

SUSTAINABILITY STATEMENT

Former Big Cat Sanctuary, Codicote Road,
Codicote, Welwyn, AL6 9TU

Produced by XCO2 for Howarth Homes

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EXECUTIVE SUMMARY

The sustainability strategy for the Codicote Road development has been developed with the design team to comply with the relevant environmental policies of both North Hertfordshire District Council and Welwyn Hatfield Borough Council, the site falling across both council boundaries. Relevant energy policies have been addressed in the accompanying Energy Statement. The proposed development is expected to reduce on-site regulated carbon emissions by 25.7% with SAP 10.2 emission factors.

This Sustainability Statement has been prepared by XCO₂ on behalf of Howarth Homes in support of a detailed planning application for a Proposed Development at the former Big Cat Sanctuary, Codicote Road, Welwyn.

This sustainability statement is divided into two parts:

- Planning Policies; and,
- Sustainability Measures.

The first part provides an overview of the site and planning policies applicable to this development in accordance with the North Herts and Welwyn Hatfield Local Plans.

The second part then outlines the sustainability strategy that has been employed to address the relevant planning policies.

The key sustainable design and construction measures incorporated in the proposals are summarised below:

Effective Resource Management

- Reuse of existing materials on-site, where viable, informed by a pre-demolition audit;
- Retention of the majority of existing mature trees, boundary vegetation and the northern woodland, with new native planting to maximise biodiversity across the site;
- Retention and enhancement of habitat across the site, with the biodiversity net gain calculations being prepared and submitted in support of the application;
- Specification of high-performance fabric and glazing to minimise heat losses;

- The incorporation of renewable technologies via maximised roof mounted photovoltaics;
- The specification of water fittings with the aim of reducing residential water consumption to less than 105 litres per person per day to optimise water efficiency.

Adaptation to Climate Change

- Insulated pipework and efficient lighting will minimise heat generated internally;
- An energy assessment has been carried out for the site, and the estimated CO₂ savings are 27.82 tonnes per annum across the scheme;
- Energy efficiency will be maximised through passive and active measures such as optimising daylight and maximising potential for passive solar heating, whilst mitigating overheating with low g-values and operable glazing;
- Including low energy light fittings throughout the scheme;
- The Proposed Development is expected to have minimal impact on the daylight and sunlight of neighbouring and surrounding properties;
- The landscape proposals retain the majority of the existing mature trees and boundary vegetation and introduce native structural planting, public open space and a play area, so green cover across the site is increased. Planting prioritises native and drought resistant species;
- A sustainable drainage strategy will attenuate surface water on site and limit discharge to the greenfield runoff rate, so that flood risk is not increased.

Pollution Management

- To reduce air pollution from vehicular transport, the development provides dedicated cycle parking for every dwelling, an electric vehicle charging point at each dwelling, and improved pedestrian and bus stop infrastructure on Codicote Road;
- An air quality assessment confirms that pollutant concentrations at the site are below the health-based objectives and that the development's impact on local air quality is not significant, so the site is suitable for residential use;
- Acoustic constraints on the plots fronting Codicote Road will be mitigated through higher specification glazing and acoustic or mechanical ventilation, in line with the recommendations of the Noise Impact Assessment;
- Space heating and hot water are provided by individual gas boilers, so combustion emissions are not eliminated on site. Boilers will be specified with dry NOx emissions no greater than 40 mg/kWh to limit the effect on local air quality;
- Light pollution and subsequent disruption to wildlife will seek to be minimised through a lighting scheme that will be more friendly to local wildlife.

In summary, the Proposed Development at Codicote Road meets the targets set out by North Hertfordshire and Welwyn Hatfield Councils.

SITE

This chapter presents the description of the site and of the Proposed Development and the policy framework for the assessment.

SITE & PROPOSAL

The proposed scheme is a detailed planning application for the redevelopment of the former Big Cat Sanctuary on Codicote Road. The proposal involves the demolition of all existing buildings and structures on site and the redevelopment of the site to provide a 100% residential scheme, together with access, parking, hard and soft landscaping, public open space and associated works. The scheme includes 109 new homes, of which 99 are houses and 10 are wheelchair accessible apartments designed to Part M4(3). Fifty per cent of the homes are affordable. The site extends to approximately 4.0 hectares, and its current lawful use falls within Class E, most recently operating as a farm shop.

