



Hayes Town Centre
Outline Phases

Austin Road
Hayes
UB3 4BD

Amendment to Outline Energy
& Sustainability Strategy

Issue 4



Applicant Name: London Borough of Hillingdon

Applicant Address: Civic Centre
High Street
Uxbridge
UB8 1UW

Site Address: Austin Road Estate
Hayes Town Centre

Project Reference: 5780

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EXECUTIVE SUMMARY

This Updated Energy and Sustainability Strategy, prepared by Watkins Payne on behalf of London Borough of Hillingdon, supports a Section 73 application for the redevelopment of the Hayes Town Centre Estate (UB3 3PN).

The Hayes Town Centre Estate is centrally located in Hayes, adjacent to the Grand Union Canal. It benefits from excellent connectivity, being within walking distance of Hayes & Harlington Station, which offers direct connections to Central London and Heathrow via the Elizabeth Line. The approved redevelopment proposals include the demolition of the existing estate and the construction of approximately 500 new homes, alongside a new community centre and associated landscaping.

The extant consent is a hybrid planning permission, with a detailed element (Phase 1) comprising 80 homes across two blocks (Blocks A and B) an outline element (Phase 2-5) with all matters reserved. Following the discharge of relevant planning conditions and the approval of previous amendment applications, Blocks A and B are currently under construction, with completion and handover anticipated in early 2026.

This Section 73 application seeks to revise specific conditions of the original planning consent (reference 76550/APP/2021/4499), including conditions 3 (approved plans), 4 (approved documents), 5 (land use/quantum), 6 (housing mix), 7 (phasing plan), 9 (density), and 10 (building heights).

The proposed Section 73 amendments encompass the following key changes to the outline area:

- An increase of 62 residential units overall, including an uplift of 32 affordable homes.
- The joining of blocks to create a more coherent street pattern, enhanced security, a larger podium amenity space, and more efficient podium parking.
- A reduction in on-street parking provision to facilitate the creation of additional green spaces.
- An improvement to the scale of the streetscape, with 2-3 storey houses proposed on both sides of Austin Road to establish a mews character.
- Relocation of the community facility to enable its delivery in an earlier phase, thereby precluding the need for a temporary facility.

The development is targeting achieving an 80% reduction in operational carbon on site, with net zero carbon to be achieved via a carbon offset payment.

This will be achieved through the use of:

Firstly: high levels of insulation, airtightness plus high efficiency / low SFP heat recovery mechanical ventilation

Secondly: separate, centralised heat pump systems for domestic hot water and space heating – each optimised to the operating temperatures of the system it serves.

Thirdly: an extensive rooftop PV array

Lastly: a commitment to ongoing CO₂ monitoring (i.e., energy consumption) in use. The CO₂ emissions reductions at each stage will be calculated in detail for each stage of the Energy Hierarchy set out under London Plan Policy SI 2:



1.00 INTRODUCTION

1.01 Purpose

This Outline Energy Statement and Sustainability Strategy has been compiled in accordance with the requirements set out by the London Borough of Hillingdon Local Plan (Part 1 2012 and Part 2 2020) document alongside the London Plan (2021). The proposals have been developed within the context of national, regional, and local planning policy that seek to address the challenges of climate change and outline plans to improve the sustainability, energy use and resource consumption of London's building stock.

The energy strategy proposed is to meet the London Plan. The London Plan requires major development proposals demonstrate how the zero carbon target will be met within the framework of the energy hierarchy, with a minimum on-site reduction of at least 35 per cent beyond Building Regulations.

The report considers various options for low and zero carbon (LZC) technologies. Sustainability forms an integral part of the design and demonstrates how the scheme meets the national, regional, and local planning policy for sustainability.

