

Former Stag Brewery. Sustainability response.

Application name	Former Stag Brewery
Application number	22/0902/FUL
Proposal description	Erection of a three-storey building to provide a new secondary school with sixth form; sports pitch with floodlighting, external MUGA and play space; and associated external works including landscaping, car and cycle parking, new access routes and other associated works
Planning application link	https://www2.richmond.gov.uk/lbrplanning/Planning_CASENO.aspx?strCASENO=22/0902/FUL&DocTypeID=7#docs

The RAG rating applied in the Accelar comments and recommendations column represents the following:

Green	Meets the policy requirement
Amber	Partially meets the policy requirement or unclear whether policy compliance is achieved. Minor clarifications required.
Red	Does not meet policy requirement, further action needed

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Sustainable design and construction				
<p>Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:</p> <ul style="list-style-type: none"> Development of 1 dwelling unit or more, or 100sqm 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. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible). <p><i>London Borough of Richmond LP 22 (part 2 of the original policy covers water efficiency, this is included in the row below).</i></p>	<p>See Appendix D of Sustainability Statement, LBRuT sustainability checklist.</p> <p>The development falls under multiple assessment type categories as set out in table 1 and a Shell and Core assessment has been assumed for the Office and Cinema. A 'Fully Fitted' assessment has been assumed for Application B (School). The proposed development is targeting a BREEAM 'Excellent' rating for each of the assessment types outlined below.</p> <ul style="list-style-type: none"> Office Units BREEAM score: 74.0%, 'Excellent' Cinema BREEAM score: 71.4%, 'Excellent' School BREEAM score: 72.3%, 'Excellent' <p>BREEAM domestic refurbishment pre-assessment summary: "This draft pre-assessment has been carried out independently by a qualified BREEAM assessor prior to a review by the project design team. This report sets out a route to achieving the target rating and highlights the design team members responsible for each credit issue."</p>	<p>Sustainability Statement, pages 30-32, Appendix D, Hoare Lea, March 2022.</p>	<p>The applicant has submitted a Sustainable Construction Checklist as an appendix to the Sustainability Statement. This matches the version submitted with the outline application, 22/0900/OUT.</p> <p>The council should note that the applicant has not submitted a separate Sustainable Construction Checklist just for the school, rather it appears to be captured within the broader Checklist along with Development Area 1. It is therefore not possible to isolate the specific aspects of the Checklist that are specific to the school. If the council is comfortable with this approach, then please refer to Accelar's comments and feedback within the 22/0900/OUT application.</p> <p>If the council would prefer a Checklist specific to the school, it should be requested from the applicant.</p> <p>The BREEAM pre-assessment indicates that the school is on track to achieving a BREEAM score of Excellent, as required by policy. It is recommended that the applicant sets a</p>	<p>The application consists of a hybrid application hence the combination of responses for all areas of the site within one checklist. Should the council decide they would like a separate response be produced for the school, this can be provided upon request.</p> <p>This is an acceptable approach, subject to suitable wording. To be closed out as part of a planning conditions/S106 obligation, as appropriate.</p>

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			<p>BREEAM planning condition for the school, capturing:</p> <ul style="list-style-type: none"> - At the design (e.g., prior to the commencement of above ground construction works) and as-built (e.g., within six months of works finishing) stages of the school, new construction BREEAM certificates are submitted to the council demonstrating that a score of Excellent has been achieved for the school. 	
<p>In order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner.</p> <p>Development proposals should:</p> <ol style="list-style-type: none"> 1. through the use of Planning Conditions minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development), achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption) 2. achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent (commercial development) 3. incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise futureproofing. <p>London Plan Policy S15 Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption). A minimum of 2 credits on water consumption will be required for all other types of developments in order to achieve BREEAM "excellent"</p> <p>London Borough of Richmond LP 22</p>	<p>Application B (School) and non-domestic spaces in Development Area 1 of Application A will be provided with water efficient fixtures, fittings and appliances. For the non-domestic elements, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. This approximately equates to water use ratings of:</p> <ul style="list-style-type: none"> - WC = 4.5 l/flush - Hand Basin Taps = 7.5 l/m - Showers = 8 l/m - Urinal = 3 l/Bowl/hour - Kitchenette tap = 7.5 l/m - Dishwashers = 13 l/cycle <p>2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurb for The Maltings, and a water consumption level of <105 l/p/day will be targeted. It is also anticipated that Development Area 2, Application A would consider the provision of water efficient fixtures, fittings and appliances.</p> <p>The residential spaces for Development Area 1 of Application A will aim to achieve a water consumption rate of 105 litres per person per day. Water efficient fixtures and fittings will be installed to the non-domestic spaces. Tenants will be encouraged to fit-out their spaces appropriately to meet the requirements of the Building Regulations Part G (2013) as a minimum, with the aspiration to achieve a reduction beyond this level for BREEAM credits. The potential for inclusion of rainwater harvesting would be further investigated at detailed design stage.</p>	<p>Sustainability Statement, pages 4, 19-20, 31, Hoare Lea, March 2022.</p>	<p>The school has achieved the mandatory BREEAM excellent standard for the Wat 01 category, with the minimum 2 credits achieved within the pre-assessment. Furthermore, the applicant has provided some information on its intention to install water efficient fixtures, fittings and appliances, with estimated water consumption ratings provided.</p> <p>It is recommended that the council sets planning conditions in relation to water efficiency, as is required by policy S15 of the London Plan. Planning conditions should capture:</p> <ul style="list-style-type: none"> - Prior to the commencement of above ground works, as well as within six months following completion of construction, new construction BREEAM certificates are submitted to the council demonstrating that a minimum of 2 credits has been achieved under the Wat 01 category for the school. 	<p>This is an acceptable approach, subject to suitable wording. To be closed out as part of a planning conditions/S106 obligation, as appropriate.</p>

