matter (PM_{10}). Figure 2 displays the NO_2 levels of the local area on the UK NOx emissions map.

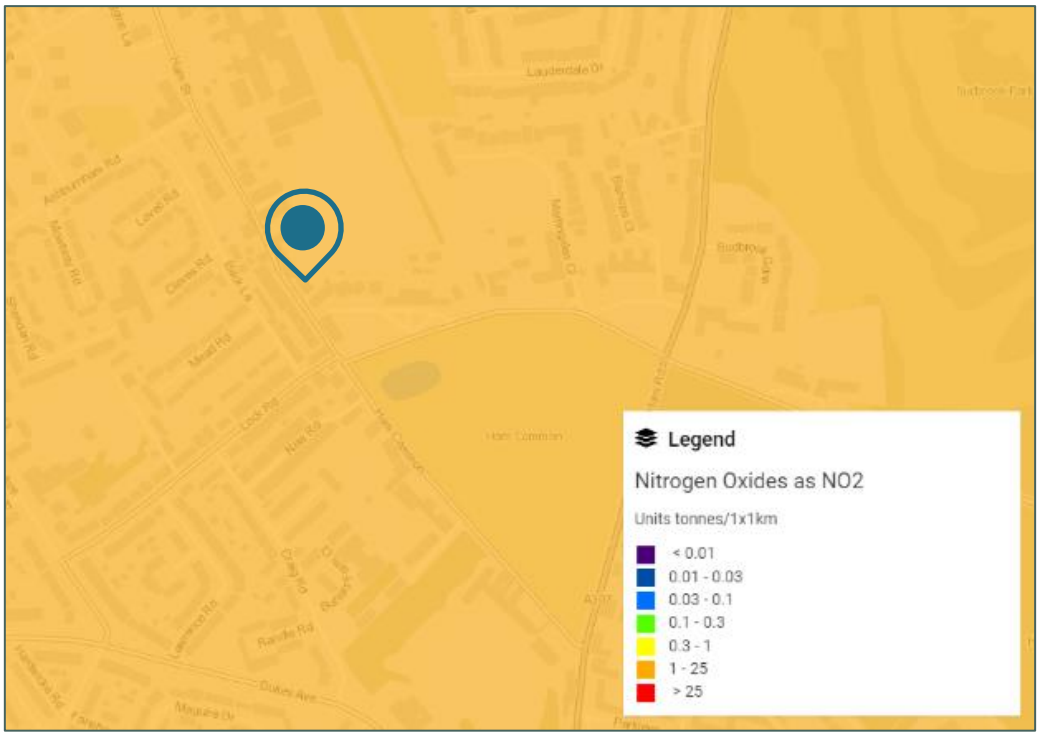


Figure 2 - UK Air Pollution Map showing pollution from Nitrogen Oxides as NO_2 (https://naei.beis.gov.uk/emissionsapp/)

Local Plan Policy LP 10 states that:

'developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:

1. an air quality impact assessment, including where necessary, modelled data;

2. mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;

3. measures to protect the occupiers of new developments from existing sources;

4. strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors.'

The Proposed Development will therefore have mitigation measures in place to reduce the impact on local air quality, providing an 'emissions neutral' development.

To mitigate the impact on local air quality, a low NOx boiler will be installed for hot water generation, and a VRF system to provide space heating and cooling. The VRF system will emit no onsite NOx emissions but consumes grid electricity. As the NOx emissions resulting from the production of electricity decreases at the national scale, the resulting theoretical emissions from the Proposed Development will do also.

The installation of a low NOx boiler and VRF system will reduce pollutant emissions compared to the existing development on the site, which uses a lower efficiency gas boiler for space and water heating. As a result, the Proposed Development will have a net positive impact on local air quality, in-line with the requirement of an at least 'Emissions Neutral' development.

Noise

The Proposed Development is located on the site of an existing pub and will not produce any greater noise pollution than was generated during the operation of the previous building.

The Proposed Development is situated close to existing residential houses. However, it is anticipated that the Proposed Development will not have a significant noise pollution impact and therefore will not affect the quality of life for neighbouring properties and the surrounding area.

The positioning of any equipment for the Proposed Development will be carefully considered to avoid nuisance to surrounding new or existing dwellings. This will include the positioning of ASHP external condenser units which will need to be placed considerately to avoid any inadvertent noise intrusion into habitable spaces. It is currently proposed that the external condenser units for the scheme will be located in a contained light well at the rear of the building, to avoid inadvertent noise intrusion.

Light

Natural daylight will be provided to the Proposed Development through the use of glazing in appropriate areas of the building. It is only consulting rooms and operating theatres that do not have glazing provided, as a result of privacy reasons. The windows of the Proposed Development will have light-coloured curtains or roller blinds, to enable glare control and privacy.

Light Pollution will be minimised where possible through the careful specification and positioning of external lighting around the Proposed Development, ensuring minimal light pollution from the site. Special attention will be given to security lighting (where fitted) to ensure it is appropriately focused and controlled.

All external space lighting will be provided through low energy fittings, with security lighting being PIR and daylight/timer controlled. Any external signage, where installed and lit, will be installed and controlled in line with best practice.

3.2 Flood Risk

The selected site is at very low risk of flooding from rivers and seas (Figure 3) and low risk of flooding from surface water (Figure 4). As a result, no flood risk mitigation measures are required for the Proposed Development.