The site is designated Green Belt. In accordance with the National Planning Policy Framework (NPPF) (December 2024) it meets the definition of Grey Belt, because the existing buildings, enclosures, areas of hardstanding and containment features limit the contribution the site makes to Green Belt purposes. The scheme retains a significant proportion of the site as undeveloped land and uses traditional two storey development within a clearly defined and well enclosed envelope, so it is consistent with paragraphs 154 and 155 of the Framework, which support the redevelopment of previously developed land where it would not result in substantial harm to the openness of the Green Belt.

The approximate location and boundary of the application site is shown in the figure below.



Figure 1: Approximate location of application site

PLANNING POLICY

The Codicote Road development has been designed in line with the requirements set out by the North Herts and Welwyn Hatfield Councils.

The relevant planning policy documents for sustainability are:

- North Hertfordshire Local Plan (2011-2031),
- North Hertfordshire Sustainability Supplementary Planning Document (SPD) (2024),
- Welwyn Hatfield Local Plan (2016-2036), and,
- Welwyn Hatfield Sustainability SPD (2025).

NORTH HERTFORDSHIRE LOCAL PLAN (2011-2031)

Policy SP1: Sustainable development in North Hertfordshire

Policy SP6: Sustainable transport

Policy SP9: Design and Sustainability

Policy SP11: Natural resources and sustainability

Policy SP12: Green infrastructure, landscape and biodiversity

Policy SP13: Historic environment

Policy T1: Assessment of transport matters

Policy D1: Sustainable design

Policy D4: Air quality

Policy NE1: Strategic green infrastructure

Policy NE2: Landscape

Policy NE4: Biodiversity and geological sites

Policy NE7: Reducing flood risk

Policy NE8: Sustainable drainage systems

Policy NE9: Water quality and environment

Policy NE11: Contaminated land

Policy NE12: Renewable and low carbon energy development

Policy HE1: Designated heritage assets



WELWYN HATFIELD LOCAL PLAN (2016-2036)

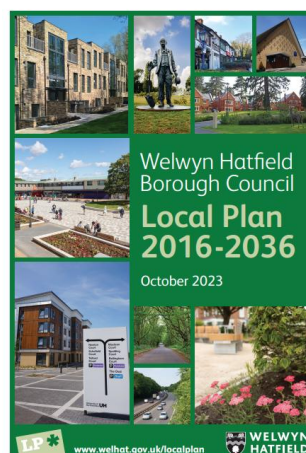
Policy SP 1 Delivering Sustainable Development

Policy SP 4 Transport and Travel

Policy SP 9 Place-making and High Quality Design

Policy SP 10 Sustainable Design and Construction

Policy SP 12 Green Infrastructure



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WELWYN HATFIELD NEW LOCAL PLAN

SP 1: Sustainable Development

SP 6: Mitigating and Adapting to Climate Change

DMP 3: Energy Efficiency and Net Zero Design

DMP 4: Construction Waste and Whole Life Cycle

DMP 5: Water Efficiency in New Developments

DMP 6: Managing Air Quality

DMP 7: Renewable and Low Carbon Energy

DMP 9a: Heat Risk and Mitigation

DMP 9b: Carbon Offsetting

DMP 10: Flood Risk and Mitigation

SP 7: Healthy Environment

SP 9: Sustainable Transport

SP 23: Green Infrastructure

DMP 57: Landscape

DMP 58: Biodiversity

DMP 59: Urban Greening

DMP 60: Trees



PROPOSED SUSTAINABILITY MEASURES

This section outlines the key sustainability features of the proposal, showing how it aligns with relevant sustainable development policies and integrates best practices in sustainable design and construction.

LAND AND SITE LAYOUT

Reuse of Existing Buildings

The project team will aim to maximise the use of existing materials from the site. The existing buildings are of conventional late twentieth century construction and are in poor condition, so the opportunity lies in the recovery of materials rather than the retention of structures. To assist with identifying key materials for reuse, the principal contractor will consider undertaking a pre-demolition audit to determine the nature of the existing materials and their potential for reuse.

Land Form and Site Layout

Consideration has been given to the layout and scale of the surrounding buildings. The surrounding context is predominantly low-rise residential development on the north-western edge of Welwyn, with open countryside and woodland to the west and north.

The scale of the development follows a principle of densification but, at the same time, it takes into account the neighbouring buildings with regard to height and overall volume.

The scheme comprises traditional two storey residential development, so the built form is consistent with the height and volume of the neighbouring dwellings and limits the visual impact of the development on the openness of the Green Belt.

