

**Land at
Old Forest Road,
Winnersh**

**Prepared for
Elstree Land**

by

**Stuart Michael Associates
Limited**

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Appendix 1 **Planning Site Layout**

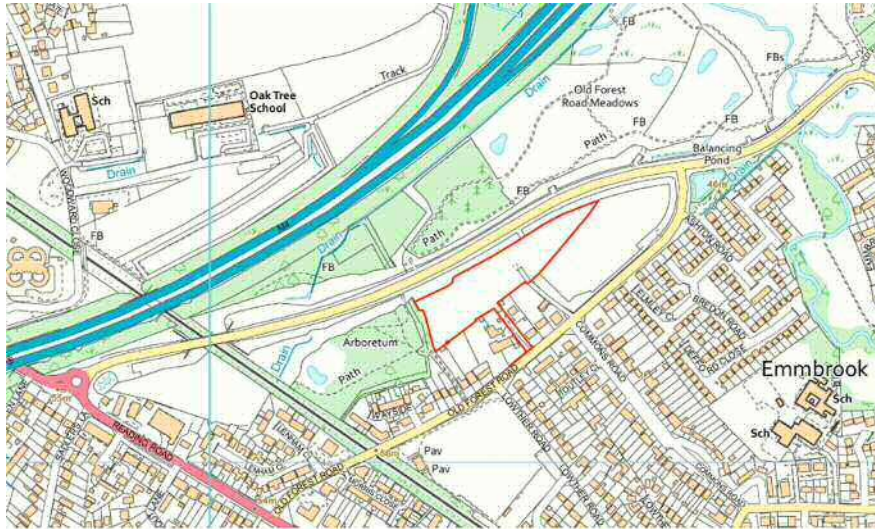
Appendix 2 **Supporting Planning Layout**



1.0 INTRODUCTION

- 1.1 This Energy and Sustainability Statement (ESS) has been prepared by Stuart Michael Associates Ltd (SMA) on behalf of Elstree Land (the Applicant) to summarise measures and options for the development of a sustainable residential scheme at land at Old Forest Road, Winnersh (the 'site'). **Figure 1.1** shows the site's location.

Figure 1.1 – Site Location



- 1.2 The Applicant is seeking planning consent from Wokingham Borough Council (WBC) for the erection of up to 53 residential dwellings, with vehicular access via Old Forest Road.
- 1.3 A site layout has been prepared for the site and is attached as **Appendix 1**.
- 1.4 SMA has been appointed by the Applicant to advise upon an energy strategy, a water-sensitive design, waste and recycling management strategy, and a sustainable transportation strategy that could be incorporated at the proposed development site. This report provides an outline summary of the range of sustainability options to be considered by the Applicant to inform preparation of a Site Masterplan. It is relevant to note that this report has also referred to information presented within the Transport Assessment and Travel Plan prepared for this application. It is acknowledged that further refinement and detail would be necessary at the discharge of conditions stage.
- 1.5 In preparation of this report, due regard has been given to the key national and local planning policy objectives towards tackling climate change, conserving energy, reducing carbon emissions, and conserving and enhancing the natural and built environment in new developments. This has included:
- Net Zero
 - National Planning Policy Framework (December 2024)



- National Planning Practice Guidance
- Future Homes Standard
- Wokingham Core Strategy
- Wokingham Climate Emergency Action Plan 2024
- Wokingham Local Plan

Site History

- 1.6 It is understood that the proposed site has not been subject to a planning application for residential development.

Existing Local Public Transport Services

- 1.7 The nearest bus stop to the site is Lowther Road bus stop, on Old Forest Road, adjacent to the Lowther Road junction and approximately 200m from the site's centre. Bus services No. 122 and No. 123 are available from this stop.
- 1.8 Managed by Thames Valley Buses, the no. 122 and 123 services provide a circular route around Woosehill & Emmbrook and Wokingham, including stopping at Wokingham Railway Station, at an hourly frequency on weekdays. The service runs 3 times on Saturday.

Pedestrian and Cycle Accessibility

- 1.9 From the site, pedestrians can access the amenities within Winnersh utilising the existing footway provision adjacent to the local roads in the area. Emmbrook Primary School is within 950m of the Site.
- 1.10 There are formal off-road cycle facilities in the vicinity of the site on Toutley Road to the north of the site, at the Ashton Road/ Old Forest Road northeast of the site and on Reading Road to the south west of the site. The existing road network is street lit which provides for a safer environment for those who wish to walk and cycle



2.0 PLANNING POLICY

National

Net Zero

- 2.1 On 27th June, 2019, the Government formally amended the target within the Climate Change Act as follows: 'It is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline.'
- 2.2 The United Kingdom was the first major economy to legislate for net zero emissions. At the UN Climate Summit on 4th February 2020 to launch the COP26 conference, Government confirmed their plans for the target to end the sale of new petrol and diesel cars and vans (including hybrids) by 2030. However, in September 2023, this was pushed back to 2035.
- 2.3 In addition, on 3rd February 2020, the UK energy regulator, Ofgem, published their plans to decarbonise energy to deliver a net zero future by 2050. Within their nine-point 'action plan,' they aim to: *'Enable drivers to go electric by supporting an energy network that can power 10 million electric vehicles by 2030.'* (Ofgem, 2020). Further, advice is also within the Committee on Climate Change report of February 2019 *'UK housing: Fit for the future?'*.
- 2.4 A key message from this report is with regard to performance and compliance. Closing the energy use performance gap in new homes (the difference between how they are designed and how they actually perform) could save between £70 and £260 in energy bills per household per year.
- 2.5 Furthermore, the report states that:
- 'There are plans for 1.5 million new UK homes by 2022. These new homes must be built to be low-carbon, energy and water efficient, and climate resilient. The costs of building to a specification that achieves the aims set out in this report are not prohibitive, and getting design right from the outset is vastly cheaper than forcing retrofit later. From 2025 at the latest, no new homes should be connected to the gas grid. They should instead be heated through low-carbon sources, have ultra-high levels of energy efficiency alongside appropriate ventilation and, where possible, be timber-framed. A statutory requirement for reducing overheating risks in new builds is needed, alongside more ambitious water efficiency standards, property-level flood protection in flood risk areas, and increasing requirements for greenspace and sustainable transport in planning and guidance.'*
- 2.6 The report also calls on householders to make small differences for big change, such as setting boilers to the correct temperature, installing shading, and increasing insulation. The Government published their 'Net Zero Strategy: Build Back Greener' in October 2021,



which is aimed at following a path over the next three decades to avoid catastrophic climate change. The Government see the present challenge to meet Net Zero by 2050 as offering opportunity for a green industrial revolution. For power this means a fully decarbonised power system, including more solar energy.