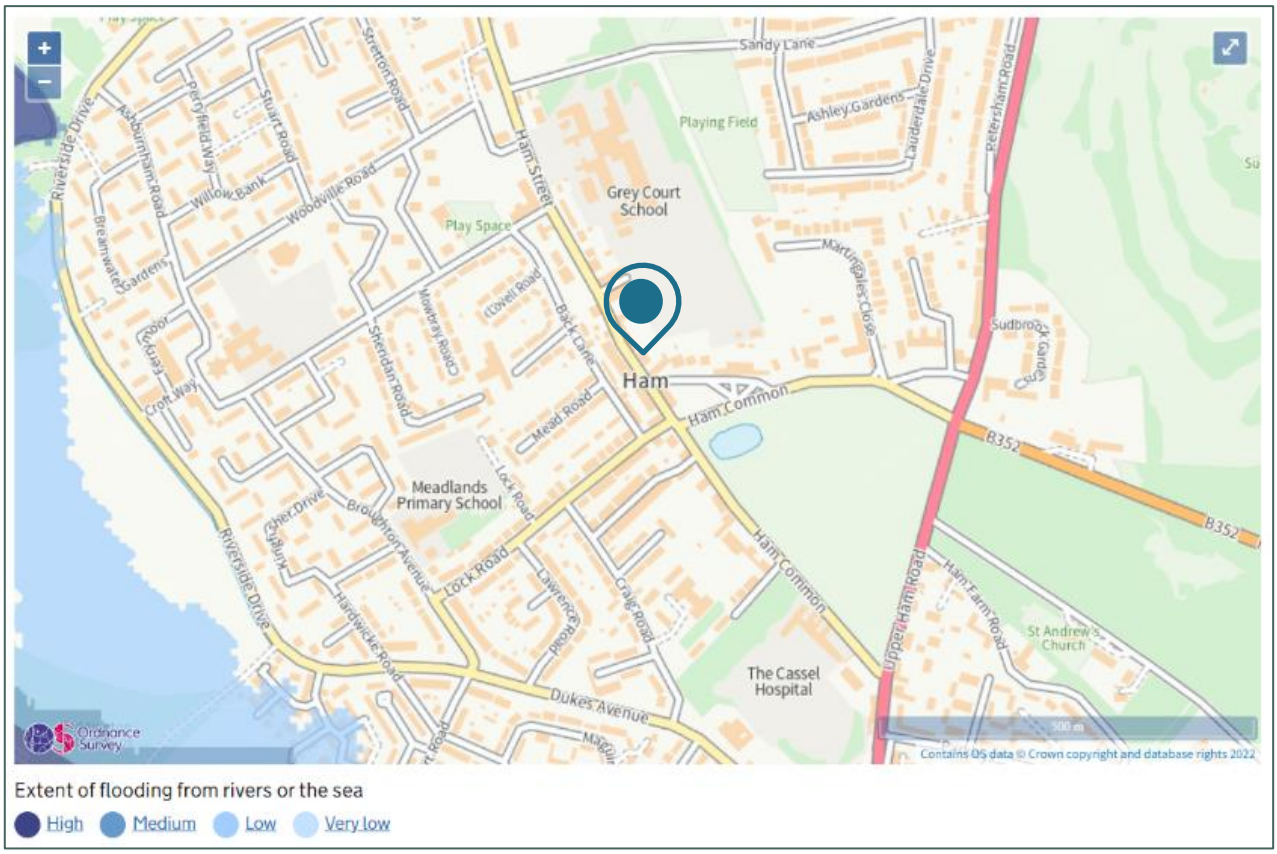


Figure 3 - Flood map showing risk of flooding from rivers or the sea (https://flood-warning-information.service.gov.uk/long-term-flood-risk/map)

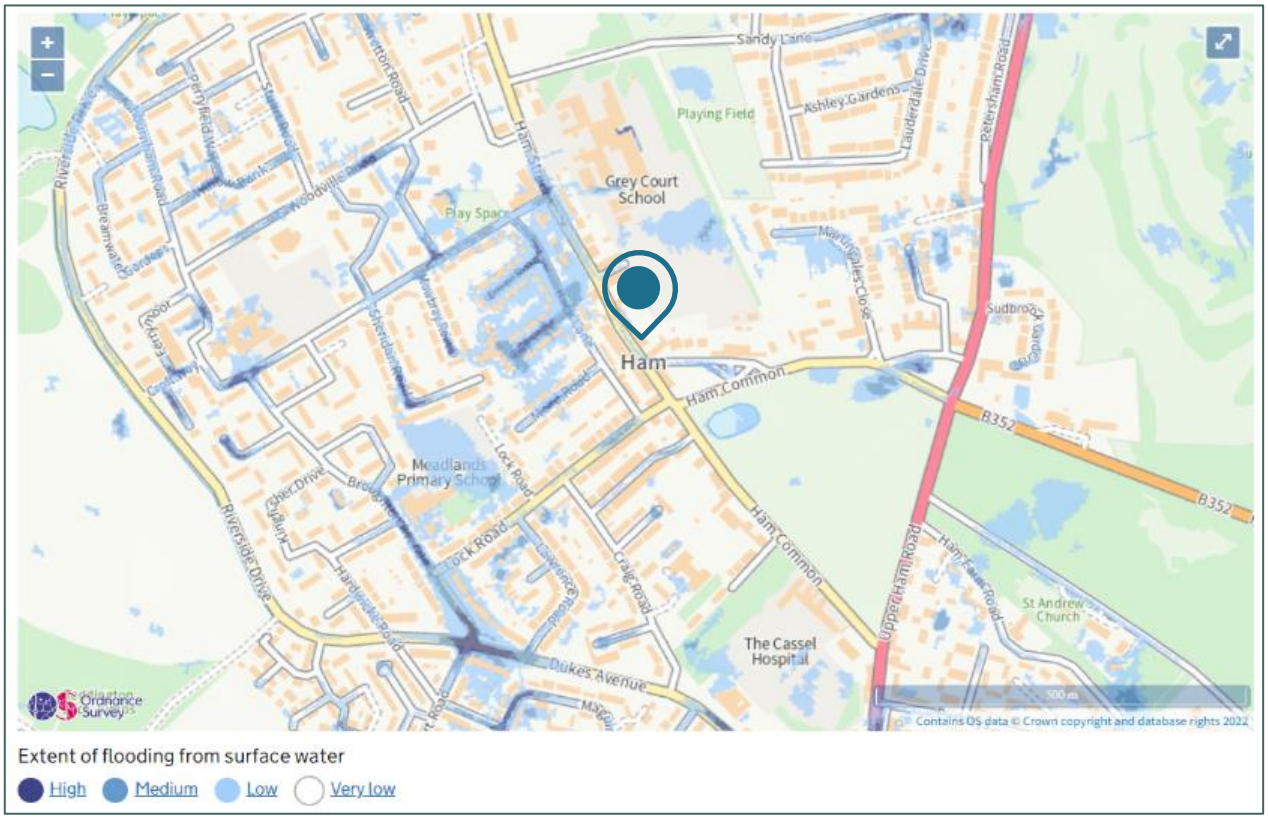


Figure 4 - Flood map showing risk of flooding from surface water (https://flood-warning-information.service.gov.uk/long-term-flood-risk/map)

3.3 Transport

Public Transport

The Proposed Development is approximately 2km from both Strawberry Hill and Twickenham railway stations. Strawberry Hill station is on the Kingston Loop Line, connecting the Waterloo-Reading Line to the South West Main Line. It runs 2 no. trains per hour to London Waterloo via Richmond, and 2 no. per hour via Wimbledon.