Daylight & Sunlight Impacts

Consideration has been given to neighbouring amenity and open spaces; due to appropriate design of the building and overall site layout these will experience minimal overshadowing effects.

Micro-climate

A microclimate is the distinctive climate of a small-scale area, and the variables within it, such as temperature, rainfall, wind or humidity, may be subtly different to the conditions prevailing over the area as a whole.

The proposed scheme is two storeys in height and is set within retained boundary vegetation, so it is not of a scale that could have any significant impact on wind conditions around the site or any adverse effect on pedestrian and residents' comfort.

Green Infrastructure

Great emphasis has been placed on the landscape and on the retention of the site's trees. The Arboricultural Impact Assessment prepared by David Archer Associates, in accordance with BS 5837:2012, confirms that the majority of the mature trees along the site boundaries and within the northern woodland are retained and protected, with removals limited to lower-category trees and offset by new native planting. The Landscape and Visual Appraisal and the Illustrative Soft Landscape Proposals set out new native tree, hedgerow and shrub planting, areas of public open space, an informal grass footpath route through the retained woodland, and a play area. This green infrastructure contributes to increased physical activity and relaxation for occupants, to improvement of local air quality, and to the visual integration of the development into the surrounding landscape.

Impacts on Neighbours from Demolition and Construction

The use of the Considerate Constructors Scheme will be encouraged to ensure that contractors carry out their operations in a safe and considerate manner to avoid disturbances to neighbours.

Construction impacts such as dust generation and increased traffic movements will be minimised

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through adoption of best practice construction measures, formalised through the production of a Construction Environmental Management Plan (CEMP) to be delivered by the main contractor and secured by planning condition. The CEMP will also carry the ecological mitigation measures recommended by the Preliminary Ecological Appraisal, including the pre-commencement badger check, the precautionary method of working for vegetation clearance, and the sensitive lighting strategy.

Land Contamination

The site has a history of agricultural, commercial and animal husbandry use and contains extensive areas of made ground, so a risk of contamination exists and has been taken into account in the drainage strategy. In the event of any discovery of potentially contaminated soils or materials, this discovery will be quarantined and reported to the most senior member of site staff or the designated responsible person at the site for action. The location, type and quantity will be recorded and the Local Authority, a competent and appropriate third-party Engineer/Environmental consultant will be notified immediately. An approval from the Local Authority will be sought prior to implementing any proposed mitigation action.

Heritage

A Heritage Statement prepared by Asset Heritage Consulting confirms the application site holds no statutory or non-statutory heritage designations and contains no listed buildings or non-designated heritage assets, its existing structures being poor-quality, utilitarian buildings associated with its former use as a big cat sanctuary that are of no architectural, historic or archaeological interest. The site lies immediately adjacent to the Grade II listed 44 Codicote Road, and the assessment finds that the proposed redevelopment for 109 homes would result in a degree of less than substantial harm to the setting of that listed building, falling towards the bottom of the range, mitigated through the retention of open green space along the frontage and around the listed building's curtilage. In accordance with paragraph 215 of the NPPF, this harm is outweighed by the public benefits of the scheme, including the provision of much-needed housing.



HEALTH AND WELLBEING

Inclusive Design

The development aims to prioritise the future needs of occupants by ensuring that all dwellings and shared amenity spaces are designed to comply with Part M of the Building Regulations. The scheme provides 10 wheelchair accessible apartments designed to Part M4(3), each served by an allocated accessible parking space.

Safety and Security

The design team will comply with the principles of Secured by Design to provide safe and secure spaces to all residents and building users.

Open Spaces/Amenity

Private and communal amenity spaces will be provided throughout the site through private gardens, areas of public open space, an informal footpath route through the retained woodland and a play area, to allow residents and building occupants to gather, socialise and connect to the natural environment. This will also enhance the occupants' wellbeing, as nature can significantly improve mood and happiness. The Noise Impact Assessment confirms that predicted noise levels in all proposed gardens meet the BS 8233 upper guideline value of 55 dB LAeq,16hr, so the external amenity spaces are suitable for their intended use without further mitigation.

Daylight/Sunlight

By incorporating sufficient areas of glazing and considering internal layouts, the Proposed Development will ensure that occupants enjoy satisfactory levels of visual comfort and beneficial effects from daylight exposure, whilst also reducing energy consumption by minimising the use of artificial lighting as far as feasible.