2.7 For buildings the Net Zero Strategy targets decarbonising heat through:

- accelerating heat pump deployment (with a target of 600,000 installations per year by 2028);
- building heat networks; *and*
- incorporating hydrogen into the energy mix via blending with the existing gas network; appraising hydrogen's suitability for direct heating; and transitioning boilers to be 'hydrogen ready' by 2026.

2.8 The second strand of the Build Back Greener plan for buildings is to improve buildings themselves and ensure 'as many homes as possible to achieve EPC Band C by 2035'. This is proposed to be delivered through the Future Homes Standard, increasing the minimum energy efficiency standards of rented accommodation, and *exploring opportunities to improve the energy performance of owner-occupier homes*'.

2.9 Building on the COP26 announcement at the UN Climate Summit the Net Zero Strategy strengthened ban of new petrol/diesel cars/vans by bringing the deadline forward to 2030. Also, as part of the key commitment all that new cars/ vans must be zero emission at the tailpipe a from 2035. At the Conservative Party Conference in September 2023 the Prime Minister reverted plans to cease the sale of new petrol and diesel cars to 2035.

2.10 There were several other statements made by the Prime Minister indicating a delay in roll out of measures to meet Net Zero, including a slower transition from gas boilers to heat pumps (BBC, 2023). These statements are yet to be formalised in Government Policy or Strategies. Published in January 2023, 'Mission Zero' is an Independent Review by Rt Hon Chris Skidmore of the Government's Net Zero Strategy Aims - to build upon the UK's leadership in tackling climate change and legally binding commitment to achieve Net Zero by 2050.

National Planning Policy Framework (December 2024)

2.11 The National Planning Policy Framework sets out the Government's updated planning policies for England and how it expects them to be applied. Stated paragraph and section numbers refer to those of the NPPF.

2.12 Paragraph 2 requires that applications seeking planning permission must be determined in accordance with the Development Plan, unless material considerations indicate



otherwise. The NPPF is a very important material consideration and provides guidance in areas that are lacking within the extant Local Plan.

Sustainable Development & Decision-Making

2.13 The purpose of the planning system is to contribute to the achievement of sustainable development. The NPPF (Paragraph 8) describes the three dimensions to sustainable development:

- Economic: contributing to building a strong, responsive and competitive economy;
- Social: supporting strong, vibrant and healthy communities; and
- Environmental: contributing to protecting and enhancing our natural, built and historic environment, including moving to a low carbon economy.

2.14 Paragraph 10 describes that at the heart of the NPPF is a presumption in favour of sustainable development. Paragraph 11 states that for decision taking this means:

c) approving development proposals that accord with an up-to-date development plan without delay; or

d) where there are no relevant development plan policies, or the policies for the supply of land are out-of-date, granting permission unless:

i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or

ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

2.15 Paragraph 12 explains how the Local Planning Authority's Development Plan is the starting point for decision making:

'The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed.'

2.16 Paragraph 39 states that Local Planning Authorities should approach development decisions in a *'positive and creative way'*. It continues with the approach to determining applications at Paragraph 48, where it states that decisions *'...should be made as quickly*



as possible, and within statutory timescales unless a longer period has been agreed by the applicant in writing'

- 2.17 Paragraph 83 explains how the Government is committed to the delivery of sustainable economic growth through planning operating to encourage and not impede sustainable growth. *'Significant weight should be placed on the need to support economic growth and productivity'*.

Delivering a Sufficient Supply of Homes

- 2.18 Paragraph 75 begins: 'The supply of large numbers of new homes can often be best achieved through planning for larger scale development, such as new settlements or significant extensions to existing villages and towns, provided they are well located and designed, and supported by the necessary infrastructure and facilities.' In doing this the scope for net environmental gains should be considered.

Promoting Sustainable Transport

- 2.19 Also relevant to this application, Section 9 of the NPPF is dedicated to the promotion of sustainable transport. Paragraph 109 states that if setting local parking standards for residential and non-residential development, policies should take into account *'the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.'*
- 2.20 Paragraph 114e states that applications for development should: 'be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.'

Conserving and Enhancing the Natural Environment

- 2.21 Section 15, paragraph 180 states that planning policies and decisions should contribute to and enhance the natural and local environment by: *'minimising impacts on and providing net gains for biodiversity.'*

National Planning Practice Guidance

- 2.22 The National Planning Practice Guidance (PPG) provides advice on the interpretation of, and supports, the NPPF. As guidance, not policy, PPG is subordinate to the NPPF as confirmed by the Planning and Compulsory Purchase Act (2004). PPG is an online resource that is updated to reflect the most recent views of the Secretary of State.



Climate Change

2.23 Integrating adaptation and mitigation are solutions that will support sustainable development. Examples include:

- 'by maximising summer cooling through natural ventilation in buildings and avoiding solar gain;
- through district heating networks that include tri-generation (combined cooling, heat and power); or
- through the provision of multi-functional green infrastructure...'

(Paragraph Reference ID: 6-004- 20140612).

2.24 Local Planning Authorities can set energy performance standards for new housing that are higher than the building regulations, but only up to the equivalent of Level 4 of the Code for Sustainable Homes (Paragraph Reference ID: 6-012-20190315)

Design

2.25 The Guidance '*Design: process and tools*' sets out 10 characteristics of good design (Paragraph Reference ID 26-001-2019001). These are explored within the National Design Guide (MHCLG, 2021). Paragraph 87 of the National Design Guide states: '*Electric vehicle spaces and charging points need to be considered, so they are suitably located, sited and designed to avoid street clutter. (street clutter is defined as 'street furniture and landscape arranged so that streets are difficult to move through, use or are unattractive')*'.