Twickenham Railway Station is on the Waterloo-Reading, Waterloo-Windsor, Hounslow Loop and Kingston Loop lines. There are 12 no. trains per hour to London Waterloo, with 8 no. of these running via Clapham Junction. There are 2 no. trains per hour to Reading and 2 no. per hour to Windsor and Eton Riverside.

The closest London Underground Station is Richmond, approximately 3km from the Proposed Development, in which the District Line runs through. There is also a London Overground Station at Richmond.

The Proposed Development is also located less than 300m from the closest bus stop on Ashburnham Road, with multiple other stops within a 500m radius. The buses which pass through these stops include the 371, 65 and N65 night bus. The 371 runs between Kingston upon Thames and Richmond, whereas the 65 runs between Kingston upon Thames and Ealing, via Richmond and Brentford. The N65 is the night bus of the 65 and has the same route, however extends further south than Kingston upon Thames, to Chessington.

The Proposed Development has road access to the A307 from Ham Street. This connects to the A316 which has road access into Central London to the East, the M3 to the West, and the M4 to the North. Access is then available to the wider national road network.

Parking

LBRUT Local Plan Policy LP45 states that:

'The Council will require new development to make provision for the accommodation of vehicles in order to provide for the needs of the development while minimising the impact of car based travel including on the operation of the road network and local environment, and ensuring making the best use of land. It will achieve this by:

- *Requiring new development to provide for car, cycle, 2 wheel and, where applicable, lorry parking and electric vehicle charging points, in accordance with the standards set out in Appendix 3. Opportunities to minimise car parking through its shared use will be encouraged.'*

The Transport for London WebCAT tool indicates that the Proposed Development has a Public Transport Accessibility Level (PTAL) of 1b. Appendix 3 of the LBRUT Local Plan the states that for the appropriate use class of the Proposed Development (D1 – Clinics, Health Centres, Dentists/Doctors Surgeries), developments within PTALs 0-3 have a parking standard of 1 no. space per consulting room. The Proposed Development has 3 no. consulting rooms and therefore has the provision for 3 no. parking spaces, in-line with LBRUT planning policy. This includes 1 no. disabled bay and 1 no. staff bay. The limited on-site parking will promote the use of public transport by visitors and staff.

Electric Vehicle Charging

The LBRUT Local Plan states electric vehicle charging must be provided in-line with the requirements set out in the London Plan. For non-residential developments 10% of parking spaces must have active provision, with a further 10% passive provision (infrastructure in place for future charging facilities to be installed). Since the Proposed Development has limited parking (only 3 no. spaces), no active or passive electric charging provision is required in-line with this policy.

Cycle Storage

Appendix 3 of the LBRUT Local Planning Policy LP45 states that for the appropriate use class of the Proposed Development, the cycle parking standards of the Proposed Development must follow the London Plan requirements. This states that for the D1 – health centre use class, a minimum of 1 no. long-stay space is required per 5 no. staff members, and a minimum of 1 no. short-stay space is required per 3 no. staff members.

A secure and covered cycle shed is being provided for staff members, as well as a Sheffield stand for customer cycle parking. The staff cycle parking will provide 3 no. spaces, in-line with the minimum cycle parking standards. Only 1 no. customer space is being provided for the site. This does not comply with the minimum short-stay cycle parking standards, however this is because of the nature of the Proposed Development. Customers will need to transport animals to and from the site of the veterinary practice, so cycling to the site will not be practicable. Having extra customer cycle parking would therefore use up space on the small site unnecessarily. For this reason, the amount of customer cycle parking provision is suitable for the Proposed Development.

3.4 Biodiversity

Biodiversity is generally considered to be the variety of life forms within a certain ecosystem. The Proposed Development currently consists of an existing pub and is therefore expected to be of low ecological value.

The current site has limited biodiversity so it is predicted that the Proposed Development will have an overall positive impact on the biodiversity of the area, by increasing the amount of green space, planting and incorporating native species where possible.

3.5 Resource efficiency

Construction Phase Waste Management

The Proposed Development will aim to minimise the waste produced from the site during the construction phase.

A comprehensive Construction Management Plan will be implemented from the outset of site works and will follow the principles of the waste hierarchy, with targets set in relation to volume of construction waste and diversion from landfill.

The construction waste generated as part of the redevelopment will be segregated and monitored as per best practice, with suitable materials being recycled as part of this process, either to be reused on site or introduced back into the supply chain through recycling by a Licensed Contractor, therefore minimising the amount of waste being disposed of in landfill sites.

Reusing materials on site will reduce the embodied energy of the development through the reuse of the energy that exists in that material. Transportation of new material to the site will be reduced, reducing the CO_2 emissions associated with transportation and material manufacture.

Where waste will need to be disposed of, this will be done in line with the Waste Hierarchy, with as much as practicable being recycled, and the remainder being dealt with through a specialist waste recycling contractor. Nominal construction waste should be sent to landfill or for incineration unless this is unavoidable due to the materials found on the existing site.

Appropriate targets and benchmarks will be set in line with best practice requirements.