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	<p>All domestic uses within Development Area 1 (Application A), and the School in Application B, will include pulsed-output water meters, with sub-metering where feasible. Non-domestic units will be metered by tenancy, and tenants will be encouraged to fit sufficient submeters to identify different areas of use such as toilets, kitchens, and showers. Sub-metering would also be considered for inclusion in Development Area 2, (Application A) where feasible.</p> <p>2 credits achieved under Wat 01: Water Consumption for the office, cinema, and school.</p>			
<p>Development proposals should:</p> <ul style="list-style-type: none"> – seek to improve the water environment and ensure that adequate wastewater infrastructure capacity is provided – take action to minimise the potential for misconnections between foul and surface water networks. <p>London Plan Policy S15</p>	<p>All spaces at the Proposed Development will be provided with suitable connections to the public foul sewer or combined sewer network, as appropriate</p> <p>Wastewater generation from the Works would include effluent from sanitary facilities, as well as sediment-laden water from excavations, washing down and wheel wash facilities. It is expected that foul water generated at the Site during excavation and construction would be drained via the existing Thames Water combined sewers in the surrounding area. This would result in a minor temporary increase in foul water flows to the Thames Water network, although due to the low volumes expected this is expected to be insignificant.</p> <p>Thames Water confirmation of sufficient capacity: If your proposals progress in line with the details you've provided (drawings ref: WIE SA 92 0004 Rev A05, WIE SA 92 0005 Rev A05, WIE SA 92 0006 Rev A05, WIE SA 92 0007 Rev A05) we're pleased to confirm that there will be sufficient sewerage capacity to serve your development. However, Thames Water has concerns with capacity to the West of the development based on the proposed flows and connection points. We request that the developer updates Thames Water in advance of building phases as they come forwards to ensure that any investigative or upgrade works can be carried out before development commences.</p>	<p>Chapter 12: Surface Water Drainage and Flood Risk, page 11, Waterman.</p> <p>Foul Sewage and Utilities Assessment, pages 16-18, Hoare Lea, March 2022.</p>	<p>It is our recommendation that appropriate experts review this application to determine whether the policy has been achieved, as it is outwith the scope of the Energy Strategy/Sustainability Statement. For example, infrastructure engineers, environment statement reviewers, or water infrastructure experts. Accelar has provided a few observations which the council may want to consider along with the expert advice previously referenced.</p> <p>The school has been considered as part of the wider proposed development, therefore the same documentation (e.g., Foul Sewage and Utilities Assessment, Sustainability Statement) has been submitted with this application as with the outline application 22/0900/OUT. Therefore, Accelar's comments remain consistent with those provided in the feedback on planning application 22/0900/OUT. Including:</p> <p>The applicant has provided a letter by Thames Water dated November 2017. It states that further investigation is needed to assess the requirements of supplying clean water to the proposed development. Has this further investigation been undertaken to confirm that there is sufficient capacity? Furthermore, this letter is likely to have been based on a previous design iteration of the development. Has Thames Water provided an updated letter with recommendations based on the most up to date design of the proposed development? It is recommended that the council seeks</p>	<p>The information provided in the Foul Sewage and Utilities Assessment document that was submitted as part of the application is still valid. Whilst there have been amendments to the scheme since 2018 the overall water infrastructure requirements are still similar to what was required then. As part of the next design stages and as part of the phasing of the construction works further dialogue will be had with Thames Water about the required flow rates and associated connection points.</p> <p>A further update has not been provided by Thames Water but the amendments to the scheme that have been made since 2018 would not constitute a significant change to the drainage strategy. Please refer to the responses from the design team that have been issued to the council for additional information. As part of the next design stages and as part of the phasing of the construction works further dialogue will be had with Thames Water regarding discharge locations, flow rates etc.</p>