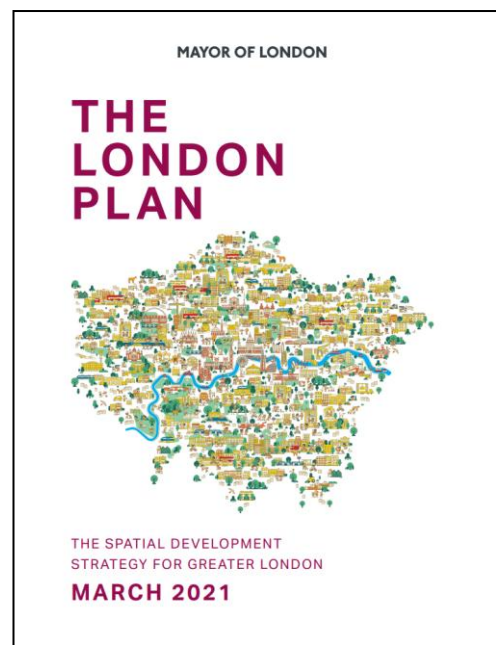
This report supports a Hybrid Planning Application for the redevelopment of existing Ausitn Road Drive Estate. It relates specifically to the Outline Part of the Hybrid Planning Application which is proposed to be amended to allow for up to 482 new homes to be built. The remainder of the estate forms the Detailed Planning Application comprising 80 units and is subject to a separate assessment which demonstrates compliance with the relevant planning policies and standards based on detailed parameters to achieving net-zero for Phase 1a.



2.00 PLANNING POLICY

Multiple layers of energy and carbon targets apply to this scheme at national, regional, and local level, these include:

- The London Plan (March 2021), which is produced by the Mayor of London and is the overall strategic plan for London
- Hillingdon Local Plan, reducing carbon dioxide (CO₂) emissions and adapting to future climate change are key issues for the borough this includes:
 - The Local Plan: Part 1 - Strategic Policies ("LPP1") (November 2012);
 - The Local Plan: Part 2 - Development Management Policies ("LPP2") (January 2020);
 - The Local Plan: Part 2 - Site Allocations and Designations ("LPP2") (January 2020).
- Other considerations:
 - National Planning Policy Framework (NPPF) (2025)
 - National Planning Practice Guidance (PPG)



Energy and Carbon Targets

Policy SI 2 Minimising greenhouse gas emissions

- A Major development should be net zero-carbon.¹⁵¹ This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:
- 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 cleanly
 - 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.

Figure 2: Extract from London Plan

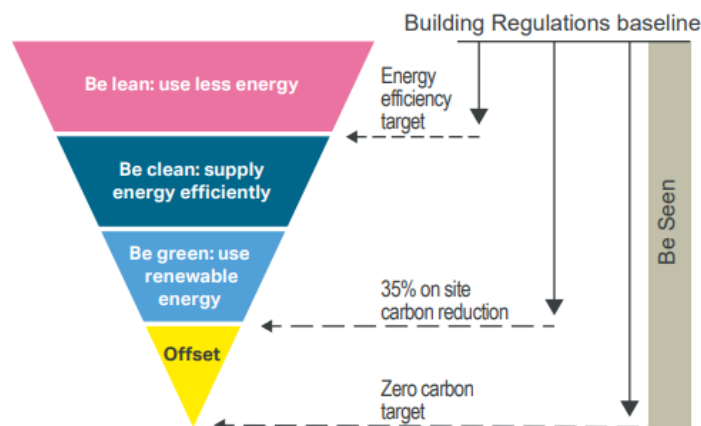


Figure 3: Energy hierarchy by importance

The local policy for Hillingdon (Hillingdon Local Plan Part 1 and Part 2) seeks to ensure that all new residential developments are built in line with the London Plan and Building Regulations to reach zero carbon by 2016.

Under London Plan 2021 Policy SI 2 'Minimising greenhouse gas emissions', the London Plan requires major developments and domestic schemes to achieve zero carbon status with a minimum on-site CO₂ emissions reduction of 35% from that required for compliance with Part L of the 2013 Building Regulations. This policy states that the development proposals should make the fullest contribution to minimising greenhouse gas emissions in accordance with the following energy hierarchy:

1. Be lean: use less energy
2. Be clean: exploit local energy resources and supply energy efficiently
3. Be green: maximise renewable energy by producing, storing and using onsite
4. Be seen: monitoring of energy demand and greenhouse gas emissions

Policy SI 3 Energy Infrastructure. This states that major development proposals within Heat Network Priority areas should have a communal low-temperature heating system following the hierarchy below:

- Connection to existing or planned heat network
- Use zero emissions of local secondary heat sources (heat pumps)
- Use low emission CHP
- Use Ultra-Low NO_x gas boilers



3.00 BASELINE ENERGY DEMAND ASSESSMENT

The baseline energy demands will be calculated at Detailed Design Stage so that is specific to the development. In line with the energy guidance of the London Plan for new build developments the notional dwelling and building form the be lean stage of the hierarchy.