Future Homes Standard

2.26 The principle of the Future Homes Standard was introduced by the UK Government in spring 2019 to future-proof homes and allowing them to transition to Net Zero alongside technological advances. Consultations were undertaken until January 2020 and final changes made to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings in 2022.

2.27 The Future Homes Standard aims to deliver homes that don't need fossil fuels for heating and won't need retrofitting to achieve zero-carbon emissions. The changes to the Building Regulations Part L and F are considered to be transitional arrangements to reduce emissions and improve energy efficiency, towards the Future Homes Standard. The necessary legislation to enact the Future Homes Standard is planned to be introduced in 2024, with implementation set for 2025.



Local

Wokingham Core Strategy

- 2.28 The Council in the Core Strategy has therefore considered the most appropriate mechanisms for ensuring housing delivery and has considered the advice in PPS3 regarding the opportunities for cutting carbon emissions through concentrating development in locations with good public transport accessibility and the potential to draw low carbon forms for its energy supply. It also recognises the Government's aspirations in the sustainable community's agenda to deliver development in appropriate locations and forms.
- 2.29 The relevant transport related policies are:
- 2.30 **CP1: Delivering a Sustainable borough.** Planning permission will be granted for development proposals that:
- 1) Maintain or enhance the high quality of the environment;
 - 2) Minimise the emission of pollutants into the wider environment;
 - 3) Limit any adverse effects on water quality (including ground water);
 - 4) Ensure the provision of adequate drainage;
 - 5) Minimise the consumption and use of resources and provide for recycling;
 - 6) Incorporate facilities for recycling of water and waste to help reduce per capita water consumption;
 - 7) Avoid areas of best and most versatile agricultural land;
 - 8) Avoid areas where pollution (including noise) may impact upon the amenity of future occupiers;
 - 9) Avoid increasing (and where possible reduce) risks of or from all forms of flooding (including from groundwater);
 - 10) Provide attractive, functional, accessible, safe, secure and adaptable schemes;
 - 11) Demonstrate how they support opportunities for reducing the need to travel, particularly by private car in line with CP6; and
 - 12) Contribute towards the goal of reaching zero-carbon developments⁴¹ as soon as possible by: a) Including appropriate on-site renewable energy features; and b) Minimising energy and water consumption by measures including the use of appropriate layout and orientation, building form, design and construction, and design to take account



of microclimate so as to minimise carbon dioxide emissions through giving careful consideration to how all aspects of development form.

- 2.31 **CP5: Housing mix, density and affordability.** Planning permission will be granted for residential development providing a mix and balance of densities, dwelling types, tenures and sizes. Affordable housing must reflect the sizes and types that meet the proven needs of people who are not able to compete in the general housing market

All residential proposals of at least 5 dwellings (net) or covering a net site area of at least 0.16 ha will provide up to 50% of the net additional units proposed as affordable dwellings, where viable. The Council will negotiate the tenure, size and type of affordable units on a site by site basis having regard to housing needs, site specifics and other factors. Subject to viability, the minimum percentages of affordable housing sought on site by land type and location are:

Land types	Location (CP9)	Size trigger	%
Previously developed land	Within Development Limits	5 to 14 dwellings (net) or between 0.16ha and 0.49ha (net)	20
Previously developed land	Within Major Development Location	15 dwellings or more (net) or 0.5ha (net) and larger	30
Previously developed land	Within Modest or Limited Development Location	15 dwellings or more (net) or 0.5ha (net) and larger	40
Greenfield	Within Major Development Location	5 dwellings (net) or more or 0.16 ha (net) and larger	35
Greenfield	Within Modest or Limited Development Location	5 dwellings (net) or more or 0.16 ha (net) and larger	40
Any	Outside development location	5 dwellings (net) or more or 0.16 ha (net) and larger	40
Any	Strategic Development Location (policies CP18-21)	5 dwellings (net) or more or 0.16 ha (net) or larger	35
Subsequent Development Plan Documents may vary the proportions for affordable housing of allocated sites having regard to the specific viability of the site.			

- 2.32 **CP 6: Managing Travel Demand** state that:

Planning permission will be granted for schemes that:

- a) Provide for sustainable forms of transport to allow choice;
- b) Are located where there are or will be at the time of development choices in the mode of transport available and which minimise the distance people need to travel;



- c) Improve the existing infrastructure network, including road, rail and public transport, enhance facilities for pedestrians and cyclists, including provision for those with reduced mobility, and other users;
- d) Provide appropriate vehicular parking, having regard to car ownership;
- e) Mitigate any adverse effects upon the local and strategic transport network that arise from the development proposed;
- f) Enhance road safety; and
- g) Do not cause highway problems or lead to traffic related environmental problems.

C 10: Improvements to the Strategic Transport Network Improvements to the Strategic Transport Network will be provided to ameliorate major environmental or safety problems and to support new development in partnership with other authorities.

Wokingham Climate Emergency Action Plan (2024)

- 2.33 In July 2019 Wokingham Council declared a climate emergency and committed to make the county carbon neutral by 2030. Alongside addressing the way that the Council itself operates, Wokingham Council is attempting to decarbonise a wide variety of the local economy and infrastructure in order to achieve its ambitions climate strategy within the decade.
- 2.34 Transport objectives:
- To achieve a transport system in Wokingham that reduces carbon emissions, acknowledging the different solutions for our towns and city versus rural villages.
 - Creating the infrastructure for increased walking, cycling, shared and public transport and use of alternative fuels, including electric vehicle charging.
- 2.35 New Development objectives:
- residential and commercial development to be designed and built to carbon neutral standards. Natural Environment, Food and Farming objectives:
 - Establish a spatial strategy and design framework which promotes active and sustainable travel, sustainable design and construction, and enable biodiversity gain.
 - Support low carbon and renewable energy generation
 - All new residential and non-residential buildings to be designed and built to be EV ready by 2025



- 100% of council new development is built to carbon neutral standards

2.36 Renewable Energy objectives:

- increase the generation of renewable energy through investment in solar farms
- Support the generation of renewable energy in the Borough to generate the equivalent of approx. 1,550 kWh per household

Wokingham Borough Development Plan (Feb 2014)

2.37 Wokingham Borough Managing Development Delivery Document (Local Plan) was adopted February 2014. The plan sets out how the Borough will develop up until 2026 making it an excellent place to live, work and play. The following relevant policies relate to sustainable design/construction and carbon reduction.