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	<p>This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.</p>		<p>clarification on these matters and consults further expert advice as previously mentioned.</p>	
<p>Development Plans and proposals for strategically or locally defined growth locations with particular flood risk constraints or where there is insufficient water infrastructure capacity should be informed by Integrated Water Management Strategies at an early stage.</p> <p>London Plan Policy S15</p>	<p>Thames Water: Thank you for your correspondence dated 16th November 2017 regarding the above redevelopment consisting of domestic dwellings, domestic apartments, care home, assisted living apartments, cinema, community facilities, health centre, hotel, management office, retail units, offices and a school.</p> <p>Please be aware that this report is based upon the details and drawings provided. If there are any subsequent changes to the details and information on your drawing, the contents of this report will become invalid, and a new assessment will be needed.</p> <p>As a result of our assessment, we'll need to carry out further investigations before we can more thoroughly assess the requirements for supplying the site.</p> <p>This site will require network modelling analysis to determine the effect of the new demand on the local and strategic network. The cost and duration of this analysis varies according to the complexity of the job and the availability of data for the area. The cost can vary between £2,000 and £35,000, with a report delivery time of up to 30 weeks</p>	<p>Foul Sewage and Utilities Assessment, Clean Water Budget Estimate letter from Thames Water, Hoare Lea, March 2022.</p>	<p>It is our recommendation that appropriate experts review this application to determine whether the policy has been achieved, as it is out with the scope of the Energy Strategy/Sustainability Statement. For example, infrastructure engineers, environment statement reviewers, or water infrastructure experts. Accelar has provided a few observations which the council may want to consider along with the expert advice previously referenced.</p> <p>The applicant has provided a letter by Thames Water dated November 2017. It states that further investigation is needed to assess the requirements of supplying clean water to the proposed development. Has this further investigation been undertaken to confirm that there is sufficient capacity? Furthermore, this letter is likely to have been based on a previous iteration of the development. Has Thames Water provided an updated letter with recommendations based on the most up to date design of the proposed development? It is recommended that the council seeks clarification on these matters and consults further expert advice as previously mentioned.</p>	
<p>Development proposals referable to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life- Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.</p> <p>London Plan Policy S12</p>	<p>Whole life carbon assessment template submitted for both the outline and detailed planning aspects of the application. See submitted templates for further details.</p>	<p>Whole life carbon report, outline planning stage. Carbon Professional Statement, detailed planning stage.</p>	<p>Full, detailed planning permission is being sought for the school. According to the Mayor's Whole Life-Cycle Carbon (WLC) Assessment's guidance, this requires that a detailed planning stage WLC assessment is completed. However, within the planning portal, it appears that only an outline planning stage WLC assessment has been submitted. It is unclear what the scope of this outline WLC assessment is. However, as it is outline, it does not meet the policy requirement for a detailed WLC assessment.</p> <p>Furthermore, consistent with Accelar's comments submitted with the 22/0900/OUT application, the WLC carbon assessment</p>	<p>Two WLC reporting tools were submitted as part of the application:</p> <ul style="list-style-type: none"> - A tool to cover the detailed elements of the application - A tool to cover the outline elements of the application. <p>The reporting tool has been updated and reissued (see comment below).</p> <p>The WLC results have been resubmitted within the newly adopted version of the tool</p>

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			<p>submitted is based on an outdated version of the GLA's Whole Life-Cycle Carbon Assessment (WLC) template. The most up to date version can be found on the Mayor's website here. As a result, key details are missing.</p> <p>It is recommended that the applicant submits a detailed Whole Life-Cycle Carbon Assessment (WLC), based on the Mayor's up to date template, for the school only. This will enable an appropriate comparison with the WLC benchmarks for schools, as set out within Appendix 2 of the Mayor's guidance document.</p>	<p>which supersede the versions of the tool that were submitted in March 2022.</p> <p>The details related to the school are included within one of the two submitted reporting tools for the detailed elements of the application. However, this has been updated to the latest version of the GLA reporting tool (see comment above).</p>
Circular economy				
<p>Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:</p> <ol style="list-style-type: none"> 1. promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible 2. encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products 3. ensure that there is zero biodegradable or recyclable waste to landfill by 2026 4. meet or exceed the municipal waste recycling target of 65 per cent by 2030 5. meet or exceed the targets for each of the following waste and material streams: <ol style="list-style-type: none"> a. construction and demolition – 95 per cent reuse/recycling/recovery b. excavation – 95 per cent beneficial use 6. design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food. <p>London Plan Policy SI 7</p>		<p>Operational Waste Management Plan, Stantec, March 2022 Site Waste Management Plan, AECOM, March 2022</p>	<p>The school has been considered as part of the wider proposed development, therefore the same documentation (e.g. Site Waste Management Plan and Operational Waste Management Plan) has been submitted with this application as with the outline application 22/0900/OUT. Therefore, Accelar's comments remain consistent with those provided in the feedback on planning application 22/0900/OUT.</p> <p>'These targets are not in line with the London Plan. The application states that a minimum of 70% of non- demolition waste and 80% of demolition waste can be diverted from landfill, whilst the London Plan target is 95% in both cases. It is recommended that the Council asks the applicant to review their site waste management plan accordingly'.</p> <p>It is noted that the Operational Waste Management Plan for the planning application 22/0900/OUT includes specific details on the waste management and recycling arrangements for the school development.</p>	<p>The applicant confirms a commitment to target the London Plan targets for diversion of waste from landfill. This will be captured within the Circular Economy Statement for Detailed Design.</p>
<p>B) Referable applications should promote circular economy outcomes and aim to be net</p>	<p>N/A</p>	<p>N/A</p>	<p>A separate CE statement is not required for this full application as the size of application</p>	<p>No response required</p>