The Target Emission Rate (TER) for the notional building will be produced by applying the current notional building /dwelling specification form Part L and applying it to a building the same size and shape as the proposed development. In line with the London Plan SAP 10 carbon emission factors have been used.

4.00 BE LEAN – DEMAND REDUCTION – ENERGY EFFICIENCY

Where possible passive design measures have been incorporated, including:-

- Improvements to the U-values for all building elements when compared with the limiting values of Part L of the Building regulations
- Improved airtightness compared to Part L. Most fabric parameters are better than the notional specification. There is a budgetary trade-off between increasing wall versus window performance.
- Residential window area to wall percentage is approximately 35%.

Active design measures have been applied to the scheme include: -

- Energy efficient lighting throughout
- Energy efficiency mechanical ventilation systems with heat recovery above the notional specification.

	Part L1A (2013) Minimum Performance	Part L1A (2013) Notional Performance	Proposed Building Performance
Construction Element	U Value W/m ² K		U Value W/m ² K
Ground Floor	0.25	0.13	0.11
External Wall	0.30	0.18	0.15
Roof	0.20	0.13	0.11
Windows	2.0	1.4	0.85
	Infiltration (m ³ /hr.m ² at 50Pa)		Infiltration (m ³ /hr.m ² at 50Pa)
Air Tightness	10	5	3.0

Table 1 | Comparison of domestic development fabric specification versus the Building Regulations

The target fabric energy efficiency is set out above for the residential part of the development.



In line with the requirements of the London Plan, the 'be lean' case assumes that the heating is provided by gas boilers. This is so that the Be Lean stage is a demonstration of demand reduction alone. After the Be Lean stage we should achieve a reduction in carbon dioxide emissions of around 20% - which has comfortably exceeded the requirement for a 10 percent reduction in carbon dioxide emissions through passive and active measures alone.

The "Be Lean" measures include Mechanical Ventilation with Heat Recovery fitted as standard to every Apartment.