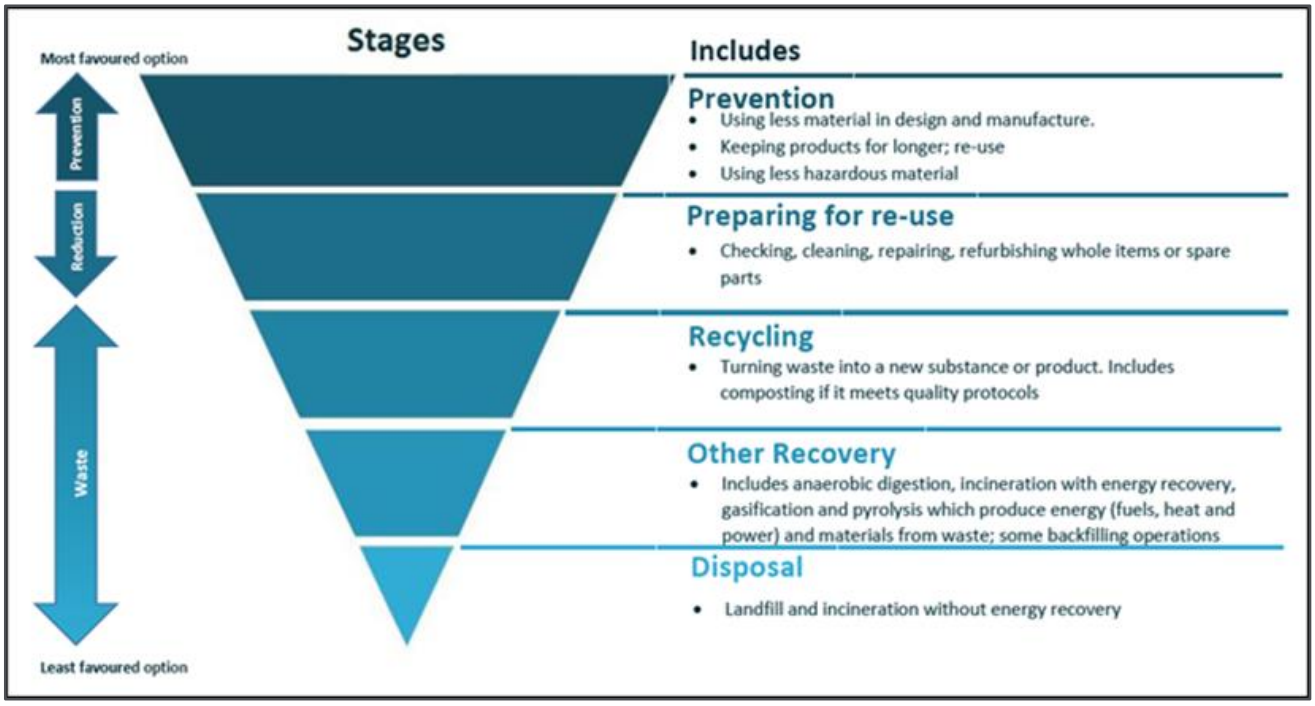


Figure 5 - The waste hierarchy

Resource Management

Policies will be put in place for management of site impacts such as air and water pollution in line with industry best practice. Monitoring and reporting on carbon emissions and water use from site related activities will take place in line with national benchmarks.

The overall management of the construction waste will be monitored through the Considerate Constructors Scheme as part of Best Practice Site Management.

Materials

The Proposed Development is to use high quality, low impact materials in order to minimise the overall impact on the environment as far as possible.

The existing fabric is to be retained and the form of construction is of traditional load bearing masonry construction.

All timber materials for finishing elements will be sourced from FSC and/or PEFC sources and all other materials sourced from suppliers who have an accredited Environmental Management System (EMS) (ISO14001, BS8555 or BES6001) for the extraction and process stages of the material manufacturing, ensuring that any environmental impact caused by the building materials is analysed and mitigated where possible.

All timber and timber-based products use on-site will be legally sourced with appropriate Chain of Custody certification to confirm this.

As standard industry best-practice, all insulation on the site will have an Ozone Depletion Potential (ODP) of zero, and a Global Warming Potential (GWP) of <5, further minimising the Proposed Developments effect on global Climate Change.

Water

Areas of the South East of England have been declared areas of 'serious water stress', particularly Greater London. Water is a vital resource and efficient usage should be encouraged in all new buildings. The Proposed Development aims to significantly reduce mains water use through a combination of efficiency measures,

including the use of fittings with a low capacity or flow restrictors to reduce water use and PIR sensors linked to water shut-offs valves to reduce the chances of water waste.

Water use will be reduced in line with LBRUT Local Plan Policy LP 22, which states non-residential developments should incorporate best practice water saving and recycling measures as outlined in the Sustainable Construction Checklist SPD. An indicative specification is given below, in-line with these standards:

- WCs: 4.00 litre effective flush volume
- If 1 urinal only: 2.00 litres/bowl/hour
- If 2 or more urinals at the site: 1.50 litres/bowl/hour
- Hand wash basin taps: 4.50 litres/min
- Kitchenette taps: 5.00 litres/min
- Showers: 6.00 litres/min
- Baths: 140 litres
- Domestic sized dishwashers (if installed) 12.00 litres/cycle
- Domestic sized washing machines (if installed) 40.00 litres/use
- Commercial sized dishwashers (if installed) 5.00 litres/rack
- Commercial sized washing machines (if installed) 7.50 litres/kg dry load

3.6 LBRUT Sustainable Construction Checklist SPD

The LBRUT Sustainable Construction Checklist (Appendix E) has been completed for the Proposed Development in-line with Local Plan Policy LP22, which states that the checklist must be completed for non-residential developments with a floor space of 100m^2 or more, and submitted as part of the planning application.

The Proposed Development achieves a score of 44, equating to a C rating for non-residential developments. The Proposed Development therefore complies with SPD Policy for a minimum rating of 40 for non-residential developments.

The checklist document states that a C rating signifies 'minimal effort to increase sustainability beyond general compliance'. The Proposed Development is a change of use building where a large proportion of the existing site is being retained, for example the entire outer shell of the building. As a result, there is limited scope for achieving some of the credits outlined in the checklist document. The Proposed Development will have a net positive impact on sustainability compared to the existing development, since the small number of changes that will be made will increase the sustainability of the site.