ENERGY & CARBON DIOXIDE EMISSIONS

The Energy Strategy for the development has been designed in line with the relevant energy policies from the two councils, which states that every effort should be made to minimise carbon dioxide emissions in accordance with the following energy hierarchy:

1. Use less energy
2. Supply energy efficiently
3. Use renewable and low carbon energy

Use Less Energy

The buildings have been thoughtfully designed to reduce energy demand through an enhanced building fabric, minimising heat loss through air infiltration, reducing reliance on artificial lighting, utilising low energy lighting and ensuring adequate levels of ventilation are maintained whilst reducing heat loss through the specification of MVHR.

Supply Energy Efficiently

As discussed in the accompanying Energy Statement, there are no existing or proposed district heat networks (DHN) near to the site, and a site-wide heat network is not viable because the majority of dwellings are houses, where low heat density and high pipework heat losses make individual systems more efficient. Space heating and hot water are therefore proposed to be provided by individual gas boilers with a seasonal efficiency of 92% to all dwellings.

Be Green

A range of renewable technologies were considered for generating on-site renewable energy. Photovoltaic panels have been adopted for this development due to adequate roof space, ease of installation and substantial CO₂ savings. The proposed array comprises 2 kWp per house and 1 kWp per apartment, giving approximately 208 kWp across the development. Air source heat pumps were assessed as technically feasible but have not been adopted, and gas boilers are proposed instead.

The three-step energy hierarchy delivers a cumulative reduction in regulated carbon emissions of 25.7% against a Part L 2021 compliant scheme, comprising 3.5% from energy efficiency measures and 22.2% from photovoltaics. Further details about the

photovoltaic strategy, the heating strategy, alternative renewable technology options and site-wide CO₂ emission reductions can be found in the accompanying Energy Statement.



WATER

Water Efficiency

The development at Codicote Road aims to reduce water consumption to less than 105 litres per person per day, to improve upon the requirements of the Approved Document Part G, through the use of water efficient fittings, and these are listed below.

Table 1: Recommended indicative specification for sanitary fittings

Fitting	Fitting specification
WC	4/2.6 litres dual flush
Kitchen sink tap	5 litres per min
Wash basin tap	4 litres per min
Shower	7.5 litres per min
Bath	170 litres
Washing machine	7.5 litres/kg
Dishwasher	0.85 litres/place setting



Water Efficient Landscaping

Potable water consumption reduction from irrigation can be further maximised through a combination of water reuse and use of both native and drought resistant plant species, which will thrive with little to no irrigation and rely only on natural rainfall.

MATERIALS AND WASTE

Responsible Sourcing

100% of the timber used during construction will be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source.

The main contractor will be required to prioritise products holding responsible sourcing certification (EMS/ISO14001) for the key process as per minimum, to ensure economic, social and environmentally responsible practices are implemented throughout construction products supply chain.

Healthy Materials

To minimise potential sources of indoor air pollution, low VOC paints, finishes and other products will be prioritised as far as practically possible. Best practice design detailing and careful construction techniques will also be employed to reduce the risk of thermal bridging and condensation issues, limiting the potential for mould growth.

Embodied Carbon

To further reduce carbon emissions over the lifecycle of the building materials with a low embodied carbon such as timber will be prioritised, whilst aiming to minimise the use of high impact materials such as concrete and steel. Where these materials are necessary which is likely given the expected construction of the houses, the project team will seek to use products with a high recycled content, for example recycled steel and cement replacement.

At detailed design stages the design team will consider using Environmental Product Declarations and aim to procure products with low environmental impact where possible.

Circular Economy

Circular economy is based on three key principles: design out waste, keep products and materials in use, and regenerate natural systems. These principles will be applied during the design and construction of the proposed development by following the actions noted below:

- Design out the need for building components and materials;

- Use of reclaimed materials and remanufactured components over new;
- Product selection considering its entire lifecycle, such as products which can be remanufactured or reused; products with high recycled content; products designed for disassembly; and recyclable or compostable materials.

Circular Economy measures will look to be integrated where possible. The below list is an indicative summary of measures the design team will investigate incorporating.