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<p>zero- waste. A Circular Economy Statement should be submitted, to demonstrate:</p> <ol style="list-style-type: none"> 1. how all materials arising from demolition and remediation works will be re-used and/or recycled 2. how the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life 3. opportunities for managing as much waste as possible on site 4. adequate and easily accessible storage space and collection systems to support recycling and re-use 5. how much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy 6. how performance will be monitored and reported. <p>London Plan Policy SI7</p>			<p>is not referable to the Mayor. However, the school development is noted within the outline application CE statement and as such the proposals in the CE statement should apply to the development of the school which is viewed positively.</p>	
<p>Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported. London Plan Policy SI7</p>	N/A	N/A	<p>The Richmond local plan does not include a policy to apply CE statement at the Borough level.</p>	<p>No response required.</p>
Energy & emissions				
<p>The Council requires developments to contribute towards the Mayor of London target of 25% of heat and power to be generated through localised decentralised energy (DE) systems by 2025. The following will be required:</p> <ol style="list-style-type: none"> 1. All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed. 2. Development proposals of 50 units or more, or new non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP). 	<p>Offsite heating/cooling network by reference to the London Heat Map (http://www.londonheatmap.org.uk), the proposed development is not in close proximity to an existing energy network, the closest being some 5.4miles away in Westminster. This is an unavailable connection, with no known plans to develop or extend as far as Richmond. There are opportunities for potential networks in the Hammersmith area although this remains at a distance that is beyond what could be considered reasonable to connect to at 2.3miles. Figure 4.10 shows the area of the site and the potential networks from the London Heat Map.</p> <p>Combined heat and power (CHP) Considering the high proportion of CO2 emissions arising from thermal sources in particular with</p>	<p>Energy Strategy: 6.2 Be Clean: network and technologies</p>	<p>The evidence provided as part of the application is satisfactory. If buildings are connected from some distance to an existing network, as here, the basic disadvantages are:</p> <ol style="list-style-type: none"> 1. Excessive heat losses from the length of pipework 2. Lack of responsiveness to heat demand because the point of demand for the heat is a long distance from the heat source. It would take a significant time for hot water to travel from the heat source to a site 2.3 or 5.4 miles away <p><u>CHP</u> In this revised application CHP has been removed from the specification and replaced</p>	<p>No action required.</p> <p>No action required.</p>

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<p>3. Where feasible, new development of 50 units or more, or new non-residential development of 1000sqm or more, as well as schemes for the Proposal Sites identified in this Plan, will need to provide on-site DE and CHP; this is particularly necessary within the clusters identified for DE opportunities in the borough-wide Heat Mapping Study. Where on-site provision is not feasible, provision should be made for future connection to a local DE network should one become available.</p> <p>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.</p> <p>Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate.</p> <p>London Borough of Richmond LP 22</p>	<p>reference to the dwellings, a gas fired Combined Heat and Power (CHP) system could be suitable for the scheme. However, when considering the decarbonisation of the National Grid and proposed carbon factors in the emerging update to Part L (15th June 2022), a CHP system would result in an increase of on- site emissions (approximately 15% addition to the SAP10 baseline). Furthermore, the presence of on-site combustion plant could have a detrimental impact on local air quality as a result of the Proposed Development.</p> <p>Therefore, for the reasons detailed above, CHP has not been proposed for this energy strategy and no additional savings can be demonstrated at this stage of the energy hierarchy.</p>		<p>with a strategy of air source heat pumps (ASHP).</p> <p>ASHP is powered by electricity from the national grid and the CO2 emissions per kWh from the generation of grid electricity have reduced by circa 60% over the last 15 years due to removal of fossil fuel generation and the installation of renewable generation. This makes ASHP more “carbon efficient” than CHP.</p> <p>For the purpose of complying with the various policies, this is a sound decision.</p>	
	<p>The key change to the energy strategy sees thermal demand met via on site, centralised ASHP which is considered a low carbon technology which allows the site to benefit from continuous decarbonisation of the national grid throughout its lifetime. The previous strategy included the installation of an energy centre which housed combined heat and power (CHP) plant to serve the thermal demand. CHP is a combustion technology that uses fossil fuel. This plant type no longer provides the carbon reductions previously anticipated due to decarbonisation of the grid and can have negative impacts on local air quality, therefore this approach was revised. Furthermore, this “all-electric” approach removes combustion plant on site which provides additional benefit to local air quality.</p> <p>Air Source Heat Pumps (ASHP) ASHP are a more flexible form of heat pump compared to GSHP as they comprise of localised units that do not require additional invasive infrastructure like GSHP or WSHP. When assuming an ASHP could operate at Seasonal Energy Efficiency Ratio (SEER) of 4.0 (i.e., four units of useful heat for every unit of electricity consumed), to deliver 100% of space heating and hot water, and 100% of space cooling, it is estimated that a reduction in CO2 emissions of ~931 tonnes per annum</p>	<p>7.1 Low and zero carbon (LZC) technology assessment</p>	<p><u>Centralised ASHP (Air Source Heat Pump)</u> The use of heat pumps powered by electricity is now considered to be a low carbon technology.</p> <p>The reason for this is that the heat pump, as its name suggests, pumps heat (in this case) from the outside air to the inside of the building, where it is required.</p> <p>Typically, as assumed here, an ASHP will transfer circa 4 kWh of heat from outside to inside for every 1 kWh of electricity that it uses</p> <p>The evidence provided is sufficient.</p>	<p>No action required.</p>