3.7 Sustainability Conclusions

Through a considered approach to sustainability, the Proposed Development is aiming to deliver a highly sustainable non-residential development which is within an appropriate area for this use and at an appropriate scale. The Proposed Development will make maximum use of the Application Site, providing a veterinary practice, in line with the Adopted LBRUT Local Plan and London Plan requirements.

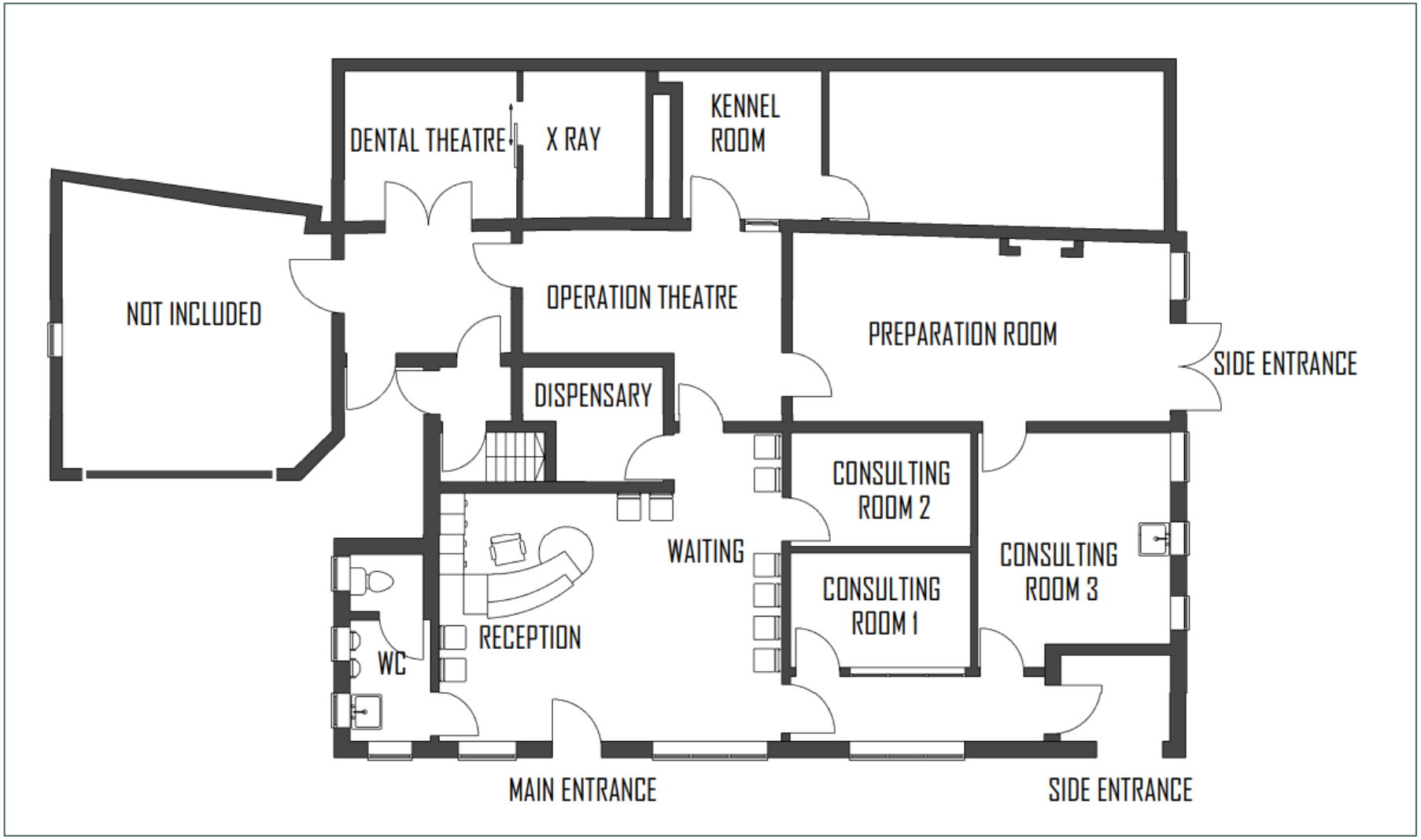
The adoption of a sustainable approach to the design and construction has allowed the Proposed Development to provide:

- Development which is suitable for the site with access to public transport and services
- Low internal water use
- Low impact development with minimal noise, light and air pollution
- Consideration of biodiversity on the site within the landscaping design
- Comprehensive site waste management during construction and operation.

The LBRUT Sustainable Construction Checklist (Appendix E) has also been completed for planning with the Proposed Development achieving a C rating with a score of 44, therefore complying with SPD Policy.