- Maximise reuse/ recycling/ recovery during any demolition works;
- Prioritise putting excavation waste to beneficial use;
- Maximise the amount of any construction waste reused/ recycled/ recovered during construction works;
- Monitor energy, water and waste during demolition & construction;
- Maximize procurement of materials with recycled and reused content, where feasible, within products and materials selected;
- 100% of timber used on site, including timber used in the construction phase, to be sourced from sustainable forestry sources (e.g. PEFC and FSC);
- All residential units to be designed to meet long-term occupant needs, be robust, durable, and resilient to climate change;
- All residential units to be provided with access to appropriately sized refuse are, supporting the separate collection recyclables;



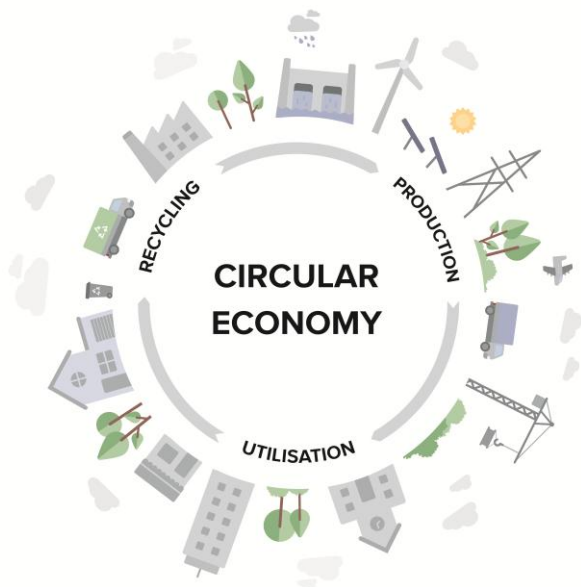
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Construction Waste

A site waste management plan (SWMP) will be prepared for the Proposed Development by the Principal Contractor, once appointed, and will include the pre-demolition audit produced for this application, to identify any key materials suited for recovery and reuse. The SWMP will outline the methodologies for estimating waste quantities and streams generated during the demolition, excavation and construction stages of the site works, and set out recommended measures required to be adopted by the Main Contractor to minimise these as far as practically possible.

Operational Waste

An operational waste management strategy (OWMS) will be produced and implemented for the Proposed development by the Principal Contractor, once appointed. This will demonstrate how the development has taken into account sustainable methods for waste and recycling management during its operation in order to meet all applicable legal requirements.



NATURE CONSERVATION & BIODIVERSITY

Ecological Baseline

A Preliminary Ecological Appraisal (PEA) has been prepared by Greengage Environmental and is submitted in support of the application. The site extends to approximately 4.02 hectares and comprises modified grassland, other neutral grassland, bramble and mixed scrub, broadleaved and mixed woodland, native hedgerow, and areas of hardstanding and buildings associated with the former use.

Three statutory designated sites lie within 2km of the site, the closest being Danesbury Park Local Nature Reserve approximately 90m to the southeast. The nearest non-statutory designation is Longston and Catchpole Woods Local Wildlife Site, approximately 120m to the northeast. Given the separation distances and intervening land uses, the PEA concludes that no direct or indirect construction phase impacts on these sites are anticipated and that no specific mitigation is necessary. The site lies within the Impact Risk Zone for Singlers Marsh Site of Special Scientific Interest, but the proposed development is not a high-risk activity requiring consultation with Natural England. No Special Areas of Conservation, Special Protection Areas or Ramsar sites lie within 10km, so no further assessment under the Habitats Regulations is required.

Protected and Priority Species

The PEA identifies high suitability for roosting bats within the existing buildings and for nesting birds, moderate suitability for foraging and commuting bats, for hazel dormouse within the northern woodland and for widespread reptile species, and low suitability for badger, notable plant species and invasive non-native species. Further targeted surveys are recommended and are being progressed, comprising three dusk emergence surveys for bats between May and August, a minimum of seven reptile presence or likely absence survey visits between April and September, an updated botanical walkover survey during the optimal survey season, and a pre-commencement badger check.

The northern woodland, which has moderate suitability for hazel dormouse, is retained, and only the southern woodland of low suitability is affected, so no dormouse surveys are required. Mitigation will be

secured through the CEMP and will include a precautionary method of working for vegetation clearance supervised by a suitably qualified ecologist, vegetation clearance outside the bird nesting season or subject to a nesting bird check no more than 48 hours before works, and a sensitive lighting strategy prepared in accordance with Bat Conservation Trust and Institution of Lighting Professionals guidance.

Biodiversity Net Gain

A biodiversity net gain assessment has been prepared and submitted in support of the application. The strategy maximises on-site habitat retention, creation and enhancement, with off-site units or statutory credits used only where the on-site position is insufficient to meet the required net gain.

Habitat creation and enhancement, together with long-term management and monitoring, are set out in a Landscape and Ecological Management Plan (LEMP) secured by planning condition.