2.38 **Policy CC04: Sustainable Design and Construction**

Planning permission will only be granted for proposals that seek to deliver high quality sustainably designed and constructed developments by:

- In respect of all new homes:
 - a) Seeking to achieve the requirements of the full Code for Sustainable Homes Level 4;
 - b) Meet internal potable water consumption targets of 105 litres or less per person per day (as part of the requirement to meet full Code for Sustainable Homes Level 4).
- All development, including conversions, alterations and extensions shall incorporate suitable waste management facilities, including on-site recycling

2.39 **Policy CC05: Renewable energy**

Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged

Planning permission will only be granted for proposals that deliver a minimum 10% reduction in carbon emissions through renewable energy or low carbon technology where the development is for schemes of more than 10 dwellings.



3.0 SUSTAINABILITY MEASURES - PER UNIT

- 3.1 The following section considers the measures that could be incorporated to dwellings throughout the site. The measures are applied individually, but cumulatively make a significant contribution for the sustainability of the dwellings.
- 3.2 Dwellings constructed today may operate in a substantially different climate over the coming decades, and therefore should be designed to ensure they are resilient to future Climate Change impacts, such as increases in temperature, rainfall and wind. Climate resilience is, therefore, important to homeowners against a backdrop of increasingly extraordinary and variable weather events.
- 3.3 For a development of approximately 53 units, it is considered that the measures, when procured in bulk, would be cost effective. Wind energy and biomass/biofuels are discounted from consideration at this site as they are not appropriate for the individual dwelling level.

Solar Energy

Solar Thermal Panels

- 3.4 Solar thermal panels are used for water heating systems. There are two types: evacuated tubes or flat plate collectors. Both types can be mounted on roofs and require a hot water cylinder to store the heated water. As the solar energy is converted to heat stored in water, the system will be much more capable to deliver hot water demand in the summer compared to the winter.
- 3.5 Ideally solar thermal collectors need to be installed on a roof facing due south at a 20–50-degree angle from horizontal. However, they can work effectively when positioned between southeast and southwest.
- 3.6 According to the Renewable Energy Hub (2023) a typical solar thermal system (comprising solar collectors, control panel, pipes, hot water tank and installation) will cost between £3,000 - £8,000 (including VAT at 5%). The size of the system required will depend on the water demand of the home. Approximately 1m² of solar thermal panels is required per person in the dwelling.
- 3.7 The proportion of hot water demand met by solar thermal water heating systems will vary according to usage patterns, household size, and water tank storage capacity, as well as climatic conditions. Although solar thermal energy is sustainable, it is not a complete solution. It is likely that the system will need to be backed up by a boiler or immersion heater. It is also a less flexible source of renewable energy as it is solely used for hot water but is not capable of being used for electric showers, dishwashers, or washing machines, which accommodate only cold water supplies.



Photovoltaic Panels

- 3.8 Adding solar photovoltaic panels to a property is a versatile way to incorporate renewable energy. The energy generated is converted to electricity and so can be used for household appliances, lighting and heating systems.
- 3.9 The exact details of solar panels for each property could be subject to a Planning Condition, which would set out final elevations and orientation for each dwelling where solar panels would be provided.
- 3.10 The 2021 *Mean Domestic Electricity Consumption* per household in Wokingham was 4,455.0 kWh per year (DBEIS, 2023). A typical PV System in the UK would be around 4kWp, however consumption in Wokingham is relatively high and, therefore, a 6kWp PV system would be sufficient to supply the electricity needs of an average Wokingham household. A 6kWp array would comprise 15-18 solar panels, requiring approximately 30-36m² of roof area, an inverter, and metering equipment. Each solar PV panel currently has a peak capacity of between 250-400W. Therefore, the array size is largely dependent upon the available area for mounting.
- 3.11 The Energy Saving Trust expects that a typical 6kWp system would cost the householder approximately £8,000 to install, (assuming VAT at 5%) and provide a potential annual saving on a household's energy bill of approximately £186. Should there be excess electricity generated compared to demand, the surplus can be traded by the homeowner through the Smart Export Guarantee. This is a scheme which came into force on 1st January, 2020 and requires all energy suppliers with 150,000 or more customers to provide at least one Smart Export Guarantee tariff.
- 3.12 Solar Energy UK (2023) report that the top 3 tariffs offered on the market at present are paying 10p - 15p/kWh. This includes payment for battery storage. An emerging direction for PV technology is 'solar glass' which captures electrical energy in the same way as for rooftop (or ground mounted) PV panels. At present, solar glass is not clear and; therefore, is generally not an attractive option as a replacement to standard glazing. There may be applications for solar glass to replace traditional glazing, for example in conservatory roofs or on car ports, should these be included in the detailed design.

Energy Storage

- 3.13 An electrical battery would complement rooftop PV solar panel installation to store energy for use at times when the solar panels cannot generate and directly supply the household, for example at night. Batteries are attractive to residents as they avoid excess generation being returned to the grid and provide the option of importing energy from the grid at times of cheaper supply, therefore reducing electricity bills.



- 3.14 Battery size can be tailored to the expected household demand and matched to the expected energy generation from the installed solar panels. The cost of a battery system therefore varies accordingly. The common brands of batteries for the domestic market are Tesla, GivEnergy, Powervault and Panasonic. Typical parameters and costs for batteries available today are set out in **Table 3.1**. Energy can also be stored in the form of thermal energy via heavily insulated water tanks. These are compatible with solar thermal installations or heat pumps as discussed later in this report.