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	<p>could be achieved. This is equivalent to a reduction in regulated CO2 emissions of ~55% beyond the Part L SAP10 gas boiler 'baseline'. A suitable location has been identified within Development Area 1 that can house the ASHP plant to supply both Application A & B to ensure low carbon energy for heating and cooling demand can be met from day 1 of operation. This approach has enabled a centralised system to safeguard roof space for PV technology and biodiverse roof across the site. In addition, the connection to cooled areas via an ambient loop will allow energy sharing across the mixes of uses to further reduce energy demand in summer months. Therefore, for the justification provided and additional benefit of ensuring an all electric strategy to enable ongoing decarbonisation of operational emissions, ASHP has been incorporated into the energy strategy at this stage.</p>			
<p>High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting.</p> <p>Householder extensions and other development proposals that do not meet the thresholds set out in this policy are encouraged to complete and submit the Sustainable Construction Checklist SPD as far as possible, and opportunities for micro-generation of renewable energy will be supported in line with other policies in this Plan</p> <p>London Borough of Richmond LP 22</p>	<p>Retrofitting E. High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting. Householder extensions and other development proposals that do not meet the thresholds set out in this policy are encouraged to complete and submit the Sustainable Construction Checklist SPD as far as possible, and opportunities for micro-generation of renewable energy will be supported in line with other policies in this Plan.</p>	<p>London Borough of Richmond Local Plan LP 22 Section 6.3 Sustainable Design and Construction</p>	<p>Application is for the redevelopment of the whole site and is not an existing development therefore this part of the policy is not relevant.</p>	<p>N/A</p>
<p>Major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:</p>	<p>Effective energy metering in line with Be Seen requirements will be enabled by the provision of suitable infrastructure within the buildings services systems.</p>	<p>8.1 Monitoring and Reporting.</p>	<p>"The Energy Statement sets out the schemes approach to the energy hierarchy in a clear way. Be Lean: The "Be Lean calculations were correctly undertaken on a site wide (Application A and B) basis.</p>	

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<p>1. be lean: use less energy and manage demand during operation 2. be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and clean 3. be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site 4. be seen: monitor, verify and report on energy performance.</p> <p>London Borough of Richmond LP 22 / London Plan Policy S12</p>	<p>The developed strategy will allow for an exhaustive metering of all the various energy usage in the Proposed Development. Electrical meters will be provided on the main central Air Source Heat Pump(s), providing data on plant energy consumption throughout the year. Each area of high energy load will be sub- metered monitor energy consumption in greater granularity and facilitate reporting. All the main sub-systems (i.e. small power, lighting etc) will be separately monitored and their energy usage separately accounted. Energy intensity and carbon emissions will be monitored and reported annually. The Applicant will also complete the GLA's suggested "Be Seen" energy reporting protocols via the appropriate web portals, at the appropriate stage if required.</p>	<p>8.2 Development Monitoring and Reporting Plan</p> <p>8.3 Operational cost: space heating and DHW.</p>	<p>However, the Energy Strategy for this application contains "Be Lean results" from the related the dwellings of Development Area 1 of Application A, i.e. not this application (Table 16 Page 18 of Energy Strategy).</p> <p>The requirement of 10% carbon emission reduction have been achieved for site-wide development.</p> <p>Passive design measures: Fenestration a balance has been achieved between solar heating in winter and overheating risk in summer</p> <p>G-value or "energy transmittance" i.e. heat gains through glazing value is low. 0.29. Anything below 0,5 is considered to be solar control glazing to this value is extremely good, i.e. it will contribute to the prevention of overheating.</p> <p>Fabric insulation levels achieving improvements over Part L of 25% to 100%. Fabric air permeability levels achieving improvements over Part L of 70% for non-dwellings including the school</p> <p>Heating and Hot Water Heating and hot water are separately controlled with zonal programmable time settings and temperatures.</p>	<p>The BRUKL reports for the school at both Be Lean and Green stages were submitted along side the site wide application. These have been reissued for clarity.</p>
	<p>Too large to copy here but Outlines Renewables, Energy Storage etc</p>	<p>Table 19: Performance indicators for Be Seen</p>	<p>It is not clear if these controls include optimisation and compensation, i.e. variable start and end times on a "just in time" principle and heating flow temperatures based upon outside air temperature, as would be facilitated by a proper BEMS (Building Energy Management System).</p> <p>Heat Recovery Where windows cannot be opened mechanical ventilation with heat recover will be utilised. Overall for the "Be Lean" requirements, site-wide CO2 emissions have been reduced by 10.3% over the Part L requirements</p>	<p>The submitted energy strategy was produced to represent the approach for the Proposed Development as a whole, i.e., outline and detailed elements. As such, there are references to residential, office and hotel uses as well as the school.</p> <p>No response required.</p>