Appendices

Appendix A – Ground Floor Plan



ACHIEVEDesign

Appendix B – SBEM Summary Sheet

Building Regulations 2013 L2B					Ham Brewery Tap						
Building Type	**Address**				**As-Designed/ As-Built Drawings**	**SBEM Level**	**Weather File**	**Proposed**	**Notional**	**BER/TER Improvement (%)**	
D1: Primary Health Care Building	4-6 Ham Street, Richmond, TW10 7HT				As Designed	5	London	45.90	84.50	45.68%	
Construction Element	**U-Value**	**L2B**	**Description**								
External Wall	1.70	-	Solid brick as built, U-value as per SAP Appendix S								
Exposed Roof	2.30	-	Flat roof, U-value as per SAP Appendix S								
Ground Floor	0.58		Solid ground floor, U-value as per SAP Appendix S								
Construction Element	**U-Value**	**L2B**	**G Value**	**Frame Factor**	**Description (manufacturer, make and model)**						
Windows	4.8	-		10%	Single glazed window, whole window U-Value						
Glazed Doors	4.8	-		10%	Single glazed door, whole window U-Value						
Solid Door	3	-	n/a	n/a	Whole door U-Value as per SAP Appendix S						
Construction Notes	**U-Value**										
Construction Details											
Air-permability	25 $m^3/hr/m^2$				Default air permeability for buildings built to Building Regulations pre 1995						
Heating and Cooling	**System Details**				**Emitter**		**Controls**				
Heating System	VRF heating/cooling: Average SEER 6.1, EER 3.23, SCOP 4 1 x Midea M3OF27HFN8-Q: SEER 6.1, EER 3.23, SCOP 4 2 x Midea M4OE-28HFN8-Q : SEER 6.1, EER 3.21, SCOP 4 1 x Midea M2OD-18HFN8-Q: SEER 6.1, EER 3.24, SCOP 4				Ceiling/Wall cassettes		Central time control and local temperature control				
Hot Water	**System Details**				**Secondary Circulation**	**Circulation Losses (W/m)**	**Pump Power (kW)**	**Loop Length (m)**	**Storage Tank (l)**	**Storage Losses (kWh/l.day)**	**Delivery Efficiency**
Hot Water System	Gas combi boiler: Minimum efficiency of 89%				N	N/A	N/A	N/A	20	0.0047 (TBC)	0.95
Ventilation	**System Details**				**SFP (W/l/s)**	**DCV Type**		**Heat Recovery**	**Heat Recovery Efficiency (%)**	**Heat Recovery Type**	**Variable HR**
Mechanical Ventilation	Standard extract from WC				0.30	N/A		N	N/A	N/A	N/A
Electrical Flow Control	**Description**										
Power Correction Factor	N		<0.9								
Separate Metering	N		N								
Renewables		**Description**									
PV	N										
Solar Water Heating	N										
Wind Turbine	N										
Lighting	**Description**										
Lighting	Average light efficacy of 100Lm/W, LOR=1										
Lighting Controls	None										
Parasitic Power	N/A										
Sign Off of details		**Name**	Yin Mui Tang	**Date**	12.04.2022	By signing this document, I declare that the aforementioned details are all correct as per the final "as designed" specifications:	**Name**		**Date**		
							Sign				

Appendix C – BRUKL documents

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Ham Brewery Tap - Notional

As designed

Date: Wed Apr 13 10:04:52 2022

Administrative information

Building Details

Address: Ham Brewery Tap, Richmond, TW10 7HT

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.13

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.13

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

Certifier details

Name: Yin Mui Tang

Telephone number: 01730710044

Address: SRE Ltd, Greenforde Farm, Stoner Hill Road, Froxfield, Petersfield, GU32 1DY

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	31.2
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	31.2
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	84.5
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	1.7	1.7	50000000:Surf[3]
Floor	0.25	0.58	0.58	23000000:Surf[0]
Roof	0.25	2.3	2.3	26000000:Surf[1]
Windows***, roof windows, and rooflights	2.2	4.8	4.8	50000000:Surf[0]
Personnel doors	2.2	3.21	4.8	RC000001:Surf[2]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* 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	25

Page 1 of 6

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Ham Brewery Tap - Lean

As designed

Date: Wed Apr 13 10:05:00 2022

Administrative information

Building Details

Address: Ham Brewery Tap, Richmond, TW10 7HT

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.13

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.13

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

Certifier details

Name: Yin Mui Tang

Telephone number: 01730710044

Address: SRE Ltd, Greenforde Farm, Stoner Hill Road, Froxfield, Petersfield, GU32 1DY

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	31.2
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	31.2
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	80.1
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	1.7	1.7	50000000:Surf[3]
Floor	0.25	0.58	0.58	23000000:Surf[0]
Roof	0.25	2.3	2.3	26000000:Surf[1]
Windows***, roof windows, and rooflights	2.2	4.8	4.8	50000000:Surf[0]
Personnel doors	2.2	3.21	4.8	RC000001:Surf[2]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m²K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m²K)]
$U_{i\text{-}Calc}$ = 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	25

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Ham Brewery Tap

As designed

Date: Wed Apr 13 10:07:42 2022

Administrative information

Building Details

Address: Ham Brewery Tap, Richmond, TW10 7HT

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.13

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.13

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

Certifier details

Name: Yin Mui Tang

Telephone number: 01730710044

Address: SRE Ltd, Greenforde Farm, Stoner Hill Road, Froxfield, Petersfield, GU32 1DY

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	33.2
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	33.2
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	45.9
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	1.7	1.7	50000000:Surf[3]
Floor	0.25	0.58	0.58	23000000:Surf[0]
Roof	0.25	2.3	2.3	26000000:Surf[1]
Windows***, roof windows, and rooflights	2.2	4.8	4.8	50000000:Surf[0]
Personnel doors	2.2	3.21	4.8	RC000001:Surf[2]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m²K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m²K)]
$U_{i\text{-}Calc}$ = 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	25

Appendix D – GLA SAP 10 figures

Table 3: Carbon Dioxide Emissions after each stage of the Energy Hierarchy for non-domestic buildings

	Carbon Dioxide Emissions for non-domestic buildings (Tonnes CO_2 per annum)	
	Regulated	**Unregulated**
Baseline: Part L 2013 of the Building Regulations Compliant Development	12.4	
After energy demand reduction (be lean)	11.6	
After heat network connection (be clean)	11.6	
After renewable energy (be green)	3.8	

Table 4: Regulated Carbon Dioxide savings from each stage of the Energy Hierarchy for non-domestic buildings

	Regulated non-domestic carbon dioxide savings	
	(Tonnes CO_2 per annum)	**(%)**
Be lean: savings from energy demand reduction	0.8	6%
Be clean: savings from heat network	0.0	0%
Be green: savings from renewable energy	7.7	63%
Total Cumulative Savings	**8.5**	**69%**
Annual savings from off-set payment	3.8	-
	(Tonnes CO_2)	
Cumulative savings for off-set payment	**115**	-
Cash in-lieu contribution (£)*	**10,950**	

*carbon price is based on GLA recommended price of £95 per tonne of carbon dioxide unless Local Planning Authority price is inputted in the 'Development Information' tab

Appendix E – LBRUT Sustainable Construction Checklist SPD

LBRUT Sustainable Construction Checklist - June 2020

This document forms part of the Sustainable Construction Checklist SPD. This document **must** be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)**, and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant):	Ham Brewery Tap	Application No. (if known):	
Address (include. postcode)	Ham Brewery Tap, 4-6 Ham Street, Richmond, TW10 7HT		
Completed by:	Owen Brookes - SRE Ltd		
For Non-Residential		*For Residential*	
Size of development (m2)	183.3	Number of dwellings	