Table 3.1 - Example electrical battery models for domestic market

Make / Model	Capacity	Power Output	Approximate Cost
Tesla Powerwall 2	13.5kWh	7kW peak / 5kW continuous	£9,000
GivEnergy Gen2	9.5kWh	-	£3,800
Powervault P4 Slim	8.0kWh	4.8kW	£8,200

Air Source Heat Pumps

- 3.15 Air source heat pumps accompanied by zoned 'wet' underfloor heating on the ground floor are an increasingly popular option to incorporate renewable energy measures in dwellings. This is because a heat pump transfers heat at a higher coefficient of performance if it delivers to a large warm water circuit (like underfloor heating) rather than a small high temperature circuit (like wall-mounted radiators), and so is an efficient method of heating a modern, well insulated home.
- 3.16 ASHPs are four times the efficiency of a gas boiler (Octopus, 2023) and are particularly compatible for new build homes where the heating system and insulation can be designed for maximum efficiency.
- 3.17 The equipment typically comprises an external unit to extract heat from the air. This is passed through the central heating system and distributed to the dwelling's heating equipment. A designated cupboard is required in each unit to house the air source heat pump control and central heating equipment.
- 3.18 Leading brands of ASHP's include LG, Daikin, Vaillant and Mitsubishi. The Mitsubishi Ecodan is a good example of an air source heat pump suited to the residential environment (shown in Photograph 1). This equipment has achieved the Noise Abatement Society's Quiet Mark, meaning it is not likely to have unacceptable or adverse impacts on residents.

Photograph 1 - Typical Air Source Heat Pump



3.19 Financial support for the cost of ASHPs is available via the Government's Boiler Upgrade Scheme however this is only relevant for retrofitting where an ASHP would be replacing a fossil fuel boiler and so would not be available to this development.

3.20 The position of ASHP for each dwelling are shown on the planning layout provided at **Appendix 2.**

Housing Design

3.21 Building Regulations (DLUHC and MHCLG, 2023) require building design and construction to make '*reasonable provision*' for the conservation of fuel and power. This can be achieved through:

'(a) limiting heat gains and losses—

(i) through thermal elements and other parts of the building fabric; and

(ii) from pipes, ducts and vessels used for space heating, space cooling and hot water services;

(b) providing fixed building services which—

(i) are energy efficient to a reasonable standard;

(ii) have effective controls; and

(iii) are commissioned by testing and adjusting as necessary to ensure they use no more fuel and power than is reasonable in the circumstances.' (Requirement L1(a): Limiting heat gains and losses).

3.22 Glazed units are expected to conform to modern thermal standards, minimising heat loss. Further measures such as blinds and curtains can be installed to minimise heat loss in winter and minimise excessive solar heat gain in the summer. Ventilation is also intrinsic to building design to enable airflow.



Solar Gain and Heat Loss

- 3.23 Where possible, buildings should be orientated to make maximum use of passive solar gain in order to reduce the need for space heating. At the same time consideration should be given to the potential for overheating from solar gain.
- 3.24 The proposed site is approximately rectangular in a slightly north-north-east/ south-south-west alignment. This potentially allows the majority of units on site to have approximately south facing amenity areas (both key internal rooms and external garden space). The indicative street design creates 5 sub sectors allowing for a variation in unit orientation. It is therefore important to consider room arrangement within a dwelling as well as unit orientation relative to outside amenity space.
- 3.25 It is also important from a design perspective to balance passive solar gain with an attractive street scene. Solely linear streets, facing south are unlikely to be attractive to the Council when determining the planning application. Where it is not practical for the entire unit to face south, passive solar gain can be achieved with larger windows and bi-fold or French doors on the south facing elevation.
- 3.26 In order to fully take advantage of solar gain, shading from adjacent trees should also be considered during design of the site layout. In some cases, trees can be useful to filter strong solar gain in summer months.
- 3.27 A further approach to minimising heat loss is to optimise the ratio of external wall area to internal floor area. A mix of unit sizes and dwelling types is likely to be included within the scheme. A higher proportion of semi-detached or terraced units compared to detached dwellings would minimise heat loss. Additional considerations that affect the efficiency and sustainability of a residential development are discussed in the following sub-sections.

Site Exposure

- 3.28 Working with the existing topography or creating new vegetated areas of an appropriate scale to the landscape can contain the site, and therefore mean it is less exposed to extreme temperatures. The proposed site is relatively flat but is provided shelter from the west by the existing boundary vegetation and trees, and from the south by existing dwellings with associated boundary treatments and trees. Enclosure of individual plots and the overall site with hedges or fences can also minimise heat loss.

Waste Storage and Disposal

- 3.29 Wokingham has a comprehensive kerbside collection scheme and one of the best recycling and composting rates in the country. Dedicated waste storage areas should be provided at each property to enable easy participation in reuse, recycling, and disposal



of materials appropriately. Ideally space should be provided away from the frontage of the property in order to maintain a pleasant street scene, or enclosures should be used to hide the view of bins. Access will be required from the bin storage areas to the roadside for collection of waste.

- 3.30 Facilities could also be provided for the separate collection of kitchen and garden waste for composting at a community composting station. A community noticeboard (physical or electronically via social media) could be initiated for residents to share unwanted items, from food to furniture, discouraging disposal as the first option and encouraging adoption of the waste hierarchy (reduce - reuse - repair - recycle) as set out in the Wokingham Household Waste Management Strategy.

Vehicle Allowances

- 3.31 Dedicated bike storage space for each unit could provide encouragement for residents to travel more sustainably, especially for short trips. This is covered in more detail within **Section 4.0**.
- 3.32 It is recommended to install Electric Vehicle (EV) charging points at each unit to future proof the development for the phasing out of petrol and diesel vehicles from 2035. A range of EV charging units are available for the domestic market such as Zappi, EO and Podpoint, as well as vehicle manufacturer specific chargers like Tesla. Charging units currently cost between approximately £500 and £1,000.
- 3.33 The position of EV charging points for each dwelling are shown on the planning layout provided at **Appendix 2**.