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			<p>Be Clean: Be Clean refers to reducing grid electricity and natural gas consumption through on-site utilisation of decentralised energy (DE) (heating and cooling) networks and the installation of CHP.</p> <p>Decentralised Energy Existing heat networks are approximately 2.3km to 5.4 km distant from this development and it would not be feasible to connect to them due to heat losses and lack of responsiveness due to the distance and the time it takes for the water to flow.</p> <p>Combined Heat and Power As mentioned, CHP would increase emissions above the proposed ASHP system and would require onsite combustion plant and associated local (flue or stack) emissions.</p> <p>Be Green: Be Green relates to the utilisation of Low and Zero Carbon technologies (LZC). An appraisal of LZT has been carried out, i.e. solar thermal, photovoltaics, biomass boilers, heat pumps and wind turbines. Of these photovoltaics and air source heat pumps have been selected for use at the development.</p> <p>Air Source Heat Pumps (ASHP) ASHP give zero emissions on site and much reduced emissions compared with the considered alternative of CHP:</p> <p>Emissions Comparison of ASHP with CHP</p> <table border="1" data-bbox="1745 1434 2234 1906"> <thead> <tr> <th data-bbox="1745 1434 1908 1549">Energy conversion device</th> <th data-bbox="1908 1434 2071 1549">CHP</th> <th data-bbox="2071 1434 2234 1549">ASHP</th> </tr> </thead> <tbody> <tr> <td data-bbox="1745 1549 1908 1604">Energy type</td> <td data-bbox="1908 1549 2071 1604">Natural gas</td> <td data-bbox="2071 1549 2234 1604">Electricity</td> </tr> <tr> <td data-bbox="1745 1604 1908 1701">CO2 emissions / kWh input</td> <td data-bbox="1908 1604 2071 1701">0.18316</td> <td data-bbox="2071 1604 2234 1701">0.21233</td> </tr> <tr> <td data-bbox="1745 1701 1908 1833">Typical conversion efficiency to useful energy</td> <td data-bbox="1908 1701 2071 1833">0.9</td> <td data-bbox="2071 1701 2234 1833">4.0</td> </tr> <tr> <td data-bbox="1745 1833 1908 1906">CO2 emissions per</td> <td data-bbox="1908 1833 2071 1906">0.235</td> <td data-bbox="2071 1833 2234 1906">0.0531</td> </tr> </tbody> </table>	Energy conversion device	CHP	ASHP	Energy type	Natural gas	Electricity	CO2 emissions / kWh input	0.18316	0.21233	Typical conversion efficiency to useful energy	0.9	4.0	CO2 emissions per	0.235	0.0531	
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			<table border="1" data-bbox="1745 352 2237 535"> <tr> <td data-bbox="1745 352 1908 430">kWh useful energy</td> <td data-bbox="1908 352 2071 430"></td> <td data-bbox="2071 352 2237 430"></td> </tr> <tr> <td data-bbox="1745 430 1908 535">% emissions compared with CHP</td> <td data-bbox="1908 430 2071 535">100%</td> <td data-bbox="2071 430 2237 535">26.1%</td> </tr> </table> <p data-bbox="1745 569 2237 1165"> Notes: 1. The “CO2 Emissions per kWh Input” figures for electricity and natural gas are taken from the latest (2021) version of the UK Government GHG Conversion Factors for Company Reporting 2. The “Typical Conversion Efficiency to Useful Energy” has been assumed as 0.9 (90%) for a CHP unit and 4.0 (or 400%) for an ASHP unit. Note that the ASHP can be over 100% because it is pumping heat from outside 3. The CO2 Emissions per kWh Useful Energy is calculated by dividing the “CO2 Emissions per kWh Input” by the “Typical Conversion Efficiency to Useful Energy” From these assumptions and calculations it is estimated that the CO2 emissions per kWh of useful energy when utilising ASHP is only 26.1% of that when utilising CHP. </p> <p data-bbox="1745 1199 2237 1459"> Air Source Heat Pumps The ASHP for both developments will be located in Development Area 1. As discussed, heat demand, heating and hot water, for this school development is supplied by ASHP, which is the best Be Green solution, minimising overall (including electricity power station) emissions and obviating any on site emissions. </p> <p data-bbox="1745 1493 2237 1612"> Photovoltaics The school has limited roof space due to plant, roof lights and a play area on the roof. Thus photovoltaics have not been proposed. </p>	kWh useful energy			% emissions compared with CHP	100%	26.1%	
kWh useful energy										
% emissions compared with CHP	100%	26.1%								
			<p data-bbox="1745 1627 2237 1806"> Be Seen: “Be Seen” is seeking a high standard and suggest continuous monitoring and analysis of energy consumption & performance. It is stated that “suitable infrastructure” will be provided. </p> <p data-bbox="1745 1839 2237 1917"> Annual reporting on “energy intensity and carbon emissions” is required but the writer could not see reference to more frequent </p>	<p data-bbox="2249 1627 2742 1806"> The comments are welcome and will be considered further as the Be Seen strategy is developed at detailed design. However, the current stage of design (i.e. RIBA Stage 2) cannot respond to this comment at this time in full. </p>						

Policy	Extract from planning documentation	Reference	Accelar comments and recommendations	Applicant responses
			<p>monitoring and analysis. Typically monitoring frequencies would be weekly or monthly. To enable meaningful analysis a “driver” of energy consumption should be identified and in dwellings the major driver is outside temperature. All other energy use in dwellings is likely to be regular, with continuous occupation and regular hours of energy using equipment use. To calculate a meaningful analysis therefore energy consumption can be modulated using “degree days” and thus energy usage meaningful monitored by removing the effects of outside temperature. Degree days can either be measured and calculated using an onsite “weather station”, appropriately located and protected by a “Stephenson Screen” or data can be obtained through subscription. Without normalising for outside air temperature, much of the monitoring analysis could be meaningless.</p>	
			<p>It is started that energy (kWh) will be measured for the outputs from the heating/cooling energy plant (note no cooling in this application for the School), from the heating production centre and that delivered to the customer. This suggests individual heat meters from each ASHP, from the ASHPO energy centre where the ASHP’s are located and the heat arriving at the occupied buildings, i.e. the school. As with the other application, there is no frequency of monitoring stated or how the monitoring data will be captured and analysed. Table 19 - “Delivered efficiency of each heating/ cooling) generation plant (%) - % of heat supplied from each heating/ cooling generation plant” also suggest measurement and analysis of the heat delivered by the heat pumps. This should be clarified</p>	<p>The comments are welcome and will be considered further as the Be Seen strategy is developed at detailed design. However, the current stage of design (i.e. RIBA Stage 2) cannot respond to this comment at this time in full.</p>
<p>Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.</p> <p>London Plan Policy S12</p>	<p>9.4 Whole site total (Application A and B) 9.5 Carbon offset payment.</p> <p>Ultimately, the reference to the Greater London Plan on Page 32 of the Energy Strategy quotes from the Plan stating: Revised Proposed Developments to demonstrate a pathway to zero carbon on-site by 2050, with any short fall to the net-zero target covered by either.</p>	<p>Energy Strategy Rev 00</p>	<p>An energy statement has been submitted as part of the planning application and used to evidence how the zero-carbon target will be met. It sets out the whole site total, and then the carbon offset payment that is required.</p>	<p>No response required</p>