Ecological Enhancement

The landscape proposals incorporate the enhancement measures recommended by the PEA. New planting prioritises native species, including species-rich hedgerows of hawthorn, blackthorn, hazel and field maple, native tree planting such as oak, hornbeam and field maple, and mixed shrub planting reflective of local character. Areas of amenity grassland will be replaced, where feasible, with species-rich wildflower grassland providing a minimum of eight species per square metre, and species-rich grassland managed with a longer, varied sward will be created to provide habitat for amphibians and reptiles.

Deadwood features such as log piles will be created or retained within landscaped areas. Approximately one integral bird box per dwelling will be installed where feasible, targeting house sparrow, starling and swift, and bat boxes will be installed in numbers to be confirmed following the bat emergence surveys. Gaps of 130mm by 130mm will be provided within fencing to avoid creating barriers to the movement of species such as hedgehog. The siting of boxes and the detail of habitat creation and long-term management will be set out in a Landscape and Ecological Management Plan (LEMP) secured by planning condition.

CLIMATE CHANGE ADAPTATION

Overheating

The potential risk of overheating will be mitigated by incorporating both passive and active design measures, applied in the order set out in the cooling hierarchy of Approved Document (Part) O.

The space heating and hot water to the development will be provided by individual gas boilers. All heat sources and pipe work will be sufficiently insulated to avoid excess heat loss into internal space.

Efficient lighting will be used to further minimise internal heat gains and reduce energy expenditure.

Appropriately sized windows will reduce solar heat gains, and glazing with a low g-value (the proportion of solar energy transmitted through the glass) will be specified where required to reduce solar gains and the risk of overheating. Internal blinds and curtains cannot be credited in an Part O assessment, so they have not been relied on in the overheating strategy.

During peak summer periods the thermal mass of the buildings will absorb and store excess heat. The buildings will release heat in the cooler evenings to allow for cooler internal spaces, dampening the peak diurnal weather conditions.

The dwellings rely on openable windows and cross ventilation as the primary strategy for providing fresh air and dissipating heat. Part O requires the overheating mitigation strategy to take account of the likelihood that windows will be closed during sleeping hours where external noise is an issue, so the acoustic evidence base determines how far windows can be counted as open.

The Noise Impact Assessment prepared by Arthian includes a Level 1 site risk assessment undertaken in accordance with the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide, which establishes the maximum permissible geometric open area for each bedroom window. The risk of adverse noise effect is medium at the site boundary with Codicote Road and reduces to negligible or low towards the centre of the site, so the majority of dwellings can be ventilated by opening windows without acoustic restriction.

For the plots fronting Codicote Road the permissible open area is materially restricted, falling to 0.02m² for

the north-east facing bedrooms of plots 1 to 3. A ventilation strategy that does not rely on opening windows will therefore be required for those plots, which is expected to comprise continuous mechanical ventilation with heat recovery. The permissible open areas set out in the Noise Impact Assessment will be carried directly into the dynamic thermal modelling undertaken to demonstrate compliance with Part O, so the overheating and acoustic strategies are consistent with one another.

Surface Water and Flooding

The site has no formal existing surface water drainage network, and existing roof runoff is understood to discharge to ground. A Drainage Strategy has been prepared by Hardy Tunstall Engineering and is submitted in support of the application.

Surface water runoff will be attenuated in below-ground storage and discharged at a controlled rate limited to the greenfield runoff rate, so that peak runoff from the site and flood risk elsewhere are not increased. The system is designed to accommodate the 1 in 100 year rainfall event with an allowance for climate change.

The site lies above a Principal Aquifer within a Source Protection Zone, so any use of infiltration would require appropriate treatment and separation and will be reviewed at detailed design in light of the ground investigation. There is no accessible watercourse in the vicinity, so surface water and foul flows are kept separate on site and combined at the point of discharge to the Thames Water public sewer in Codicote Road, subject to Thames Water agreement.

The majority of the site lies within Flood Zone 1, with the southern part of the site partially within Flood Zone 2 according to the Environment Agency Flood Map for Planning. A Flood Risk Assessment has therefore been carried out by Hardy Tunstall Engineering, together with an assessment of the impact of the proposed development on water resources and hydrology.