5.00 BE CLEAN – HEATING INFRASTRUCTURE

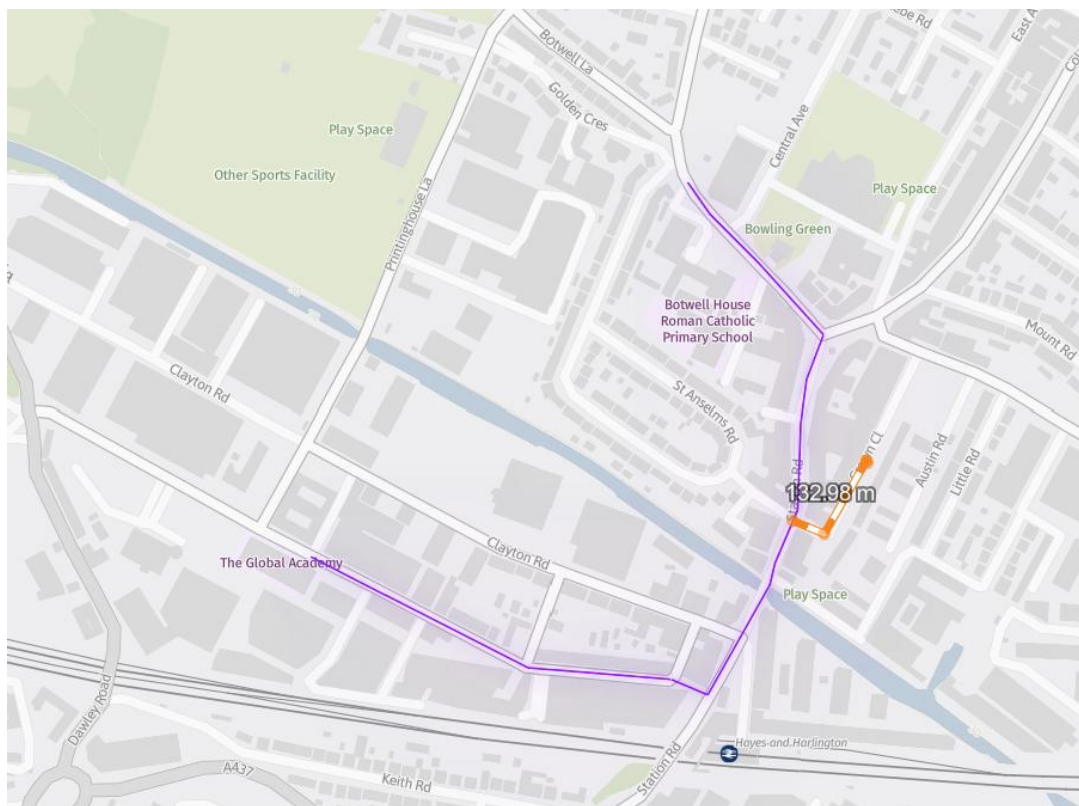


Figure 5: Heat Map for Hayes Town Centre Estate

As can be seen from the London Heat Map, the proposed development is around 130m from a proposed district heating network, but it is understood that this is unlikely to be available in the near future. LBH LPP2 Policy DMEI 3 asks that a major development needs to confirm no DEN within 500m or required to come forward within 3 years but nonetheless the proposed strategy seeks to future proof the development so is considered to be policy compliant.

As the proposed heating strategy (see next section) is based on central plant (central, roof-mounted heat pumps) rather than individual heating systems for each apartment, it would be very straightforward to swap the heat generating equipment for a District Heating Substation at any point in the future, should a DHN ever be installed nearby and should it be demonstrated to be feasible and viable at that point in time. To that end, the scheme allows for 2 No. 100mm diameter ducts into the plantroom – to minimise future groundworks/trenching – and sufficient space for a 75KW DHN substation in the plantroom itself.

CHP is not proposed for this development and is no longer endorsed by the GLA. In line with the requirements of the London Plan, where heat pumps are used as part of a building heating network then the carbon savings attributed to their use should be included under the Be Clean stage of the energy hierarchy.



6.00 BE GREEN – RENEWABLE ENERGY TECHNOLOGY

In line with the London Plan 2021 requirements, a feasibility assessment of potential renewable energy technologies has been undertaken, and the results from this are presented below: -

Technology	Appraisal	Included in the Development
Air Source Heat Pumps (ASHP)	This Technology is deemed appropriate to provide both space heating and hot water to the residential dwellings – more details can be found in Section 6	YES
Biomass	This technology is not considered a practical solution to reducing greenhouse gas emissions. There is limited storage space for the combustible material alongside accessibility to site for regular deliveries of the materials which in itself has associated greenhouse gas emissions. Local air quality will also be adversely affected by the combustion of the biomass material.	NO
Ground Source Heat Pumps (GSHP)	This technology is deemed not appropriate as air source heat pumps has already incorporated into the scheme.	NO
Photovoltaics (PV)	As detailed below, the use of PV panel is appropriate for this scheme. PV panel installation has been maximised to achieve net zero carbon in conjunction with ASHP. Full details of the proposed PV arrays, areas, locations, and outputs are set out below.	YES
Solar Thermal Hot Water	Whilst this technology is technically feasible, this technology has been rejected on the basis that hot water produced by the Solar Hot Water Panel would compete with the ASHP system. In additional, the Solar Hot Water Panels would also compete for Roof Space with the PV panels which we have considered a more appropriate use of the roof space. Therefore, this technology is therefore rejection.	NO
Wind Turbines	This technology was rejected on the basis of its potential impact on visual amenity and relatively low efficiency from unpredictable, turbulent wind conditions in urban locations	NO



6.01 Air Source Heat Pumps

An air source heat pump (ASHP) works on the same principles as a ground source heat pump (GSHP) however the medium in which heat is extracted is the external air rather than the ground. ASHP will generally have a slightly lower seasonal coefficient of performance when compared to GSHP.