Policy	Extract from planning documentation	Reference	Accelar comments and recommendations	Applicant responses
	<ul style="list-style-type: none"> - Cash in lieu payments to the borough's carbon offset fund, or - Off-site (offsetting) provided that an alternative proposal is identified, and delivery is certain. 			
<p>A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent 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:</p> <ol style="list-style-type: none"> 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. <p>London Plan Policy SI2</p>	<p>When considering the whole site, it is anticipated that a ~73% overall reduction in CO2 emissions beyond the Building Regulations Part L 2013 'baseline' can be achieved.</p>	<p>Energy Statement section. Lean Calculation Documents Green Calculation Documents</p>	<p>Compared with the 35% beyond Building Regulations requirements: The applicant sets out an overall reduction of approximately 73% beyond the Building Regulations.</p> <p>A review of the documentation has prompted the following queries:</p> <ul style="list-style-type: none"> - The Lean Calculations and the Green Calculations appear to be very similar, being SAP Calculations and are a requirement for Part L of the Building Regulations. - Both Lean Calculations and Green Calculations Parts 1 to 6, 9, 11 & 12 indicate "General Requirements Compliance" is a "Fail". This requires explanation. - Further, non-dwelling requires a different Part L Target Emissions protocol, SBEM (rather than SAP for dwellings). The writer could not locate these amongst the SBEM calculations documents on the planning portal. Could the applicant please point out where the location of the SBEM calculations? 	<ul style="list-style-type: none"> - The SAP worksheets that were issued as part of the application consist of the same passive/energy efficiency measures but with differing heating strategies at each stage, i.e. gas boiler for Be Lean, ASHP for Be Green. Looking at one dwelling in isolation (B06-TY-03_3): <ul style="list-style-type: none"> - DER (Lean) - 15.21 - DER (Green) - 10.64 - As seen above, there is a considerable variance in improvement between calculations. - As the residential areas consist of apartment blocks, from a Building Control perspective, compliance can be demonstrated on a block/area weighted basis rather than for each individual dwelling. Furthermore, the proposed development will require compliance with Part L 2021, now adopted, therefore calculations will be updated to reflect the new regulations. - The BRUKL reports for the non-domestic areas have been reissued alongside this response for ease of reference.
<p>Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:</p> <ol style="list-style-type: none"> 1. All new major residential developments (10 units or more) should achieve zero carbon standards in line with London Plan policy. 2. All other new residential buildings should achieve a 35% reduction. 3. All non-residential buildings over 100sqm 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. 			<p>It was not possible, on the face of it, to determine how the 35% beyond Building Regulations requirement has been achieved, along with the further the 10% residential development requirement and the 15% non-residential requirement. Could the applicant please advise.</p>	<p>Please refer to the GLA energy reporting tool that has been updated and resubmitted alongside this response for clarity.</p> <p>The tool has been completed using the detail of the SAP worksheets and BRUKL reports from the residential and non-residential areas respectively that have been submitted as a detail application within Applications 1 & 2 to represent the site as a whole. Therefore, a separate tool has not been completed for the school in isolation. However, the BRUKL reports for the school have been reissued alongside this response for ease.</p>

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London Borough of Richmond LP 22				
Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions. London Plan Policy SI2			The unregulated emissions are listed in the various Tables 1-6, 22-25 and 28. Would the applicant please explain how these emissions were calculated?	The unregulated emissions have been calculated as part of the Part L assessment. For commercial areas, this is taken as "Equipment" as shown in the BRUKL report, and for residential the SAP worksheets provide figures for cooking and equipment.
Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver carbon reductions. The operation of offset funds should be monitored and reported on annually. London Plan Policy SI2	I need to find the document that deals with this	To be determined	Table 7 on page 9 of the Energy Strategy shows anticipated offset payments for both applications. A total of 459 tonnes CO2 will be offset by a payment of £1,307,856. The table does not state whether this is an annual or a "whole life" payment. As previous tables are for annual emissions it is assumed that this is an annual payment.	No response required.
Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy and infrastructure requirements arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development London Plan Policy SI3	N/A	N/A	This information was not readily available in the Energy Statement, can the applicant confirm where this is evidenced.	Correspondence was had as part of the previous submission of the development. (ref: MEM-2310513-5A-GJ-20181108-Responses to GLA-Rev C)
Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system: 1. the heat source for the communal heating system should be selected in accordance with the following heating hierarchy: a. connect to local existing or planned heat networks b. use zero-emission or local secondary heat sources (in conjunction with heat pump, if required) c. use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network) d. use ultra-low NOx gas boilers 2. CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they	N/A. No local Heat Network Priority Area.	N/A	N/A. No local Heat Network Priority Area.	N/A