Construction Specification

Materials Selection

- 3.34 In addition to designing the physical buildings and their orientation to retain and capture energy, material selection plays an important role in development sustainability.
- 3.35 A mix of construction techniques and building appearances are considered likely to be used in a development of the proposed scale. Where possible, materials with low embodied energy should be used for construction of the proposed units. The use of timber frames and/or cladding is a more environmentally considered method than traditional brick construction. As appropriate, and to aid blending the new development with existing properties in the vicinity, reclaimed or recycled materials could be used. This results in less energy consumption in construction overall.
- 3.36 Additionally, sourcing materials and contractors close to the site is a sustainable practice that should be applied during construction if practical, to minimise energy use and carbon emissions associated with transport.



- 3.37 The following features should be utilised as standard as far as possible:
- double glazed windows and doors;
 - aerated taps and dual flush toilets;
 - LED lighting;
 - insulation appropriate to achieve adopted insulation levels; and
 - where supplied, appliances with the best energy rating (A/A*/A**) possible should be installed.
- 3.38 In addition, the use of smart technology is encouraged through Wokingham Core Strategy Policy: Sustainable construction and low carbon. This includes smart meters and building management systems.
- 3.39 When approaching sale of the dwellings, allowing flexibility in the internal fittings and specification can aid sustainability. For example, allowing purchasers the choice over the appliances installed ensures the specification is not in excess of requirements for the household, whilst maintaining high efficiency. Also, allowing purchasers to select finishes, sanitary ware, tiling, flooring and kitchen units will prevent wasteful redecoration on aesthetic grounds following handover of the property.
- 3.40 It is expected that during the construction period a Construction Waste Management Plan (CWMP) will be adhered to, ensuring appropriate handling, reuse, recycling, and disposal of materials. The CWMP will include but not be limited to the following factors:
- the quantity of materials required;
 - appropriate storage of materials to avoid degradation;
 - efficient allocation of materials across the site if multiple teams are deployed during construction;
 - contractor education upon how they are expected to appropriately re-use, recycle or dispose of excess materials; and
 - the locations of site compounds where separate skips are provided for different types of waste, for ease of recycling.

Environmental measures

- 3.41 A series of small measures applied to each unit can collectively have a great impact. Examples are:
- provision of water butts for rainwater harvesting, minimising resource use;



- installation of a combination of bat, bird and bee bricks, tiles and boxes to encourage nature within the development; and
- Small gaps are recommended at the bottom of fences throughout the development to allow passage for hedgehogs across the site. These are known as hedgehog highways (Hedgehog Street, 2023).



4.0 SUSTAINABILITY MEASURES ACROSS THIS SITE

4.1 Sustainability measures work best when there is joined-up planning, linking individual measures with the wider community and infrastructure. Not only does this provide environmental sustainability but social sustainability through community interaction and responsibility. This section of the report considers some of the larger-scale measures that could be incorporated within the site design.

4.2 Given the scale of development proposed, it is not considered that wind energy would be suitable. Similarly, initiatives such as biomass are considered incompatible and unsustainable.

Environmental Gain

4.3 Within the proposed development boundary (red line) there is space set aside for the following:

- Amenity Green Space;
- Natural Green Space/ Green Corridor;
- Incidental Open Space; and
- Tree Planting

4.4 Implementation of these features and other environmental measures is discussed in the following paragraphs. Increasing emphasis is being placed upon mitigating the ecological emergency declared at all scales including by Wokingham Council within the Wokingham Climate Action Plan. Biodiversity Net Gain (BNG) is therefore encouraged across all developments. Under the Environment Act 2021, a 10% BNG is mandatory for the scale of development proposed since January 2024.

4.5 The minimum BNG requirement will therefore be applicable to the proposed development and it is recommended that an ecologist is instructed to advise further on achieving this for this Site.

Tree Planting

4.6 There are well established tree lines around the proposed development area. Best practice is to retain as much of the valuable existing vegetation as possible and design a suitable site layout around the site constraints.

4.7 It is noted from the site layout (**Appendix 1**) a small number of existing trees will need to be removed to development, these trees can be offset by planting elsewhere on the landholding. The extent of off-site planting could have a significant impact on the overall carbon balance and biodiversity net gain of the development.



- 4.8 Most methods for calculating carbon capture consider the lifetime carbon sequestration of the tree, i.e. it is assumed that a fixed amount of carbon (varying according to species and conditions of planting) is captured by a sapling over its lifetime.



5.0 TRAVEL AND TRANSPORT

Travel Plan

- 5.1 As part of this planning application submission, a Residential Travel Plan has also been prepared by SMA. Within this document a range of sustainable travel measures have been considered to encourage and incentivise travel by sustainable modes. Subject to planning consent, it will be necessary for a final Travel Plan to be prepared (likely by way of a Planning Condition).
- 5.2 The TP prepared a part of this application sets out ways in which residents can reduce their dependency on car use, whilst promoting walking, cycling and public transport as viable alternatives.
- 5.3 The overarching aim of the TP is to put in place the management tools deemed necessary to enable residents to make informed decisions about their methods of travel to the site, which at the same time minimises the adverse impact of travel on the environment. This is achieved by setting out a strategy for eliminating barriers that keep residents from making use of sustainable modes.
- 5.4 The main objective of the TP will be to achieve a reduction in reliance upon Single Occupancy Vehicle (SOV) travel, where practically possible, to achieve fewer trips to and from the development than would otherwise be the case, in favour of sustainable modes.
- 5.5 The transport principles for the site reflect sustainable objectives, which can be summarised under the following headings:
- Promote sustainable and active travel to the site from all residents;
 - Promote sustainable transport choices for residents travelling to and from the site;
 - Promote accessibility to the site by walking, cycling, public transport and car sharing;
 - Increase the awareness of the environmental and social benefits of using alternative modes of transport; and
 - For those that do drive, encouraging the use of electric vehicles through the provision and ongoing monitoring of charging points.
- 5.6 It is intended that the objectives will be met by identifying and implementing initiatives that provide residents with a variety of travel choices and in doing so, reduce the need to travel by private car. By meeting the objectives set out above, this RTP will comply with National and Local planning policies. The objectives will also provide focus and direction to the overarching RTP, leading to appropriate measures and targets being set.