Associated pipework will be sufficiently insulated and where routed externally traced heated in order to ensure that the system runs efficiently and that's losses are minimised.

In order to ensure that the systems are operated as efficiently as possible, end users will be provided with information relating to the control and operation of the system. The performance of the system will be monitored post construction to see that the required level of efficiency is achieved.

Air source heat pumps are suitable for use in the proposed development. They will provide the heating and hot water for all dwellings. Efficiencies used for the system can be seen within the table at the end of this section.

Heat Network	
Heat Network Type	Space and Water Separate
Heat Source 1	
Source	Heat Pump
Heating Use	Space
Efficiency	430
Heating Controls	Flat rate charging, programmer and at least two room thermostats
Heat Source 2	
Source	Heat Pump
Heating Use	Water
Efficiency	397
Water Heating	
Hot Water System	Via heat network



6.02 Photovoltaic Panels

It is proposed that PV Panels will be used extensively on the roofs in conjunction with green roof in order to deliver significant carbon reductions.

The use of PV does not conflict with the heat pumps or any of the technology proposed for this scheme. In periods of hot sunny weather, energy generated by the PV can be consumed by the centralised heat pump which for some of the day would be working in hot water generating /air tempering mode after the hot water buffers have been depleted by the high period of use in the morning.

With the proposed installation both Heat Pumps and PV panels alongside measures set out at 'Be Lean' Stage it is expected that a carbon reduction of 100% is achieved for 'Be Green' stage.

In order to maximise carbon reductions on site, it will be necessary to maximise the number and PV panels in a back to back arrangement of north west/south east to achieve maximum roof coverage. The exact output will be established as part of the RMA submission.



7.00 BE SEEN – DEMAND REDUCTION – ENERGY EFFICIENCY

Energy Performance monitoring will be provided in accordance with the London Plan (2021). Note: to facilitate the actual data collection, post-handover both the Electricity input and heat output of the Heat Pumps will be recorded. When this is combined with the readings from individual heat meter, domestic hot water meter and secondary electric heating circuit in each flat, it should make it easy to calculate useful data such as: actual SCOP in use vs MCS certificate figures, standing losses between central plant and flats, real world domestic hot water consumption, real world heating patterns of use.

The spreadsheet is for ease of reference; the data therein is separately uploaded to the GLA reporting website.

Note: the circulation spaces / cores are unheated and will have less than 5% of the development energy consumption, therefore they have been excluded on a de-minimis basis.



8.00 SUSTAINABILITY PRINCIPLES

This section of the report describes how the sustainable development principles:

8.1 Minimising Water Consumption

All water fixture and fittings will be specified to minimise water consumption. This will include the specification of low flow taps and dual flush toilets. The development will target a water consumption rate of 105l per person per day.

A centralised grey water recycling system is deemed financially unviable due to both capital and ongoing maintenance costs. However, to enable owner/occupier with gardens to access rainwater for watering a suitable sized rainwater butt is to be installed. The locations will be shown as part of the RMA submission.

8.2 Protect and Enhance Biodiversity and Facilitate Access to Nature

Please refer to The Environmental Partnership's Illustrative Landscape Strategy and the Biodiversity Impact Assessment prepared by Greenage. This formed part of the original consented scheme application.

8.3 Climate Change Adaption (SUDS)

The London Borough of Hillingdon is a highly urbanised borough with limited permeable surface. As a result, most of the borough is considered to have increased flooding risk. This flooding risk is likely to be increased further by increased urbanisation of the area and the anticipated increase in heavy rain fall due to climate change and where not appropriately dealt with through sustainable drainage design for new developments.

The proposed development does not increase the hard standing of the site and alongside good SUDS design the surface run-off rates will be reduced for the site compared to existing. Excess post development run-off will be discharged to the public sewer.

The run-off from the roof area will be relatively uncontaminated and will not require any additional treatment before it is discharged into the public sewer.

SUDS design has been provided by IESIS Group, please refer to their report.