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<p>meet the requirements in Part B of Policy SI 1 Improving air quality</p> <p>3. where a heat network is planned but not yet in existence the development should be designed to allow for the cost-effective connection later.</p> <p>London Plan Policy SI3</p>				
<p>Heat networks should achieve good practice design and specification standards for primary, secondary and tertiary systems comparable to those set out in the CIBSE/ADE Code of Practice CP1 or equivalent.</p> <p>London Plan Policy SI3</p>	<p>N/A. No local Heat Network Priority Area.</p>	<p>N/A</p>	<p>N/A. No local Heat Network Priority Area.</p>	<p>N/A</p>
<p>Development proposals should minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.</p> <p>London Plan Policy SI4</p>	<p>The model used for the basis of the assessment is outlined in Figure 10. Residential buildings that overheat cause significant discomfort and stress to their occupants and reduce sleep quality. There are several reasons for the increase in overheating risk in residential buildings. Contributing factors include the increase in single aspect building forms (that don't allow sufficient cross-flow ventilation), the trend towards larger areas of glazing, climate change, the urban heat island effect and inadequate means of ventilation.</p>	<p>Appendix C - Overheating analysis.</p>	<p>See below re overheating.</p>	
<p>Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:</p> <ol style="list-style-type: none"> 1. reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure 2. minimise internal heat generation through energy efficient design 3. manage the heat within the building through exposed internal thermal mass and high ceilings 4. provide passive ventilation 5. provide mechanical ventilation 6. provide active cooling systems <p>London Plan Policy SI4</p>	<p>The following mitigation methods will be implemented at the Proposed Development. Minimising internal heat generation through energy efficient design the following mitigation methods will be implemented to minimise the internal heat generation through energy efficient design at the Proposed Development: - Energy efficient lighting (such as LED or CFL) with low heat output - Insulation to heating and hot water pipework and minimisation of dead-legs to avoid standing heat loss (from pipework to dwellings) - Energy efficient white goods with low heat output Reducing the amount of heat entering the building in summer The following mitigation methods will be implemented to reduce the amount of heat entering the building in summer at the Proposed Development: - Suitable glazing ratio responding to orientation and space use - Glazing with shading devices and suitable g-value to limit solar heat gains (where</p>	<p>4.2 Mitigation strategy</p>	<p>The Energy Strategy for the Schools development mainly cites overheating analysis that applies to the outline application.</p> <p>The GLA domestic overheating checklist has been completed (Table 34 Energy Strategy) but this is for domestic properties.</p> <p>Appendix D also has a room by room analysis, but this applies to bedrooms and living areas. Surely this TM59 analysis is for the other application?</p> <p>This may be not applicable to non-residential buildings.</p> <p>This is an area which requires clarification - what data and statements apply only to the outline application, only to full application or both applications.</p>	<p>The energy strategy report was produced to present the strategy for the site as a whole, therefore there will be reference to residential design and assessments as well as non-residential areas.</p> <p>CIBSE TM59 is the overheating risk assessment for dwellings, therefore is not applicable to non-residential dwellings.</p> <p>Regarding the residential areas, overheating risk analysis was undertaken for a sample of dwellings within the red line of the detailed application. Given this is a hybrid application, the assessment was to represent an approach</p>

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	<p>appropriate) – High levels of insulation and low fabric air permeability which will retain cool air during summer months Passive ventilation The rooms will also benefit from passive solar heating and occupants will be able to adapt their internal environment via openable panels for natural ventilation. Mechanical ventilation All residential spaces, as a minimum will be provided with ventilation rate in accordance with Part F through Mechanical Ventilation with Heat Recovery (MVHR) or through central provision of ventilation also taking advantage of Heat Recovery. MVHR units are an important addition to the building services to maintain good indoor air quality, by providing fresh air to occupied areas and bedrooms and extracting vitiated air from bathrooms and kitchens. Providing fresh air minimises the risk of stale and stagnant air and limits the risk of condensation and mould growth. The heat recovery mechanism will be provided with a bypass to avoid returning hot air to the occupied areas in summer months.</p>		<p>This make interpretation of the rationale and claims very difficult. Examples include,</p> <p>This requirement applies to the site wide overheating and both applications, however the cited evidence of Tables 13-15 only apply to dwellings, i.e. the other application. The cited Appendix C also states "A TM59 analysis of the dwellings and residential accommodation was also undertaken to assess the risk of overheating". Thus this also appears to apply only to the other application.</p> <p>Table 35 also applies to Residential Overheating Criteria.</p> <p>Internal Heat Gains Efficient lighting, insulated hot water pipework and energy efficient white goods have been cited as reducing internal heat gains.</p> <p>Page 9 An overheating An overheating risk assessment has been carried out on the proposals for Development Area 1, This is for the other dwellings application</p> <p>Overall it is not clear what the analysis for overheating at the school has been undertaken.</p>	<p>to dwellings within the outline submission as well (noting that a separate assessment would likely be carried out to support the reserved matters application).</p> <p>A BB101 assessment (thermal comfort assessment for schools) has been undertaken for the school based on the level of detail currently available. The results demonstrate that a proportion of the rooms could overheat based on the assumed parameters. However, passive measures such as the introduction of internal shading, glazing g-value, internal gains assumptions continue to be under review to develop a passive strategy, in line with the cooling hierarchy, to mitigate the risk of overheating in balance with potential impacts on energy demand and daylight provision within the classrooms. It is advised that a suitably worded planning condition be set for an updated BB101 assessment be undertaken and submitted to the council demonstrating overheating risk can be mitigated prior to commencement on site.</p>