1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

Energy Assessment

Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please select TRUE.	TRUE	

Carbon Dioxide emissions reduction

What is the on site carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline	45.68	%
Policy LP 22 B. and Draft London Plan Policy 9.2.5 require a 35% onsite reduction in CO_2 emissions beyond Building Regulations 2013.		
What is the percentage reduction from efficiency measures alone	5.21	%
Policy LP 22 C. and Draft London Plan Policy 9.2.6 require a 10% onsite reduction in CO2 emissions beyond Building Regulations 2013 from efficiency measures for residential and 15% for non-residential.		
Percentage of **total** site CO2 emissions saved through renewable energy installation?	40.47	%
What is the total remaining carbon to be offset	0	Tonne
Policy LP 22 B. and Draft London Plan Policy 9.2.4 require Major developments to achieve Zero Carbon after offsetting.		
Are remaining emissions going to be offset through offset fund payment in accordance with current guidelines issued for the cost per tonne of CO2?	FALSE	
What is the total predicted cost of offset?	0	£
The London Plan sets this as £95/tonne per year over 30 years, this should be updated based on As Build calculations.		

1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

Please check the Guidance Section of this SPD for the policy requirements

Environmental Rating of development:

Non-Residential new-build (100sqm or more)			
BREEAM Level	Please Select	Have you attached a pre-assessment to support this?	Please Select:
Excellent required under Policy LP22 A 3			
Extensions and conversions for residential dwellings			
BREEAM Domestic Refurbishment	Please Select	Have you attached a pre-assessment to support this?	Please Select:
Excellent required under Policy LP22 A 4			
Extensions and conversions for non-residential buildings			
BREEAM Level	Please Select	Have you attached a pre-assessment to support this?	Please Select:
Excellent required under Policy LP 22			

Score awarded for Environmental Rating:		Subtotal	0
BREEAM:	Good = *0*, Very Good = 4, Excellent = *8*, Outstanding = *16*		

1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

		Score	
Water Usage			
Internal water usage after gray/rainwater systems limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted.		*1*	Please Select:
110l/p/d Required for new dwellings under Policy LP22 A 2 105l/p/d required under Draft London Plan Policy SI5			
		Subtotal	0

2. ENERGY USE AND POLLUTION						
2.1 Need for Cooling					***Score***	
a.	How does the development incorporate cooling measures? Tick all that apply:					
		Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm			*6*	**TRUE**
		Reduce heat entering a building through providing/improving insulation and living roofs and walls			*2*	**FALSE**
		Reduce heat entering a building through shading			*3*	**TRUE**
		Exposed thermal mass and high ceilings			*4*	**TRUE**
		Passive ventilation			*3*	**TRUE**
		Mechanical ventilation with heat recovery			*1*	**FALSE**
		Active cooling systems, i.e. Air Conditioning Unit			*0*	**TRUE**
	See Draft London Plan SI4					
2.2 Heat Generation						
b.	How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy **SI3)** Tick all heating and cooling systems that will be used in the development:				***Score***	
		Connection to existing heating or cooling networks powered by renewable energy			*6*	**FALSE**
		Connection to existing heating or cooling networks powered by gas or electricity			*5*	**FALSE**
		Site wide CHP network powered by renewable energy			*4*	**FALSE**
		Site wide CHP network powered by gas			*3*	**FALSE**
		Communal heating and cooling powered by renewable energy			*2*	**FALSE**
		Communal heating and cooling powered by gas or electricity			*1*	**FALSE**
		Individual heating and cooling			*0*	**TRUE**
	See Draft London Plan SI3					
2.3 Pollution: Air, Noise and Light						
a.	Does the development plan to implement reduction strategies for dust emissions from construction sites?				*2*	**TRUE**
b.	Does the development plan to include a biomass boiler?					**FALSE**
		If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to complete the information request form found on the Richmond website.				
c.	Has an air quality impact assessment been provided					**Please Select:**
		If yes, has 'Emissions Neutral' been achieved			*1*	**Please Select:**
		If yes, have occupants of new development been protected from existing pollution			*1*	**Please Select:**
		If no to any of the above are there any sensitive receptors as defined in Policy LP 10 present?			*-1*	**Please Select:**
	see Policy LP 10					
d.	Please tick only one option below					
		Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?			*3*	**TRUE**
		Has the development taken care to not create any new noise generation/transmission issues in its intended operation?			*1*	**TRUE**
	see Policy LP 10					
e.	Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?				*3*	**TRUE**
	see Policy LP 10					
f.	Have you attached a Lighting Pollution Report?				-	
					Subtotal	**25**
Please give any additional relevant comments to the Energy Use and Pollution Section below						
3. TRANSPORT						
3.1 Provision for the safe efficient and sustainable movement of people and goods						
a.	Does your development provide opportunities for occupants to use innovative travel technologies?					**TRUE**
Please explain:						
		Cycle parking provided in-line with LBRUT and London Plan requirements to encourage staff and visitors to use sustainable transport alternatives.				
					Score	
b.	Does your development provide for 100% active provision for electric vehicle charging point(s) and have you successfully demonstrated that it would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered?				*2*	**FALSE**
c.	**For major developments ONLY**: Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance?					
		If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist.			*5*	**Please Select:**
	See policy LP44					
d.	**For smaller developments ONLY**: Have you provided a Transport Statement?				*5*	**TRUE**
e.	Does your development provide cycle storage? (Standard space requirements are set out in the Council's Parking Standards - Local Plan Appendix 3)				*2*	**TRUE**
		If so, for how many bicycles?			**4**	
		Is this shown on the site plans?				**TRUE**
	See Local Plan Appendix 3					
f.	Will the development create or improve links with local and wider transport networks? If yes, please provide details.				*2*	**FALSE**
					Subtotal	**7**
Please give any additional relevant comments to the Transport Section below						
		Cycle parking is limited because of the nature of the development. Visitors will need to bring animals to the veterinary practice, therefore cycling to the site may not be practicable.				
4 BIODIVERSITY						
4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people						
a.	Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes)				*-2*	**FALSE**
		If so, please state how much in sqm?				sqm
b.	Does your development involve the removal of any tree(s)? (Indicate if yes)					**FALSE**
		If so, has a tree report been provided in support of your application? (Indicate if yes)				**Please Select:**
c.	Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)					**TRUE**
d.	Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:					
		Pond, reedbed or extensive native planting	*6*	Area provided:		sqm **FALSE**
		An extensive green roof	*5*	Area provided:		sqm **FALSE**
		An intensive green roof	*4*	Area provided:		sqm **FALSE**
		Garden space	*4*	Area provided:	25	sqm **TRUE**
		Additional native and/or wildlife friendly planting to peripheral areas	*3*	Area provided:		sqm **FALSE**
		Additional planting to peripheral areas	*2*	Area provided:	8.5	sqm **TRUE**
		A living wall	*2*	Area provided:		sqm **FALSE**
		Bat boxes	*0.5*			**FALSE**
		Bird boxes	*0.5*			**FALSE**
		Swift boxes	*0.5*			**FALSE**
		Other	*0.5*			**FALSE**
e.	Does your development use at least 70% of available roof plate as green/brown roof				*1*	**FALSE**
	Policy LP 17 requires 70%					
					Subtotal	**6**
Please give any additional relevant comments to the Biodiversity Section below						
		he limited outdoor space at the site of the Proposed Development means biodiversity enhancement is limited. There will be an overall positive effect on biodiversity compared to the existing pub				