The assessment confirms that modelled flood levels of the River Mimram do not reach the site at any point along its boundary, and that under climate change scenarios the development effectively sits entirely within Flood Zone 1. An area of medium surface water flood risk exists in the south-east corner of the site, away from the proposed dwellings, and no built development is located within the 0.33% or 1% annual exceedance probability extents including climate

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change. Finished floor levels of the plots closest to that area are set at least 600mm above the conservatively assessed maximum flood level, and existing overland flow paths are not altered, so flood risk to the site and elsewhere is not increased. For further details, please refer to the Flood Risk Assessment and Drainage Strategy prepared and submitted in support of the planning application.



AIR, NOISE AND LIGHT

Air Quality

Air pollution risks from construction and demolition activities on site will be minimised through the adoption of best practice measures, in line with the Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction, under the following categories:

- demolition;
- earthworks;
- construction;
- trackout; and,
- non-road mobile machinery (NRMM).

An Air Quality Exposure Assessment prepared by Arthian accompanies the application. The site is not within, and does not affect, any Air Quality Management Area. A review of baseline monitoring data confirms that concentrations of nitrogen dioxide and fine particulate matter (PM10 and PM2.5) at the site are below the relevant health-based objectives, so future occupants would not be exposed to unacceptable air quality and the site is suitable for residential use. Dispersion modelling of the additional traffic associated with the development, using ADMS Roads, found the impact on nitrogen dioxide and particulate matter concentrations at existing and proposed receptors to be negligible against the criteria of the Institute of Air Quality Management, so the effect of the development on local air quality is not significant. The assessment concludes that the proposal accords with national policy and with the air quality policies of North Hertfordshire District Council and Welwyn Hatfield Borough Council.

During the operational phase of the development, combustion emissions from heating will be minimised through improved levels of insulation and air tightness for the buildings' fabric, which reduce the space heating demand to 16.5 kWh/m².yr, and through the specification of gas boilers with a seasonal efficiency of 92% and low NO_x emissions (for further details please refer to the accompanying Energy Statement).

Noise

A Noise Impact Assessment has been prepared by Arthian and is submitted in support of the application. Baseline sound measurements were taken across the site over a period of five days, and a sound propagation model was constructed to predict noise

levels at the proposed dwellings, with road traffic on Codicote Road being the dominant source.

With a standard closed double-glazed window, predicted internal ambient noise levels meet the BS 8233 guideline values of 35 dB LAeq,16hr in living rooms during the day and 30 dB LAeq,8hr in bedrooms at night at all but the front facades of plots 1 to 3. Predicted internal LAFmax levels in bedrooms at night exceed the 45 dB guideline value at the plots adjacent to Codicote Road. The development will therefore incorporate design and building fabric measures to ensure the impact of external sources on internal ambient noise levels is within acceptable limits, expected to comprise higher specification glazing together with acoustic passive ventilators or a whole house mechanical ventilation system at the affected plots. A detailed assessment of the mitigation required for individual plots will be undertaken at detailed design stage.

Predicted noise levels within all proposed gardens meet the BS 8233 upper guideline value of 55 dB LAeq,16hr, so no mitigation of external amenity space is required.

Light Pollution

The lighting design of the proposed development will follow the recommendations of the Institution of Lighting Professionals' Guidance Note 1 for the Reduction of Obtrusive Light, to minimise light pollution.

Further mitigation measures will be implemented to ensure disturbance to wildlife is minimal, in line with the ecologist's recommendations. The Preliminary Ecological Appraisal identifies moderate suitability of the site for foraging and commuting bats, so a sensitive lighting strategy will be prepared in accordance with Bat Conservation Trust and Institution of Lighting Professionals guidance and secured through the CEMP. Lighting will be designed to maintain dark corridors along the retained woodland and boundary vegetation.



TRANSPORT

A Transport Assessment and a Travel Plan have been prepared by RGP Consulting Engineers in support of the proposed residential development and are submitted with the application. The site occupies a sustainable location between Welwyn and Codicote, both of which are accessible on foot and by cycle, with Welwyn approximately a 15 minute walk from the site and Codicote approximately a 20 minute walk. Bus stops are located immediately adjacent to the site frontage on Codicote Road and provide services to Welwyn, Codicote, Hitchin and Welwyn Garden City. Welwyn North railway station lies approximately 3.3km from the site and is accessible by cycle and by bus, and National Cycle Route 12 lies approximately 850m to the north.

Access will be provided via a new priority junction onto Codicote Road, designed in accordance with appropriate geometric standards including carriageway width and junction radii, and achieving visibility splays that exceed the requirements for recorded vehicle approach speeds. The proposals include enhancements to sustainable travel infrastructure, comprising new pedestrian facilities within the site, a pedestrian crossing on Codicote Road, improvements to the bus stops to the south of the site including a new shelter and raised kerbing, and reinstatement and enhancement of footway connections along the site frontage.