8.4 Climate Change Adaption: Overheating

Energy efficient design and natural ventilation has been utilised to ensure that the risk of summertime overheating is minimised in line with the 'cooling hierarchy'.

Combinations of high fabric performance and good natural daylighting within the building will yield benefits in terms of reduced electrical lighting use and reduced space heating requirements as a result of beneficial solar gains during the winter months.

Some façades will require non-openable windows for acoustic and/or air quality and these units will be provided with tempered air.

Please refer to Synergy's Overheat Risk Assessment report. This formed part of the original consented scheme application.



8.5 Sustainable Materials, Waste and Construction Impacts

The environmental impact of materials used on site will be minimised where possible by specifying locally supplied, low-impact and recycled materials. It is proposed that 100% of the timber used in the development will be from FSC or PEFC sources. The London Borough of Hillingdon requires that a minimum of 10% of the total value of materials selected are derived from recycled and reused content.

The final materials to be used will be determined at detailed design stage. The materials specified will have a low embodied impact on the environment and achieve a rating of A+ to D in BRE's Green Guide to Specification. Materials will be hard wearing and will not release toxins into the internal and external environment, including those that deplete stratospheric ozone.

The waste hierarchy will be implemented on site to minimise waste during construction. In line with the waste hierarchy the preferred approach to specifying materials will be:

The use of reclaimed materials

The use of materials with higher levels of recycled content

The use of new materials

The proposed development will incorporate best practice sustainable design standards during the design, construction, and operation of the development.

The waste storage area for the proposed dwellings will be located on the ground floor. The waste storage area is easily accessible internally by the residents and provides easy access to the road for removal of waste.

8.6 Operational Sustainability

Lighting and heating controls will be designed to allow each room/space to be controlled separately. Controls specifications will be provided in full to the residents of the dwelling to ensure their optimal operation.

Smart meters will be fitted within the building to monitor energy and water consumption. This will assist the residents to eliminate excess energy and water usage and reduce running costs.

The provision for a Building User Guide for the building is encouraged. The Guide will provide the residents with the information necessary to ensure optimal use, operation, maintenance and environmental performance of the installed services. The guide should be simple and easy to read and cover the significant operational and maintenance issues that relate to the building, including how to heat and cool the building efficiently and effectively.

Sustainable transport has been allowed for as part of the plans with cycle storage space incorporated into the ground floor of the building.



9.00 SUMMARY AND CONCLUSIONS

This Updated Outline Energy Statement and Sustainability Strategy provides an overview as to how the proposed redevelopment at Austin Road Estate will achieve net-zero carbon and gives an overview of the design proposals that will ensure the development operates in an energy efficient manner over the lifespan of the scheme.

The strategy is to target net-carbon zero for the development.

The measures for 'Be Lean' include:

- Improvements to the building U-Values for all building elements when compared when the limiting values of Part L of the Building Regulations.
- Improved airtightness compared to part L.
- Most fabric parameters are better than the notional specification. There is a budgetary trade-off between increasing wall versus window performance.
- Residential window area to wall percentage is approximate 35%.
- Energy efficient lighting throughout
- Energy efficiency mechanical ventilation systems with heat recovery above the notional specification.

The 'Be Clean' measures include the incorporation of ASHP to meet both Heating and Hot Water demands alongside future capped off connections to allow connection to District Heat Network in the future.

The 'Be Green' measure of rooftop PV panels incorporated into the green roof system provide zero-carbon electricity onsite. Therefore, at the end of 'Be Green' stage a potential carbon reduction of 100%.

Therefore, the development is expected to achieve at least 80% on site, with any residual shortfall to be addressed through a carbon offset payment. This differs from the original Outline Report as the target has been set as a minimum of 80% rather than 100% reduction. This is due to the following:

- We are now under SAP10 compared to the outline planning report which was SAP2013 with conversion which makes achieving net zero carbon on site more difficult.
- The massing of the schemes and number of units has increased and therefore affects the ability to achieve the original net zero carbon target on site as floor area to roof ratio has decreased.

Full assessment for Phase 1b and 2 will be undertaken as part of the RMA submission and will show exact figures which have been achieved.