5	**FLOODING AND DRAINAGE**					
5.1 Mitigating the risks of flooding and other impacts of climate change in the borough						
a.	Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes)			-2		FALSE
		Have you submitted a Flood Risk Assessment? (Indicate if yes)				Please Select:
b.	Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)					
		Store rainwater for later use		5		FALSE
		Use of infiltration techniques such as porous surfacing materials to allow drainage on-site		3		FALSE
		Attenuate rainwater in ponds or open water features		4		FALSE
		Store rainwater in tanks for gradual release to a watercourse		3		FALSE
		Discharge rainwater directly to watercourse		2		FALSE
		Discharge rainwater to surface water drain		1		TRUE
		Discharge rainwater to combined sewer		0		TRUE
		Have you submitted a Drainage Statement (Indicate if yes)				Please Select:
	See Policy LP 21 and Draft London Plan SL 13					
c.	Please give the change in area of permeable surfacing which will result from your development proposal:		33.5		sqm	
	Please provide details of the permeable surfacing below		*please represent a loss in permeable area as a negative number*			
				Subtotal	**1**	
Please give any additional relevant comments to the Flooding and Drainage Section below						
Increase in permeable surface area comes from garden and additional planting.						
6	**IMPROVING RESOURCE EFFICIENCY**					
6.1 Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling						
a.	Will demolition be required on your site prior to construction? *[Points will only be awarded if 10% or greater of demolition waste is reused/recycled]*			1		FALSE
		If so, what percentage of demolition waste will be reused in the new development?			%	
		What percentage of demolition waste will be recycled?			%	
b.	Does your site have any contaminated land?			1		FALSE
		Have you submitted an assessment of the site contamination?		2		Please Select:
		Are plans in place to remediate the contamination?		2		Please Select:
		Have you submitted a remediation plan?		1		Please Select:
		Are plans in place to include composting on site?		1		Please Select:
c.	Will a waste management plan and facilities be in place in line with Policy LP24		Yes			
6.2 Reducing levels of water waste						
a.	Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):					
		Fitting of water efficient taps, shower heads etc		1		TRUE
		Use of water efficient A or B rated appliances		1		TRUE
		Rainwater harvesting for internal use		4		FALSE
		Greywater systems		4		FALSE
		Fit a water meter		1		TRUE
				Subtotal	**3**	
Please give any additional relevant comments to the Improving Resource Efficiency Section below						
7	**ACCESSIBILITY**					
7.1	**Ensure flexible adaptable and long-term use of structures**					
a.	**If the development is residential,** will it meet the requirements of the nationally described space standard for internal space and layout?			1		Please Select:
	If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout					
AND						
b.	**If the development is residential**, will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'?			2		Please Select:
	If this is not met, in the space below, please provide details of any accessibility measures included in the development.					
	For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'?			1		Please Select:
OR						
c.	**If the development is non-residential,** does it comply with requirements included in Richmond's Local Plan LP1, LP28.B, LP30 & LP45			2		TRUE
	Please provide details of the accessibility measures specified in the Local Plan that will be included in the development					
	LP1 - Limited change to exterior of existing building so will not affect local character. LP28.B - Provides a beneficial service to the local area. LP30 - Cycle parking provided to reduce car dependancy. Conversion from existing pub has net positive impact on local health and wellbeing. LP45 - Parking standards in-line with local planning policy, for car parking and cycle parking.					
				Subtotal	**2**	
Please give any additional relevant comments to the Design Standards and Accessibility Section below						

LBRUT Sustainable Construction Checklist- Scoring Matrix for *New Construction* **(Non-Residential and domestic refurb)** ***TOTAL*** ***44***

Score	Rating	Significance
84 or more	*A+*	Project strives to achieve highest standard in energy efficient sustainable development
75-83	*A*	Makes a major contribution towards achieving sustainable development in Richmond
56-74	*B*	Helps to significantly improve the Borough's stock of sustainable developments
40-55	*C*	Minimal effort to increase sustainability beyond general compliance
39 or less	*FAIL*	Does not comply with SPD Policy

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction **Residential new-build**

Score	Rating	Significance
85 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development
68-84	*A+*	Project strives to achieve higher standard in energy efficient sustainable development
59-67	*A*	Makes a major contribution towards achieving sustainable development in Richmond
39-58	*B*	Helps to significantly improve the Borough's stock of sustainable developments
24-38	*C*	Minimal effort to increase sustainability beyond general compliance
23 or less	*FAIL*	Does not comply with SPD Policy

Authorisation:

I herewith declare that I have filled in this form to the best of my knowledge

Signature Owen Brookes - SRE Ltd **Date** 14/04/2022

SRE Main Office | Greenforde Farm
Stoner Hill Road | Froxfield
Petersfield | Hampshire | GU32 1DY
01730 710044
info@sre.co.uk
www.sre.co.uk