Car parking provision has been assessed against the standards of both North Hertfordshire District Council and Welwyn Hatfield Borough Council. The scheme provides 222 car parking spaces, comprising two allocated spaces for each house, one allocated space for each apartment, and 20 unallocated visitor spaces distributed throughout the development. Each house is provided with a dedicated cycle store accommodating two bicycles, and the apartment block is served by five Sheffield stands providing ten spaces, so cycle parking is provided for every dwelling in accordance with Hertfordshire County Council requirements. An electric vehicle charging point will be provided at each dwelling in accordance with Part S of the Building Regulations, with details secured by planning condition. Vehicle tracking assessments confirm that refuse vehicles can manoeuvre safely throughout the site without the need for further modification to the layout.

The Travel Plan sets an aim of reducing the proportion of journeys made by single-occupancy car,

with targets of a 5% reduction by the end of year three and a 10% reduction by the end of year five, measured against the baseline mode share. A Travel Plan Coordinator will be appointed prior to first occupation, and travel surveys will be undertaken following occupation and on the third and fifth anniversaries to monitor progress against those targets. Measures will include residents' travel welcome packs, personalised travel advice, distribution of local walking and cycling route maps, and promotion of car sharing and public transport.



CONCLUSION

The sustainability strategy for the Proposed Development has been developed with the design team to comply with the relevant environmental policies of North Hertfordshire District Council and Welwyn Hatfield Borough Council, the site falling across both council boundaries. Relevant energy policies have been addressed in the accompanying Energy Statement. The proposed development is expected to reduce on-site regulated carbon emissions by 25.7% across the site.

This report outlined the sustainability strategy for the Proposed Development, in line with the requirements set out by North Herts and Welwyn Hatfield Councils.

The key sustainable design and construction measures incorporated in the proposals are summarised below:

Effective Resource Management

- Reuse of existing materials on-site, where viable, informed by a pre-demolition audit;
- Retention of the majority of existing mature trees, boundary vegetation and the northern woodland, with new native planting to maximise biodiversity across the site;
- Retention and enhancement of habitat across the site, with the biodiversity net gain calculations being prepared and submitted in support of the application;
- Specification of high-performance fabric and glazing to minimise heat losses;
- The incorporation of renewable technologies via maximised roof mounted photovoltaics;
- The specification of water fittings with the aim of reducing residential water consumption to less than 105 litres per person per day to optimise water efficiency.

Adaptation to Climate Change

- Insulated pipework and efficient lighting will minimise heat generated internally;
- An energy assessment has been carried out for the site, and the estimated CO₂ savings are 27.82 tonnes per annum across the scheme;
- Energy efficiency will be maximised through passive and active measures such as optimising daylight and maximising potential for passive

solar heating, whilst mitigating overheating with low g-values and operable glazing;

- Including low energy light fittings throughout the scheme;
- The Proposed Development is expected to have minimal impact on the daylight and sunlight of neighbouring and surrounding properties;
- The landscape proposals retain the majority of the existing mature trees and boundary vegetation and introduce native structural planting, public open space and a play area, so green cover across the site is increased. Planting prioritises native and drought resistant species;
- A sustainable drainage strategy will attenuate surface water on site and limit discharge to the greenfield runoff rate, so that flood risk is not increased.

Pollution Management

- To reduce air pollution from vehicular transport, the development provides dedicated cycle parking for every dwelling, an electric vehicle charging point at each dwelling, and improved pedestrian and bus stop infrastructure on Codicote Road;
- An air quality assessment confirms that pollutant concentrations at the site are below the health-based objectives and that the development's impact on local air quality is not significant, so the site is suitable for residential use;
- Acoustic constraints on the plots fronting Codicote Road will be mitigated through higher specification glazing and acoustic or mechanical ventilation, in line with the recommendations of the Noise Impact Assessment;
- Space heating and hot water are provided by individual gas boilers, so combustion emissions are not eliminated on site. Boilers will be

SUSTAINABILITY STATEMENT

specified with dry NOx emissions no greater than 40 mg/kWh to limit the effect on local air quality;

- Light pollution and subsequent disruption to wildlife will seek to be minimised through a lighting scheme that will be more friendly to local wildlife.

In summary, the Proposed Development at Codicote Road meets the targets set out by North Hertfordshire and Welwyn Hatfield Councils.