Travel Plan Measures

Travel Plan Coordinator

- 5.7 Management of the TP represents an important role in pursuing its overall objectives and aims. The Travel Plan Coordinator (TPC) would have the primary responsibility for the management of the TP from prior to occupation of the dwellings until five years post the first occupation.
- 5.8 Measures set out within the draft Residential Travel Plan include:

Welcome Travel Pack

- 5.9 A Welcome Travel Pack would be produced and disseminated to all dwellings on first occupation, which would help influence residents in making their personal travel decisions. This Welcome Travel Pack would provide details of travel options to local facilities and area within a brief and informative format, using attractive and easy to follow maps with helpful text.
- 5.10 Residents would be made aware of all available travel choices upon moving into the new development and be provided with accurate and up-to-date information to encourage sustainable travel. New residents will be presented with a Welcome Travel Pack by the TPC setting out comprehensive details of the following:
- An overview of the TP measures and its objectives and targets;
 - Plans of walking and cycle routes in the area;
 - Details of car sharing services;
 - Contact details for local cycling groups and cycle shops;
 - Site specific public transport information for services in the vicinity of the site and onward connections, including bus / rail timetables and route maps;
 - Sustainable travel voucher; to encourage walking, cycling and public transport uptake.
 - Provide information about the health benefits of sustainable modes of travel. Contact details for the bus / rail operators and ticket ordering;
- 5.11 Additional measures, such as setting up a Bike User Group (BUG), for residents within the development, provision of public transport timetable information, an information board within the sales suite and measures to encourage travel by foot would also be promoted.



Residents

- 5.12 From the outset, the proposed development should enable links with the existing public transport network, such as bus routes.
- 5.13 In addition, cycle use should be encouraged for access to local shops and services and for recreation. This could be by:
- providing dedicated and maintained routes within the development;
 - providing a secure and sheltered cycle parking area within the site;
 - subsidising a group of community cycles to pick up and drop off at a manageable set of locations in the vicinity; and
 - establishing a community fund to subsidise the purchase of cycles for new residents, following the template of the 'Bike to Work' scheme.
- 5.14 Footpath creation to link the wider area of Winnersh, proposed units and, woodlands demonstrates a holistic approach to sustainability in the project.

Summary

- 5.15 All the above measures will be covered in more detail in the Transport Assessment and Residential Travel Plan that have been prepared to accompany this application.



6.0 SUMMARY AND CONCLUSION

Summary

- 6.1 This Energy and Sustainability Statement (ESS) has been prepared by Stuart Michael Associates Ltd (SMA) on behalf of Elstree Land to summarise measures and options for the development of a sustainable residential scheme at Land at Old Forest Road, Winnersh.
- 6.2 This ESS has been prepared to advise upon an energy strategy, a water sensitive design, waste and recycling management strategy and a sustainable transportation strategy that could be incorporated at the proposed development site. This report provides a summary of the range of sustainability options to be considered by the Applicant to inform preparation of a Site Masterplan.
- 6.3 Following completion of this assessment, it is considered that there are a range of technically feasible low carbon or renewable energy systems that could be incorporated into the proposed development.
- 6.4 The following key measures are recommended as most suitable for the location and scale of development proposed:
- Rooftop solar PV;
 - Integrated air source heat pumps;
 - EV charging facilities at each unit;
 - Tree planting
 - Environmental enhancements, such as bird, bat and bee boxes, and hedgehog highways;
 - Community integration through provision of footpaths and cycle routes linking the site to its surrounds;
 - Resource management through community composting facilities and water butts at each unit; *and*
 - Travel Plan Measures to reduce car dependency

Conclusion

- 6.5 To meet compliance with WBC's 10% carbon reduction target a range of the above measures will be implemented to achieve this target which can be secured by condition.

APPENDIX 1



land at
old forest road
wokingham

SCHEDULE OF ACCOMMODATION

House type	Description	Qty
Private		
2BA	2 Bed Apartment	6
2A	2 Bed House	2
2B	2 Bed House	3
3A	3 Bed House	6
3B	3 Bed House	1
3C	3 Bed House	1
3D	3 Bed House	1
4A	4 Bed House	4
4B	4 Bed House	2
4C	4 Bed House	2
4D	4 Bed House with intg garage	1
4E	4 Bed House with intg garage	3
Private Total		32
% of Total (Private)		60%
Affordable		
1BA	1 Bed Apartment	10
2BA	2 Bed Apartment	6
3AA	3 Bed House	5
Affordable Total		21
% of Total (Affordable)		40%
Overall Total		53

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APPENDIX 2

LEGEND - PARKING ALLOCATION

The parking provision has been designed in accordance with 'Parking Standards Study Report Consultation Document' dated October 2011.
The site is located within the 'urban' zone, according to figure 3, 'Super Output Area Reclassification'.

Cycle Parking

Cycle parking will be provided on the following basis

Apartments	1 - 3 Habitable Rooms	1 space per unit
	4 + Habitable Rooms	2 spaces per unit

Houses

	3 Habitable Rooms	1 space per unit
	4 & 5 Habitable Rooms	2 spaces per unit
	6 Habitable Rooms	2 spaces per unit

Apartments

Secure cycle parking will be provided in shared communal cycle stores.

Houses

Secure cycle parking will be provided on the curtilage of each dwelling, in either private cycle sheds or garages.

Garages provided are wider than 3m and longer than 6m and can therefore be counted as a cycle space, as well as a car parking space.

Car Parking

See Parking Calculations document, based on Parking Standards Study Report - October 2011

This calculation returns the following parking requirements:

Allocated Parking	82 spaces
Unallocated Parking	7.4 spaces
Visitor Parking	10.6 spaces
Total	100.0 spaces

Provided Car Parking

60	Car parking spaces, allocated to individual houses - for use by plot number quoted
----	--

22	Car parking spaces, allocated to apartment blocks - for use by apartment residents
----	--

7	Unallocated car parking spaces - for use by residents
---	---

11	Unallocated car parking spaces - for use by visitors
----	--

A total of 100 car parking spaces are provided

11	Garage parking - provided in addition to parking demand calculations
----	--

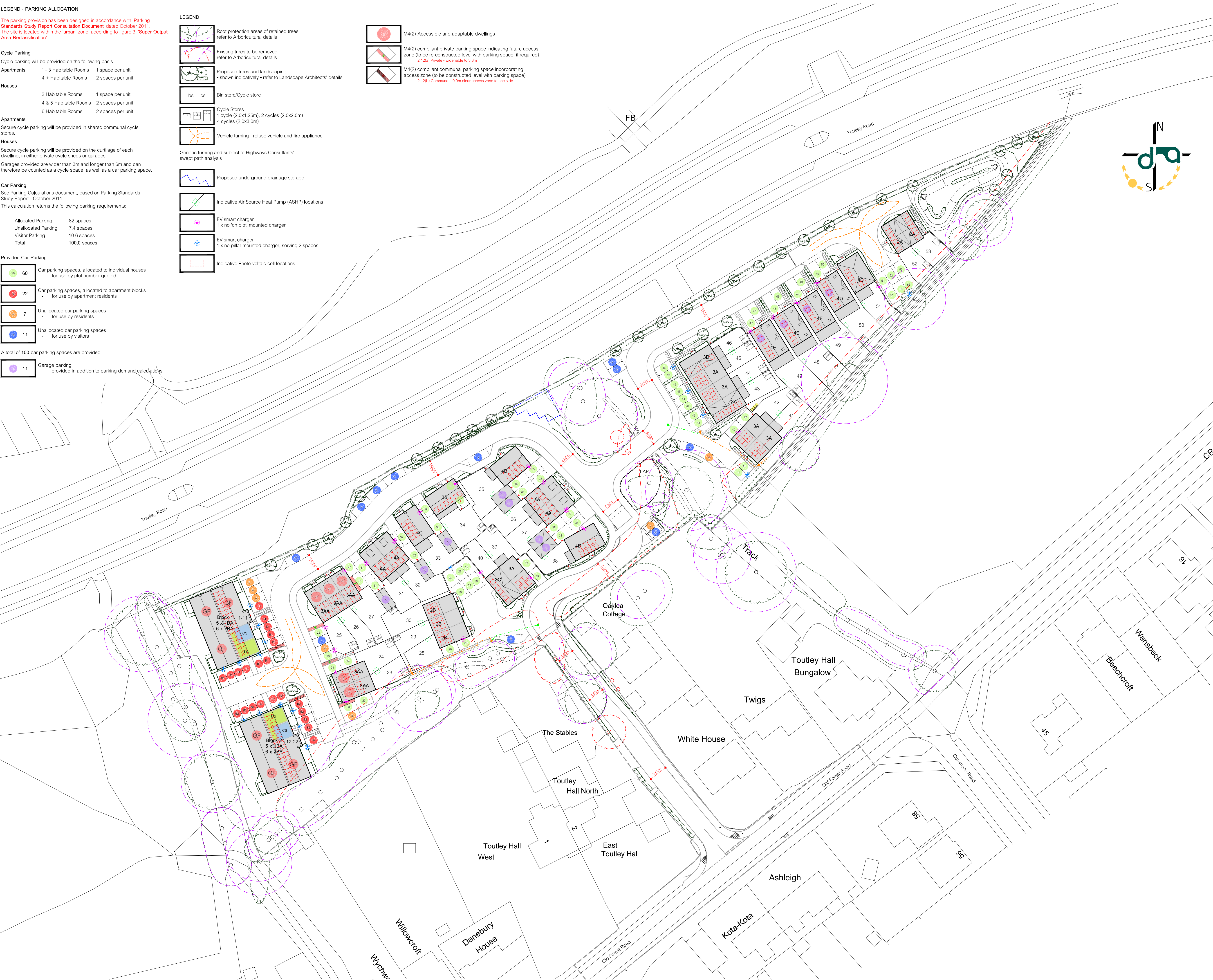
LEGEND

- Root protection areas of retained trees refer to Arboricultural details
- Existing trees to be removed refer to Arboricultural details
- Proposed trees and landscaping - shown indicatively - refer to Landscape Architects' details
- bs cs Bin store/Cycle store
- Cycle Stores
1 cycle (2.0x1.25m), 2 cycles (2.0x2.0m)
4 cycles (2.0x3.0m)
- Vehicle turning - refuse vehicle and fire appliance

Generic turning and subject to Highways Consultants' swept path analysis

- Proposed underground drainage storage
- Indicative Air Source Heat Pump (ASHP) locations
- EV smart charger
1 x no 'on plot' mounted charger
- EV smart charger
1 x no pillar mounted charger, serving 2 spaces
- Indicative Photo-voltaic cell locations

- M4(2) Accessible and adaptable dwellings
- M4(2) compliant private parking space indicating future access zone (to be re-constructed level with parking space, if required)
2.12(a) Private - widerable to 3.3m
- M4(2) compliant communal parking space incorporating access zone (to be constructed level with parking space)
2.12(b) Communal - 0.9m clear access zone to one side



land at
old forest road
wokingham

REFUSE STRATEGY:
The refuse strategy is based on Wokingham Borough Council's document Guidance Notes for Developers and management agents, August 2023 (Waste and Recycling)

Private Refuse storage for houses is generally located in rear gardens, and moved by residents on collection day, to kerbside (on curtilage) or communal refuse collection points.

Private Refuse collection is from kerbside, adjacent to the dwelling boundary or from communal refuse collection points.

Communal Refuse storage is provided for apartments.

- Refuse collection points for multiple houses.
- Private refuse storage locations, generally in rear gardens. Moved on collection day by resident.
- Communal refuse storage point.
- Communal cycle storage point.

Provided minimum refuse capacities
Houses
90l (refuse) blue bags
60l (recycling) waterproof bags
5l & 23l food waste caddy

Apartments
80l per flat - provided in either 240l or 360l (Refuse)
120l per flat - provided in 240l or 360l (recycling)
5l food waste caddy per flat - provided in 240l (food)

Travel Distances (in accordance with Approved Document H6)
Operatives generally 15m with maximum of 25m for individual households and a maximum of 10m for apartment blocks.
Residents Carry / wheeled 30m

- Residents' carry/wheeled distance from garden gate to Refuse Collection Point
- Operative travel distance from Refuse Collection Point or communal bin store to carriageway (max. 25m).

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